



Forest Service  
U.S. DEPARTMENT OF AGRICULTURE

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**Forest Inventory and Analysis | Revision: November 1, 2024**

## **Urban Forest Inventory and Analysis Database**

# **Urban FIADB User Guides**

## **Volume: Database Description (version 10.0)**

## **Urban FIA Inventory**

## **Contents**

### **Preface**

- Abstract
- Author
- Acknowledgments

### **User Guide Updates**

Changes from the Previous Version

### **Chapter 1: Overview**

1.1 Document Purpose .....	1-1
1.2 Table Groups .....	1-1
1.3 Keys Presented with the Tables .....	1-3
1.4 Oracle Data Types .....	1-7

## Chapter 2: Table Group - Sample Organization

2.1 Inventory Table . . . . .	2-3
(Oracle table name: SO_INVENTORY)	
2.2 Population Structure Element Table . . . . .	2-5
(Oracle table name: SO_POP_STRUCT_ELMNT)	
2.3 Project Table . . . . .	2-7
(Oracle table name: SO_PROJECT)	
2.4 Research Organization Table . . . . .	2-9
(Oracle table name: SO_RESEARCH_ORGANIZATION)	

## Chapter 3: Table Group - Inventory Data

3.1 Building Interaction Table . . . . .	3-7
(Oracle table name: ID_BUILDING_INTERACTION)	
3.2 Condition Table . . . . .	3-15
(Oracle table name: ID_COND)	
3.3 Energy Effect Table . . . . .	3-39
(Oracle table name: ID_ENERGY_EFFECT)	
3.4 Invasive Species Subplot Condition Table . . . . .	3-45
(Oracle table name: ID_INVASIVE_SUBP_COND)	
3.5 Mother Tree Table . . . . .	3-51
(Oracle table name: ID_MOTHER_TREE)	
3.6 Plot Table . . . . .	3-81
(Oracle table name: ID_PLOT)	
3.7 Plot Inventory Assignment Table . . . . .	3-89
(Oracle table name: ID_PLOT_INV_ASSGN)	
3.8 Plot Statistical Sample Assignment Table . . . . .	3-91
(Oracle table name: ID_PLOT_STAT_SAMP_ASSGN)	
3.9 Plot Stratum Calculation Assignment Table . . . . .	3-93
(Oracle table name: ID_PLOT_STRAT_CALC_ASSGN)	
3.10 Seedling Table . . . . .	3-95
(Oracle table name: ID_SEEDLING)	
3.11 Site Tree Table . . . . .	3-101
(Oracle table name: ID_SITETREE)	
3.12 Subplot Table . . . . .	3-107
(Oracle table name: ID_SUBPLOT)	
3.13 Subplot Condition Table . . . . .	3-113
(Oracle table name: ID_SUBP_COND)	
3.14 Tree Table . . . . .	3-119
(Oracle table name: ID_TREE)	
3.15 Woodland Stem Table . . . . .	3-169
(Oracle table name: ID_WOODLAND_STEM)	

## Chapter 4: Table Group - Population Estimation

4.1 Population Attribute Table . . . . .	4-3
(Oracle table name: POP_ATTRIBUTE)	
4.2 Population Calculation Table. . . . .	4-5
(Oracle table name: POP_CALCULATION)	
4.3 Population Domain Table . . . . .	4-7
(Oracle table name: POP_DOMAIN)	
4.4 Population Sample Constraint Table . . . . .	4-9
(Oracle table name: POP_SAMPLE_CONSTRAINT)	
4.5 Population Sample Constraint Assignment Table. . . . .	4-11
(Oracle table name: POP_SAMPLE_CONSTRAINT_ASSGN)	
4.6 Population Sample Constraint Group Table. . . . .	4-13
(Oracle table name: POP_SAMPLE_CONSTRAINT_GROUP)	
4.7 Population Statistical Sample Table . . . . .	4-15
(Oracle table name: POP_STAT_SAMP)	
4.8 Population Statistical Sample Attribute Assignment Table . . . . .	4-17
(Oracle table name: POP_STAT_SAMP_ATTRIBUTE_ASSGN)	
4.9 Population Statistical Sample Domain Assignment Table . . . . .	4-19
(Oracle table name: POP_STAT_SAMP_DOMAIN_ASSGN)	
4.10 Population Stratum Calculation Table . . . . .	4-21
(Oracle table name: POP_STRATUM_CALC)	

## Chapter 5: Table Group - Population Model (DROP IN FUTURE RELEASE)

5.1 Model Pollution Health Factor Table . . . . .	5-3
(Oracle table name: MOD POLLUTION_HEALTH_FCTR)	
5.2 Model Pollution Removal Table . . . . .	5-7
(Oracle table name: MOD_POLLUTION_REMOVAL)	
5.3 Model Rainfall Table . . . . .	5-11
(Oracle table name: MOD_RAINFALL)	
5.4 Model Volatile Organic Compound (VOC) Emissions Table . . . . .	5-13
(Oracle table name: MOD_VOC_EMISSION)	

## Chapter 6: Table Group - Reference Data

6.1 Reference Abnormal Termination Table . . . . .	6-9
(Oracle table name: REF_ABNORMAL_TERMINATION)	
6.2 Reference Absent Present Table . . . . .	6-11
(Oracle table name: REF_ABSENT_PRESENT)	
6.3 Reference Bole/Stump Removed Table . . . . .	6-13
(Oracle table name: REF_BOLE_STUMP_REMOVED)	
6.4 Reference Canopy Cover Sample Method Table . . . . .	6-15
(Oracle table name: REF_CANOPY_COVER_SAMPLE_METHOD)	

6.5	Reference Cause of Death Table . . . . .	6-17
	(Oracle table name: REF_CAUSE_OF_DEATH)	
6.6	Reference Citation Table . . . . .	6-19
	(Oracle table name: REF_CITATION)	
6.7	Reference Condition Nonsampled Reason Table . . . . .	6-21
	(Oracle table name: REF_CONDITION_NONSAMPLE_REASON)	
6.8	Reference Condition Sampling Status Table . . . . .	6-23
	(Oracle table name: REF_CONDITION_SAMPLING_STATUS)	
6.9	Reference County Table . . . . .	6-25
	(Oracle table name: REF_COUNTY)	
6.10	Reference Cover Class Table . . . . .	6-29
	(Oracle table name: REF_COVER_CLASS)	
6.11	Reference Crown Class Table . . . . .	6-33
	(Oracle table name: REF_CROWN_CLASS)	
6.12	Reference Crown Light Exposure Table . . . . .	6-35
	(Oracle table name: REF_CROWN_LIGHT_EXPOSURE)	
6.13	Reference Damage Agent Table . . . . .	6-37
	(Oracle table name: REF_DAMAGE_AGENT)	
6.14	Reference Damage Agent Group Table . . . . .	6-41
	(Oracle table name: REF_DAMAGE_AGENT_GROUP)	
6.15	Reference Decay Class Table . . . . .	6-45
	(Oracle table name: REF_DECAY_CLASS)	
6.16	Reference Diameter Check Table . . . . .	6-47
	(Oracle table name: REF_DIA_CHECK)	
6.17	Reference Disturbance Table . . . . .	6-49
	(Oracle table name: REF_DISTURBANCE)	
6.18	Reference FIA Land Use Table . . . . .	6-51
	(Oracle table name: REF_FIA_LANDUSE)	
6.19	Reference FIA Land Use Detailed Table . . . . .	6-53
	(Oracle table name: REF_FIA_LANDUSE_DETAILED)	
6.20	Reference Forest Land Condition Status Change Table . . . . .	6-57
	(Oracle table name: REF_FOREST_LAND_COND_STAT_CHG)	
6.21	Reference Forest Type Table . . . . .	6-59
	(Oracle table name: REF_FOREST_TYPE)	
6.22	Reference Forest Type Group Table . . . . .	6-61
	(Oracle table name: REF_FOREST_TYPE_GROUP)	
6.23	Reference Horizontal Distance to Improved Road Table . . . . .	6-65
	(Oracle table name: REF_HORIZ_DIST_IMPRVD_ROAD)	
6.24	Reference Invasive Species Table . . . . .	6-67
	(Oracle table name: REF_INVASIVE_SPECIES)	

6.25 Reference Invasive Condition Sampling Status . . . . .	6-71
(Oracle table name: REF_INVS_COND_SAMPLING_STATUS)	
6.26 Reference i-Tree Land Use Table . . . . .	6-73
(Oracle table name: REF_ITREE_LANDUSE)	
6.27 Reference i-Tree Land Use Detailed Table . . . . .	6-75
(Oracle table name: REF_ITREE_LANDUSE_DETAILED)	
6.28 Reference Land Cover Class Table. . . . .	6-79
(Oracle table name: REF_LAND_COVER_CLASS)	
RETIRED	
6.29 Reference Length Method Table . . . . .	6-83
(Oracle table name: REF_LENGTH_METHOD)	
6.30 Reference No/Yes Table. . . . .	6-85
(Oracle table name: REF_NO_YES)	
6.31 Reference Owner Class Table . . . . .	6-87
(Oracle table name: REF_OWNER_CLASS)	
6.32 Reference Owner Group Table . . . . .	6-89
(Oracle table name: REF_OWNER_GROUP)	
6.33 Reference Percent Class Code Table . . . . .	6-91
(Oracle table name: REF_PERCENT_CLASS_CODE)	
6.34 Reference Physiographic Class Table . . . . .	6-93
(Oracle table name: REF_PHYSIOGRAPHIC_CLASS)	
6.35 Reference Plant Dictionary . . . . .	6-95
(Oracle table name: REF_PLANT_DICTIONARY)	
6.36 Reference Plot Nonsampled Reason Table . . . . .	6-103
(Oracle table name: REF_PLOT_NONSAMPLE_REASON)	
6.37 Reference Plot Status Table . . . . .	6-105
(Oracle table name: REF_PLOT_STATUS)	
6.38 Reference Previous Tree Status Table . . . . .	6-107
(Oracle table name: REF_PREV_TREE_STATUS)	
6.39 Reference Productivity Status Table . . . . .	6-109
(Oracle table name: REF_PRODUCTIVITY_STATUS)	
6.40 Reference Reconcile Table . . . . .	6-111
(Oracle table name: REF_RECONCILE)	
6.41 Reference Regeneration Status Table . . . . .	6-113
(Oracle table name: REF_REGENERATION_STATUS)	
6.42 Reference Reserved Status Table . . . . .	6-115
(Oracle table name: REF_RESERVED_STATUS)	
6.43 Reference Sample Kind Table . . . . .	6-117
(Oracle table name: REF_SAMPLE_KIND)	
6.44 Reference Sample Method Code Table. . . . .	6-119
(Oracle table name: REF_SAMPLE_METHOD_CD)	

6.45 Reference Seedling Maintained Area Table . . . . .	6-121
(Oracle table name: REF_SEEDLING_MAINTAINED_AREA)	
6.46 Reference Seedling Planted Table . . . . .	6-123
(Oracle table name: REF_SEEDLING_PLANTED)	
6.47 Reference Site Class Code Table . . . . .	6-125
(Oracle table name: REF_SITE_CLASS_CODE)	
6.48 Reference Species Table . . . . .	6-127
(Oracle table name: REF_SPECIES)	
6.49 Reference Species Group Table . . . . .	6-137
(Oracle table name: REF_SPECIES_GROUP)	
6.50 Reference Stand-Size Class Table . . . . .	6-139
(Oracle table name: REF_STAND_SIZE_CLASS)	
6.51 Reference Subplot Nonsampled Reason Table . . . . .	6-141
(Oracle table name: REF_SUBPLOT_NONSAMPLE_REASON)	
6.52 Reference Subplot Status Table . . . . .	6-143
(Oracle table name: REF_SUBPLOT_STATUS)	
6.53 Reference Treatment Table . . . . .	6-145
(Oracle table name: REF_TREATMENT)	
6.54 Reference Tree Carbon Ratio Dead Table . . . . .	6-147
(Oracle table name: REF_TREE_CARBON_RATIO_DEAD)	
6.55 Reference Tree Class Table . . . . .	6-149
(Oracle table name: REF_TREE_CLASS)	
6.56 Reference Tree Decay Proportion Table . . . . .	6-151
(Oracle table name: REF_TREE_DECAY_PROP)	
6.57 Reference Tree Density Table . . . . .	6-153
(Oracle table name: REF_TREE_DENSITY)	
6.58 Reference Tree Planted Table . . . . .	6-155
(Oracle table name: REF_TREE_PLANTED)	
6.59 Reference Tree Status Table . . . . .	6-157
(Oracle table name: REF_TREE_STATUS)	
6.60 Reference Tree Standing Dead Crown Ratio Proportion Table . . . . .	6-159
(Oracle table name: REF_TREE_STND_DEAD_CR_PROP)	
6.61 Reference Unit Table . . . . .	6-163
(Oracle table name: REF_UNIT)	
6.62 Reference Utilization Class . . . . .	6-165
(Oracle table name: REF_UTILIZATION_CLASS)	
6.63 Reference Water on Plot Table . . . . .	6-167
(Oracle table name: REF_WATER_ON_PLOT)	

## Chapter 7: Table Group - Administration

7.1 Database Version History Table . . . . .	7-3
(Oracle table name: ADMIN_DB_VERSION)	
7.2 Entity Short Name Table . . . . .	7-5
(Oracle table name: ADMIN_ENTITY_SHORTNAME)	
7.3 Publication Data Standard Table . . . . .	7-9
(Oracle table name: ADMIN_PUB_DATA_STANDARD)	
7.4 Publication Summary Report Table . . . . .	7-11
(Oracle table name: ADMIN_PUB_SUMMARY_RPT)	

## Literature Cited

## Index of Tables

## Index of Column Names

## Appendices

Appendix A: Quick Links

Appendix B: State, Survey Unit, and County Codes

Appendix C: Tree Species Group Codes

Appendix D: Tree Species Codes, Names, and Occurrences

Appendix E: Damage Agent Codes and Thresholds

Appendix F: Forest Type Codes and Names

Appendix G: FIA Volume, Biomass, and Carbon Estimation

Appendix H: Supplemental Urban Database Tables



Section revision: 11.01.2024

# Preface

## Preface Contents

Heading
<a href="#">Abstract</a>
<a href="#">Author</a>
<a href="#">Acknowledgments</a>

## Abstract

This document is a volume within the Urban Forest Inventory and Analysis Database (Urban FIADB) User Guides series, written for the purpose of providing assistance to individuals who access the Urban FIADB. This user guide, **Database Description**, describes the database tables and attributes (columns) contained within the Urban FIADB. Each attribute in a database table is listed with its column name, unabbreviated descriptive name, and a detailed description of the attribute. Attributes that are coded include a list of the codes and their meanings.

Users familiar with the Forest Inventory and Analysis Database (FIADB), which is used for the "Nationwide Forest Inventory" (NFI), will find familiar elements in this database. However, this structure has been updated by the Forest Inventory and Analysis (FIA) program to provide enhanced flexibility. The addition of the sample organization (SO) database table group provides greater organization.

The data contained within the Urban FIADB are for the urban FIA inventory. The data contained within the FIADB are for the FIA NFI.

### Keywords:

Urban, Forest Inventory and Analysis, inventory database, database description, user manual, user guide, monitoring

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## Author

U.S. Department of Agriculture, Forest Service. Forest Inventory and Analysis.

## Acknowledgments

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Section revision: 11.01.2024

# User Guide Updates

## Changes from the Previous Version

### Updates Contents:

Description
<a href="#">Example citation for this electronic publication</a>
<a href="#">Summary for this guide</a>
<a href="#">User guide version numbering</a>
<a href="#">Update highlights</a>
<a href="#">Features within this document</a>
<a href="#">Hard-copy printing</a>

### Example citation for this electronic publication

U.S. Department of Agriculture, Forest Service. Forest Inventory and Analysis. 2024. Urban Forest Inventory and Analysis database, Urban FIADB user guides, volume: database description (version 10.0). 708 p. [Online]. Available at web address:  
<https://research.fs.usda.gov/understory/urban-forest-inventory-and-analysis-database-user-guide>

### Summary for this guide

Item	Value
User guide version number	10.0
User guide revision date	11.01.2024
Urban FIADB version number	1.6.7

### User guide version numbering

The version numbers for this document do not coincide with the version numbers used for the Urban FIADB database. For this user guide, version numbering is as follows:

- Whole number part (major updates) - An increase to the whole part of the version number (e.g., version 3.0 to 4.0, version 5.1 to 6.0) indicates that there was a major update(s) to the Urban FIADB database, such as the addition or deletion of a database table or column, or a major revision(s) to the user guide text.
- Decimal part (minor updates) - An increase to the decimal part of the version number (e.g., version 5.0 to 5.1, version 5.1 to 5.2) indicates that there was a minor update(s) to the Urban FIADB database, such as the addition of a code for a particular attribute, or a minor revision(s) to the user guide text, such as revised wording to clarify an attribute definition.

## Update highlights

### Urban FIADB User Guides: Database Description (version 10.0)

At the time of publication for this document, the current release for the database, Urban FIADB, is version 1.6.7. This release includes updates for tree status and utilization information. Tree utilization data will now be stored in the ID\_TREE table in a new column named UTILCLCD (utilization class code). Due to this new column, tree status (STATUSCD) code 3 (cut and utilized) and code 4 (removed) are no longer valid codes in ID\_MOTHER\_TREE.STATUSCD and ID\_TREE.STATUSCD; the values for STATUSCD in the database will be updated in a future data management post release to reflect this change.

See [table A](#) for new columns that were added to the database. See [table B](#) for new columns in the ID\_MOTHER\_TREE table; these tree-level columns were added to the database structure in the last release and the definitions for these attributes were added to this document. The data for these columns are in preparation and will be based on output provided by the i-Tree Eco system; these data will be used to replace what is currently stored in the Population Model (MOD) tables in a future release (see [table C](#)).

**Table A:** Columns added to database table.

Section	Column name	Oracle table affected	Descriptive name
3.5.32	<a href="#">ITREE_ECO_VERSION</a>	ID_MOTHER_TREE	i-Tree Eco system version
3.14.20	<a href="#">UTILCLCD</a>	ID_TREE	Utilization class code
3.14.49	<a href="#">ROUGHNULL</a>	ID_TREE	[Data in preparation] Rough null

**Table B:** Definitions added for new columns in ID\_MOTHER\_TREE table. **Note:** The data for these tree-level columns are in preparation and will be used to replace the Population Model (MOD) tables.

Section	Current column name	Oracle table affected	Descriptive name
3.5.42	<a href="#">NO2_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE</a>	ID_MOTHER_TREE	[Data in preparation] NO2 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.43	<a href="#">NO2_ASTHMA_EXACERBATION_INCIDENCE</a>	ID_MOTHER_TREE	[Data in preparation] NO2 asthma exacerbation incidence (i-Tree Eco system)
3.5.44	<a href="#">NO2_EMERGENCY_ROOM_VISITS_INCIDENCE</a>	ID_MOTHER_TREE	[Data in preparation] NO2 emergency room visits incidence (i-Tree Eco system)
3.5.45	<a href="#">NO2_HOSPITAL_ADMISSESSS_INCIDENCE</a>	ID_MOTHER_TREE	[Data in preparation] NO2 hospital admissions incidence (i-Tree Eco system)
3.5.46	<a href="#">NO2_ACUTE_RESPIRATORY_SYMPTOMS_VALUE</a>	ID_MOTHER_TREE	[Data in preparation] NO2 acute respiratory symptoms value (i-Tree Eco system)

<b>Section</b>	<b>Current column name</b>	<b>Oracle table affected</b>	<b>Descriptive name</b>
3.5.47	NO2_ASTHMA_EXACERBATION_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 asthma exacerbation value (i-Tree Eco system)
3.5.48	NO2_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 emergency room visits value (i-Tree Eco system)
3.5.49	NO2_HOSPITAL_ADMISSEIONS_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 hospital admissions value (i-Tree Eco system)
3.5.50	SO2_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.51	SO2_ASTHMA_EXACERBATION_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 asthma exacerbation incidence (i-Tree Eco system)
3.5.52	SO2_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 emergency room visits incidence (i-Tree Eco system)
3.5.53	SO2_HOSPITAL_ADMISSEIONS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 hospital admissions incidence (i-Tree Eco system)
3.5.54	SO2_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 acute respiratory symptoms value (i-Tree Eco system)
3.5.55	SO2_ASTHMA_EXACERBATION_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 asthma exacerbation value (i-Tree Eco system)
3.5.56	SO2_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 emergency room visits value (i-Tree Eco system)
3.5.57	SO2_HOSPITAL_ADMISSEIONS_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 hospital admissions value (i-Tree Eco system)
3.5.58	O3_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.59	O3_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 emergency room visits incidence (i-Tree Eco system)

<b>Section</b>	<b>Current column name</b>	<b>Oracle table affected</b>	<b>Descriptive name</b>
3.5.60	O3_HOSPITAL_ADMISSIONS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 hospital admissions incidence (i-Tree Eco system)
3.5.61	O3_MORTALITY_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 mortality incidence (i-Tree Eco system)
3.5.62	O3_SCHOOL_LOSS_DAYS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 school loss days incidence (i-Tree Eco system)
3.5.63	O3_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 acute respiratory symptoms value (i-Tree Eco system)
3.5.64	O3_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 emergency room visits value (i-Tree Eco system)
3.5.65	O3_HOSPITAL_ADMISSIONS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 hospital admissions value (i-Tree Eco system)
3.5.66	O3_MORTALITY_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 mortality value (i-Tree Eco system)
3.5.67	O3_SCHOOL_LOSS_DAYS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 school loss days value (i-Tree Eco system)
3.5.68	PM2_5_ACUTE_BRONCHITIS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute bronchitis incidence (i-Tree Eco system)
3.5.69	PM2_5_ACUTE_MYOCARDIAL_INFARCTION_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute myocardial infarction incidence (i-Tree Eco system)
3.5.70	PM2_5_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.71	PM2_5_ASTHMA_EXACERBATION_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 asthma exacerbation incidence (i-Tree Eco system)
3.5.72	PM2_5_CHRONIC_BRONCHITIS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 chronic bronchitis incidence (i-Tree Eco system)

<b>Section</b>	<b>Current column name</b>	<b>Oracle table affected</b>	<b>Descriptive name</b>
3.5.73	PM2_5_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 emergency room visits incidence (i-Tree Eco system)
3.5.74	PM2_5_HOSPITAL_ADMISSIONS_CARDIOVASCULAR_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions cardiovascular incidence (i-Tree Eco system)
3.5.75	PM2_5_HOSPITAL_ADMISSIONS_RESPIRATORY_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions respiratory incidence (i-Tree Eco system)
3.5.76	PM2_5_LOWER_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 lower respiratory symptoms incidence (i-Tree Eco system)
3.5.77	PM2_5_MORTALITY_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 mortality incidence (i-Tree Eco system)
3.5.78	PM2_5_UPPER_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 upper respiratory symptoms incidence (i-Tree Eco system)
3.5.79	PM2_5_WORK_LOSS_DAYS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 work loss days incidence (i-Tree Eco system)
3.5.80	PM2_5_ACUTE_BRONCHITIS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute bronchitis value (i-Tree Eco system)
3.5.81	PM2_5_ACUTE_MYOCARDIAL_INFARCTION_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute myocardial infarction value (i-Tree Eco system)
3.5.82	PM2_5_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute respiratory symptoms value (i-Tree Eco system)
3.5.83	PM2_5_ASTHMA_EXACERBATION_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 asthma exacerbation value (i-Tree Eco system)
3.5.84	PM2_5_CHRONIC_BRONCHITIS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 chronic bronchitis value (i-Tree Eco system)

<b>Section</b>	<b>Current column name</b>	<b>Oracle table affected</b>	<b>Descriptive name</b>
3.5.85	PM2_5_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 emergency room visits value (i-Tree Eco system)
3.5.86	PM2_5_HOSPITAL_ADMISSIONS_CARDIOVASCULAR_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions cardiovascular value (i-Tree Eco system)
3.5.87	PM2_5_HOSPITAL_ADMISSIONS_RESPIRATORY_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions respiratory value (i-Tree Eco system)
3.5.88	PM2_5_LOWER_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 lower respiratory symptoms value (i-Tree Eco system)
3.5.89	PM2_5_MORTALITY_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 mortality value (i-Tree Eco system)
3.5.90	PM2_5_UPPER_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 upper respiratory symptoms value (i-Tree Eco system)
3.5.91	PM2_5_WORK_LOSS_DAYS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 work loss days value (i-Tree Eco system)
3.5.92	CO_VALUE	ID_MOTHER_TREE	[Data in preparation] CO value (i-Tree Eco system)
3.5.93	O3_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 value (i-Tree Eco system)
3.5.94	PM10_VALUE	ID_MOTHER_TREE	[Data in preparation] PM10 value (i-Tree Eco system)
3.5.95	NO2_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 value (i-Tree Eco system)
3.5.96	PM2_5_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 value (i-Tree Eco system)
3.5.97	SO2_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 value (i-Tree Eco system)
3.5.98	CO_REMOVAL	ID_MOTHER_TREE	[Data in preparation] CO removal (i-Tree Eco system)

<b>Section</b>	<b>Current column name</b>	<b>Oracle table affected</b>	<b>Descriptive name</b>
3.5.99	O3_REMOVAL	ID_MOTHER_TREE	[Data in preparation] O3 removal (i-Tree Eco system)
3.5.100	PM10_REMOVAL	ID_MOTHER_TREE	[Data in preparation] PM10 removal (i-Tree Eco system)
3.5.101	NO2_REMOVAL	ID_MOTHER_TREE	[Data in preparation] NO2 removal (i-Tree Eco system)
3.5.102	PM2_5_REMOVAL	ID_MOTHER_TREE	[Data in preparation] PM2.5 removal (i-Tree Eco system)
3.5.103	SO2_REMOVAL	ID_MOTHER_TREE	[Data in preparation] SO2 removal (i-Tree Eco system)
3.5.104	AVOIDED_RUNOFF	ID_MOTHER_TREE	[Data in preparation] Avoided runoff (i-Tree Eco system)
3.5.105	RAINFALL_INTERCEPTION	ID_MOTHER_TREE	[Data in preparation] Rainfall interception (i-Tree Eco system)
3.5.106	EVAPORATION	ID_MOTHER_TREE	[Data in preparation] Evaporation (i-Tree Eco system)
3.5.107	TRANSPIRATION	ID_MOTHER_TREE	[Data in preparation] Transpiration (i-Tree Eco system)
3.5.108	POTENTIAL_EVAPORATION	ID_MOTHER_TREE	[Data in preparation] Potential evaporation (i-Tree Eco system)
3.5.109	POTENTIAL_EVAPOTRANSPIRATION	ID_MOTHER_TREE	[Data in preparation] Potential evapotranspiration (i-Tree Eco system)
3.5.110	ISOPRENE_EMITTED	ID_MOTHER_TREE	[Data in preparation] Isoprene emitted (i-Tree Eco system)
3.5.111	MONOTERPENE_EMITTED	ID_MOTHER_TREE	[Data in preparation] Monoterpene emitted (i-Tree Eco system)

**Table C:** Tables that will be dropped from database in a future release (**Note:** The Population Model [MOD] tables and columns will be dropped and replaced with new tree-level attributes; these attributes have been added to the ID\_MOTHER\_TREE table structure; the data are in preparation).

Section	Database table	Oracle table name
5.1	Model Pollution Health Factor Table	MOD_POLLUTION_HEALTH_FCTR
5.2	Model Pollution Removal Table	MOD_POLLUTION_REMOVAL
5.3	Model Rainfall Table	MOD_RAINFALL
5.4	Model Volatile Organic Compound (VOC) Emissions Table	MOD_VOC_EMISSION

**Table D:** Reference tables added to database.

Section	Oracle table name	Table name
6.62	REF_UTILIZATION_CLASS	Reference Utilization Class

**Table E:** Updates to appendices.

Appendix	Update
Appendix E: Damage Agent Codes and Thresholds	<p>Label added to damage codes table - The "PNWRS-IS" (Pacific Islands only) label was added under the "Region" column for the following damage codes:</p> <ul style="list-style-type: none"> <li>• 14075 (lobate lac scale)</li> <li>• 15078 (black twig borer)</li> <li>• 17008 (gall mite)</li> <li>• 17022 (erythrina gall wasp)</li> <li>• 21005 (black root rot of pine)</li> <li>• 50001 (air pollutants) - <i>Note: This code is also used by the RMRS region.</i></li> <li>• 70001 (herbicides) - <i>Note: This code is also used by the SRS region.</i></li> </ul>
Appendix G: FIA Volume, Biomass, and Carbon Estimation	<p>Citation updated -</p> <ul style="list-style-type: none"> <li>• A publication that was referenced in the appendix as [In preparation] is now published.</li> <li>• The text was changed from "Westfall and others [In preparation]" to "Westfall and others (2024)."</li> <li>• This publication is listed in the "Literature Cited" section.</li> <li>• Publication name: A national-scale tree volume, biomass, and carbon modeling system for the United States (Gen. Tech. Rep. WO-104).</li> </ul>

**Table F:** Figure removed from user guide.

Section	Figure	Update
Chapter 3 (Inventory Data)	Former figure 3-3: Inventory data table group - tree tables.	Entity Relationship Diagram (ERD) - This figure was removed from the user guide. The tree tables contain too many columns for the diagram to be useful (font size too small).

**Table G:** Other updates.

Section	Section heading / other	Update
Chapter 1 (Overview)	Table 1-2: <a href="#">Entity short names (aliases)</a> .	Row added to table for "Reference Utilization Class" table - <ul style="list-style-type: none"><li>• ENTITY_NAME: REF_UTILIZATION_CLASS</li><li>• ENTITY_SHORTNAME: RUC</li></ul>
3.5	ID_MOTHER_TREE - <ul style="list-style-type: none"><li>• <a href="#">STATUSCD</a> (3.5.10)</li></ul>	Mother tree status codes dropped - <ul style="list-style-type: none"><li>• Code 3 (cut and utilized) and code 4 (removed) were dropped from ID_MOTHER_TREE.STATUSCD.</li><li>• Tree utilization information will now be stored in a new column in the ID_TREE table named UTILCLCD (utilization class code).</li></ul>
3.14	ID_TREE - <ul style="list-style-type: none"><li>• <a href="#">STATUSCD</a> (3.14.15)</li></ul>	Tree status codes dropped - <ul style="list-style-type: none"><li>• Code 3 (cut and utilized) and code 4 (removed) were dropped from ID_TREE.STATUSCD.</li><li>• Tree utilization information will now be stored in a new column in the ID_TREE table named UTILCLCD (utilization class code).</li></ul>
6.59	REF_TREE_STATUS - <ul style="list-style-type: none"><li>• <a href="#">VALUE</a> (STATUSCD) (6.59.1)</li></ul>	Value codes dropped - <ul style="list-style-type: none"><li>• Code 3 (cut and utilized) and code 4 (removed) were dropped from REF_TREE_STATUS.VALUE (STATUSCD).</li></ul>
Literature Cited	Citation for "Westfall and others (2024)"	Citation updated - <ul style="list-style-type: none"><li>• The text for a publication that was formerly listed as [In preparation] and is now published was updated.</li><li>• Publication authors: Westfall and others (2024)</li><li>• Publication name: A national-scale tree volume, biomass, and carbon modeling system for the United States (Gen. Tech. Rep. WO-104).</li></ul>
Chapter 7 (Administration)	Table 7-1: <a href="#">Entity short names (aliases)</a> .	Row added to table for "Reference Utilization Class" table - <ul style="list-style-type: none"><li>• ENTITY_NAME: REF_UTILIZATION_CLASS</li><li>• ENTITY_SHORTNAME: RUC</li></ul>

## Features within this document

- **Revision dates** -
  - **Title page** - The revision date for the user guide is listed on the first page of the "Table of Contents." This date coincides with the user guide version number. It does not correspond to the release date for a particular version of the Urban FIADB database or a field guide. Separate version numbering allows for increased flexibility to provide additional updates to the user guide that are independent of the timing of a database release.
  - **Sections** - The revision date listed in the header for a specific document section (e.g., chapter, appendix) is the date that the section was last revised. If a section was not updated since the previous user guide version, the revision date in the header for that section will remain unchanged.
- **Reference Tables** - These tables contain supplementary reference data (e.g., values, codes, code descriptions) for various attributes (database table columns). Reference tables have the "REF\_" prefix within the table name. Individual attributes that have an associated reference table have a link to the "Reference table: REF\_TABLENAME" directly below the attribute description.
- **Index of Tables** - This section is an index of the database tables within the Urban FIADB, sorted alphabetically by table name. This index includes a brief description for each table.
- **Index of Column Names** - This section is an index of the attributes, sorted alphabetically by column name, and identifies the name of the table where the column is found. This index also lists a section number for each attribute, which indicates the location for the attribute within this user guide.
- **Blank cells in tables** - A long dash (—) "em dash" symbol or the term "N/A" (for "not applicable") in a table cell is equivalent to a blank cell and indicates that the cell does not contain any information.

## Hard-copy printing

To print sections from this PDF document, it will be necessary to specify the continuous page number range for the desired section to be printed. The following table outlines the start page and end page for each document section. This guide is intended to be printed on both sides of the paper.

**Table H:** Page range for individual document sections (for hard-copy printing).

Document section	start page	end page
Table of Contents	1	8
Preface	9	10
User Guide Updates	11	22
Chapter 1: Overview	23	30
Chapter 2: Table Group - Sample Organization	31	40
Chapter 3: Table Group - Inventory Data	41	212
Chapter 4: Table Group - Population Estimation	213	238
Chapter 5: Table Group - Population Model	239	254
Chapter 6: Table Group - Reference Data	255	422
Chapter 7: Table Group - Administration	423	434
Literature Cited	435	436
Index of Tables	437	454
Index of Column Names	455	492
Appendix A: Quick Links	493	494
Appendix B: State, Survey Unit, and County Codes	495	620
Appendix C: Tree Species Group Codes	621	624
Appendix D: Tree Species Codes, Names, and Occurrences	625	626
Appendix E: Damage Agent Codes and Thresholds	627	674
Appendix F: Forest Type Codes and Names	675	702
Appendix G: FIA Volume, Biomass, and Carbon Estimation	703	706
Appendix H: Supplemental Urban Database Tables	707	708



Section revision: 11.01.2024

# Chapter 1: Overview

## Chapter Contents:

Section	Heading
1.1	<a href="#">Document Purpose</a>
1.2	<a href="#">Table Groups</a>
1.3	<a href="#">Keys Presented with the Tables</a>
1.4	<a href="#">Oracle Data Types</a>

## 1.1 Document Purpose

This document is a volume within the **Urban Forest Inventory and Analysis Database (Urban FIADB) User Guides** series, written for the purpose of providing assistance to individuals who access the Urban FIADB.

This user guide, **Database Description**, describes the database tables and attributes (columns) contained within the Urban FIADB. Each attribute in a database table is listed with its column name, unabbreviated descriptive name, and a detailed description of the attribute. Attributes that are coded include a list of the codes and their meanings.

The **Urban FIADB** is available to the public for individuals interested in conducting their own analyses using urban FIA inventory data. Due to the FIA data confidentiality policy, the Urban FIADB does not contain sensitive plot information, such as detailed plot location coordinates and private ownership information.

The [Urban DataMart](#), which is available at the following web address, allows users to download urban FIA inventory data and to access the "Urban FIADB User Guides": <https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart>.

Refer to [appendix A \(Quick Links\)](#) for references to various websites.

## 1.2 Table Groups

The data structure for the Urban FIADB is currently organized into six distinct table groups: (1) Sample Organization, (2) Inventory Data, (3) Population Estimation, (4) Population Model, (5) Reference Data, and (6) Administration. These table groups are intended to work together to allow the user to identify the population they are interested in, extract the inventory data for that population, use the population estimation data to estimate the population attributes of interest, and describe the resulting estimates with the aid of reference data.

The purpose for each table group is briefly summarized in the following table. Refer to the table group descriptions at the beginning of each chapter for further detail.

**Table 1-1:** Table groups within the Urban FIADB.

Chapter	Table group	Purpose
2	<a href="#">Sample Organization</a> Prefix: SO_	This table group provides information describing the contexts in which inventory data can be summarized. These data identify inventory projects and how a project is implemented over time. Each project is further described identifying its target population and the structure of that population.
3	<a href="#">Inventory Data</a> Prefix: ID_	This table group stores data collected during the sampling phase of an inventory as well as all calculated or derived values. This can include measurements taken during on-the-ground field work as well as measurements taken remotely in the office.
4	<a href="#">Population Estimation</a> Prefix: POP_	This table group stores critical information required to produce population-level estimates using the FIA stratified estimator. The two main components required for this are a <i>statistical sample</i> and a <i>stratification</i> of the target population. FIA uses the term 'evaluation' to refer to this combination.
5	<a href="#">Population Model (DROP IN FUTURE RELEASE)</a> Prefix: MOD_	This table group stores output from various computer models that estimate properties of the urban forest at the population level. These models make use of inputs from various sources including, but not limited to, climate/meteorological data, pollution flux data, economic data, and population estimates derived from inventory data.
6	<a href="#">Reference Data</a> Prefix: REF_	This table group provides code descriptions and related information for various attributes in the database. Reference data are static or semi-static data that define codes used in other table groups of the database.
7	<a href="#">Administration</a> Prefix: ADMIN_	This table group contains tables that support the functioning and maintenance of the database itself.

## 1.3 Keys Presented with the Tables

For each table, a list of keys is located directly below the list of column names (attributes) located at the beginning of the section. These keys are used to join data from different tables. The following provides a general definition of each kind of key.

### Primary key

A single column in a table whose values uniquely identify each row in an Oracle table. The primary key for most Urban FIADB tables is the sequence number (CN) column.

The name of the primary key for each table is listed in the table description. It follows the nomenclature of 'ENTITY\_SHORTNAME'\_PK.

The following list contains standard short names (aliases) for database entities in the Urban FIADB. This list is stored in the [ADMIN\\_ENTITY\\_SHORTNAME](#) table.

**Note:** The following list of entities includes a combination of Oracle tables, views, and synonyms. However, for this user guide, all of these entities are simply referred to as database "tables."

**Table 1-2:** Entity short names (aliases).

ENTITY_NAME	ENTITY_SHORTNAME
ADMIN_DB_VERSION	ADBVER
ADMIN_ENTITY_SHORTNAME	AES
ADMIN_PUB_DATA_STANDARD	PDS
ADMIN_PUB_SUMMARY_RPT	APSR
ID_BUILDING_INTERACTION	BINTA
ID_COND	CND
ID_ENERGY_EFFECT	EE
ID_INVASIVE_SUBP_COND	ISPCND
ID_MOTHER_TREE	MTRE
ID_PLOT	PLT
ID_PLOT_INV_ASSGN	PINVA
ID_PLOT_STAT_SAMP_ASSGN	PSSA
ID_PLOT_STRAT_CALC_ASSGN	PSCA
ID_SEEDLING	SDL
ID_SITETREE	SIT
ID_SUBPLOT	SBP
ID_SUBP_COND	SPCND
ID_TREE	TRE
ID_WOODLAND_STEM	WDS
MOD POLLUTION_HEALTH_FCTR	MPHF
MOD_POLLUTION_REMOVAL	MPR
MOD_RAINFALL	MR

ENTITY_NAME	ENTITY_SHORTNAME
MOD_VOC_EMISSION	MVOCE
POP_ATTRIBUTE	PATTR
POP_CALCULATION	PCALC
POP_DOMAIN	PDOM
POP_SAMPLE_CONSTRAINT	PSCON
POP_SAMPLE_CONSTRAINT_ASSGN	PSCONA
POP_SAMPLE_CONSTRAINT_GROUP	PSCG
POP_STAT_SAMP	PSS
POP_STAT_SAMP_ATTRIBUTE_ASSGN	PSSAA
POP_STAT_SAMP_DOMAIN_ASSGN	PSSDA
POP_STRATUM_CALC	PSC
REF_ABNORMAL_TERMINATION	RAT
REF_ABSENT_PRESENT	RAP
REF_BOLE_STUMP_REMOVED	RBSR
REF_CANOPY_COVER_SAMPLE_METHOD	RCCSM
REF_CAUSE_OF_DEATH	RCOD
REF_CITATION	RCIT
REF_CONDITION_NONSAMPLE_REASON	RCNR
REF_CONDITION_SAMPLING_STATUS	RCSS
REF_COUNTY	RCTY
REF_COVER_CLASS	RCC
REF_CROWN_CLASS	RCC2
REF_CROWN_LIGHT_EXPOSURE	RCLE
REF_DAMAGE_AGENT	RDA
REF_DAMAGE_AGENT_GROUP	RDAG
REF_DECAY_CLASS	RDC
REF_DIA_CHECK	RDC2
REF_DISTURBANCE	RD
REF_FIA_LANDUSE	RFL
REF_FIA_LANDUSE_DETAILED	RFLD
REF_FOREST_LAND_COND_STAT_CHG	RFLCSC
REF_FOREST_TYPE	RFT
REF_FOREST_TYPE_GROUP	RFTG
REF_HORIZ_DIST_IMPRVD_ROAD	RHDIR
REF_INVASIVE_SAMPLING_STATUS	RISS
REF_INVASIVE_SPECIES	RIS
REF_INVS_COND_SAMPLING_STATUS	RICSS

<b>ENTITY_NAME</b>	<b>ENTITY_SHORTNAME</b>
REF_ITREE_LANDUSE	RIL
REF_ITREE_LANDUSE_DETAILED	RILD
REF_LAND_COVER_CLASS	RLCC
REF_LENGTH_METHOD	RLM
REF_NO_YES	RNY
REF_OWNER_CLASS	ROC
REF_OWNER_GROUP	ROG
REF_PERCENT_CLASS_CODE	RPCC
REF_PHYSIOGRAPHIC_CLASS	RPC
REF_PLANT_DICTIONARY	RPD
REF_PLOT_NONSAMPLE_REASON	RPNR
REF_PLOT_STATUS	RPS
REF_PREV_TREE_STATUS	RPTS
REF_PRODUCTIVITY_STATUS	RPS2
REF_RECONCILE	RR
REF_REGENERATION_STATUS	RRS
REF_RESERVED_STATUS	RRS2
REF_SAMPLE_KIND	RSK
REF_SAMPLE_METHOD_CD	RSMC
REF_SEEDLING_MAINTAINED_AREA	RSMA
REF_SEEDLING_PLANTED	RSP
REF_SITE_CLASS_CODE	RSCC
REF_SPECIES	RS
REF_SPECIES_GROUP	RSG
REF_STAND_SIZE_CLASS	RSSC
REF_SUBPLOT_NONSAMPLE_REASON	RSNR
REF_SUBPLOT_STATUS	RSS
REF_TREATMENT	RT
REF_TREE_CARBON_RATIO_DEAD	REFTCRD
REF_TREE_CLASS	RTC
REF_TREE_DECAY_PROP	REFTDP
REF_TREE_DENSITY	RTD
REF_TREE_PLANTED	RTP
REF_TREE_STATUS	RTS
REF_TREE_STND_DEAD_CR_PROP	REFTSDCP
REF_UNIT	RUNT
REF_UTILIZATION_CLASS	RUC

ENTITY_NAME	ENTITY_SHORTNAME
REF_WATER_ON_PLOT	RWOP
SO_INVENTORY	INV
SO_POP_STRUCT_ELMT	PSTREL
SO_PROJECT	PRJ
SO_RESEARCH_ORGANIZATION	RESORG

### Unique key

Multiple columns in a table whose values uniquely identify each entity represented by a row in an Oracle table. For example, each record in the ID\_PLOT table represents a distinct plot visit. Each plot visit is uniquely identified by PLOTID and VISIT\_NBR. There can be one and only one row for each unique key value. The unique key varies for each Urban FIADB table.

The name of the unique key for each table is listed in the table description. It follows the nomenclature of 'ENTITY\_SHORTNAME'\_UK.

### Foreign key

A column in a table that is used as a link to a matching column in another Oracle table.

A foreign key connects a record in one table to one and only one record in another table. Foreign keys are used both to link records between data tables and as a check (or constraint) to prevent "unrepresented data."

For example, to link rows of data in the ID\_TREE table for a specific plot to the ID\_PLOT table, there needs to be a corresponding data row for that same plot in the ID\_PLOT table. The attribute PLT\_CN in the ID\_TREE table is a foreign key that can be used to link specific rows in the ID\_TREE table to one record in the ID\_PLOT table using the plot attribute CN.

The name of each foreign key is listed in the table description. It follows the nomenclature of '*CHILD-ENTITY\_SHORTNAME'\_PARENT-ENTITY\_SHORTNAME'\_FK*'. The '*child-entity\_shortname*' refers to the record functioning as a child of another record. This can follow a common pattern such as "one plot can be the parent of many child trees" (e.g., TRE\_PLT\_FK). The foreign key is usually supported by a primary key.

## 1.4 Oracle Data Types

Oracle data type	Definition
DATE	<p>A data type that stores the date, typically in the format of MM/DD/YYYY.</p> <p>This type can also be stored as a "timestamp" data type that stores both the date and time to the second. "Date" is in the format of MM/DD/YYYY. "Time" is in the format of HOUR:MINUTE:SECOND AM/PM. For example, '7/15/2018 1:58:01 PM' to indicate the date and time.</p>
NUMBER	<p>A data type that contains only numbers, positive or negative, with a floating-decimal point.</p>
NUMBER(SIZE, D)	<p>A data type that contains only numbers up to a specified maximum size. The maximum size (<i>and optional fixed-decimal point</i>) is specified by the value(s) listed in the parentheses.</p> <p>For example, an attribute with a data type specified as "NUMBER(2)" indicates that the attribute may contain a maximum of 2 digits (<i>for example</i>, "11" or "5"), however, none of the digits are decimals. An attribute with a data type specified as "NUMBER(3,1)" may contain a maximum of 3 digits, however, the last digit is a fixed decimal (<i>for example</i>, "4.0" or "12.7"). Likewise, "NUMBER(6,4)" would indicate that an attribute may contain a maximum of 6 digits, however, the last 4 digits are part of a fixed decimal (<i>for example</i>, "18.7200").</p> <p><b>Note:</b> When needed, digits to the right of a fixed-decimal point are filled in with zero(s).</p>
VARCHAR2(SIZE)	<p>A data type that contains alphanumeric data (numbers and/or characters) up to a specified maximum size.</p> <p>For example, an attribute with a data type specified as "VARCHAR2(8)" indicates that the attribute may contain a maximum of eight alphanumeric characters.</p>



Section revision: 01.20.2024

# Chapter 2: Table Group - Sample Organization

This chapter provides a detailed description of each table in the **Sample Organization** table group.

## Chapter Contents:

Section	Database table	Oracle table name
2.1	<a href="#">Inventory Table</a>	SO_INVENTORY
2.2	<a href="#">Population Structure Element Table</a>	SO_POP_STRUCT_ELMT
2.3	<a href="#">Project Table</a>	SO_PROJECT
2.4	<a href="#">Research Organization Table</a>	SO_RESEARCH_ORGANIZATION

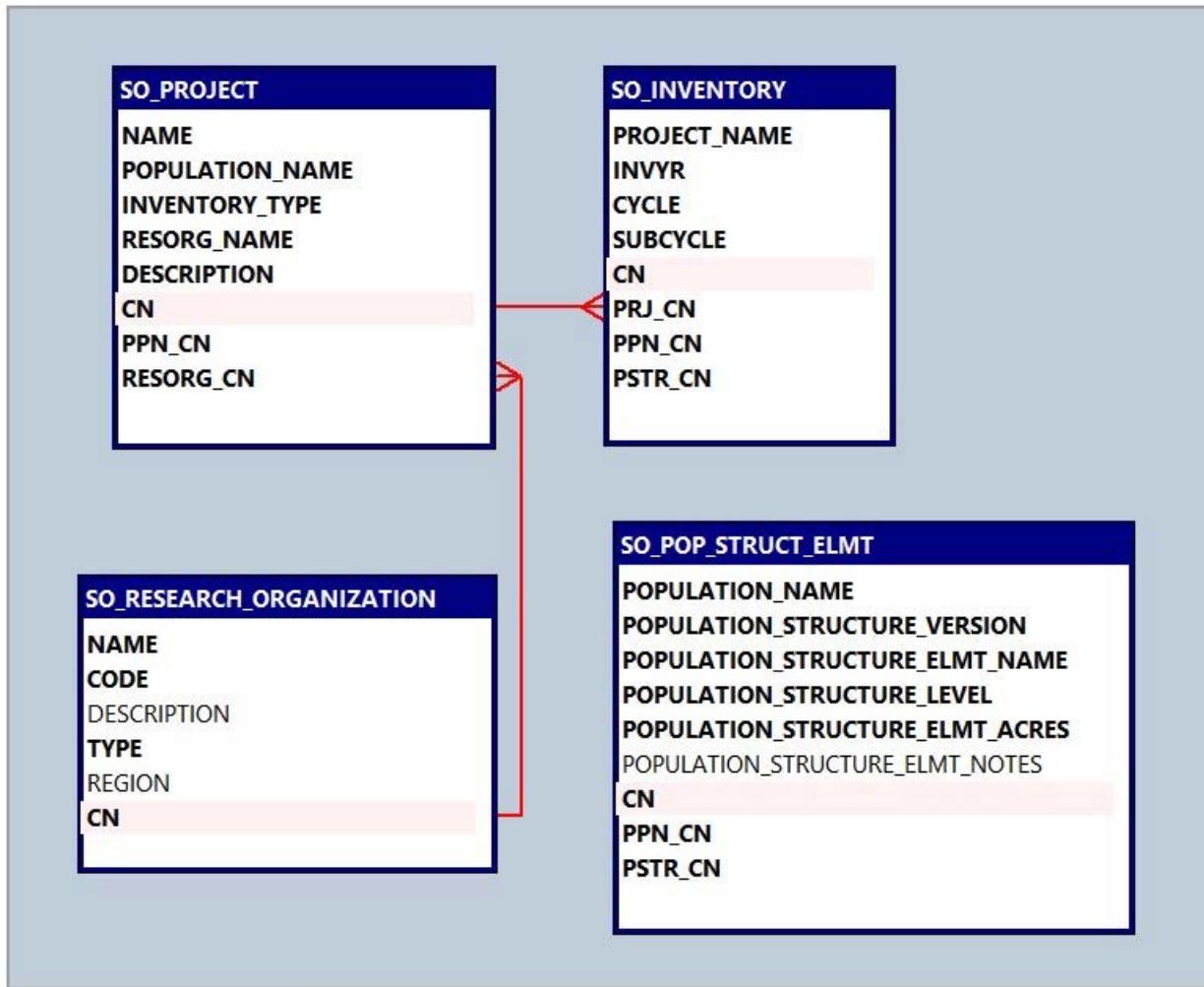
## Overview: Table Group - Sample Organization

### Prefix: SO\_

The purpose of the **Sample Organization** table group is to provide information describing the contexts in which inventory data can be summarized. These data identify inventory projects and how a project is implemented over time. Each project is further described identifying its target population and the structure of that population.

It is important to understand that there exists a many-to-many relationship between a context (as represented by Sample Organization data) and plot visits. This means a given plot visit may serve in one or more contexts and a context may include one or more plot visits.

Figure 2-1 shows an Entity Relationship Diagram (ERD) for the Sample Organization table group.



**Figure 2-1:** Sample organization table group.

## 2.1 Inventory Table

### Oracle table name: SO\_INVENTORY

The purpose of the **SO\_INVENTORY** table is to provide a time element to a project. Each project is composed of a finite set of ordered panels. A **panel** is a temporal address that is used to distribute the sample across time. The term "**inventory**" is defined by a set of one or many panels. Inventories are used to schedule plots for field work.

Each inventory is assigned the following properties:

- **Inventory year** - The year assigned to the inventory.
- **Cycle** - An iterator that counts the number of times the complete set of panels for a project has been sampled.
- **Subcycle** - An iterator that counts the number of inventories completed within a given cycle.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.1.1	PROJECT_NAME	Project name	VARCHAR2(50)
2.1.2	INVYR	Inventory year	NUMBER(4)
2.1.3	CYCLE	Inventory cycle iterator	NUMBER(2)
2.1.4	SUBCYCLE	Inventory subcycle iterator	NUMBER(2)
2.1.5	CN	Inventory sequence number	INTEGER
2.1.6	PRJ_CN	Project sequence number	INTEGER
2.1.7	PPN_CN	Population sequence number	INTEGER
2.1.8	PSTR_CN	Population structure sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	INV_PK	CN	N/A
Unique	INV_UK	PROJECT_NAME, INVYR, CYCLE, SUBCYCLE	N/A
Foreign	INV_PRJ_FK	PRJ_CN	SO_INVENTORY.PRJ_CN = SO_PROJECT.CN

#### 2.1.1 PROJECT\_NAME

**Project name.** A descriptive name for the project (e.g., FIA-Urban Inventory of Houston, TX; FIA-Urban Inventory of San Diego, CA).

#### 2.1.2 INVYR

**Inventory year.** The year representing a scheduled time period within a project. Plots assigned to a given inventory year are considered representative of the target population at that point in time. Plot assignment to an inventory year does not imply that it was

collected in the corresponding calendar year. Rather, it is a mechanism to group plots together temporally for analyses.

### 2.1.3 CYCLE

**Inventory cycle iterator.** An iterating number counting the number of times a complete set of panels has been collected for the project.

### 2.1.4 SUBCYCLE

**Inventory subcycle iterator.** An iterating number counting the number of inventories conducted to complete the full sample for a project.

### 2.1.5 CN

**Inventory sequence number.** A unique sequence number used to identify the inventory record (in SO\_INVENTORY).

### 2.1.6 PRJ\_CN

**Project sequence number.** A unique sequence number used to identify the project. This attribute is a foreign key linking the inventory record to the project record (SO\_INVENTORY.PRJ\_CN = SO\_PROJECT.CN).

### 2.1.7 PPN\_CN

**Population sequence number.** A unique sequence number used to identify the population record (see SO\_POP\_STRUCT\_ELMT.PPN\_CN).

### 2.1.8 PSTR\_CN

**Population structure sequence number.** A unique sequence number used to identify the population structure record (see SO\_POP\_STRUCT\_ELMT.PSTR\_CN).

## 2.2 Population Structure Element Table

### Oracle table name: SO\_POP\_STRUCT\_ELMT

The purpose of the **SO\_POP\_STRUCT\_ELMT** table is to provide information describing the structure of the target population of a project. This information is not meant to identify every possible subpopulation. It allows inventory planners to define the boundary used for the overall population as well as important subpopulations that might have special significance either during sample selection or estimation. For example, if a particular subpopulation receives an increased sampling intensity, then it should be included in the structure. Or if any particular subpopulation will serve as an estimation unit during the estimation procedure, it should be defined.

The structure of a population is modeled as a stack of polygons that conform to some simple rules. The position of a given polygon within the stack is given by the **POPULATION\_STRUCTURE\_LEVEL** attribute. The value indicates the position relative to the top of the stack (descending). For example, in a population with three levels, level 1 is on top, level 2 is below that, and level 3 is on the bottom of the stack.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.2.1	POPULATION_NAME	Population name	VARCHAR2(50)
2.2.2	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
2.2.3	POPULATION_STRUCTURE_ELMT_NAME	Population structure element name	VARCHAR2(70)
2.2.4	POPULATION_STRUCTURE_LEVEL	Population structure level	NUMBER(3)
2.2.5	POPULATION_STRUCTURE_ELMT_ACRES	Population structure element acres	NUMBER
2.2.6	POPULATION_STRUCTURE_ELMT_NOTES	Population structure element notes	VARCHAR2(2000)
2.2.7	CN	Population structure element sequence number	INTEGER
2.2.8	PPN_CN	Population sequence number	INTEGER
2.2.9	PSTR_CN	Population structure sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSTREL_PK	CN	N/A
Unique	PSTREL_UK	POPULATION_NAME, POPULATION_STRUCTURE_VERSION, POPULATION_STRUCTURE_ELMT_NAME	N/A

#### 2.2.1 POPULATION\_NAME

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

**2.2.2 POPULATION\_STRUCTURE\_VERSION**

**Population structure version.** The version of the population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

**2.2.3 POPULATION\_STRUCTURE\_ELMT\_NAME**

**Population structure element name.** The name of the population structure element. This name identifies the subpopulation represented by the polygon.

**2.2.4 POPULATION\_STRUCTURE\_LEVEL**

**Population structure level.** The level of the population structure. This represents the polygon's position within the stack of polygons. See the table description above for details.

**2.2.5 POPULATION\_STRUCTURE\_ELMT\_ACRES**

**Population structure element acres.** The area of the population structure element, in acres, as defined by the geometry of the geospatial layer used to identify it.

**2.2.6 POPULATION\_STRUCTURE\_ELMT\_NOTES**

**Population structure element notes.** Any relevant notes regarding the population structure element record.

**2.2.7 CN**

**Population structure element sequence number.** A unique sequence number used to identify the population structure element record (in SO\_POP\_STRUCT\_ELMT).

**2.2.8 PPN\_CN**

**Population sequence number.** A unique sequence number used to identify the population.

**2.2.9 PSTR\_CN**

**Population structure sequence number.** A unique sequence number used to identify the population structure.

## 2.3 Project Table

### Oracle table name: SO\_PROJECT

The purpose of the **SO\_PROJECT** table is to store a record of each project. A **project** is a coordinated sampling effort to deliver a specific information product designed to meet the needs of stakeholders. Each project targets one and only one population for study. A project is assigned to a research organization, which has stewardship over that project.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.3.1	NAME	Project name	VARCHAR2(50)
2.3.2	POPULATION_NAME	Population name	VARCHAR2(50)
2.3.3	INVENTORY_TYPE	Inventory type	VARCHAR2(30)
2.3.4	RESORG_NAME	Research organization name	VARCHAR2(50)
2.3.5	DESCRIPTION	Project description	VARCHAR2(2000)
2.3.6	CN	Project sequence number	INTEGER
2.3.7	PPN_CN	Population sequence number	INTEGER
2.3.8	RESORG_CN	Research organization sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PRJ_PK	CN	N/A
Unique	PRJ_UK	NAME	N/A
Foreign	PRJ_RESORG_FK	RESORG_CN	SO_PROJECT.RESORG_CN = SO_RESEARCH_ORGANIZATION.CN

#### 2.3.1 NAME

**Project name.** A descriptive name for the project (e.g., FIA-Urban Inventory of Houston, TX; FIA-Urban Inventory of San Diego, CA).

#### 2.3.2 POPULATION\_NAME

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

#### 2.3.3 INVENTORY\_TYPE

**Inventory type.** A descriptor for the type of project.

**Codes: INVENTORY\_TYPE**

Code	Description
ANNUALIZED	An inventory that is conducted on an annualized basis. The overall sample is systematically divided into temporal divisions known as subpanels; individual subpanels are measured over a specified time period on a continuous basis.

<b>Code</b>	<b>Description</b>
ONE-TIME	An inventory that was conducted on a one-time basis.
PERIODIC	An inventory that is conducted on a periodic (noncontinuous) basis. Typically, the entire sample area is inventoried over a short time frame, followed by a lag of time before the sample area is to be inventoried again.

**2.3.4 RESORG\_NAME**

**Research organization name.** A descriptor identifying the research organization that is in charge of this project (e.g., FIA\_NRS, FIA\_SRS).

**2.3.5 DESCRIPTION**

**Project description.** A brief description of the project.

**2.3.6 CN**

**Project sequence number.** A unique sequence number used to identify the project record (in SO\_PROJECT).

**2.3.7 PPN\_CN**

**Population sequence number.** A unique sequence number used to identify the population.

**2.3.8 RESORG\_CN**

**Research organization sequence number.** A unique sequence number used to identify the research organization that has stewardship over the project. This attribute is a foreign key linking the project record to the research organization record (SO\_PROJECT.RESORG\_CN = SO\_RESEARCH\_ORGANIZATION.CN).

## 2.4 Research Organization Table

### Oracle table name: SO\_RESEARCH\_ORGANIZATION

The purpose of the **SO\_RESEARCH\_ORGANIZATION** table is to store information describing individual research organizations.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.4.1	NAME	Research organization name	VARCHAR2(50)
2.4.2	CODE	Research organization code	VARCHAR2(10)
2.4.3	DESCRIPTION	Research organization description	VARCHAR2(2000)
2.4.4	TYPE	Research organization type	VARCHAR2(20)
2.4.5	REGION	Research organization region	VARCHAR2(20)
2.4.6	CN	Research organization sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	RESORG_PK	CN	N/A
Unique	RESORG_UK	NAME	N/A
Unique	RESORG_UK2	CODE	N/A

#### 2.4.1 NAME

**Research organization name.** A descriptor identifying the research organization (e.g., FIA\_NATIONAL, FIA\_NRS, ITREE).

#### 2.4.2 CODE

**Research organization code.** A code (usually numeric) identifying the research organization.

##### Codes: CODE

Code	Description
01	National Forest Inventory & Analysis (FIA) Research Program.
02	i-Tree Research Unit.
22	FIA - Rocky Mountain Research Station (RMRS).
24	FIA - Northern Research Station (NRS).
26	FIA - Pacific Northwest Research Station (PNWRS).
27	FIA - Pacific Northwest Research Station (PNWRS)-AK.
33	FIA - Southern Research Station (SRS).

#### 2.4.3 DESCRIPTION

**Research organization description.** A brief description for the research organization.

**2.4.4 TYPE**

**Research organization type.** A code categorizing the research organization.

**Codes: TYPE**

Code	Description
FEDERAL	Federal government.

**2.4.5 REGION**

**Research organization region.** A classifier identifying the region assigned to the research organization within a larger institute, if applicable (e.g., NRS, PNWRS, RMRS, SRS).

**2.4.6 CN**

**Research organization sequence number.** A unique sequence number used to identify the research organization record (in SO\_RESEARCH\_ORGANIZATION).

Section revision: 11.01.2024

# Chapter 3: Table Group - Inventory Data

This chapter provides a detailed description of each table in the **Inventory Data** table group.

## Chapter Contents:

Section	Database table	Oracle table name
3.1	<a href="#">Building Interaction Table</a>	ID_BUILDING_INTERACTION
3.2	<a href="#">Condition Table</a>	ID_COND
3.3	<a href="#">Energy Effect Table</a>	ID_ENERGY_EFFECT
3.4	<a href="#">Invasive Species Subplot Condition Table</a>	ID_INVASIVE_SUBP_COND
3.5	<a href="#">Mother Tree Table</a>	ID_MOTHER_TREE
3.6	<a href="#">Plot Table</a>	ID_PLOT
3.7	<a href="#">Plot Inventory Assignment Table</a>	ID_PLOT_INV_ASSGN
3.8	<a href="#">Plot Statistical Sample Assignment Table</a>	ID_PLOT_STAT_SAMP_ASSGN
3.9	<a href="#">Plot Stratum Calculation Assignment Table</a>	ID_PLOT_STRAT_CALC_ASSGN
3.10	<a href="#">Seedling Table</a>	ID_SEEDLING
3.11	<a href="#">Site Tree Table</a>	ID_SITETREE
3.12	<a href="#">Subplot Table</a>	ID_SUBPLOT
3.13	<a href="#">Subplot Condition Table</a>	ID_SUBP_COND
3.14	<a href="#">Tree Table</a>	ID_TREE
3.15	<a href="#">Woodland Stem Table</a>	ID_WOODLAND_STEM

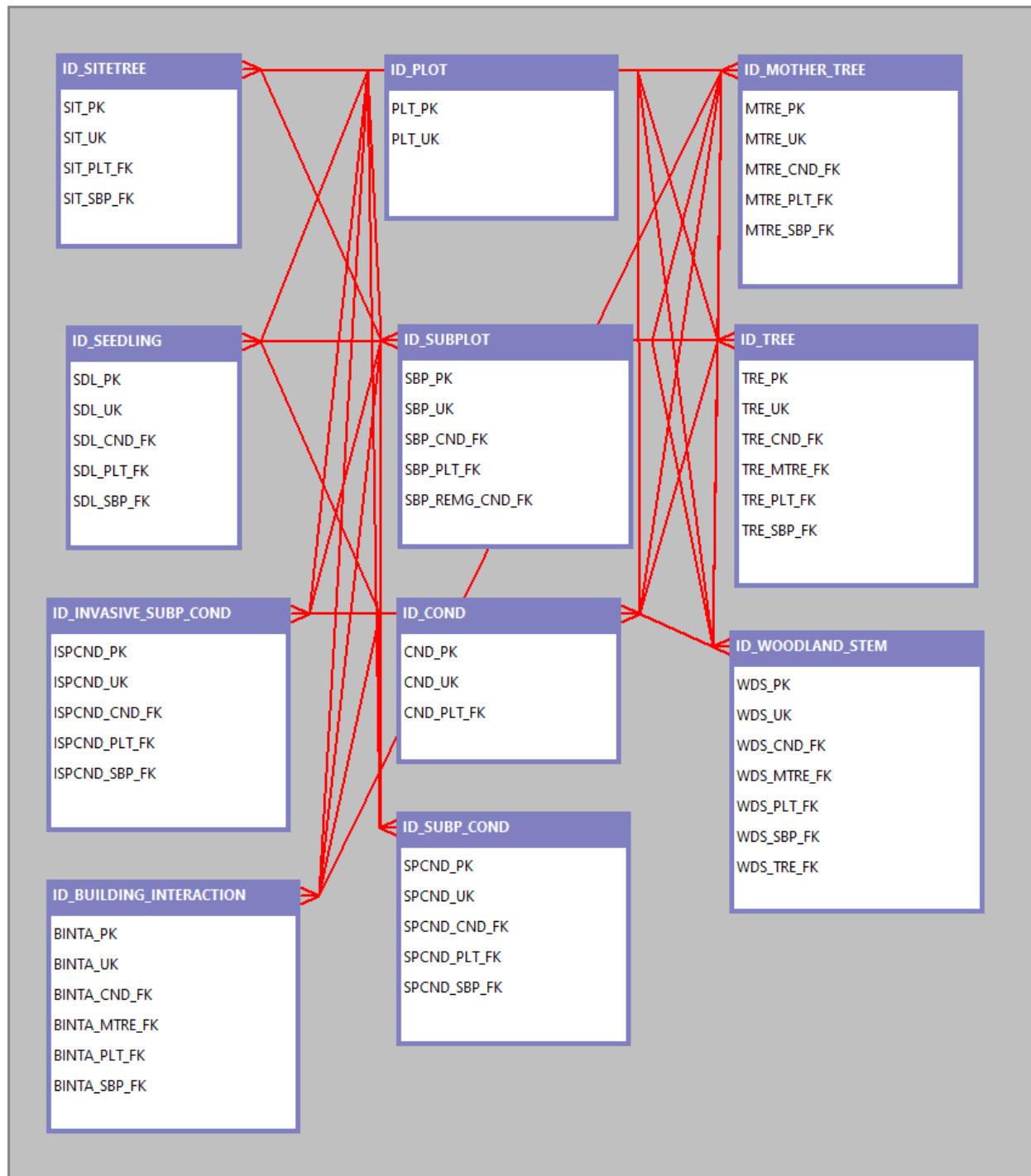
## Overview: Table Group - Inventory Data

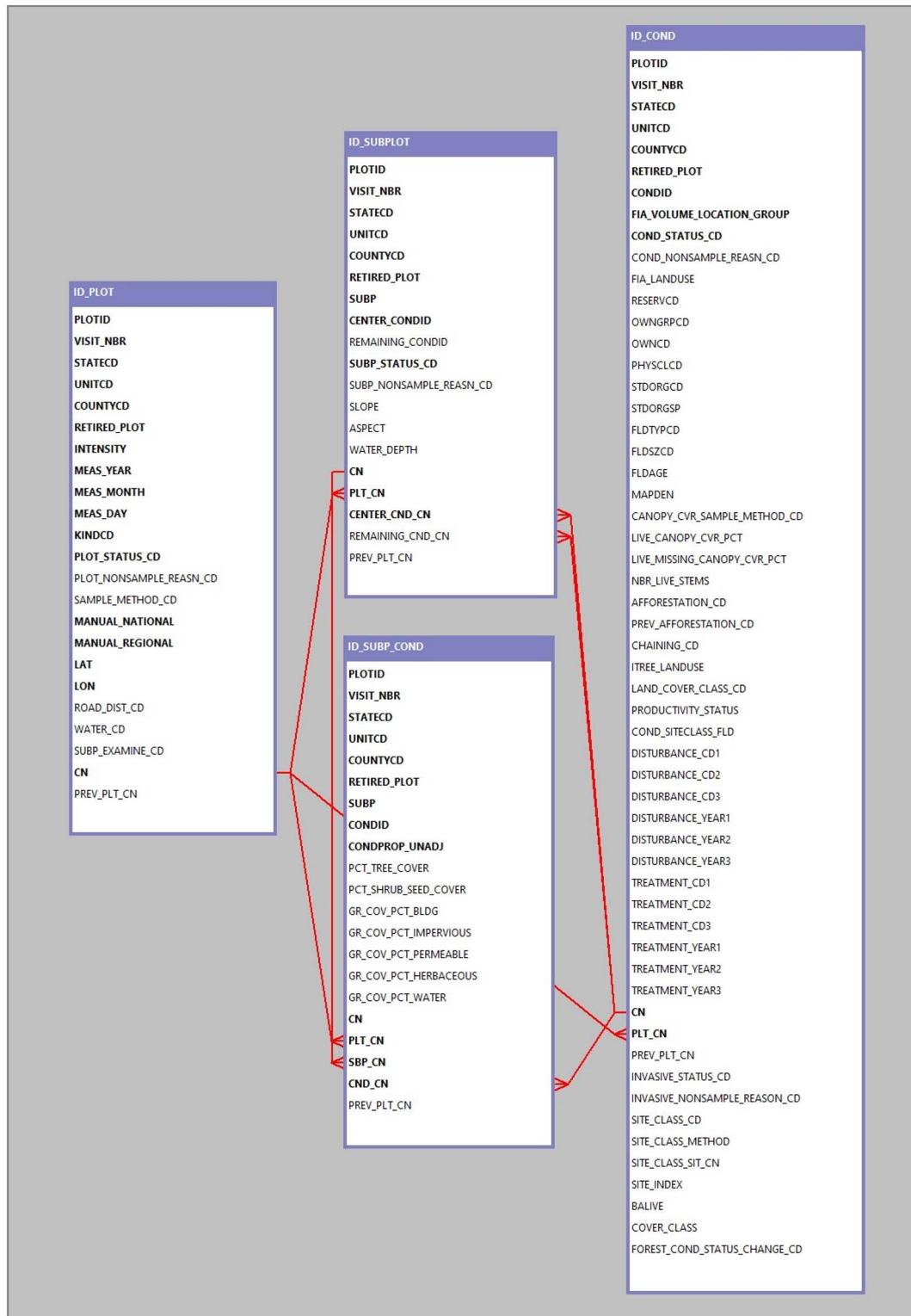
### Prefix: ID\_

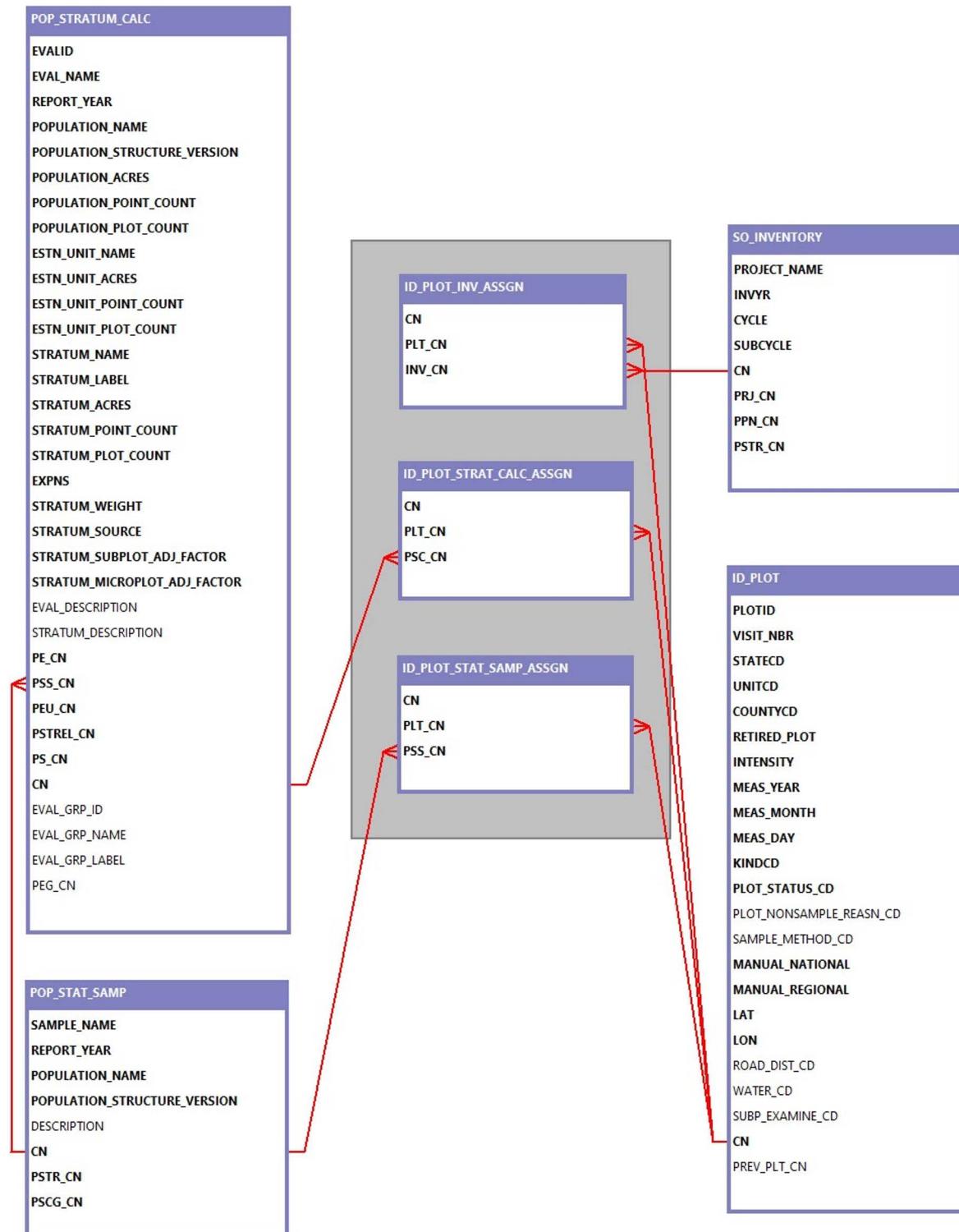
The purpose of the **Inventory Data** table group is to store data collected during the sampling phase of an inventory as well as all calculated or derived values. This can include measurements taken during on-the-ground field work and measurements taken remotely in the office. The data tables store measurements and calculated attributes and form the basis for all estimates produced by the database. The linking tables ([ID\\_PLOT\\_INV\\_ASSGN](#), [ID\\_PLOT\\_STAT\\_SAMP\\_ASSGN](#), and [ID\\_PLOT\\_STRAT\\_CALC\\_ASSGN](#)) store relationships between plots and other table groups in the database.

The ID table group exists in a relational structure that enforces FIA's data model. The [ID\\_PLOT](#) table resides at the top of this structure. Each record in the ID\_PLOT table represents a distinct plot visit (uniquely identified by [PLOTID](#) and [VISIT\\_NBR](#)). All child tables in the ID table group contain a foreign key referring to the parent plot visit record (e.g., CND\_PLT\_FK, SBP\_PLT\_FK).

These relationships are depicted in the following Entity Relation Diagrams (ERDs). Several ERDs are shown, with each illustrating a functional grouping of tables: an overview (figure 3-1), area tables (figure 3-2), and linking tables (figure 3-3). The overview diagram only shows table constraints while the other ERDs show the full list of columns in each table.

**Figure 3-1:** Inventory data table group overview - table constraints.

**Figure 3-2:** Inventory data table group - area tables.

**Figure 3-3:** Inventory data table group - linking tables.



## 3.1 Building Interaction Table

### Oracle table name: ID\_BUILDING\_INTERACTION

The purpose of the **ID\_BUILDING\_INTERACTION** table is to store one or more interactions between a tree and a building within a short distance of the tree. Each building interaction is identified by a unique number and described by the distance code and azimuth to the building. A tree can have zero, one, or many building interactions.

The information stored for each record is composed of both field-measured values and calculated values. Some of the calculated values in this table are also stored in the **ID\_ENERGY\_EFFECT** table in an alternate format.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.1.1	PLOTID	Plot identifier	INTEGER
3.1.2	VISIT_NBR	Visit number	NUMBER(2)
3.1.3	STATECD	State code	NUMBER(2)
3.1.4	UNITCD	Survey unit code	NUMBER(2)
3.1.5	COUNTYCD	County code	NUMBER(3)
3.1.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.1.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.1.8	CONDID	Condition class identifier	NUMBER(1)
3.1.9	TREE	Tree identifier	NUMBER(9)
3.1.10	BLDG_INTERACTION_ID	Building interaction identifier	NUMBER(2)
3.1.11	DISTANCE_CD	Distance code	NUMBER(2)
3.1.12	AZIMUTH	Azimuth	NUMBER(3)
3.1.13	ELEC_AVOID_VALUE_SUM	Electricity avoided value	NUMBER
3.1.14	ELEC_AVOID_SUM	Electricity avoided quantity	NUMBER
3.1.15	FUEL_AVOID_VALUE_SUM	Fuel avoided value	NUMBER
3.1.16	FUEL_AVOID_SUM	Fuel avoided quantity	NUMBER
3.1.17	CARBON_AVOID_VALUE_SUM	Carbon emissions avoided value	NUMBER
3.1.18	CARBON_AVOID_SUM	Carbon emissions avoided quantity	NUMBER
3.1.19	COOLING_CLIMATE_C_ELEC_AVOID	Cooling climate electricity-based carbon emissions avoided quantity	NUMBER
3.1.20	COOLING_CLIMATE_ELEC_AVOID	Cooling climate electricity avoided quantity	NUMBER
3.1.21	COOLING_SHADING_C_ELEC_AVOID	Cooling shading electricity-based carbon emissions avoided quantity	NUMBER
3.1.22	COOLING_SHADING_ELEC_AVOID	Cooling shading electricity avoided quantity	NUMBER
3.1.23	HEATING_CLIMATE_FUEL_AVOID	Heating climate fuel avoided quantity	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.1.24	HEATING_CLIMATE_C_FUEL_AVOID	Heating climate fuel-based carbon emissions avoided quantity	NUMBER
3.1.25	HEATING_CLIMATE_C_ELEC_AVOID	Heating climate electricity-based carbon emissions avoided quantity	NUMBER
3.1.26	HEATING_CLIMATE_ELEC_AVOID	Heating climate electricity avoided quantity	NUMBER
3.1.27	HEATING_SHADING_FUEL_AVOID	Heating shading fuel avoided quantity	NUMBER
3.1.28	HEATING_SHADING_C_FUEL_AVOID	Heating shading fuel-based carbon emissions avoided quantity	NUMBER
3.1.29	HEATING_SHADING_C_ELEC_AVOID	Heating shading electricity-based carbon emissions avoided quantity	NUMBER
3.1.30	HEATING_SHADING_ELEC_AVOID	Heating shading electricity avoided quantity	NUMBER
3.1.31	HEATING_WINDBREAK_FUEL_AVOID	Heating windbreak fuel avoided quantity	NUMBER
3.1.32	HEATING_WINDBREAK_C_FUEL_AV OID	Heating windbreak fuel-based carbon emissions avoided quantity	NUMBER
3.1.33	HEATING_WINDBREAK_C_ELEC_AVO ID	Heating windbreak electricity-based carbon emissions avoided quantity	NUMBER
3.1.34	HEATING_WINDBREAK_ELEC_AVOID	Heating windbreak electricity avoided quantity	NUMBER
3.1.35	CN	Building interaction sequence number	INTEGER
3.1.36	PLT_CN	Plot sequence number	INTEGER
3.1.37	SBP_CN	Subplot sequence number	INTEGER
3.1.38	CND_CN	Condition sequence number	INTEGER
3.1.39	MTRE_CN	Mother tree sequence number	INTEGER
3.1.40	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	BINTA_PK	CN	N/A
Unique	BINTA_UK	PLOTID, VISIT_NBR, SUBP, TREE, BLDG_INTERACTION_ID	N/A
Foreign	BINTA_PLT_FK	PLT_CN	ID_BUILDING_INTERACTION.PLT_CN = ID_PLOT.CN
Foreign	BINTA_SBP_FK	SBP_CN	ID_BUILDING_INTERACTION.SBP_CN = ID_SUBPLOT.CN

Key type	Alias	Constraint column(s)	Table joins
Foreign	BINTA_CND_FK	CND_CN	ID_BUILDING_INTERACTION.CND_CN = ID_COND.CN
Foreign	BINTA_MTRE_FK	MTRE_CN	ID_BUILDING_INTERACTION.MTRE_CN = ID_MOTHER_TREE.CN

**3.1.1 PLOTID**

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

**3.1.2 VISIT\_NBR**

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

**3.1.3 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**3.1.4 UNITCD**

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

**3.1.5 COUNTYCD**

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

**3.1.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.1.7 SUBP**

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.

Code	Description
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

### 3.1.8 CONDID

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status (ID\_COND.COND\_STATUS\_CD). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

### 3.1.9 TREE

**Tree identifier.** A number that uniquely and permanently identifies each tree on the plot. For remeasurement locations, tree numbers can be used to track trees between inventories when the sample design is the same. Tree numbers are never reused.

### 3.1.10 BLDG\_INTERACTION\_ID

**Building interaction identifier.** The unique identifier for the interaction between a tree and a building. A tree can have zero, one, or many interactions with buildings. The value of the BLDG\_INTERACTION\_ID is assigned sequentially.

### 3.1.11 DISTANCE\_CD

**Distance code.** A code for a category indicating the shortest horizontal distance between a tree and a building.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

#### Codes: DISTANCE\_CD

Code	Description
0	No building within 60 feet or tree does not meet height requirements.
1	Less than 20.1 feet.
2	20.1 to 40.0 feet.
3	40.1 to 60.0 feet.

**3.1.12 AZIMUTH**

**Azimuth.** The direction, to the nearest degree, from the tree to the building. Due north is recorded as 360 degrees.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**3.1.13 ELEC\_AVOID\_VALUE\_SUM**

**Electricity avoided value.** The estimated value of electricity consumption avoided due to the effect of urban trees on residential buildings (expressed in dollars). This value is computed as the summation over all energy used and influences. Energy costs are based on data from the Energy Information Administration.

**3.1.14 ELEC\_AVOID\_SUM**

**Electricity avoided quantity.** The quantity of electricity consumption avoided due to the effect of urban trees on residential buildings (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred. This value is computed as the summation over all energy used and influences.

**3.1.15 FUEL\_AVOID\_VALUE\_SUM**

**Fuel avoided value.** The estimated value of fuel consumption avoided due to the effect of urban trees on residential buildings (expressed in dollars). This value is computed as the summation over all energy used and influences. Energy costs are based on data from the Energy Information Administration. Fuel costs are based on a weighted average of multiple fuel sources including natural gas, fuel oil, and wood.

**3.1.16 FUEL\_AVOID\_SUM**

**Fuel avoided quantity.** The quantity of fuel consumption avoided due to the effect of urban trees on residential buildings (expressed in British thermal units, Btu). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred. This value is computed as the summation over all energy used and influences. Fuels consumption estimates incorporate natural gas, fuel oil, and wood sources.

**3.1.17 CARBON\_AVOID\_VALUE\_SUM**

**Carbon emissions avoided value.** The estimated social cost of carbon (SCC) emissions (based on Technical Update of the Social Cost of Carbon for Regulatory Impact Analysis Under Executive Order 12866 of May 2013) (expressed in dollars). This estimate places a dollar value on economic damages associated with carbon emissions. Under SCC, damages include, but are not limited to, net agricultural production and human health effects. This value is computed as the summation over all energy used and influences.

**3.1.18 CARBON\_AVOID\_SUM**

**Carbon emissions avoided quantity.** The quantity of carbon emissions avoided due to the effect of urban trees on residential buildings (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred. This value is computed as the summation over all energy used and influences.

**3.1.19 COOLING\_CLIMATE\_C\_ELEC\_AVOID**

**Cooling climate electricity-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from electricity production used to cool residential structures due to urban trees' effects on the overall climate in the urban area (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.20 COOLING\_CLIMATE\_ELEC\_AVOID**

**Cooling climate electricity avoided quantity.** An estimate of the amount of electricity consumption avoided to cool residential structures due to urban trees' effect on the overall climate in the urban area (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.21 COOLING\_SHADING\_C\_ELEC\_AVOID**

**Cooling shading electricity-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from electricity production used to cool residential structures due to the effect of urban trees' shading (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.22 COOLING\_SHADING\_ELEC\_AVOID**

**Cooling shading electricity avoided quantity.** An estimate of the amount electricity consumption avoided to cool residential structures due to the effect of urban trees' shading (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.23 HEATING\_CLIMATE\_FUEL\_AVOID**

**Heating climate fuel avoided quantity.** An estimate of the amount fuel consumption avoided to heat residential structures due to urban trees' effect on the overall climate of the urban area (expressed in British thermal units, Btu). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.24 HEATING\_CLIMATE\_C\_FUEL\_AVOID**

**Heating climate fuel-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from fuel consumption used to heat residential structures due to urban trees' effect on the overall climate in the urban area (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.25 HEATING\_CLIMATE\_C\_ELEC\_AVOID**

**Heating climate electricity-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from electricity consumption used to heat residential structures due to urban trees' effect on the overall climate in the urban area (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.26 HEATING\_CLIMATE\_ELEC\_AVOID**

**Heating climate electricity avoided quantity.** An estimate of the amount of electricity consumption avoided to heat residential structures due to urban trees' effect on the overall climate in the urban area (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.27 HEATING\_SHADING\_FUEL\_AVOID**

**Heating shading fuel avoided quantity.** An estimate of the amount of fuel consumption avoided to heat residential structures due to the effect of urban trees' shading (expressed in British thermal units, Btu). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.28 HEATING\_SHADING\_C\_FUEL\_AVOID**

**Heating shading fuel-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from fuel consumption used to heat residential structures due to the effect of urban trees' shading (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.29 HEATING\_SHADING\_C\_ELEC\_AVOID**

**Heating shading electricity-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from electricity consumption used to heat residential structures due to the effect of urban trees' shading (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.30 HEATING\_SHADING\_ELEC\_AVOID**

**Heating shading electricity avoided quantity.** An estimate of the amount of electricity consumption avoided to heat residential structures due to the effect of urban trees' shading (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.31 HEATING\_WINDBREAK\_FUEL\_AVOID**

**Heating windbreak fuel avoided quantity.** An estimate of the amount of fuel consumption avoided to heat residential structures due to the wind-breaking effect of urban trees (expressed in British thermal units, Btu). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.32 HEATING\_WINDBREAK\_C\_FUEL\_AVOID**

**Heating windbreak fuel-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from fuel consumption used to heat residential structures due to the wind-breaking effect of urban trees (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.1.33 HEATING\_WINDBREAK\_C\_ELEC\_AVOID**

**Heating windbreak electricity-based carbon emissions avoided quantity.** An estimate of the amount of carbon emissions avoided from electricity consumption used to heat

residential structures due to the wind-breaking effect of urban trees (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

### 3.1.34 HEATING\_WINDBREAK\_ELEC\_AVOID

**Heating windbreak electricity avoided quantity.** An estimate of the amount of electricity consumption avoided to heat residential structures due to the wind-breaking effect of urban trees (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

### 3.1.35 CN

**Building interaction sequence number.** A unique sequence number used to identify the building interaction record (in ID\_BUILDING\_INTERACTION).

### 3.1.36 PLT\_CN

**Plot sequence number.** Foreign key linking the building interaction record to the plot visit record (ID\_BUILDING\_INTERACTION.PLT\_CN = ID\_PLOT.CN).

### 3.1.37 SBP\_CN

**Subplot sequence number.** Foreign key linking the building interaction record to the subplot record (ID\_BUILDING\_INTERACTION.SBP\_CN = ID\_SUBPLOT.CN).

### 3.1.38 CND\_CN

**Condition sequence number.** Foreign key linking the building interaction record to the condition record (ID\_BUILDING\_INTERACTION.CND\_CN = ID\_COND.CN).

### 3.1.39 MTRE\_CN

**Mother tree sequence number.** Foreign key linking the building interaction record to the mother tree record (ID\_BUILDING\_INTERACTION.MTRE\_CN = ID\_MOTHER\_TREE.CN).

### 3.1.40 PREV\_PLT\_CN

**Previous plot sequence number.** The sequence number (CN) linking the building interaction record to the previous plot visit record (ID\_BUILDING\_INTERACTION.PREV\_PLT\_CN = ID\_PLOT.CN).

## 3.2 Condition Table

### Oracle table name: ID\_COND

The purpose of the **ID\_COND** table is to store information describing each of the land conditions that intersect the plot footprint. A land condition is an area on the ground that is homogeneous with respect to certain parameters (see below). Each plot is assumed to intersect at least one land condition. Multiple land conditions can intersect the plot footprint. When this occurs, boundary data (either traditional or closed) are used to delineate these conditions on the plot footprint.

**Note:** Boundary data are not available in the Urban Forest Inventory and Analysis Database (Urban FIADB) because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address:  
<https://research.fs.usda.gov/programs/fia/sds>. See [appendix H](#) for a brief description of the supplemental urban database tables.

**Forested land conditions** are defined by the following parameters:

- Condition class status
- Reserved status
- Owner group
- Forest type
- Stand-size class
- Regeneration status
- Tree density

**Nonforest land conditions** are defined by the following parameters:

- Condition class status
- Reserved status
- Owner group
- Nonforest land use

There are many rules and guidelines used to identify and delineate conditions during a field visit. These rules and guidelines have been developed over time to produce the most well-defined and repeatable condition data possible. For more details, refer to the National Urban FIA Field Guide (see [appendix A, Quick Links](#)).

Conditions form the basis for all area domain estimates produced using urban FIA data (e.g., area of residential lands). The proportion of each plot footprint component assigned to a given condition is determined by the boundary data and is stored on the **ID\_SUBP\_COND** table. This proportion can be expanded to the population level and expressed in units such as acres or hectares.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.2.1	PLOTID	Plot identifier	INTEGER
3.2.2	VISIT_NBR	Visit number	NUMBER(2)
3.2.3	STATECD	State code	NUMBER(2)
3.2.4	UNITCD	Survey unit code	NUMBER(2)
3.2.5	COUNTYCD	County code	NUMBER(3)
3.2.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.2.7	CONDID	Condition class identifier	NUMBER(1)
3.2.8	FIA_VOLUME_LOCATION_GROUP	FIA volume location group	VARCHAR2(200)
3.2.9	COND_STATUS_CD	Condition class status code	NUMBER(1)
3.2.10	COND_NONSAMPLE_REASN_CD	Condition nonsampled reason code	NUMBER(2)
3.2.11	FIA_LANDUSE	FIA land use code	NUMBER(3)
3.2.12	RESERVCD	Reserved status code	NUMBER(1)
3.2.13	OWNGRPCD	Owner group code	NUMBER(2)
3.2.14	OWNCD	Owner class code	NUMBER(2)
3.2.15	PHYSCLCD	Physiographic class code	NUMBER(2)
3.2.16	STDORGCD	Stand origin code	NUMBER(2)
3.2.17	STDORGSP	Stand origin species code	NUMBER(4)
3.2.18	FLDTYPCD	Field forest type code	NUMBER(3)
3.2.19	FLDSZCD	Field stand-size class code	NUMBER(2)
3.2.20	FLDAGE	Field-recorded stand age	NUMBER(3)
3.2.21	MAPDEN	Mapping density code	NUMBER(1)
3.2.22	CANOPY_CVR_SAMPLE_METHOD_CD	Canopy cover sample method code	NUMBER(1)
3.2.23	LIVE_CANOPY_CVR_PCT	Live canopy cover percent	NUMBER(3)
3.2.24	LIVE_MISSING_CANOPY_CVR_PCT	Live plus missing canopy cover percent	NUMBER(3)
3.2.25	NBR_LIVE_STEMS	Number of live stems	NUMBER(5)
3.2.26	AFFORESTATION_CD	Current afforestation code	NUMBER(1)
3.2.27	PREV_AFFORESTATION_CD	Previous afforestation code	NUMBER(1)
3.2.28	CHAINING_CD	Chaining code	NUMBER(1)
3.2.29	ITREE_LANDUSE	i-Tree land use code	NUMBER(2)
3.2.30	LAND_COVER_CLASS_CD	Land cover class <b>RETIRED</b>	NUMBER(2)
3.2.31	PRODUCTIVITY_STATUS	Site productivity status code	NUMBER(1)
3.2.32	COND_SITECLASS_FLD	Field site productivity class code	NUMBER(1)
3.2.33	DISTURBANCE_CD1	Disturbance code 1	NUMBER(2)
3.2.34	DISTURBANCE_CD2	Disturbance code 2	NUMBER(2)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.2.35	DISTURBANCE_CD3	Disturbance code 3	NUMBER(2)
3.2.36	DISTURBANCE_YEAR1	Disturbance year 1	NUMBER(4)
3.2.37	DISTURBANCE_YEAR2	Disturbance year 2	NUMBER(4)
3.2.38	DISTURBANCE_YEAR3	Disturbance year 3	NUMBER(4)
3.2.39	TREATMENT_CD1	Treatment code 1	NUMBER(2)
3.2.40	TREATMENT_CD2	Treatment code 2	NUMBER(2)
3.2.41	TREATMENT_CD3	Treatment code 3	NUMBER(2)
3.2.42	TREATMENT_YEAR1	Treatment year 1	NUMBER(4)
3.2.43	TREATMENT_YEAR2	Treatment year 2	NUMBER(4)
3.2.44	TREATMENT_YEAR3	Treatment year 3	NUMBER(4)
3.2.45	CN	Condition sequence number	INTEGER
3.2.46	PLT_CN	Plot sequence number	INTEGER
3.2.47	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.2.48	INVASIVE_STATUS_CD	Invasive species status code	NUMBER(1)
3.2.49	INVASIVE_NONSAMPLE_REASON_CD	Invasive species nonsampled reason code	NUMBER(2)
3.2.50	SITE_CLASS_CD	Site productivity class code	NUMBER(1)
3.2.51	SITE_CLASS_METHOD	Site productivity class method code	NUMBER(1)
3.2.52	SITE_CLASS_SIT_CN	Site productivity class site tree sequence number	INTEGER
3.2.53	SITE_INDEX	Site index for the condition	NUMBER(3)
3.2.54	BALIVE	Basal area per acre of live trees	NUMBER
3.2.55	COVER_CLASS	Cover class	NUMBER(2)
3.2.56	FOREST_COND_STATUS_CHANGE_CD	Forest land condition status change code	NUMBER(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	CND_PK	CN	N/A
Unique	CND_UK	PLOTID, VISIT_NBR, CON DID	N/A
Foreign	CND_PLT_FK	PLT_CN	ID_COND.PLT_CN = ID_PLOT.CN

### 3.2.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

**3.2.2 VISIT\_NBR**

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

**3.2.3 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**3.2.4 UNITCD**

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

**3.2.5 COUNTYCD**

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

**3.2.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.2.7 CONDID**

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status ([ID\\_COND.COND\\_STATUS\\_CD](#)). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

**3.2.8 FIA\_VOLUME\_LOCATION\_GROUP**

**FIA volume location group.** An identifier that configures the FIA compilation system to call the correct equations to be used for tree volume, biomass, etc. A volume location group is usually designated for a geographic area, such as a State, multiple States, a group of counties, or an ecoregion.

**Codes: FIA\_VOLUME\_LOCATION\_GROUP**

<b>Code</b>	<b>Description</b>
S22LAZN	Northern Arizona Ecosystems.
S22LAZS	Southern Arizona Ecosystems.
S22LCOE	Eastern Colorado Ecosystems.
S22LCOW	Western Colorado Ecosystems.
S22LID	Idaho Ecosystems.
S22LMTE	Eastern Montana Ecosystems.
S22LMTW	Western Montana Ecosystems.
S22LNMN	Northern New Mexico Ecosystems.
S22LNMS	Southern New Mexico Ecosystems.
S22LNV	Nevada Ecosystems.
S22LUTNE	Northern and Eastern Utah Ecosystems.
S22LUTSW	Southern and Western Utah Ecosystems.
S22LWYE	Eastern Wyoming Ecosystems.
S22LWYW	Western Wyoming Ecosystems.
S23LCS	Central States (IL, IN, IA, MO).
S23LLS	Lake States (MI, MN, WI).
S23LPS	Plains States (KS, NE, ND, SD).
S24	Northeastern States (CT, DE, ME, MD, MA, NH, NJ, NY, OH, PA, RI, VT, WV).
S26LCA	California other than mixed conifer forest type.
S26LCAMIX	California mixed conifer forest type.
S26LEOR	Eastern Oregon.
S26LEWA	Eastern Washington.
S26LORJJ	Oregon Jackson and Josephine Counties.
S26LPI	Pacific Islands.
S26LURBAN	Pacific Northwest - urban.
S26LWACF	Washington Silver Fir Zone.
S26LWOR	Western Oregon.
S26LWWA	Western Washington.
S27LAK	Alaska - coastal and interior.
S27LAK1AB	Coastal Alaska Southeast and Central.
S27LAK1C	Coastal Alaska Kodiak and Afognak Islands.
S33	Southern Research States - excluding Puerto Rico and the Virgin Islands (AL, AR, FL, GA, LA, KY, MS, OK, NC, SC, TN, TX, VA).
S33CARIBDRY	Caribbean Islands - Subtropical dry forest life zones.
S33CARIBLMWR	Caribbean Islands - Lower montane wet and rain forest life zones.
S33CARIBMOIST	Caribbean Islands - Subtropical moist forest life zones.
S33CARIBWET	Caribbean Islands - Subtropical wet and rain forest life zones.

### 3.2.9 COND\_STATUS\_CD

**Condition class status code.** A code that describes the sampling status of the condition class.

Refer to the reference table for the full code description.

**Reference table:** [REF\\_CONDITION\\_SAMPLING\\_STATUS](#)

**Codes: COND\_STATUS\_CD**

Code	Description
1	<b>Accessible forest land</b> - Land within the population of interest that can be occupied safely and has at least 10 percent canopy cover by live tally trees of any size or has had at least 10 percent canopy cover of live tally species in the past, based on the presence of stumps, snags, or other evidence. To qualify, the area must be at least 1.0 acre in size and 120.0 feet wide.
2	<b>Accessible nonforest land</b> - Land that has less than 10 percent canopy cover of tally tree species of any size and, in the case of afforested land, fewer than 150 established trees per acre; or land that has sufficient canopy cover or stems, but is classified as nonforest land use (see <a href="#">FIA_LANDUSE</a> ). Nonforest includes areas that have sufficient cover or live stems to meet the forest land definition, but do not meet the dimensional requirements.
3	<b>Noncensus water</b> - Lakes, reservoirs, ponds, and similar bodies of water 1.0 acre to 4.5 acre in size. Rivers, streams, canals, etc., 30.0 feet to 200 feet wide. This definition was used in the 1990 census and applied when the data became available. Earlier inventories defined noncensus water differently.
4	<b>Census water</b> - Lakes, reservoirs, ponds, and similar bodies of water 4.5 acre in size and larger; and rivers, streams, canals, etc., more than 200 feet wide.
5	<b>Nonsampled</b> - Any portion of a plot that cannot be sampled is delineated as a separate condition. There is no minimum size requirement. The reason the condition was not sampled is provided in <a href="#">COND_NONSAMPLE_REASON_CD</a> .

### 3.2.10 COND\_NONSAMPLE\_REASON\_CD

**Condition nonsampled reason code.** A code indicating the reason a condition class was not sampled.

**Reference table:** [REF\\_CONDITION\\_NONSAMPLE\\_REASON](#)

**Codes: COND\_NONSAMPLE\_REASON\_CD**

Code	Description
1	<b>Outside U.S. boundary</b> - Condition class is outside the U.S. border.
2	<b>Denied access area</b> - Access to the condition class is denied by the legal owner, or by the owner of the only reasonable route to the condition class.
3	<b>Hazardous situation</b> - Condition class cannot be accessed because of a hazard or danger; for example, cliffs, quarries, strip mines, illegal substance plantations, temporary high water, etc.
5	<b>Lost data</b> - The data file was discovered to be corrupt after a panel was completed and submitted for processing. Used for the single condition that is required for this plot. This code is for office use only.
6	<b>Lost plot</b> - Entire plot cannot be found. Used for the single condition that is required for this plot.

Code	Description
7	<b>Wrong location</b> - Previous plot can be found, but its placement is beyond the tolerance limits for plot location. Used for the single condition that is required for this plot.
8	<b>Skipped visit</b> - Entire plot skipped. Used for plots that are not completed prior to the time a panel is finished and submitted for processing. Used for the single condition that is required for this plot. This code is for office use only.
9	<b>Dropped intensified plot</b> - Intensified plot dropped due to a change in grid density. Used for the single condition that is required for this plot. This code used only by units engaged in intensification. This code is for office use only.
10	<b>Other</b> - Condition class not sampled due to a reason other than one of the specific reasons listed.
11	<b>Ocean</b> - Condition class falls in ocean water below mean high tide line.

### 3.2.11 FIA\_LANDUSE

**FIA land use code.** A code indicating the current land use for a condition, which meets the minimum area and width requirements (except those cases where the condition has been solely defined due to developed land uses, such as roads and rights-of-way). This code set was developed by the FIA program.

**Note:** The "detailed codes" are not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

Refer to the reference table for the detailed code descriptions.

**Reference tables:** [REF\\_FIA\\_LANDUSE](#), [REF\\_FIA\\_LANDUSE\\_DETAILED](#)

**Codes: FIA\_LANDUSE**

Collapsed code	FIA land use	Detailed codes (not available in the Urban FIADB)
10	Forest land	<ul style="list-style-type: none"> <li>• 1 = Forest land</li> </ul>
11	Agriculture	<ul style="list-style-type: none"> <li>• 100 = Agricultural land</li> <li>• 110 = Cropland</li> <li>• 120 = Pasture (improved through cultural practices)</li> <li>• 130 = Idle farmland</li> <li>• 140 = Orchard/Nursery</li> <li>• 150 = Christmas tree plantation</li> <li>• 160 = Maintained wildlife opening</li> <li>• 170 = Windbreak/Shelterbelt</li> </ul>
12	Rangeland/Chaparral	<ul style="list-style-type: none"> <li>• 200 = Rangeland</li> <li>• 450 = Nonforest-Chaparral</li> </ul>
13	Commercial/Industrial	<ul style="list-style-type: none"> <li>• 300 = Developed</li> <li>• 310 = Cultural</li> <li>• 313 = Institutional</li> <li>• 314 = Commercial/Industrial</li> <li>• 340 = Mining and wasteland</li> </ul>
14	Residential	<ul style="list-style-type: none"> <li>• 311 = Residential</li> </ul>
15	Multi-family Residential	<ul style="list-style-type: none"> <li>• 312 = Multi-family residential</li> </ul>

<b>Collapsed code</b>	<b>FIA land use</b>	<b>Detailed codes (not available in the Urban FIADB)</b>
16	Recreation/Cemetery	<ul style="list-style-type: none"> <li>• 316 = Cemetery</li> <li>• 330 = Recreation</li> <li>• 331 = Park</li> <li>• 332 = Golf courses</li> </ul>
17	Rights-of-Way	<ul style="list-style-type: none"> <li>• 320 = Rights-of-way</li> <li>• 321 = Transportation</li> <li>• 322 = Utility</li> </ul>
18	Other Nonforest	<ul style="list-style-type: none"> <li>• 400 = Other</li> <li>• 410 = Nonvegetated</li> <li>• 420 = Wetland</li> <li>• 430 = Beach</li> </ul>
19	Water	<ul style="list-style-type: none"> <li>• 900 = Water</li> </ul>
20	Nonsampled	<ul style="list-style-type: none"> <li>• 910 = Nonsampled</li> </ul>

### 3.2.12 RESERVCD

**Reserved status code.** A code indicating the reserved status of the condition on publicly owned land.

Reserved land is withdrawn by law(s) prohibiting the management of land for the production of wood products (not merely controlling or prohibiting wood-harvesting methods). Such authority is vested in a public agency or department, and supersedes rights of ownership. The prohibition against management for wood products cannot be changed through decision of the land manager (management agency) or through a change in land management personnel, but rather is permanent in nature.

All private lands ([OWNGRPCD](#) = 40) are considered not reserved; this includes in-holdings, where they can be identified.

All federally owned lands managed by the National Park Service or Fish and Wildlife Service ([OWNCD](#) = 21 or 23) are considered reserved. Some lands owned by State or local governments are considered reserved, even in the absence of specific laws covering them, if the agency mandate for that land designation precludes management to produce wood products (e.g., most State parks). In the absence of State-specific lists of reserved areas, any State or local government land area that include "park," "wilderness," "wild river," "reserve," or "preserve" in the name is by default considered reserved.

Note that harvest can occur in reserved areas; for example, for restoration, safety, or recreation. Nonforest areas, as well as census and noncensus water conditions, are considered reserved if forest lands in the same designated area are classified as reserved, or if the area would be considered reserved if forest land was present.

**Reference table:** [REF\\_RESERVED\\_STATUS](#)

**Codes: RESERVCD**

<b>Code</b>	<b>Description</b>
0	Not reserved.
1	Reserved.

**3.2.13 OWNGRPCD**

**Owner group code.** A code indicating the ownership group of the land for the condition.

**Reference table:** [REF\\_OWNER\\_GROUP](#)

**Codes: OWNGRPCD**

Code	Description
10	Forest Service ( <a href="#">OWNCD</a> = 11, 12, 13).
20	Other Federal ( <a href="#">OWNCD</a> = 21, 22, 23, 24, 25).
30	State and local government ( <a href="#">OWNCD</a> = 31, 32, 33).
40	Private ( <a href="#">OWNCD</a> = 41, 42, 43, 44, 45, 46).

**3.2.14 OWNCD**

**Owner class code.** A code indicating the ownership category of the land for the condition.

**Reference table:** [REF\\_OWNER\\_CLASS](#)

**Codes: OWNCD**

Code	Description
11	National Forest.
12	National Grassland and/or Prairie.
13	Other Forest Service land.
21	National Park Service.
22	Bureau of Land Management.
23	Fish and Wildlife Service.
24	Departments of Defense/Energy (including the Army Corps of Engineers).
25	Other Federal.
31	State including State public universities.
32	Local (County, Municipality, etc.) including water authorities.
33	Other non-Federal public.
46	Undifferentiated private and Native American. Note: This code is used in the Urban FIADB for all private lands.

**Note:** The following detailed private owner land codes are not available in this database because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**Codes: OWNCD (private lands)**

Code	Description
41	Corporate, including Native Corporations in Alaska and private universities (including private educational institutions).
42	Non-governmental conservation/natural resources organization.
43	Unincorporated local partnership/association/club.

Code	Description
44	Native American.
45	Individual and family, including trusts, estates, and family partnerships.

### 3.2.15 PHYSCLCD

**Physiographic class code.** A code indicating the physiographic class of the condition within the plot area. Individual physiographic classes are based on the general effect of land form, topographical position, and soil on moisture available to trees.

**Reference table:** [REF\\_PHYSIOGRAPHIC\\_CLASS](#)

**Codes: PHYSCLCD**

Code	Description
—	<b>Xeric sites</b> (normally low or deficient in available moisture)
11	Dry tops - Ridge tops with thin rock outcrops and considerable exposure to sun and wind.
12	Dry slopes - Slopes with thin rock outcrops and considerable exposure to sun and wind. Includes most steep slopes with a southern or western exposure.
13	Deep sands - Sites with a deep, sandy surface subject to rapid loss of moisture following precipitation. Typical examples include sand hills, ridges, and flats in the South, sites along the beach and shores of lakes and streams, and many deserts.
19	Other xeric - All dry physiographic sites not described above.
—	<b>Mesic sites</b> (normally moderate but adequate available moisture)
21	Flatwoods - Flat or fairly level sites outside of floodplains. Excludes deep sands and wet, swampy sites.
22	Rolling uplands - Hills and gently rolling, undulating terrain and associated small streams. Excludes deep sands, all hydric sites, and streams with associated floodplains.
23	Moist slopes and coves - Moist slopes and coves with relatively deep, fertile soils. Often these sites have a northern or eastern exposure and are partially shielded from wind and sun. Includes moist mountain tops and saddles.
24	Narrow floodplains/bottomlands - Floodplains and bottomlands less than 1/4 mile in width along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1/4-mile limit. Excludes swamps, sloughs, and bogs.
25	Broad floodplains/bottomlands - Floodplains and bottomlands 1/4 mile or wider along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces. Excludes swamps, sloughs, and bogs with year-round water problems.
29	Other mesic - All moderately moist physiographic sites not described above.
—	<b>Hydric sites</b> (normally abundant or overabundant moisture all year)
31	Swamps/Bogs - Low, wet, flat, forested areas usually quite extensive that are flooded for long periods except during periods of extreme drought. Excludes cypress ponds and small drains.
32	Small drains - Narrow, stream-like, wet strands of forest land often without a well-defined stream channel. These areas are poorly drained or flooded throughout most of the year and drain the adjacent higher ground.

Code	Description
33	Bays and wet pocosins - Low, wet, boggy sites characterized by peaty or organic soils. May be somewhat dry during periods of extended drought. Examples include sites in the Carolina bays in the Southeast United States.
34	Beaver ponds.
35	Cypress ponds.
36	Forest or nonforest over permafrost - Low-lying, sometimes wet, flat areas, often characterized by a thick moss layered ground surface, sometimes comprised of tussocks that tend to form a waterlogged soils layer as the active layer thaws seasonally. Permafrost may be visible or detected with a soil probe. At later periods in the season when permafrost cannot be detected, waterlogged soils layered on top of deeper permafrost are possible.
39	Other hydric - All other hydric physiographic sites.

### 3.2.16 STDORGCD

**Stand origin code.** The method of stand regeneration for trees in the condition. An artificially regenerated stand is established by planting or artificial seeding.

**Reference table:** [REF\\_REGENERATION\\_STATUS](#)

**Codes:** STDORGCD

Code	Description
0	<b>Natural</b> - Present stand shows no clear evidence of artificial regeneration.
1	<b>Artificial</b> - Present stand shows clear evidence of artificial regeneration.

### 3.2.17 STDORGSP

**Stand origin species code.** The species code for the predominant artificially regenerated species (only populated when [STDORGCD](#) = 1).

### 3.2.18 FLDTYPED

**Field forest type code.** A code indicating the field-assigned forest type based on the tree species or species groups forming a plurality of all live stocking in the condition. Refer to [appendix F \(Forest Type Codes and Names\)](#) for codes and descriptions.

**Reference table:** [REF\\_FOREST\\_TYPE](#)

### 3.2.19 FLDSZCD

**Field stand-size class code.** A code indicating the field-assigned classification of the predominant (based on stocking) diameter class of live trees within the condition.

**Reference table:** [REF\\_STAND\\_SIZE\\_CLASS](#)

**Codes: FLDSZCD**

<b>Code</b>	<b>Description</b>
0	Nonstocked - Meeting the definition of accessible land and one of the following applies: (1) <10 percent stocked by trees, seedlings, and saplings and not classified as cover trees, or 10 percent canopy cover if stocking standards are not available, or (2) for several woodland species where stocking standards are not available, <10 percent canopy cover of trees, seedlings, and saplings.
1	$\leq 4.9$ inches (seedlings/saplings) - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings, and at least 2/3 of the canopy cover is in trees $<5.0$ inches d.b.h./d.r.c.
2	5.0-8.9 inches (softwoods and woodland trees) / 5.0-10.9 inches (hardwoods) - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings; and at least 1/3 of the canopy cover is in trees $>5.0$ inches d.b.h./d.r.c. and the plurality of the canopy cover is in softwoods 5.0-8.9 inches diameter and/or hardwoods 5.0-10.9 inches d.b.h., and/or woodland trees 5.0-8.9 inches d.r.c.
3	9.0-19.9 inches (softwoods and woodland trees) / 11.0-19.9 inches (hardwoods) - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and sapling; and at least 1/3 of the canopy cover is in trees $>5.0$ inches d.b.h./d.r.c. and the plurality of the canopy cover is in softwoods 9.0-19.9 inches diameter and/or hardwoods between 11.0-19.9 inches d.b.h., and/or woodland trees 9.0-19.9 inches d.r.c.
4	20.0-39.9 inches - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings; and at least 1/3 of the canopy cover is in trees $>5.0$ inches d.b.h./d.r.c. and the plurality of the canopy cover is in trees 20.0-39.9 inches d.b.h.
5	40.0+ inches - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings; and at least 1/3 of the canopy cover is in trees $>5.0$ inches d.b.h./d.r.c. and the plurality of the canopy cover is in trees $\geq 40.0$ inches d.b.h.

**3.2.20 FLDAGE**

**Field-recorded stand age.** The stand age as assigned by the field crew. This is based on the average total age, to the nearest year, of the trees in the field-recorded stand-size class of the condition, determined using local procedures. For nonstocked stands, a value of 0 is stored.

**3.2.21 MAPDEN**

**Mapping density code.** A code indicating the relative tree density of the condition. This classification is based on the number of stems/unit area, basal area, tree cover, or stocking of all live trees, seedlings, and saplings in the condition that are not overtapped. Codes other than 1 are used as an indication that a significant difference in tree density is the only factor causing another condition to be recognized on the plot.

**Reference table:** [REF\\_TREE\\_DENSITY](#)

**Codes: MAPDEN**

<b>Code</b>	<b>Description</b>
1	Initial density class.
2	Density class 2 - density different than 1.
3	Density class 3 - density different than 1 and 2.

**3.2.22 CANOPY\_CVR\_SAMPLE\_METHOD\_CD**

**Canopy cover sample method code.** A code indicating the canopy cover sample method used to determine [LIVE\\_CANOPY\\_CVR\\_PCT](#), [LIVE\\_MISSING\\_CANOPY\\_CVR\\_PCT](#), and [NBR\\_LIVE\\_STEMS](#).

**Reference table:** [REF\\_CANOPY\\_COVER\\_SAMPLE\\_METHOD](#)

**Codes: CANOPY\_CVR\_SAMPLE\_METHOD\_CD**

<b>Code</b>	<b>Method name</b>	<b>Description</b>
1	Ocular method	Visual inspection of what is on the ground along with various types of aerial imagery to help determine <a href="#">LIVE_CANOPY_CVR_PCT</a> and <a href="#">LIVE_MISSING_CANOPY_CVR_PCT</a> . Used only in areas that are obviously 0 percent <a href="#">LIVE_MISSING_CANOPY_CVR_PCT</a> or obviously greater than 10 percent <a href="#">LIVE_MISSING_CANOPY_CVR_PCT</a> .
2	Sub-acre method	Used only when the ocular method is not appropriate and when the acre method cannot be established due to the condition's shape, dimensions or accessibility. The crew samples all live, dead, and missing tree canopies on the canopy cover sample plot as described in <a href="#">LIVE_MISSING_CANOPY_CVR_PCT</a> . The 10 percent threshold is dependent on the sample plot size and respective area in square feet.
3	Acre method	Used when the ocular method is not appropriate and when it is safe and practical to sample on the entire acre. To determine if minimum 10 percent <a href="#">LIVE_MISSING_CANOPY_CVR_PCT</a> is reached, the crew samples all live, dead, and missing tree canopies on the one-acre sample plot as described in <a href="#">LIVE_MISSING_CANOPY_CVR_PCT</a> .

**3.2.23 LIVE\_CANOPY\_CVR\_PCT**

**Live canopy cover percent.** The percentage of live canopy cover for the condition. Included are live tally trees, saplings, and seedlings that cover the sample area.

**3.2.24 LIVE\_MISSING\_CANOPY\_CVR\_PCT**

**Live plus missing canopy cover percent.** The percentage of live and missing canopy cover for the condition. This percentage is determined in the field by adding [LIVE\\_CANOPY\\_CVR\\_PCT](#) to the estimated missing canopy cover. Included are all dead, harvested, and removed trees, saplings, and seedlings as well as dead portions of live trees. Missing canopy that has been replaced by the current live canopy or missing canopy that existed before the most recent conversion of a forested condition to a nonforest condition is not included. The estimate is based on field observations, aerial photos, historical aerial imagery, and similar evidence in adjacent stands that do not have dead, harvested, or removed trees. The total value for [LIVE\\_MISSING\\_CANOPY\\_CVR\\_PCT](#) cannot exceed 100 percent.

**3.2.25 NBR\_LIVE\_STEMS**

**Number of live stems.** The estimated number of live stems per acre in the condition. The estimate in the field is based on an actual stem count of tally tree species within the canopy cover for the sample area.

**3.2.26 AFFORESTATION\_CD**

**Current afforestation code.** A code indicating that a condition has no evidence of prior forest, but it does have evidence suggesting deliberate afforestation attempts (planted or prepared to promote tree establishment) to convert to forest in the current inventory cycle or since the last measurement.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes: AFFORESTATION\_CD**

Code	Description
0	No.
1	Yes.

**3.2.27 PREV\_AFFORESTATION\_CD**

**Previous afforestation code.** A code indicating that a condition has no evidence of prior forest, but it does have evidence suggesting deliberate afforestation attempts (planted or prepared to promote tree establishment) to convert to forest in the prior inventory cycle or prior to the last measurement.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes: PREV\_AFFORESTATION\_CD**

Code	Description
0	No.
1	Yes.

**3.2.28 CHAINING\_CD**

**Chaining code.** A code indicating that a condition has been chained, shear bladed, roller chopped, etc., for the purpose of increased forage production. These treatments contrast with silvicultural removals in that little or none of the woody material is removed from the site and there are few residual live trees.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes: CHAINING\_CD**

Code	Description
0	No.
1	Yes.

### 3.2.29 ITREE\_LANDUSE

**i-Tree land use code.** A code indicating the land use of the condition using codes developed for the i-Tree urban inventory. Land use codes are assigned by the field crew. This code set is not the nonforest land use codes traditionally used by FIA.

**Note:** The "detailed codes" are not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

Refer to the reference table for the detailed code descriptions.

**Reference table:** [REF\\_ITREE\\_LANDUSE](#), [REF\\_ITREE\\_LANDUSE\\_DETAILED](#)

**Codes: ITREE\_LANDUSE**

Collapsed code	i-Tree land use	Detailed codes (not available in the Urban FIADB)
1	Agriculture	<ul style="list-style-type: none"> <li>• 10 = Agriculture</li> </ul>
2	Institutional/Commercial	<ul style="list-style-type: none"> <li>• 22 = Institutional</li> <li>• 23 = Commercial/Industrial</li> </ul>
3	Residential	<ul style="list-style-type: none"> <li>• 20 = Residential</li> </ul>
4	Multi-family Residential	<ul style="list-style-type: none"> <li>• 21 = Multi-family residential</li> </ul>
5	Cemetery/Park/Golf	<ul style="list-style-type: none"> <li>• 25 = Cemetery</li> <li>• 40 = Park</li> <li>• 41 = Golf course</li> </ul>
6	Transportation/Utility	<ul style="list-style-type: none"> <li>• 30 = Transportation</li> <li>• 31 = Utility</li> </ul>
7	Water	<ul style="list-style-type: none"> <li>• 50 = Water/Wetland</li> </ul>
8	Unused/Other	<ul style="list-style-type: none"> <li>• 24 = Unused</li> <li>• 60 = Other</li> </ul>

### 3.2.30 LAND\_COVER\_CLASS\_CD

**Land cover class, retired. RETIRED** (*this column stores old data*). A code indicating the type of land cover for a condition that meets the minimum area and width requirements (except those cases where the condition has been solely defined due to developed land uses, such as roads and rights-of-way). If the condition was less than 1 acre, a land cover classification key was used to assign a land cover class.

**Note:** This attribute is retired when  $ID\_PLOT.MANUAL\_NATIONAL \geq 8.0$  and replaced by a newer cover class version (see [COVER\\_CLASS](#)). Many of the codes are the same between the retired and the current code sets. However, there is no national crosswalk to translate the retired codes into the new codes. The cover classification key used by crews has been modified to remove all aspects of land use and focus on land cover.

Refer to the reference table for the full code descriptions.

**Reference table:** [REF\\_LAND\\_COVER\\_CLASS](#)

**Codes: LAND\_COVER\_CLASS\_CD (codes that are  $\geq 10\%$  vegetative cover)**

<b>Code</b>	<b>Description</b>
1	<b>Treeland</b> - Areas on which trees provide 10% or greater canopy cover and are part of the dominant (uppermost) vegetation layer, including areas that have been planted to produce woody crops.
2	<b>Shrubland</b> - Areas on which shrubs or subshrubs provide 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Treeland. Shrub/Subshrub - a woody plant that generally has several erect, spreading, or prostrate stems, which give it a bushy appearance.
3	<b>Grassland</b> - Areas on which herbaceous vegetation provide 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Treeland or Shrubland. This includes herbs, forbs, and graminoid species.
4	<b>Non-vascular vegetation</b> - Areas on which non-vascular vegetation provide 10% or greater cover and are part of the dominant vegetation layer, provided these areas do not qualify as Treeland, Shrubland, or Grassland. Examples include mosses, sphagnum moss bogs, liverworts, hornworts, lichens, and algae.
5	<b>Mixed vegetation</b> - Areas with 10% or greater vegetative cover but no one life form has 10% or more cover. That is, these areas do not qualify as Treeland, Shrubland, Grassland, or Non-vascular Vegetation, and thus are a mixture of plant life forms.
6	<b>Agricultural vegetation</b> - Areas that are dominated by vegetation grown for the production of crops (food, non-woody fiber and/or ornamental horticulture), including land in any stage of annual crop production, and land being regularly cultivated for production of crops from perennial plants.
7	<b>Developed, vegetated</b> - Areas predominantly covered by vegetation with highly-manipulated growth forms (usually by mechanical pruning, mowing, clipping, etc.), but are not Agricultural.

**Codes: LAND\_COVER\_CLASS\_CD (codes that are  $< 10\%$  vegetative cover)**

<b>Code</b>	<b>Description</b>
8	<b>Barren</b> - Natural areas of limited plant life (<10%). Areas generally characterized by bare rock, gravel, sand, silt, clay, or other earthen material, with little or no "green" vegetation present regardless of its inherent ability to support life.
9	<b>Developed</b> - Areas predominantly covered with constructed materials with limited plant life (<10%). Examples include completely paved surfaces like roads, parking lots and densely developed urban areas.
10	<b>Water</b> - Areas persistently covered and predominated by water and have <10% emergent vegetative cover. Examples include census and noncensus water and permanent snow and ice.

**3.2.31 PRODUCTIVITY\_STATUS**

**Site productivity status code.** A code indicating whether or not a forested condition is considered productive.

**Reference table:** [REF\\_PRODUCTIVITY\\_STATUS](#)

**Codes: PRODUCTIVITY\_STATUS**

<b>Code</b>	<b>Description</b>
0	<b>Unproductive</b> - Forest land incapable of producing 20 cubic feet per acre per year because of adverse site conditions. Adverse conditions include sterile soils, dry climate, poor drainage, high elevation, steepness, and rockiness. Vegetation, if present, is widely spaced and scrubby, or tree growth cannot be established. These conditions can be due to forces of nature or human-caused disturbances.
1	<b>Productive</b> - Forest land capable of producing in excess of 20 cubic feet per acre per year. Productive forest land may be nonstocked provided that neither any natural condition, nor any activity by humans, prevents or inhibits the establishment of tree seedlings.

**3.2.32 COND\_SITECLASS\_FLD**

**Field site productivity class code.** A site class code indicating the estimated productivity for the condition. This is determined in the field using one of the following methods: (1) if a site tree is collected for the condition, then the site class is calculated using an algorithm stored in the data recorder, or (2) if no site tree is collected, then the site class is estimated by the field crew. These codes are ordinal and classify productivity in terms of cubic feet per acre per year.

**Reference table:** [REF\\_SITE\\_CLASS\\_CODE](#)

**Codes: COND\_SITECLASS\_FLD**

<b>Code</b>	<b>Description</b>
1	225+ cubic feet/acre/year.
2	165-224 cubic feet/acre/year.
3	120-164 cubic feet/acre/year.
4	85-119 cubic feet/acre/year.
5	50-84 cubic feet/acre/year.
6	20-49 cubic feet/acre/year.
7	0-19 cubic feet/acre/year.

**3.2.33 DISTURBANCE\_CD1**

**Disturbance code 1.** A code indicating the type of disturbance present in the condition occurring since the last measurement or within the last 5 years for new plots. The area affected by the disturbance must be at least 1.0 acre in size. A minimum level of disturbance (mortality or damage to 25 percent of the trees, or 50 percent of an individual species' count, in the condition) is required. For some disturbances (e.g., grazing, browsing, flooding), at least 25 percent of the soil surface or understory vegetation must have been affected. Up to three different disturbances per condition can be recorded, from most important to least important (DISTURBANCE\_CD1, DISTURBANCE\_CD2, and DISTURBANCE\_CD3).

**Reference table:** [REF\\_DISTURBANCE](#)

**Codes: DISTURBANCE\_CD1**

<b>Code</b>	<b>Description</b>
0	None - No observable disturbance.
10	Insect damage (to both understory vegetation and trees).
11	Insect damage to understory vegetation, excluding tree species.
12	Insect damage to trees species.
20	Disease damage (to both understory vegetation and trees).
21	Disease damage to understory vegetation, excluding tree species.
22	Disease damage to tree species.
30	Fire damage (from crown and ground fire, either prescribed or natural).
31	Ground fire damage (either prescribed or natural).
32	Crown fire damage (either prescribed or natural).
40	Animal damage (other than listed below).
41	Beaver (includes flooding caused by beaver).
42	Porcupine.
43	Deer/ungulate.
44	Bear ( <i>core optional</i> ).
45	Rabbit ( <i>core optional</i> ).
46	Domestic animal/livestock (includes grazing).
50	Weather damage (other than listed below).
51	Ice.
52	Wind (includes hurricane, tornado).
53	Flooding (weather induced).
54	Drought.
60	Vegetation (suppression, competition, vines).
70	Unknown / not sure / other.
80	Human-caused damage - Any minimum threshold of human-caused damage not described in the disturbance codes listed or in the treatment codes listed.
90	Geologic disturbances.
91	Landslide.
92	Avalanche track.
93	Volcanic blast zone.
94	Other geologic event.
95	Earth movement / avalanches.

**3.2.34 DISTURBANCE\_CD2**

**Disturbance code 2.** The second disturbance code, if the condition has experienced more than one disturbance. See [DISTURBANCE\\_CD1](#) for more information.

**Reference table:** [REF\\_DISTURBANCE](#)

**3.2.35 DISTURBANCE\_CD3**

**Disturbance code 3.** The third disturbance code, if the condition has experienced more than two disturbances. See [DISTURBANCE\\_CD1](#) for more information.

**Reference table:** [REF\\_DISTURBANCE](#)

**3.2.36 DISTURBANCE\_YEAR1**

**Disturbance year 1.** The year in which disturbance 1 (DISTURBANCE\_CD1) is estimated to have occurred. If the disturbance occurs continuously over a period of time, the value 9999 is used.

**3.2.37 DISTURBANCE\_YEAR2**

**Disturbance year 2.** The year in which disturbance 2 (DISTURBANCE\_CD2) is estimated to have occurred. See [DISTURBANCE\\_YEAR1](#) for more information.

**3.2.38 DISTURBANCE\_YEAR3**

**Disturbance year 3.** The year in which disturbance 3 (DISTURBANCE\_CD3) is estimated to have occurred. See [DISTURBANCE\\_YEAR1](#) for more information.

**3.2.39 TREATMENT\_CD1**

**Treatment code 1.** A code indicating the type of treatment present in the condition occurring since the last measurement or within the last 5 years for new plots. The term treatment implies that a silvicultural application has been prescribed. The area affected by the treatment must be at least 1.0 acre in size. Up to three different treatments per condition can be recorded, from most important to least important (TREATMENT\_CD1, TREATMENT\_CD2, and TREATMENT\_CD3).

**Reference table:** [REF\\_TREATMENT](#)

**Codes: TREATMENT\_CD1**

Code	Description
0	<b>None</b> - No observable treatment.
10	<b>Cutting</b> - The removal of one or more trees from a stand.
20	<b>Site preparation</b> - Clearing, slash burning, chopping, diskng, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration.
30	<b>Artificial regeneration</b> - Following a disturbance or treatment (usually cutting), a new stand where at least 50% of the live trees present resulted from planting or direct seeding.
40	<b>Natural regeneration</b> - Following a disturbance or treatment (usually cutting), a new stand where at least 50% of the live trees present (of any size) were established through the growth of existing trees and/or natural seeding or sprouting.
50	<b>Other silvicultural treatment</b> - The use of fertilizers, herbicides, girdling, pruning, invasive species removal or other activities (not covered by codes 10-40) designed to improve the commercial value of the residual stand, or chaining, which is a practice used on woodlands to encourage wildlife forage. Note: Prescribed fires are considered a disturbance and not a treatment (see <a href="#">DISTURBANCE_CD1</a> code 30).

**3.2.40 TREATMENT\_CD2**

**Treatment code 2.** The second treatment code, if the condition has experienced more than one treatment. See [TREATMENT\\_CD1](#) for more information.

**Reference table:** [REF\\_TREATMENT](#)

**3.2.41 TREATMENT\_CD3**

**Treatment code 3.** The third treatment code, if the condition has experienced more than two treatments. See [TREATMENT\\_CD1](#) for more information.

**Reference table:** [REF\\_TREATMENT](#)

**3.2.42 TREATMENT\_YEAR1**

**Treatment year 1.** The year in which treatment 1 (TREATMENT\_CD1) is estimated to have occurred.

**3.2.43 TREATMENT\_YEAR2**

**Treatment year 2.** The year in which treatment 2 (TREATMENT\_CD2) is estimated to have occurred.

**3.2.44 TREATMENT\_YEAR3**

**Treatment year 3.** The year in which treatment 3 (TREATMENT\_CD3) is estimated to have occurred.

**3.2.45 CN**

**Condition boundary sequence number.** A unique sequence number used to identify the condition record (in ID\_COND).

**3.2.46 PLT\_CN**

**Plot sequence number.** Foreign key linking the condition record to the plot visit record (ID\_COND.PLT\_CN = ID\_PLOT.CN).

**3.2.47 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the condition record to the previous plot visit record (ID\_COND.PREV\_PLT\_CN = ID\_PLOT.CN).

**3.2.48 INVASIVE\_STATUS\_CD**

**Invasive species status code.** A code indicating the sampling status of invasive species in the condition. This field will be blank (null) if the plot is not part of the invasive plant sample.

**Note:** If INVASIVE\_STATUS\_CD = 3, the plot was assigned to be part of the invasive plant sample, however, the sample was not taken at the time of the plot visit (see [INVASIVE\\_NONSAMPLE\\_REASON\\_CD](#)).

**Codes: INVASIVE\_STATUS\_CD**

Code	Description
1	Condition sampled, invasive plants present.
2	Condition sampled, invasive plants not present.
3	Condition not sampled for invasive plants.

**3.2.49 INVASIVE\_NONSAMPLE\_REASON\_CD**

**Invasive species nonsampled reason code.** A code indicating the reason why the condition was not sampled for invasive species.

**Codes: INVASIVE\_NONSAMPLE\_REASON\_CD**

Code	Description
4	Time limitation.
5	Lost data (office use only).
10	Other (for example, snow or water covering vegetation that is supposed to be sampled).

**3.2.50 SITE\_CLASS\_CD**

**Site productivity class code.** A site class code indicating the estimated productivity for the condition. These codes are ordinal and classify productivity in terms of cubic feet per acre per year. See [SITE\\_CLASS\\_METHOD](#) to identify the method used to determine the site class code.

**Reference table: REF\_SITE\_CLASS\_CODE****Codes: SITE\_CLASS\_CD**

Code	Description
1	225+ cubic feet/acre/year.
2	165-224 cubic feet/acre/year.
3	120-164 cubic feet/acre/year.
4	85-119 cubic feet/acre/year.
5	50-84 cubic feet/acre/year.
6	20-49 cubic feet/acre/year.
7	0-19 cubic feet/acre/year.

**3.2.51 SITE\_CLASS\_METHOD**

**Site productivity class method code.** A code identifying the method for determining the estimated site productivity class (see [SITE\\_CLASS\\_CD](#)) for a condition.

**Codes: SITE\_CLASS\_METHOD**

Code	Description
1	Tree measurement (length, age, etc.) collected during this inventory.
2	Tree measurement (length, age, etc.) collected during a previous inventory.
3	Site productivity class estimated either in the field or office.
4	Site productivity class estimated by the height-intercept method during this inventory.
5	Site productivity class estimated using multiple site trees.
6	Site productivity class estimated using default values.

**3.2.52 SITE\_CLASS\_SIT\_CN**

**Site productivity class site tree sequence number.** A unique sequence number that identifies the site tree used to derive the site productivity class code (see [SITE\\_CLASS\\_CD](#)). This attribute links the condition record to the site tree record (ID\_COND.SITE\_CLASS\_SIT\_CN = ID\_SITETREE.CN).

**3.2.53 SITE\_INDEX**

**Site index for the condition.** The estimated site index for the condition, in feet. Site index is a value that represents the average total length in feet that dominant and co-dominant trees are expected to attain in well-stocked, even-aged stands at a specified base age.

Site index is estimated for the condition by either using an individual site tree (see [ID\\_SITETREE.TREE](#)) or by averaging site index values that have been calculated for multiple site trees of the same species. In most cases, the site index species will be one of the species that define the forest type of the condition. As a result, it may be possible to find additional site index values that are not used in the calculation of the condition [SITE\\_INDEX](#) in the ID\_SITETREE table. This attribute is blank (null) when no site index data are available.

**3.2.54 BALIVE**

**Basal area per acre of live trees.** The sum of basal area of live trees ( $\geq 1.0$  inch d.b.h./d.r.c.), in square feet per acre, expanded by [ID\\_TREE.TPA\\_UNADJ](#) and adjusted (divided) by condition proportion.

**3.2.55 COVER\_CLASS**

**Cover class.** A code indicating the type of cover for a condition that meets the minimum area and width requirements, except those with cases where the condition has been defined due to one of the exceptions to the size and width requirements. If the condition was less than 1 acre, a cover classification key was used to assign a cover class.

**Note:** This is the revised cover class attribute implemented in [ID\\_PLOT.MANUAL\\_NATIONAL](#) = 8.0. Many of the codes are the same between the retired code set (see [LAND\\_COVER\\_CLASS\\_CD](#)) and the current code set. However, there is no national crosswalk to translate the retired codes into the new codes. The cover classification key used by crews has been modified to remove all aspects of land use and focus on land cover.

Refer to the reference table for the full code descriptions.

**Reference table:** [REF\\_COVER\\_CLASS](#)

**Codes: COVER\_CLASS (codes that are  $\geq 10\%$  live vegetative cover)**

Code	Description
1	<b>Tree cover</b> - Areas on which live trees provide 10% or greater canopy cover and are part of the dominant (uppermost) vegetation layer, including areas that have been planted to produce woody crops, Christmas trees, orchards, etc.
2	<b>Shrub cover</b> - Areas on which live shrubs or subshrubs provide 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Tree Cover.

Code	Description
3	<b>Herbaceous cover</b> - Areas on which live herbaceous vegetation (including seasonally senescent cover) provides 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Tree Cover or Shrub Cover. This includes herbs, forbs, and graminoid species.
4	<b>Non-vascular vegetation cover</b> - Areas on which non-vascular vegetation provides 10% or greater cover and are part of the dominant vegetation layer, provided these areas do not qualify as Tree Cover, Shrub Cover, or Herbaceous Cover. Examples include mosses, sphagnum moss bogs, liverworts, hornworts, lichens, and algae.
5	<b>Mixed vegetation cover</b> - Area with 10% or greater live vegetative cover but no one life form has 10% or more cover. That is, these areas do not qualify as Tree Cover, Shrub Cover, Herbaceous Cover or Non-vascular Vegetation Cover, and thus are a mixture of plant life forms.

Codes: COVER\_CLASS (codes that are &lt;10% live vegetative cover)

Code	Description
8	<b>Barren</b> - Areas predominately covered by bare rock, gravel, sand, silt, clay, or other earthen material, which contains <10% vegetation cover regardless of its inherent ability to support life.
9	<b>Impervious</b> - Areas predominantly covered with constructed materials that contain <10% vegetation cover.
10	<b>Water</b> - Areas persistently covered and predominated by water and have <10% emergent vegetative cover.
12	<b>Unknown</b> - No classification was possible.

### 3.2.56 FOREST\_COND\_STATUS\_CHANGE\_CD

**Forest land condition status change code.** A code indicating the reason why the forest land condition status changed since the last inventory. If the status did not change, FOREST\_COND\_STATUS\_CHANGE\_CD = 0 is recorded.

Reference table: [REF\\_FOREST\\_LAND\\_COND\\_STAT\\_CHG](#)

Codes: FOREST\_COND\_STATUS\_CHANGE\_CD

Code	Description
0	<b>No change</b> - The condition is not a new forested condition (not originating from a previous forested condition) nor is it a new condition that is the result of a previously forested condition no longer qualifying as such or the condition was previously not field visited or was previously classified as nonsampled.
1	<b>Physical changes</b> - Condition status changed due to actual on-the-ground physical change either natural or human-caused.
2	<b>Crew error</b> - Condition status changed due to a previous crew's error.
3	<b>Procedural changes</b> – Condition status changed due to a change in variable definition or procedures.



## 3.3 Energy Effect Table

### Oracle table name: ID\_ENERGY\_EFFECT

The purpose of the **ID\_ENERGY\_EFFECT** table is to store output from the i-Tree Energy Effects model. This model estimates the effects urban trees have on energy consumption and carbon emissions of residential buildings (McPherson and Simpson 1999). Estimates quantify the amount of energy use avoided as well as an estimated dollar value of energy consumption avoided. These estimates are broken down by energy use and energy influence type in this table (ID\_ENERGY\_EFFECT). They are also stored in the [ID\\_BUILDING\\_INTERACTION](#) table in an alternate format.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.3.1	PLOTID	Plot identifier	INTEGER
3.3.2	VISIT_NBR	Visit number	NUMBER(2)
3.3.3	STATECD	State code	NUMBER(2)
3.3.4	UNITCD	Survey unit code	NUMBER(2)
3.3.5	COUNTYCD	County code	NUMBER(3)
3.3.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.3.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.3.8	CONDID	Condition class identifier	NUMBER(1)
3.3.9	TREE	Tree identifier	NUMBER(9)
3.3.10	BLDG_INTERACTION_ID	Building interaction identifier	NUMBER(2)
3.3.11	ENERGY_USE	Energy use	VARCHAR2(120)
3.3.12	ENERGY_INFLUENCE	Energy influence	VARCHAR2(120)
3.3.13	ELEC_C_AVOIDED	Electricity-based carbon emissions avoided quantity	NUMBER
3.3.14	ELEC_AVOIDED	Electricity avoided quantity	NUMBER
3.3.15	FUEL_C_AVOIDED	Fuel-based carbon emissions avoided quantity	NUMBER
3.3.16	FUEL_AVOIDED	Fuel avoided quantity	NUMBER
3.3.17	BINTA_CN	Building interaction sequence number	INTEGER
3.3.18	PLT_CN	Plot sequence number	INTEGER
3.3.19	SBP_CN	Subplot sequence number	INTEGER
3.3.20	CND_CN	Condition sequence number	INTEGER
3.3.21	MTRE_CN	Mother tree sequence number	INTEGER
3.3.22	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Unique	EE_UK	PLOTID, VISIT_NBR, SUBP, TREE, BLDG_INTERACTION_ID, ENERGY_USE, ENERGY_INFLUENCE	N/A
Foreign	EE_BINTA_FK	BINTA_CN	ID_ENERGY_EFFECT.BINTA_CN = ID_BUILDING_INTERACTION.CN
Foreign	EE_PLT_FK	PLT_CN	ID_ENERGY_EFFECT.PLT_CN = ID_PLOT.CN
Foreign	EE_SBP_FK	SBP_CN	ID_ENERGY_EFFECT.SBP_CN = ID_SUBPLOT.CN
Foreign	EE_CND_FK	CND_CN	ID_ENERGY_EFFECT.CND_CN = ID_COND.CN
Foreign	EE_MTRE_FK	MTRE_CN	ID_ENERGY_EFFECT.MTRE_CN = ID_MOTHER_TREE.CN

### 3.3.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.3.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.3.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.3.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 3.3.5 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

**3.3.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.3.7 SUBP**

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

**3.3.8 CONDID**

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status ([ID\\_COND.COND\\_STATUS\\_CD](#)). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

**3.3.9 TREE**

**Tree identifier.** A number that uniquely and permanently identifies each tree on the plot. For remeasurement locations, tree numbers can be used to track trees between inventories when the sample design is the same. Tree numbers are never reused.

**3.3.10 BLDG\_INTERACTION\_ID**

**Building interaction identifier.** The unique identifier for the interaction between a tree and a building. A tree can have zero, one, or many interactions with buildings. The value of the BLDG\_INTERACTION\_ID is assigned sequentially.

**3.3.11 ENERGY\_USE**

**Energy use.** The purpose of energy consumption avoided due to the influence of the urban tree(s) on a residential building.

**Codes: ENERGY\_USE**

Code	Description
COOLING	Energy used to cool the interior of a residential structure.
HEATING	Energy used to heat the interior of a residential structure.

**3.3.12 ENERGY\_INFLUENCE**

**Energy influence.** The type of influence the urban tree(s) has on the energy consumption of a residential building.

**Codes: ENERGY\_INFLUENCE**

Code	Description
CLIMATE	Represents the effect on residential space heating and cooling from non-adjacent trees (>50 feet) due to reductions in wind speed and summer air temperatures.
SHADING	Represents the influence of direct shading on the building.
WINDBREAK	Represents trees directly protecting residential buildings from wind.

**3.3.13 ELEC\_C\_AVOIDED**

**Electricity-based carbon emissions avoided quantity.** The quantity of carbon emissions avoided due to the effect of urban trees on residential buildings (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred. This estimate reflects the reduction in electricity-based power production sources.

**3.3.14 ELEC\_AVOIDED**

**Electricity avoided quantity.** The quantity of electricity consumption avoided due to the effect of urban trees on residential buildings (expressed in kilowatt hours, kWh). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred.

**3.3.15 FUEL\_C\_AVOIDED**

**Fuel-based carbon emissions avoided quantity.** The quantity of carbon emissions avoided due to the effect of urban trees on residential buildings (expressed in pounds). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred. This estimate reflects the reduction in fossil fuel-based power production sources.

**3.3.16 FUEL\_AVOIDED**

**Fuel avoided quantity.** The quantity of fuel consumption avoided due to the effect of urban trees on residential buildings (expressed in British thermal units, Btu). Positive values represent energy consumption avoided (savings) and negative values represent energy consumption incurred. Fuels consumption estimates incorporate natural gas, fuel oil, and wood sources.

**3.3.17 BINTA\_CN**

**Building interaction sequence number.** Foreign key linking the energy effect record to the building interaction record (ID\_ENERGY\_EFFECT.BINTA\_CN = ID\_BUILDING\_INTERACTION.[CN](#)).

**3.3.18 PLT\_CN**

**Plot sequence number.** Foreign key linking the energy effect record to the plot visit record (ID\_ENERGY\_EFFECT.PLT\_CN = ID\_PLOT.[CN](#)).

**3.3.19 SBP\_CN**

**Subplot sequence number.** Foreign key linking the energy effect record to the subplot record (ID\_ENERGY\_EFFECT.SBP\_CN = ID\_SUBPLOT.[CN](#)).

**3.3.20 CND\_CN**

**Condition sequence number.** Foreign key linking the energy effect record to the condition record (ID\_ENERGY\_EFFECT.CND\_CN = ID\_COND.[CN](#)).

**3.3.21 MTRE\_CN**

**Mother tree sequence number.** Foreign key linking the energy effect record to the mother tree record (ID\_ENERGY\_EFFECT.MTRE\_CN = ID\_MOTHER\_TREE.[CN](#)).

**3.3.22 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the energy effect record to the previous plot visit record (ID\_ENERGY\_EFFECT.PREV\_PLT\_CN = ID\_PLOT.[CN](#)).



## 3.4 Invasive Species Subplot Condition Table

### Oracle table name: ID\_INVASIVE\_SUBP\_COND

The purpose of the **ID\_INVASIVE\_SUBP\_COND** table is to store information for invasive species sampled on a subplot for all accessible conditions. Every record represents the unique intersection of an invasive species, a subplot, and a condition.

#### Notes:

- [PLANTS database](https://plants.usda.gov) (available at web address: <https://plants.usda.gov>) - FIA identifies species and other taxonomic ranks for plants using symbols (SPECIES\_SYMBOL) as assigned by the Natural Resources Conservation Service (NRCS) for the PLANTS database on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.
- [FIA Master Invasive Species List \(Excel format\)](https://usfs-public.box.com/v/FIA-InvasiveSpeciesList) (refer to Public Box folder available at web address: <https://usfs-public.box.com/v/FIA-InvasiveSpeciesList>) - Refer to this document for a combined regional list that identifies the invasive species sampled in each FIA region; this list is for the FIA NFI and urban inventories.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.4.1	PLOTID	Plot identifier	INTEGER
3.4.2	VISIT_NBR	Visit number	NUMBER(2)
3.4.3	STATECD	State code	NUMBER(2)
3.4.4	UNITCD	Survey unit code	NUMBER(2)
3.4.5	COUNTYCD	County code	NUMBER(3)
3.4.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.4.7	SUBP	Subplot identifier	NUMBER(2)
3.4.8	CONDID	Condition class identifier	NUMBER(1)
3.4.9	SPECIES_SYMBOL_FLD	Field species symbol	VARCHAR2(10)
3.4.10	UNIQUE_SP_NBR	Unique species number	NUMBER(2)
3.4.11	SPECIES_SYMBOL	Species symbol	VARCHAR2(10)
3.4.12	GROWTH_HABIT	Growth habit	VARCHAR2(40)
3.4.13	COVER_PCT	Cover percent	NUMBER(3)
3.4.14	IS_MAINTAINED_AREA	Is invasive in maintained area	NUMBER(1)
3.4.15	CN	Invasive species subplot condition sequence number	INTEGER
3.4.16	INVS_CN	Invasive species sequence number	INTEGER
3.4.17	PLT_CN	Plot sequence number	INTEGER
3.4.18	SBP_CN	Subplot sequence number	INTEGER
3.4.19	CND_CN	Condition sequence number	INTEGER
3.4.20	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	ISPCND_PK	CN	N/A
Unique	ISPCND_UK	PLOTID, VISIT_NBR, SUBP, CONDID, SPECIES_SYMBOL_FLD, UNIQUE_SP_NBR	N/A
Foreign	ISPCND_PLT_FK	PLT_CN	ID_INVASIVE_SUBP_COND.PLT_CN = ID_PLOT.CN
Foreign	ISPCND_SBP_FK	SBP_CN	ID_INVASIVE_SUBP_COND.SBP_CN = ID_SUBPLOT.CN
Foreign	ISPCND_CND_FK	CND_CN	ID_INVASIVE_SUBP_COND.CND_CN = ID_COND.CN

### 3.4.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.4.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.4.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.4.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 3.4.5 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

### 3.4.6 RETIRED\_PLOT

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.4.7 SUBP**

**Subplot identifier.** An identifier for the subplot. For the invasive plants sample, SUBP = 1 (urban subplot) is the only valid code.

**Codes: SUBP (invasive plants sample)**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).

**3.4.8 CONDID**

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status

(ID\_COND.COND\_STATUS\_CD). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

**3.4.9 SPECIES\_SYMBOL\_FLD**

**Field species symbol.** The species symbol assigned by the field crew, conforming to the NRCS [PLANTS database](#).

**3.4.10 UNIQUE\_SP\_NBR**

**Unique species number.** A unique number assigned to each invasive species encountered on the plot.

**3.4.11 SPECIES\_SYMBOL**

**Species symbol.** The species symbol used for analysis, conforming to the NRCS [PLANTS database](#). This attribute includes the resolution (if available) of any plant species that were classified as "unknown" at the time of the plot visit.

**Reference table:** [REF\\_INVASIVE\\_SPECIES](#)

**3.4.12 GROWTH\_HABIT**

**Growth habit.** The growth habit of the species symbol (see **SPECIES\_SYMBOL**). Some plants have different growth habits depending on environment or location; therefore, a plant can have more than one value. The code descriptions for this attribute are based on definitions from the NRCS [PLANTS database](#).

**Codes: GROWTH\_HABIT**

Code	Description
Forb/herb	Vascular plant without significant woody tissue above or at the ground. Forbs and herbs may be annual, biennial, or perennial but always lack significant thickening by secondary woody growth and have perennating buds borne at or below the ground surface. Ferns, horsetails, lycopods, and whisk-ferns are included.
Graminoid	Grass or grass-like plant, including grasses ( <i>Poaceae</i> ), sedges ( <i>Cyperaceae</i> ), rushes ( <i>Juncaceae</i> ), arrow-grasses ( <i>Juncaginaceae</i> ), and quillworts ( <i>Isoetes</i> ).
Lichenous	Organism generally recognized as a single "plant" that consists of a fungus and an alga or cyanobacterium living in symbiotic association. Often attached to solid objects such as rocks or living or dead wood rather than soil.
Nonvascular	Nonvascular, terrestrial green plant, including mosses, hornworts, and liverworts. Always herbaceous, often attached to solid objects such as rocks or living or dead wood rather than soil.
Shrub	Perennial, multi-stemmed woody plant that is usually less than 13 to 16 feet in height. Shrubs typically have several stems arising from or near the ground, but may be taller than 16 feet or single-stemmed under certain environmental conditions.
Subshrub	Low-growing shrub usually under 1.5 feet tall, never exceeding 3 feet tall at maturity.
Tree	Perennial, woody plant with a single stem (trunk), normally greater 13 to 16 feet in height; under certain environmental conditions, some tree species may develop a multi-stemmed or short growth form (less than 13 feet in height).
Vine	Twining/climbing plant with relatively long stems, can be woody or herbaceous.

**3.4.13 COVER\_PCT**

**Cover percent.** For each species recorded, the canopy cover present on the subplot condition, to the nearest 1 percent. Canopy cover is based on a vertically projected polygon described by the outline of the foliage, ignoring any normal spaces occurring between the leaves of plants (Daubenmire 1959), and ignoring overlap among multiple layers of a species. For each species, cover can never exceed 100 percent.

**Note:** Cover is always recorded as a percent of the full subplot area, even if the condition that was assessed did not cover the full subplot. Canopy cover for species is assigned to the dominant layer.

**3.4.14 IS\_MAINTAINED\_AREA**

**Is invasive in maintained area.** A code indicating if the invasive species is located within a maintained area (the invasive species must be partially or fully contained within the maintained area to qualify).

Maintained areas are defined as those which are consistently being impacted by mowing, weeding, brushing, herbiciding, landscaping, etc. Examples include, but are not limited to, lawns, maintained shrub beds, rights-of-way, and manicured park areas. Examples of unmaintained areas are overgrown lots, small wooded areas, and riverbanks.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes: IS\_MAINTAINED\_AREA**

<b>Code</b>	<b>Description</b>
0	No, species is not in a maintained area.
1	Yes, species is in a maintained area.

**3.4.15 CN**

**Invasive species subplot condition sequence number.** A unique sequence number used to identify the invasive species subplot condition record (in ID\_INVASIVE\_SUBP\_COND).

**3.4.16 INVS\_CN**

**Invasive species sequence number.** A unique sequence number used to identify the invasive species sampled on the plot visit.

**3.4.17 PLT\_CN**

**Plot sequence number.** Foreign key linking the invasive species subplot condition record to the plot visit record (ID\_INVASIVE\_SUBP\_COND.PLT\_CN = ID\_PLOT.CN).

**3.4.18 SBP\_CN**

**Subplot sequence number.** Foreign key linking the invasive species subplot condition record to the subplot record (ID\_INVASIVE\_SUBP\_COND.SBP\_CN = ID\_SUBPLOT.CN).

**3.4.19 CND\_CN**

**Condition sequence number.** Foreign key linking the invasive species subplot condition record to the condition record (ID\_INVASIVE\_SUBP\_COND.CND\_CN = ID\_COND.CN).

**3.4.20 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the invasive species subplot condition record to the previous plot visit record (ID\_INVASIVE\_SUBP\_COND.PREV\_PLT\_CN = ID\_PLOT.CN).



## 3.5 Mother Tree Table

### Oracle table name: ID\_MOTHER\_TREE

The purpose of the **ID\_MOTHER\_TREE** table is to store information for trees, live and standing dead  $\geq 1.0$  inch in diameter, at the mother-tree level. A "mother tree" is a term FIA has defined to identify a single organism originating from the same stump, regardless of the number of stems (piths enter the ground as one). This table is populated for timber- and woodland-classified species.

The information stored for each record includes both field-measured values and calculated values. Output from both the FIA and i-Tree compilation systems are provided. The computed values form the basis for most tree-related population estimates when the analysis is performed under the mother-tree (single organism) framework.

The i-Tree system models make use of inputs from various sources including, but not limited to, climate/meteorological data, pollution station data, economic data, and estimates derived from inventory data. Pollution station data are used to estimate the quantity and associated value of pollution reduction by urban forests. For pollutant **incidence** attributes (expressed by number of cases), values represent cases avoided due to pollution reduction. For pollutant **value** attributes (expressed in dollars), values represent the cost in treatment and lost productivity avoided because of pollution reduction. The following pollutants are evaluated using the i-Tree Eco system (listed by pollutant abbreviations): CO, NO<sub>2</sub>, O<sub>3</sub>, PM2.5, PM10, and SO<sub>2</sub>. These pollutants are defined in the following table (see [table 3-1](#)).

**Table 3-1:** Pollutant abbreviations and descriptions.

Pollutant abbreviation	Description
CO	Carbon monoxide.
NO <sub>2</sub>	Nitrogen dioxide.
O <sub>3</sub>	Ozone.
PM2.5	Particulate matter $\leq 2.5$ micrometers ( $\mu\text{m}$ ).
PM10	Particulate matter $\leq 10$ micrometers ( $\mu\text{m}$ ).
SO <sub>2</sub>	Sulfur dioxide.

### Terms "timber" and "woodland" species:

FIA classifies tree species into two categories: "timber" and "woodland." A species classified as "timber" generally has a growth form with a clear central stem and the diameter is taken at breast height (d.b.h.) (unless special conditions apply). A species classified as "woodland" is typically a small tree and does not have a growth form with a clear central stem, but rather multiple small stems originating from the same stump. The diameter of a woodland species is taken at the root collar (d.r.c.).

Woodland species are identified by a "w" in the WOODLAND column on the [FIA Master Tree Species List \(Excel format\)](#) (refer to Public Box folder available at web address: <https://usfs-public.box.com/v/FIA-TreeSpeciesList>). Otherwise, a species is considered to be a timber species.

Timber and woodland species are populated differently in the ID\_MOTHER\_TREE and ID\_TREE tables, as described below:

- **Timber species** - For timber-classified species, there is a single record for the tree, regardless of the number of stems. If a mother tree has multiple stems, calculated values represent the sum of all constituent stem values. Data for the constituent stems are stored in the [ID\\_TREE](#) table. For example, consider a red maple tree with three stems originating from the same stump and with the piths entering the ground at the same point. There would be a single record for this tree in the ID\_MOTHER\_TREE table, and the calculated values would represent all constituent stems. The trees-per-acre expander in the ID\_MOTHER\_TREE table (see [TPA\\_UNADJ](#)), which represents the number of "mother trees per acre," counts this as a single tree within the population.
- **Woodland species** - For woodland-classified species, there is a single record for the tree, regardless of the number of stems. Data for constituent stems are stored in the [ID\\_WOODLAND\\_STEM](#) table. This is consistent with FIA's handling of woodland species within the FIA NFI inventory. Calculated values in the ID\_MOTHER\_TREE table represent all constituent stems. The trees-per-acre expander (see [TPA\\_UNADJ](#)) counts this as a single tree within the population. **Note:** Woodland-classified species are populated with a single record in both the ID\_MOTHER\_TREE and ID\_TREE tables. Analyses that pull data from both tables must be done carefully to prevent double-counting of these records.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.1	PLOTID	Plot identifier	INTEGER
3.5.2	VISIT_NBR	Visit number	NUMBER(2)
3.5.3	STATECD	State code	NUMBER(2)
3.5.4	UNITCD	Survey unit code	NUMBER(2)
3.5.5	COUNTYCD	County code	NUMBER(3)
3.5.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.5.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.5.8	CONDID	Condition class identifier	NUMBER(1)
3.5.9	TREE	Tree identifier	NUMBER(9)
3.5.10	STATUSCD	Mother tree status code	NUMBER(1)
3.5.11	STANDING_DEAD_CD	Standing dead code	NUMBER(1)
3.5.12	TPA_UNADJ	Mother trees per acre unadjusted	NUMBER
3.5.13	SPCD	Species code	NUMBER(4)
3.5.14	SPGRPCD	Species group code	NUMBER(2)
3.5.15	DIA	Current diameter	NUMBER(4,1)
3.5.16	DIACHECK	Diameter check code	NUMBER(2)
3.5.17	DIAHTCD	Diameter height code	NUMBER(1)
3.5.18	CROWN_DIEBACK_CD	Crown dieback code	NUMBER(2)
3.5.19	CROWN_LIGHT_EXPOSURE	Crown light exposure	NUMBER(1)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.20	UNCOMP_CROWN_RATIO	Uncompacted live crown ratio	NUMBER(2)
3.5.21	CROWN_DIA_WIDE	Crown diameter at widest point	NUMBER(4,1)
3.5.22	CROWN_DIA_90	Crown diameter at 90 degrees to widest point	NUMBER(4,1)
3.5.23	AVG_CROWN_WIDTH	Average crown width	NUMBER
3.5.24	FOLIAGE_ABSENT	Percent foliage absent	NUMBER(2)
3.5.25	IS_MAINTAINED_AREA	Is tree in maintained area	VARCHAR2(1)
3.5.26	IS_RIPARIAN	Is tree a riparian tree	VARCHAR2(1)
3.5.27	IS_STREET_TREE	Is tree a street tree	VARCHAR2(1)
3.5.28	IS_PLANTED	Is tree planted	VARCHAR2(1)
3.5.29	NBR_STEMS	Number of stems	NUMBER(2)
3.5.30	BASAL_AREA	Basal area	NUMBER
3.5.31	GROSS_CARBON_SEQUESTRATION	Whole-tree gross carbon sequestration	NUMBER
3.5.32	ITREE_ECO_VERSION	i-Tree Eco system version	VARCHAR2(10)
3.5.33	DRY_TOT_BIOMASS_ITREE	Whole-tree dry biomass (i-Tree Eco system)	NUMBER
3.5.34	CARBON_STORAGE_ITREE	Whole-tree carbon storage (i-Tree Eco system)	NUMBER
3.5.35	GROSS_C_SEQUESTRATION_ITREE	Whole-tree gross carbon sequestration (i-Tree Eco system)	NUMBER
3.5.36	LEAF_AREA_ITREE	Leaf area (i-Tree Eco system)	NUMBER
3.5.37	LEAF_BIOMASS_ITREE	Leaf biomass (i-Tree Eco system)	NUMBER
3.5.38	CROWN_GROUND_AREA_ITREE	Crown ground area (i-Tree Eco system)	NUMBER
3.5.39	LEAF_AREA_INDEX_ITREE	Leaf area index value (i-Tree Eco system)	NUMBER
3.5.40	LEAF_BIOMASS_INDEX_ITREE	Leaf biomass index value (i-Tree Eco system)	NUMBER
3.5.41	COMPENSATORY_VALUE_ITREE	Compensatory value (i-Tree Eco system)	NUMBER
3.5.42	NO2_ACUTE_RESPIRATORY_SYMP_TOMS_INCIDENCE	[Data in preparation] NO2 acute respiratory symptoms incidence (i-Tree Eco system)	NUMBER
3.5.43	NO2_ASTHMA_EXACERBATION_IN_CIDENCE	[Data in preparation] NO2 asthma exacerbation incidence (i-Tree Eco system)	NUMBER
3.5.44	NO2_EMERGENCY_ROOM_VISITS_INCIDENCE	[Data in preparation] NO2 emergency room visits incidence (i-Tree Eco system)	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.45	NO2_HOSPITAL_ADMISSIONS_INCIDENCE	[Data in preparation] NO2 hospital admissions incidence (i-Tree Eco system)	NUMBER
3.5.46	NO2_ACUTE_RESPIRATORY_SYMPOMS_VALUE	[Data in preparation] NO2 acute respiratory symptoms value (i-Tree Eco system)	NUMBER
3.5.47	NO2_ASTHMA_EXACERBATION_VALUE	[Data in preparation] NO2 asthma exacerbation value (i-Tree Eco system)	NUMBER
3.5.48	NO2_EMERGENCY_ROOM_VISITS_VALUE	[Data in preparation] NO2 emergency room visits value (i-Tree Eco system)	NUMBER
3.5.49	NO2_HOSPITAL_ADMISSIONS_VALUE	[Data in preparation] NO2 hospital admissions value (i-Tree Eco system)	NUMBER
3.5.50	SO2_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	[Data in preparation] SO2 acute respiratory symptoms incidence (i-Tree Eco system)	NUMBER
3.5.51	SO2_ASTHMA_EXACERBATION_INCIDENCE	[Data in preparation] SO2 asthma exacerbation incidence (i-Tree Eco system)	NUMBER
3.5.52	SO2_EMERGENCY_ROOM_VISITS_INCIDENCE	[Data in preparation] SO2 emergency room visits incidence (i-Tree Eco system)	NUMBER
3.5.53	SO2_HOSPITAL_ADMISSIONS_INCIDENCE	[Data in preparation] SO2 hospital admissions incidence (i-Tree Eco system)	NUMBER
3.5.54	SO2_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	[Data in preparation] SO2 acute respiratory symptoms value (i-Tree Eco system)	NUMBER
3.5.55	SO2_ASTHMA_EXACERBATION_VALUE	[Data in preparation] SO2 asthma exacerbation value (i-Tree Eco system)	NUMBER
3.5.56	SO2_EMERGENCY_ROOM_VISITS_VALUE	[Data in preparation] SO2 emergency room visits value (i-Tree Eco system)	NUMBER
3.5.57	SO2_HOSPITAL_ADMISSIONS_VALUE	[Data in preparation] SO2 hospital admissions value (i-Tree Eco system)	NUMBER
3.5.58	O3_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	[Data in preparation] O3 acute respiratory symptoms incidence (i-Tree Eco system)	NUMBER
3.5.59	O3_EMERGENCY_ROOM_VISITS_INCIDENCE	[Data in preparation] O3 emergency room visits incidence (i-Tree Eco system)	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.60	O3_HOSPITAL_ADMISSIONS_INCI DENCE	[Data in preparation] O3 hospital admissions incidence (i-Tree Eco system)	NUMBER
3.5.61	O3_MORTALITY_INCIDENCE	[Data in preparation] O3 mortality incidence (i-Tree Eco system)	NUMBER
3.5.62	O3_SCHOOL_LOSS_DAYS_INCIDEN CE	[Data in preparation] O3 school loss days incidence (i-Tree Eco system)	NUMBER
3.5.63	O3_ACUTE_RESPIRATORY_SYMPT OMS_VALUE	[Data in preparation] O3 acute respiratory symptoms value (i-Tree Eco system)	NUMBER
3.5.64	O3_EMERGENCY_ROOM_VISITS_V ALUE	[Data in preparation] O3 emergency room visits value (i-Tree Eco system)	NUMBER
3.5.65	O3_HOSPITAL_ADMISSIONS_VALU E	[Data in preparation] O3 hospital admissions value (i-Tree Eco system)	NUMBER
3.5.66	O3_MORTALITY_VALUE	[Data in preparation] O3 mortality value (i-Tree Eco system)	NUMBER
3.5.67	O3_SCHOOL_LOSS_DAYS_VALUE	[Data in preparation] O3 school loss days value (i-Tree Eco system)	NUMBER
3.5.68	PM2_5_ACUTE_BRONCHITIS_INCI DENCE	[Data in preparation] PM2.5 acute bronchitis incidence (i-Tree Eco system)	NUMBER
3.5.69	PM2_5_ACUTE_MYOCARDIAL_INFAR CTION_INCIDENCE	[Data in preparation] PM2.5 acute myocardial infarction incidence (i-Tree Eco system)	NUMBER
3.5.70	PM2_5_ACUTE_RESPIRATORY_SYM PTOMS_INCIDENCE	[Data in preparation] PM2.5 acute respiratory symptoms incidence (i-Tree Eco system)	NUMBER
3.5.71	PM2_5_ASTHMA_EXACERBATION_I NCIDENCE	[Data in preparation] PM2.5 asthma exacerbation incidence (i-Tree Eco system)	NUMBER
3.5.72	PM2_5_CHRONIC_BRONCHITIS_IN CIDENCE	[Data in preparation] PM2.5 chronic bronchitis incidence (i-Tree Eco system)	NUMBER
3.5.73	PM2_5_EMERGENCY_ROOM_VISIT S_INCIDENCE	[Data in preparation] PM2.5 emergency room visits incidence (i-Tree Eco system)	NUMBER
3.5.74	PM2_5_HOSPITAL_ADMISSIONS_C ARDIOVASCULAR_INCIDENCE	[Data in preparation] PM2.5 hospital admissions cardiovascular incidence (i-Tree Eco system)	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.75	PM2_5_HOSPITAL_ADMISSIONS_R_ESPIRATORY_INCIDENCE	[Data in preparation] PM2.5 hospital admissions respiratory incidence (i-Tree Eco system)	NUMBER
3.5.76	PM2_5_LOWER_RESPIRATORY_SYMPTOMS_INCIDENCE	[Data in preparation] PM2.5 lower respiratory symptoms incidence (i-Tree Eco system)	NUMBER
3.5.77	PM2_5_MORTALITY_INCIDENCE	[Data in preparation] PM2.5 mortality incidence (i-Tree Eco system)	NUMBER
3.5.78	PM2_5_UPPER_RESPIRATORY_SYMPTOMS_INCIDENCE	[Data in preparation] PM2.5 upper respiratory symptoms incidence (i-Tree Eco system)	NUMBER
3.5.79	PM2_5_WORK_LOSS_DAYS_INCIDENCE	[Data in preparation] PM2.5 work loss days incidence (i-Tree Eco system)	NUMBER
3.5.80	PM2_5_ACUTE_BRONCHITIS_VALUE	[Data in preparation] PM2.5 acute bronchitis value (i-Tree Eco system)	NUMBER
3.5.81	PM2_5_ACUTE_MYOCARDIAL_INFARCTION_VALUE	[Data in preparation] PM2.5 acute myocardial infarction value (i-Tree Eco system)	NUMBER
3.5.82	PM2_5_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	[Data in preparation] PM2.5 acute respiratory symptoms value (i-Tree Eco system)	NUMBER
3.5.83	PM2_5_ASTHMA_EXACERBATION_VALUE	[Data in preparation] PM2.5 asthma exacerbation value (i-Tree Eco system)	NUMBER
3.5.84	PM2_5_CHRONIC_BRONCHITIS_VALUE	[Data in preparation] PM2.5 chronic bronchitis value (i-Tree Eco system)	NUMBER
3.5.85	PM2_5_EMERGENCY_ROOM_VISITS_VALUE	[Data in preparation] PM2.5 emergency room visits value (i-Tree Eco system)	NUMBER
3.5.86	PM2_5_HOSPITAL_ADMISSIONS_CARDIOVASCULAR_VALUE	[Data in preparation] PM2.5 hospital admissions cardiovascular value (i-Tree Eco system)	NUMBER
3.5.87	PM2_5_HOSPITAL_ADMISSIONS_R_ESPIRATORY_VALUE	[Data in preparation] PM2.5 hospital admissions respiratory value (i-Tree Eco system)	NUMBER
3.5.88	PM2_5_LOWER_RESPIRATORY_SYMPTOMS_VALUE	[Data in preparation] PM2.5 lower respiratory symptoms value (i-Tree Eco system)	NUMBER
3.5.89	PM2_5_MORTALITY_VALUE	[Data in preparation] PM2.5 mortality value (i-Tree Eco system)	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.90	PM2_5_UPPER_RESPIRATORY_SYMPTOMS_VALUE	[Data in preparation] PM2.5 upper respiratory symptoms value (i-Tree Eco system)	NUMBER
3.5.91	PM2_5_WORK_LOSS_DAYS_VALUE	[Data in preparation] PM2.5 work loss days value (i-Tree Eco system)	NUMBER
3.5.92	CO_VALUE	[Data in preparation] CO value (i-Tree Eco system)	NUMBER
3.5.93	O3_VALUE	[Data in preparation] O3 value (i-Tree Eco system)	NUMBER
3.5.94	PM10_VALUE	[Data in preparation] PM10 value (i-Tree Eco system)	NUMBER
3.5.95	NO2_VALUE	[Data in preparation] NO2 value (i-Tree Eco system)	NUMBER
3.5.96	PM2_5_VALUE	[Data in preparation] PM2.5 value (i-Tree Eco system)	NUMBER
3.5.97	SO2_VALUE	[Data in preparation] SO2 value (i-Tree Eco system)	NUMBER
3.5.98	CO_REMOVAL	[Data in preparation] CO removal (i-Tree Eco system)	NUMBER
3.5.99	O3_REMOVAL	[Data in preparation] O3 removal (i-Tree Eco system)	NUMBER
3.5.100	PM10_REMOVAL	[Data in preparation] PM10 removal (i-Tree Eco system)	NUMBER
3.5.101	NO2_REMOVAL	[Data in preparation] NO2 removal (i-Tree Eco system)	NUMBER
3.5.102	PM2_5_REMOVAL	[Data in preparation] PM2.5 removal (i-Tree Eco system)	NUMBER
3.5.103	SO2_REMOVAL	[Data in preparation] SO2 removal (i-Tree Eco system)	NUMBER
3.5.104	AVOIDED_RUNOFF	[Data in preparation] Avoided runoff (i-Tree Eco system)	NUMBER
3.5.105	RAINFALL_INTERCEPTION	[Data in preparation] Rainfall interception (i-Tree Eco system)	NUMBER
3.5.106	EVAPORATION	[Data in preparation] Evaporation (i-Tree Eco system)	NUMBER
3.5.107	TRANSPIRATION	[Data in preparation] Transpiration (i-Tree Eco system)	NUMBER
3.5.108	POTENTIAL_EVAPORATION	[Data in preparation] Potential evaporation (i-Tree Eco system)	NUMBER
3.5.109	POTENTIAL_EVAPOTRANSPIRATION	[Data in preparation] Potential evapotranspiration (i-Tree Eco system)	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.5.110	ISOPRENE_EMITTED	[Data in preparation] Isoprene emitted (i-Tree Eco system)	NUMBER
3.5.111	MONOTERPENE_EMITTED	[Data in preparation] Monoterpene emitted (i-Tree Eco system)	NUMBER
3.5.112	CN	Mother tree sequence number	INTEGER
3.5.113	PLT_CN	Plot sequence number	INTEGER
3.5.114	SBP_CN	Subplot sequence number	INTEGER
3.5.115	CND_CN	Condition sequence number	INTEGER
3.5.116	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.5.117	PREV_MTRE_CN	Previous mother tree sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	MTRE_PK	CN	N/A
Unique	MTRE_UK	PLOTID, VISIT_NBR, SUBP, TREE	N/A
Foreign	MTRE_PLT_FK	PLT_CN	ID_MOTHER_TREE.PLT_CN = ID_PLOT.CN
Foreign	MTRE_SBP_FK	SBP_CN	ID_MOTHER_TREE.SBP_CN = ID_SUBPLOT.CN
Foreign	MTRE_CND_FK	CND_CN	ID_MOTHER_TREE.CND_CN = ID_COND.CN

### 3.5.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.5.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.5.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.5.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)**3.5.5 COUNTYCD**

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)**3.5.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.5.7 SUBP**

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

**3.5.8 CONDID**

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status ([ID\\_COND.COND\\_STATUS\\_CD](#)). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

**3.5.9 TREE**

**Tree identifier.** A number that uniquely and permanently identifies each mother tree on the plot. A "mother tree" is a term FIA has defined to identify a single organism originating from the same stump, regardless of the number of stems (piths enter the ground as one). For remeasurement locations, tree numbers can be used to track trees between inventories when the sample design is the same. Tree numbers are never reused.

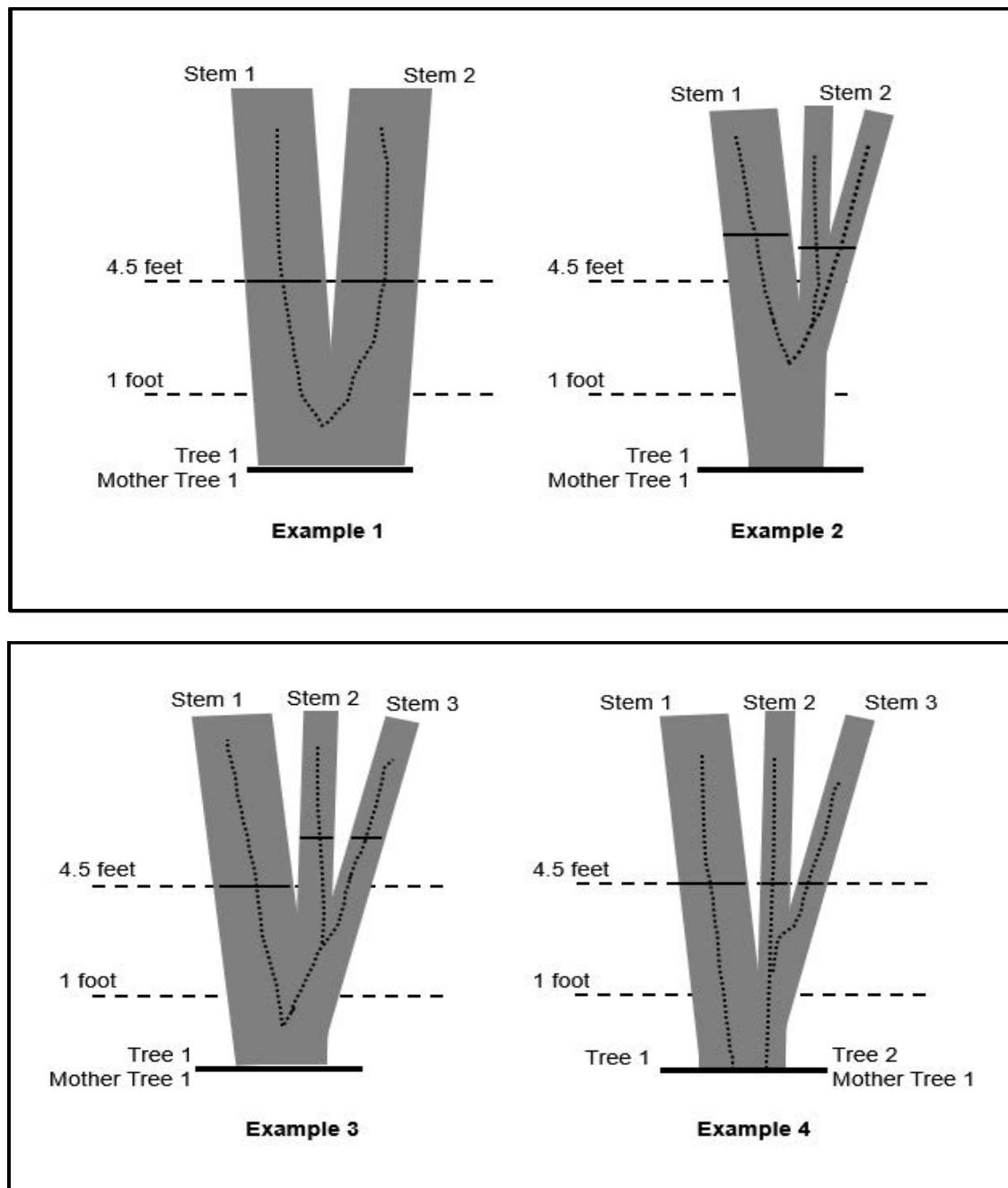
The TREE attribute is populated as follows:

- **Timber species -**
  - ◆ Single-stemmed trees:
    - TREE is populated with the same unique identifier for the single stem (see [ID\\_TREE.STEM](#)).
  - ◆ Multi-stemmed trees:
    - TREE is populated with a unique identifier for the group of stems called a "mother tree."
- **Woodland species -**
  - ◆ All woodland trees:
    - TREE is populated with the unique identifier for the group of stems called a "mother tree."

**Note:**

- FIA has always treated woodland species like a "mother tree."
- The data for woodland species stems are stored in a separate table (see [ID\\_WOODLAND\\_STEM](#) table). This information is stored for full transparency. However, it is not typically used directly in analyses.

See the following diagrams for tree and stem numbering examples (for further details, see [ID\\_TREE.TREE](#) and [ID\\_TREE.STEM](#)).



**Figure 3-4:** Tree and stem numbering examples.

Example	TREE	STEM	MOTHER_TREE
1	1	1	1
1	1	2	1
2	1	1	1
2	1	2	1
3	1	1	1
3	1	2	1
3	1	3	1
4	1	1	—
4	2	2	1
4	2	3	1

### 3.5.10 STATUSCD

**Mother tree status code.** A code indicating the status of the mother tree at the time of measurement.

**Reference table:** [REF\\_TREE\\_STATUS](#)

**Codes: STATUSCD**

Code	Description
0	<b>No status</b> - Tree is not presently in the sample (remeasurement plots only). Tree was incorrectly tallied at the previous inventory, currently not tallied due to definition or procedural change, or is not tallied because it is located on a nonsampled condition (e.g., hazardous or denied). Requires a reconcile code (ID_TREE. <a href="#">RECONCILECD</a> ) = 5-9.
1	<b>Live tree</b> - Any live tree (new, remeasured, or ingrowth).
2	<b>Dead tree</b> - Any dead tree (new, remeasured, or ingrowth) where the bole of the tree remains on the site, regardless of cause of death. Includes all previously standing dead trees that no longer qualify as standing dead. Does not include trees that are removed from the site.

### 3.5.11 STANDING\_DEAD\_CD

**Standing dead code.** A code indicating if the mother tree qualifies as standing dead. To qualify as a standing dead tally tree, the dead tree must be  $\geq 1.0$  inch d.b.h. on the microplot or  $\geq 5.0$  inches d.b.h. on the subplot, have a bole that has an unbroken actual length ([ACTUAL\\_LENGTH](#))  $\geq 4.5$  feet, and lean  $<45$  degrees from vertical as measured from the base of the tree to 4.5 feet.

For woodland species with multiple stems, a tree is considered down dead if more than 2/3 of the volume is no longer attached or upright. For qualifying stems that are cut, the volume that has been removed is not counted towards the 2/3 rule because it is assumed to be utilized. For a woodland species with a single stem to qualify as a standing dead tally tree, the dead tree must be  $\geq 1.0$  inch d.r.c. on the microplot or  $\geq 5.0$  inches d.r.c. on the

subplot, be  $\geq$ 1.0 foot in unbroken actual length ([ACTUAL\\_LENGTH](#)), and lean  $<45$  degrees from vertical.

**Note:** Starting with ID\_PLOT.[MANUAL\\_NATIONAL](#) = 7.0, the *core* minimum diameter to qualify for a standing dead tree was changed from 5.0 inches to 1.0 inch.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes:** STANDING\_DEAD\_CD

Code	Description
0	No - Tree does not qualify as standing dead.
1	Yes - Tree does qualify as standing dead.

### 3.5.12 TPA\_UNADJ

**Mother trees per acre unadjusted.** The number of trees per acre that the mother tree theoretically represents as determined by the fixed-radius subplot element (see [SUBP](#)) on which the tree was sampled.

When generating population estimates, this attribute must be adjusted by multiplying by either the POP\_STRATUM\_CALC.[STRATUM\\_SUBPLOT\\_ADJ\\_FACTOR](#) or the POP\_STRATUM\_CALC.[STRATUM\\_MICROPLOT\\_ADJ\\_FACTOR](#) to account for partially nonsampled plots (access denied or hazardous portions).

### 3.5.13 SPCD

**Species code.** An FIA numeric code identifying the tree species. Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#) for a link to the "FIA Master Tree Species List," which stores species codes and other information for each tree species.

**Reference table:** [REF\\_SPECIES](#)

### 3.5.14 SPGRPCD

**Species group code.** A code designating a general grouping of similar tree species for the purposes of organization and reporting. Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

**Note:** The REF\_SPECIES table, which is downloadable at the [Urban DataMart](#) (available at web address: <https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart>), contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

**Reference table:** [REF\\_SPECIES\\_GROUP](#)

### 3.5.15 DIA

**Current diameter.** The current diameter, in inches, at the mother-tree level. Populated for live and standing dead trees  $\geq$ 1.0 inch d.b.h./d.r.c. Trees with diameters ranging from 1.0-4.9 inches are measured on the 6.8-foot radius microplots. Trees with diameters  $\geq$ 5.0 inches are measured on the 48-foot radius subplot.

If a mother tree has multiple stems, the mother tree DIA is computed from the diameters (see ID\_TREE.[DIA](#)) of all constituent stems that qualify for measurement.

Diameter measurements differ for timber and woodland species, as described below:

- **Timber species** - For single-stemmed timber species, diameter is measured at breast height (d.b.h.), which is usually at 4.5 feet above the ground line. For multi-stemmed (forked) timber species, a diameter is measured for each stem qualifying for measurement (see ID\_TREE.DIA). To qualify as a fork, the stem in question must be at least 1/3 the diameter of the main stem and must branch out from the main stem at an angle of 45 degrees or less, and must be judged to have, or have the potential to assume an obvious "tree like" form and function as opposed to an obvious "branch like" form and function. Diameters for forked trees are measured differently depending on whether the fork originates below 1.0 foot, between 1.0 and 4.5 feet, or above 4.5 feet. For additional details on how trees with forks or irregularities (e.g., bottlenecks, swellings) are measured, refer to the ID\_PLOT.MANUAL\_NATIONAL.
- **Woodland species** - For woodland species, which are often multi-stemmed, diameter is measured at the ground line or at the stem root collar (d.r.c.), whichever is higher. An individual stem must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement. DIA for woodland species (DRC) is computed using the following formula:

$DRC = \text{SQRT} [\text{SUM}(\text{stem diameter}^2)]$ , where stem diameter is the diameter of each individual stem.

Refer to [DIAHTCD](#) to determine the point of diameter measurement for the tree.

### 3.5.16 DIACHECK

**Diameter check code.** A code indicating the accuracy of the current diameter measurement.

**Note:** If both codes 1 and 2 apply, code 2 is used.

**Reference table:** [REF\\_DIA\\_CHECK](#)

**Codes: DIACHECK**

Code	Description
0	<b>Measured</b> - Diameter measured accurately.
1	<b>Estimated</b> - Diameter estimated.
2	<b>Moved measurement point</b> - Diameter measured at different location than previous measurement (remeasurement trees only).

### 3.5.17 DIAHTCD

**Diameter height code.** A code indicating the point of diameter measurement.

**Codes: DIAHTCD**

Code	Description
1	<b>Breast height</b> - Diameter at breast height (d.b.h.) is the targeted diameter measurement. If the tree form or other obstruction prevent this measurement, then the closest measurement to d.b.h. is made according to the field protocol under which it was collected.
2	<b>Root collar</b> - Diameter at the root collar (d.r.c.) is the targeted diameter measurement.

### 3.5.18 CROWN\_DIEBACK\_CD

**Crown dieback code.** A code indicating the approximate percentage of dieback in the crown for the mother tree. Values for this code are divided into ranges of 5 percent.

**Reference table:** [REF\\_PERCENT\\_CLASS\\_CODE](#)

**Codes: CROWN\_DIEBACK\_CD**

Code	Description
0	0%
5	1-5%
10	6-10%
15	11-15%
20	16-20%
25	21-25%
30	26-30%
35	31-35%
40	36-40%
45	41-45%
50	46-50%
55	51-55%
60	56-60%
65	61-65%
70	66-70%
75	71-75%
80	76-80%
85	81-85%
90	86-90%
95	91-95%
99	96-100%

### 3.5.19 CROWN\_LIGHT\_EXPOSURE

**Crown light exposure.** A code indicating the number of sides (including the top) of the crown for the mother tree that are exposed to direct sunlight.

**Reference table:** [REF\\_CROWN\\_LIGHT\\_EXPOSURE](#)

**Codes: CROWN\_LIGHT\_EXPOSURE**

Code	Description
0	<b>No light</b> - The tree receives no full light because it is shaded by trees, vines, or other vegetation; the tree has no crown by definition.
1	<b>Top or 1 side</b> - The tree receives full light from the top or 1 quarter.
2	<b>Top and 1 side</b> - The tree receives full light from the top and 1 quarter (or 2 quarters without the top).
3	<b>Top and 2 sides</b> - The tree receives full light from the top and 2 quarters (or 3 quarters without the top).

Code	Description
4	<b>Top and 3 sides</b> - The tree receives full light from the top and 3 quarters.
5	<b>Top and 4 sides</b> - The tree receives full light from the top and 4 quarters.

**3.5.20 UNCOMP\_CROWN\_RATIO**

**Uncompacted live crown ratio.** The ratio of uncompacted live crown length to actual tree length for the mother tree, expressed as a percent. UNCOMP\_CROWN\_RATIO indicates the portion of actual tree length supporting live foliage (or in cases of extreme defoliation, should be supporting live foliage) that is effectively contributing to tree growth.

**3.5.21 CROWN\_DIA\_WIDE**

**Crown diameter at widest point.** The width, in feet, of the live crown at the widest point for the mother tree.

**3.5.22 CROWN\_DIA\_90**

**Crown diameter at 90 degrees to widest point.** The width, in feet, of the crown 90 degrees from (perpendicular to) the widest point of the crown for the mother tree.

**3.5.23 AVG\_CROWN\_WIDTH**

**Average crown width.** A modeled estimate, in feet, of the average width of live crown for the mother tree.

**3.5.24 FOLIAGE\_ABSENT**

**Percent foliage absent.** The percentage of foliage absent from the total crown outline for the mother tree. Foliage can be absent due to pruning, dieback, defoliation, or weather/storm damage.

**3.5.25 IS\_MAINTAINED\_AREA**

**Is tree in maintained area.** A code indicating if the mother tree is located within a maintained area (tree bole must be partially or fully contained within the maintained area to qualify).

Maintained areas are defined as those which are consistently being impacted by mowing, weeding, brushing, herbiciding, landscaping, etc. Examples include, but are not limited to, lawns, maintained shrub beds, rights-of-way, and manicured park areas. Examples of unmaintained areas are overgrown lots, small wooded areas, and riverbanks.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes: IS\_MAINTAINED\_AREA**

Code	Description
0	No, tree is not in a maintained area.
1	Yes, tree is in a maintained area.

**3.5.26 IS\_RIPARIAN**

**Is tree a riparian tree.** A code indicating whether or not the mother tree qualifies as a riparian river/stream tree. Such a tree is one that falls within 30 feet of the edge (mean high-water mark) of a stream or river. If a stream is intermittent, or no water is running at

the time of plot measurement, the stream must have a naturally developed stream bottom to be recognized as a stream.

Lakes, ponds holding basins, and wet lands are not classified as riparian zones. Man-made ditches and canals used to funnel storm water during periods of high rainfall are not considered streams. However, some stream segments, especially in urban areas, may occasionally have cement sides and bottoms, and these segments, that are generally part of a larger stream network, are considered to be a stream.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes:** IS\_RIPARIAN

Code	Description
0	No, tree is not a riparian tree.
1	Yes, tree is a riparian tree.

### 3.5.27 IS\_STREET\_TREE

**Is tree a street tree.** A code indicating whether or not the mother tree qualifies as a street tree. A street tree is defined as a maintained-area tree, natural or planted, that is located within 8 feet of the edge of a maintained surfaced road (as measured from the pith of the tree to the edge of the flat surface of the road). Street trees also include all trees located in the space between the edge of the road and the sidewalk, or within a median strip between roads. A "clover leaf" interchange is not considered part of a median. Therefore, trees growing within a "clover leaf" interchange would only be considered a street tree if they were within 8 feet of the maintained road.

In general, street trees provide shade, aesthetic values, or serve as a physical barrier between the street and adjacent property. These trees will generally have a visible, physical interaction with the street via its root system, overhanging branches, or proximity of the trunk.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes:** IS\_STREET\_TREE

Code	Description
0	No, tree is not a street tree.
1	Yes, tree is a street tree.

### 3.5.28 IS\_PLANTED

**Is tree planted.** A code indicating if the mother tree shows evidence of being planted (plantation trees are included). This attribute is only populated for trees at the initial (first) plot visit or for newly measured trees at subsequent plot visits.

**Note:** Not populated for ID\_COND.COND\_STATUS\_CD = 1 (accessible forest land) or for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.[MANUAL\\_NATIONAL <7.0](#).

**Reference table:** [REF\\_TREE\\_PLANTED](#)

**Codes: IS\_PLANTED**

<b>Code</b>	<b>Description</b>
1	<b>Planted</b> - Tree appears to have been planted at some point in the past.
2	<b>Natural</b> - Tree appears to be of a natural origin.
3	<b>Not sure</b> - Unable to confidently determine if the tree was planted or not.

**3.5.29 NBR\_STEMS**

**Number of stems.** The total number of stems (live and dead) on the mother tree that were used to compute the current diameter (see [DIA](#)).

**3.5.30 BASAL\_AREA**

**Basal area.** The basal area of the mother tree, in square feet per acre, computed as  $DIA^2 * 0.005454$ , where [DIA](#) is the current diameter of the tree. Populated for live and dead trees  $\geq 1.0$  inch d.b.h./d.r.c.

**3.5.31 GROSS\_CARBON\_SEQUESTRATION**

**Whole-tree gross carbon sequestration.** The gross quantity of carbon sequestered by the whole tree, in pounds per year. Gross sequestration does not account for carbon released due to tree mortality and decomposition.

**3.5.32 ITREE\_ECO\_VERSION**

**i-Tree Eco system version.** A descriptor indicating the version for the i-Tree Eco system from which the i-Tree data were provided.

**3.5.33 DRY\_TOT\_BIOMASS\_ITREE**

**Whole-tree dry biomass (i-Tree Eco system).** The oven-dry biomass for the whole tree (aboveground and belowground), in pounds, as estimated by the i-Tree Eco system. Foliage is included for conifer species but excluded for deciduous species.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when [ID\\_PLOT.MANUAL\\_NATIONAL <7.0](#).

**3.5.34 CARBON\_STORAGE\_ITREE**

**Whole-tree carbon storage (i-Tree Eco system).** The carbon stored in the whole tree (aboveground and belowground), in pounds, as estimated by the i-Tree Eco system. Carbon storage is estimated as tree total biomass \* 0.5. Foliage is included for conifer species but not for deciduous species.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when [ID\\_PLOT.MANUAL\\_NATIONAL <7.0](#).

**3.5.35 GROSS\_C\_SEQUESTRATION\_ITREE**

**Whole-tree gross carbon sequestration (i-Tree Eco system).** The gross quantity of carbon sequestered by the whole tree, in pounds per year, as estimated by the i-Tree Eco system. Gross sequestration does not account for carbon released due to tree mortality and decomposition.

**3.5.36 LEAF\_AREA\_ITREE**

**Leaf area (i-Tree Eco system).** The leaf area, in square feet, as estimated by the i-Tree Eco system. This value indicates the total leaf area of the live crown of the tree.

**3.5.37 LEAF\_BIOMASS\_ITREE**

**Leaf biomass (i-Tree Eco system).** The leaf biomass, in oven-dry pounds, as estimated by the i-Tree Eco system. This value indicates the total leaf biomass of the live crown of the tree.

**3.5.38 CROWN\_GROUND\_AREA\_ITREE**

**Crown ground area (i-Tree Eco system).** The crown ground area, in square feet, as estimated by the i-Tree Eco system. This value indicates the area of the tree crown when projected on to the ground.

**3.5.39 LEAF\_AREA\_INDEX\_ITREE**

**Leaf area index value (i-Tree Eco system).** The leaf area index value (unitless) produced by the i-Tree Eco system. This is a dimensionless value that describes the relative density of the tree canopy's photosynthetic surface. Leaf Area Index (LAI) is computed as the estimated leaf area divided by the estimated crown ground area.

**3.5.40 LEAF\_BIOMASS\_INDEX\_ITREE**

**Leaf biomass index value (i-Tree Eco system).** The leaf biomass index value, in oven-dry pounds per square foot, produced by the i-Tree Eco system. This is an index value that describes the leaf biomass of the tree relative to the size of the crown. It is computed as the estimated leaf biomass divided by the estimated crown ground area.

**3.5.41 COMPENSATORY\_VALUE\_ITREE**

**Compensatory value (i-Tree Eco system).** The compensatory value, in dollars, produced by the i-Tree Eco system. This value indicates the estimated dollar value of replacement for the tree. Compensatory value represents the monetary compensation that would be paid to owners for the loss of an individual tree and is viewed as the value of the tree as a structural asset.

**3.5.42 NO2\_ACUTE\_RESPIRATORY\_SYMPTOMS\_INCIDENCE**

[Data in preparation]

**NO2 acute respiratory symptoms incidence (i-Tree Eco system).** The total number of cases of acute respiratory symptoms avoided per year, related to the reduction of the NO<sub>2</sub> pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.43 NO2\_ASTHMA\_EXACERBATION\_INCIDENCE**

[Data in preparation]

**NO2 asthma exacerbation incidence (i-Tree Eco system).** The total number of cases of asthma exacerbation avoided per year, related to the reduction of the NO<sub>2</sub> pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.44 NO2\_EMERGENCY\_ROOM\_VISITS\_INCIDENCE**

[Data in preparation]

**NO2 emergency room visits incidence (i-Tree Eco system).** The total number of cases of emergency room visits avoided per year, related to the reduction of the NO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.45 NO2\_HOSPITAL\_ADMISSESIONS\_INCIDENCE**

[Data in preparation]

**NO2 hospital admissions incidence (i-Tree Eco system).** The total number of cases of hospital admissions avoided per year, related to the reduction of the NO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.46 NO2\_ACUTE\_RESPIRATORY\_SYMPOTMS\_VALUE**

[Data in preparation]

**NO2 acute respiratory symptoms value (i-Tree Eco system).** The total value, in dollars, of cases of acute respiratory symptoms avoided per year, related to the reduction of the NO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.47 NO2\_ASTHMA\_EXACERBATION\_VALUE**

[Data in preparation]

**NO2 asthma exacerbation value (i-Tree Eco system).** The total value, in dollars, of cases of asthma exacerbation avoided per year, related to the reduction of the NO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.48 NO2\_EMERGENCY\_ROOM\_VISITS\_VALUE**

[Data in preparation]

**NO2 emergency room visits value (i-Tree Eco system).** The total value, in dollars, of cases of emergency room visits avoided per year, related to the reduction of the NO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.49 NO2\_HOSPITAL\_ADMISSESIONS\_VALUE**

[Data in preparation]

**NO2 hospital admissions value (i-Tree Eco system).** The total value, in dollars, of cases of hospital admissions avoided per year, related to the reduction of the NO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.50 SO2\_ACUTE\_RESPIRATORY\_SYMPOTMS\_INCIDENCE**

[Data in preparation]

**SO2 acute respiratory symptoms incidence (i-Tree Eco system).** The total number of cases of acute respiratory symptoms avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.51 SO2\_ASTHMA\_EXACERBATION\_INCIDENCE**

[Data in preparation]

**SO2 asthma exacerbation incidence (i-Tree Eco system).** The total number of cases of asthma exacerbation avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.52 SO2\_EMERGENCY\_ROOM\_VISITS\_INCIDENCE**

[Data in preparation]

**SO2 emergency room visits incidence (i-Tree Eco system).** The total number of cases of emergency room visits avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.53 SO2\_HOSPITAL\_ADMISSIONS\_INCIDENCE**

[Data in preparation]

**SO2 hospital admissions incidence (i-Tree Eco system).** The total number of cases of hospital admissions avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.54 SO2\_ACUTE\_RESPIRATORY\_SYMPTOMS\_VALUE**

[Data in preparation]

**SO2 acute respiratory symptoms value (i-Tree Eco system).** The total value, in dollars, of cases of acute respiratory symptoms avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.55 SO2\_ASTHMA\_EXACERBATION\_VALUE**

[Data in preparation]

**SO2 asthma exacerbation value (i-Tree Eco system).** The total value, in dollars, of cases of asthma exacerbation avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.56 SO2\_EMERGENCY\_ROOM\_VISITS\_VALUE**

[Data in preparation]

**SO2 emergency room visits value (i-Tree Eco system).** The total value, in dollars, of cases of emergency room visits avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.57 SO2\_HOSPITAL\_ADMISSIONS\_VALUE**

[Data in preparation]

**SO2 hospital admissions value (i-Tree Eco system).** The total value, in dollars, of cases of hospital admissions avoided per year, related to the reduction of the SO2 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.58 O3\_ACUTE\_RESPIRATORY\_SYMPTOMS\_INCIDENCE**

[Data in preparation]

**O3 acute respiratory symptoms incidence (i-Tree Eco system).** The total number of cases of acute respiratory symptoms avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.59 O3\_EMERGENCY\_ROOM\_VISITS\_INCIDENCE**

[Data in preparation]

**O3 emergency room visits incidence (i-Tree Eco system).** The total number of cases of emergency room visits avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.60 O3\_HOSPITAL\_ADMISSESIONS\_INCIDENCE**

[Data in preparation]

**O3 hospital admissions incidence (i-Tree Eco system).** The total number of cases of hospital admissions avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.61 O3\_MORTALITY\_INCIDENCE**

[Data in preparation]

**O3 mortality incidence (i-Tree Eco system).** The total number of cases of mortality avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.62 O3\_SCHOOL\_LOSS\_DAYS\_INCIDENCE**

[Data in preparation]

**O3 school loss days incidence (i-Tree Eco system).** The total number of cases of school loss days avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.63 O3\_ACUTE\_RESPIRATORY\_SYMPTOMS\_VALUE**

[Data in preparation]

**O3 acute respiratory symptoms value (i-Tree Eco system).** The total value, in dollars, of cases of acute respiratory symptoms avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.64 O3\_EMERGENCY\_ROOM\_VISITS\_VALUE**

[Data in preparation]

**O3 emergency room visits value (i-Tree Eco system).** The total value, in dollars, of cases of emergency room visits avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.65 O3\_HOSPITAL\_ADMISSIONS\_VALUE**

[Data in preparation]

**O3 hospital admissions value (i-Tree Eco system).** The total value, in dollars, of cases of hospital admissions avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.66 O3\_MORTALITY\_VALUE**

[Data in preparation]

**O3 mortality value (i-Tree Eco system).** The total value, in dollars, of cases of mortality avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.67 O3\_SCHOOL\_LOSS\_DAYS\_VALUE**

[Data in preparation]

**O3 school loss days value (i-Tree Eco system).** The total value, in dollars, of cases of school loss days avoided per year, related to the reduction of the O3 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.68 PM2\_5\_ACUTE\_BRONCHITIS\_INCIDENCE**

[Data in preparation]

**PM2.5 acute bronchitis incidence (i-Tree Eco system).** The total number of cases of acute bronchitis avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.69 PM2\_5\_ACUTE\_MYOCARDIAL\_INFARCTION\_INCIDENCE**

[Data in preparation]

**PM2.5 acute myocardial infarction incidence (i-Tree Eco system).** The total number of cases of acute myocardial infarction avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.70 PM2\_5\_ACUTE\_RESPIRATORY\_SYMPTOMS\_INCIDENCE**

[Data in preparation]

**PM2.5 acute respiratory symptoms incidence (i-Tree Eco system).** The total number of cases of acute respiratory symptoms avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.71 PM2\_5\_ASTHMA\_EXACERBATION\_INCIDENCE**

[Data in preparation]

**PM2.5 asthma exacerbation incidence (i-Tree Eco system).** The total number of cases of asthma exacerbation avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.72 PM2\_5\_CHRONIC\_BRONCHITIS\_INCIDENCE**

[Data in preparation]

**PM2.5 chronic bronchitis incidence (i-Tree Eco system).** The total number of cases of chronic bronchitis avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.73 PM2\_5\_EMERGENCY\_ROOM\_VISITS\_INCIDENCE**

[Data in preparation]

**PM2.5 emergency room visits incidence (i-Tree Eco system).** The total number of emergency room visits avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.74 PM2\_5\_HOSPITAL\_ADMISSESS\_CARDIOVASCULAR\_INCIDENCE**

[Data in preparation]

**PM2.5 hospital admissions cardiovascular incidence (i-Tree Eco system).** The total number of hospital admissions concerning cardiovascular cases avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.75 PM2\_5\_HOSPITAL\_ADMISSESS\_RESPIRATORY\_INCIDENCE**

[Data in preparation]

**PM2.5 hospital admissions respiratory incidence (i-Tree Eco system).** The total number of hospital admissions concerning respiratory cases avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.76 PM2\_5\_LOWER\_RESPIRATORY\_SYMPTOMS\_INCIDENCE**

[Data in preparation]

**PM2.5 lower respiratory symptoms incidence (i-Tree Eco system).** The total number of cases of lower respiratory symptoms avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.77 PM2\_5\_MORTALITY\_INCIDENCE**

[Data in preparation]

**PM2.5 mortality incidence (i-Tree Eco system).** The total number of cases of mortality avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.78 PM2\_5\_UPPER\_RESPIRATORY\_SYMPTOMS\_INCIDENCE**

[Data in preparation]

**PM2.5 upper respiratory symptoms incidence (i-Tree Eco system).** The total number of cases of upper respiratory symptoms avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.79 PM2\_5\_WORK\_LOSS\_DAYS\_INCIDENCE**

[Data in preparation]

**PM2.5 work loss days incidence (i-Tree Eco system).** The total number of cases of work loss days avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.80 PM2\_5\_ACUTE\_BRONCHITIS\_VALUE**

[Data in preparation]

**PM2.5 acute bronchitis value (i-Tree Eco system).** The total value, in dollars, of cases of acute bronchitis avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.81 PM2\_5\_ACUTE\_MYOCARDIAL\_INFARCTION\_VALUE**

[Data in preparation]

**PM2.5 acute myocardial infarction value (i-Tree Eco system).** The total value, in dollars, of cases of acute myocardial infarction avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.82 PM2\_5\_ACUTE\_RESPIRATORY\_SYMPTOMS\_VALUE**

[Data in preparation]

**PM2.5 acute respiratory symptoms value (i-Tree Eco system).** The total value, in dollars, of cases of acute respiratory symptoms avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.83 PM2\_5\_ASTHMA\_EXACERBATION\_VALUE**

[Data in preparation]

**PM2.5 asthma exacerbation value (i-Tree Eco system).** The total value, in dollars, of cases of asthma exacerbation avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.84 PM2\_5\_CHRONIC\_BRONCHITIS\_VALUE**

[Data in preparation]

**PM2.5 chronic bronchitis value (i-Tree Eco system).** The total value, in dollars, of cases of chronic bronchitis avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.85 PM2\_5\_EMERGENCY\_ROOM\_VISITS\_VALUE**

[Data in preparation]

**PM2.5 emergency room visits value (i-Tree Eco system).** The total value, in dollars, of cases of emergency room visits avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.86 PM2\_5\_HOSPITAL\_ADMISSIONS\_CARDIOVASCULAR\_VALUE**

[Data in preparation]

**PM2.5 hospital admissions cardiovascular value (i-Tree Eco system).** The total value, in dollars, of hospital admissions concerning cardiovascular cases avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.87 PM2\_5\_HOSPITAL\_ADMISSIONS\_RESPIRATORY\_VALUE**

[Data in preparation]

**PM2.5 hospital admissions respiratory value (i-Tree Eco system).** The total value, in dollars, of hospital admissions concerning respiratory cases avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.88 PM2\_5\_LOWER\_RESPIRATORY\_SYMPTOMS\_VALUE**

[Data in preparation]

**PM2.5 lower respiratory symptoms value (i-Tree Eco system).** The total value, in dollars, of cases of lower respiratory symptoms avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.89 PM2\_5\_MORTALITY\_VALUE**

[Data in preparation]

**PM2.5 mortality value (i-Tree Eco system).** The total value, in dollars, of cases of mortality avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.90 PM2\_5\_UPPER\_RESPIRATORY\_SYMPTOMS\_VALUE**

[Data in preparation]

**PM2.5 upper respiratory symptoms value (i-Tree Eco system).** The total value, in dollars, of cases of upper respiratory symptoms avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.91 PM2\_5\_WORK\_LOSS\_DAYS\_VALUE**

[Data in preparation]

**PM2.5 work loss days value (i-Tree Eco system).** The total value, in dollars, of cases of work loss days avoided per year, related to the reduction of the PM2.5 pollutant by the tree, as estimated by the i-Tree Eco system.

**3.5.92 CO\_VALUE**

[Data in preparation]

**CO value (i-Tree Eco system).** The total value, in dollars, of CO pollutant removal per year by the tree, as estimated by the i-Tree Eco system. This value represents the cost of adverse health outcomes that would have been incurred at higher air pollution levels in the absence of trees.

**3.5.93 O3\_VALUE**

[Data in preparation]

**O3 value (i-Tree Eco system).** The total value, in dollars, of O3 pollutant removal per year by the tree, as estimated by the i-Tree Eco system. This value represents the cost of adverse health outcomes that would have been incurred at higher air pollution levels in the absence of trees.

**3.5.94 PM10\_VALUE**

[Data in preparation]

**PM10 value (i-Tree Eco system).** The total value, in dollars, of PM10 pollutant removal per year by the tree, as estimated by the i-Tree Eco system. This value represents the cost of adverse health outcomes that would have been incurred at higher air pollution levels in the absence of trees.

**3.5.95 NO2\_VALUE**

[Data in preparation]

**NO2 value (i-Tree Eco system).** The total value, in dollars, of NO2 pollutant removal per year by the tree, as estimated by the i-Tree Eco system. This value represents the cost of adverse health outcomes that would have been incurred at higher air pollution levels in the absence of trees.

**3.5.96 PM2\_5\_VALUE**

[Data in preparation]

**PM2.5 value (i-Tree Eco system).** The total value, in dollars, of PM2.5 pollutant removal per year by the tree, as estimated by the i-Tree Eco system. This value represents the cost of adverse health outcomes that would have been incurred at higher air pollution levels in the absence of trees.

**3.5.97 SO2\_VALUE**

[Data in preparation]

**SO2 value (i-Tree Eco system).** The total value, in dollars, of SO2 pollutant removal per year by the tree, as estimated by the i-Tree Eco system. This value represents the cost of adverse health outcomes that would have been incurred at higher air pollution levels in the absence of trees.

**3.5.98 CO\_REMOVAL**

[Data in preparation]

**CO removal (i-Tree Eco system).** The total mass, in ounces per year, of CO pollutant removal by the tree, as estimated by the i-Tree Eco system.

**3.5.99 O3\_REMOVAL**

[Data in preparation]

**O3 removal (i-Tree Eco system).** The total mass, in ounces per year, of O3 pollutant removal by the tree, as estimated by the i-Tree Eco system.

**3.5.100 PM10\_REMOVAL**

[Data in preparation]

**PM10 removal (i-Tree Eco system).** The total mass, in ounces per year, of PM10 pollutant removal by the tree, as estimated by the i-Tree Eco system.

**3.5.101 NO2\_REMOVAL**

[Data in preparation]

**NO2 removal (i-Tree Eco system).** The total mass, in ounces per year, of NO2 pollutant removal by the tree, as estimated by the i-Tree Eco system.

**3.5.102 PM2\_5\_REMOVAL**

[Data in preparation]

**PM2.5 removal (i-Tree Eco system).** The total mass, in ounces per year, of PM2.5 pollutant removal by the tree, as estimated by the i-Tree Eco system.

**3.5.103 SO2\_REMOVAL**

[Data in preparation]

**SO2 removal (i-Tree Eco system).** The total mass, in ounces per year, of SO2 pollutant removal by the tree, as estimated by the i-Tree Eco system.

**3.5.104 AVOIDED\_RUNOFF**

[Data in preparation]

**Avoided runoff (i-Tree Eco system).** The total amount, in cubic feet per year, of runoff avoided due to the presence of the tree, as estimated by the i-Tree Eco system.

**3.5.105 RAINFALL\_INTERCEPTION**

[Data in preparation]

**Rainfall interception (i-Tree Eco system).** The total amount, in cubic feet per year, of rainfall that was intercepted by the tree canopy, as estimated by the i-Tree Eco system.

**3.5.106 EVAPORATION**

[Data in preparation]

**Evaporation (i-Tree Eco system).** The total amount, in cubic feet per year, of water evaporation by the tree, as estimated by the i-Tree Eco system.

**3.5.107 TRANSPIRATION**

[Data in preparation]

**Transpiration (i-Tree Eco system).** The total amount, in cubic feet per year, of water transpiration by the tree, as estimated by the i-Tree Eco system.

**3.5.108 POTENTIAL\_EVAPORATION**

[Data in preparation]

**Potential evaporation (i-Tree Eco system).** The potential evaporation, in cubic feet per year, that could be achieved by the tree if incoming precipitation was not a limiting factor, as estimated by the i-Tree Eco system.

**3.5.109 POTENTIAL\_EVAPOTRANSPIRATION**

[Data in preparation]

**Potential evapotranspiration (i-Tree Eco system).** The potential evapotranspiration, in cubic feet per year, that could be achieved by the tree if incoming precipitation or soil moisture were not a limiting factor, as estimated by the i-Tree Eco system.

**3.5.110 ISOPRENE\_EMITTED**

[Data in preparation]

**Isoprene emitted (i-Tree Eco system).** The total mass, in pounds per year, of isoprene emitted by the tree, as estimated by the i-Tree Eco system.

**3.5.111 MONOTERPENE\_EMITTED**

[Data in preparation]

**Monoterpene emitted (i-Tree Eco system).** The total mass, in pounds per year, of monoterpene emitted by the tree, as estimated by the i-Tree Eco system.

**3.5.112 CN**

**Mother tree sequence number.** A unique sequence number used to identify the mother tree record (in ID\_MOTHER\_TREE).

**3.5.113 PLT\_CN**

**Plot sequence number.** Foreign key linking the mother tree record to the plot visit record (ID\_MOTHER\_TREE.PLT\_CN = ID\_PLOT.CN).

**3.5.114 SBP\_CN**

**Subplot sequence number.** Foreign key linking the mother tree record to the subplot record (ID\_MOTHER\_TREE.SBP\_CN = ID\_SUBPLOT.CN).

**3.5.115 CND\_CN**

**Condition sequence number.** Foreign key linking the mother tree record to the condition record (ID\_MOTHER\_TREE.CND\_CN = ID\_COND.CN).

**3.5.116 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the mother tree record to the previous plot visit record (ID\_MOTHER\_TREE.PREV\_PLT\_CN = ID\_PLOT.CN).

**3.5.117 PREV\_MTRE\_CN**

**Previous mother tree sequence number.** The sequence number (CN) linking the mother tree record to the previous mother tree record (ID\_MOTHER\_TREE.PREV\_MTRE\_CN = ID\_MOTHER\_TREE.CN). This attribute is only populated for trees remeasured from a previous inventory.



## 3.6 Plot Table

### Oracle table name: ID\_PLOT

The purpose of the **ID\_PLOT** table is to store information about the primary sampling point: a plot. Specifically, each record represents a plot visit. A plot is a dimensionless point that exists at a specific location on the surface of the population. A plot visit is the execution of a sampling protocol on a given sampling point at a given point in time. Information describing the plot visit includes the identity of the plot, the measurement date, the sampling status achieved at the visit, and the location of the plot.

#### Linking tables:

- **Inventories** - The relationship between a plot visit (a record in the ID\_PLOT table) and the contexts it supports is stored in the [ID\\_PLOT\\_INV\\_ASSGN](#) table.
- **Statistical samples** - The relationship between a plot visit and the statistical samples in which it serves is stored in the [ID\\_PLOT\\_STAT\\_SAMP\\_ASSGN](#) table.
- **Strata** - The relationship between a plot visit and the strata to which it is assigned is stored in the [ID\\_PLOT\\_STRAT\\_CALC\\_ASSGN](#) table.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.6.1	PLOTID	Plot identifier	INTEGER
3.6.2	VISIT_NBR	Visit number	NUMBER(2)
3.6.3	STATECD	State code	NUMBER(2)
3.6.4	UNITCD	Survey unit code	NUMBER(2)
3.6.5	COUNTYCD	County code	NUMBER(3)
3.6.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.6.7	INTENSITY	Intensity	NUMBER(3)
3.6.8	MEAS_YEAR	Measurement year	NUMBER(4)
3.6.9	MEAS_MONTH	Measurement month	NUMBER(2)
3.6.10	MEAS_DAY	Measurement day	NUMBER(2)
3.6.11	KINDCD	Sample kind code	NUMBER(2)
3.6.12	PLOT_STATUS_CD	Plot status code	NUMBER(1)
3.6.13	PLOT_NONSAMPLE_REASON_CD	Plot nonsampled reason code	NUMBER(2)
3.6.14	SAMPLE_METHOD_CD	Plot sample method code	NUMBER(1)
3.6.15	MANUAL_NATIONAL	National urban manual (field guide) version	VARCHAR2(10)
3.6.16	MANUAL_REGIONAL	Regional urban manual (field guide) version	VARCHAR2(10)
3.6.17	LAT	Latitude	NUMBER(8,6)
3.6.18	LON	Longitude	NUMBER(9,6)
3.6.19	ROAD_DIST_CD	Horizontal distance to improved road code	NUMBER(2)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.6.20	WATER_CD	Water on plot code	NUMBER(2)
3.6.21	SUBP_EXAMINE_CD	Subplots examined code	NUMBER(1)
3.6.22	CN	Plot sequence number	INTEGER
3.6.23	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PLT_PK	CN	N/A
Unique	PLT_UK	PLOTID, VISIT_NBR	N/A

**3.6.1 PLOTID**

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

**3.6.2 VISIT\_NBR**

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

**3.6.3 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**3.6.4 UNITCD**

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

**3.6.5 COUNTYCD**

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

**3.6.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.6.7 INTENSITY**

**Intensity.** The sampling intensity of the sampling point expressed as X plots in the parent FIA hexagon used to generate the sample.

**3.6.8 MEAS\_YEAR**

**Measurement year.** The measurement year of the plot visit, stored as a 4-digit number in the format of YYYY (e.g., 2014).

**3.6.9 MEAS\_MONTH**

**Measurement month.** The measurement month of the plot visit, stored as a 1- or 2-digit number in the format of MM (e.g., 1, 2, ..., 12).

**Codes: MEAS\_MONTH**

Code	Description
1	January.
2	February.
3	March.
4	April.
5	May.
6	June.
7	July.
8	August.
9	September.
10	October.
11	November.
12	December.

**3.6.10 MEAS\_DAY**

**Measurement day.** The measurement day of the plot visit, stored as a 1- or 2-digit number in the format of DD (e.g., 1, 2, 3, ..., 29, 30, 31).

**3.6.11 KINDCD**

**Sample kind code.** A code indicating the type of installation for the plot visit.

**Note:** Revisited plots with KINDCD = 1 and KINDCD = 3 are not used for remeasurement estimates.

**Reference table:** [REF\\_SAMPLE\\_KIND](#)

**Codes: KINDCD**

Code	Description
1	Initial - initial plot establishment, or resampling of a national design plot that was coded as nonsampled (PLOT_STATUS_CD = 4) at the previous visit.
2	Remeasurement - remeasurement of a national design plot that was sampled at the previous inventory.
3	Replacement - a replacement plot for a previously established plot.

**3.6.12 PLOT\_STATUS\_CD**

**Plot status code.** A code that describes the sampling status of the plot visit.

**Reference table:** [REF\\_PLOT\\_STATUS](#)**Codes: PLOT\_STATUS\_CD**

Code	Description
1	Sampled: Forest - at least one accessible forest land condition present on subplot.
2	Sampled: Nonforest - no accessible forest but at least one accessible nonforest land condition present on subplot.
3	Sampled: Water - no accessible forest or accessible nonforest land condition present on subplot (i.e., subplot is either census and/or noncensus water).
4	Nonsampled.

**3.6.13 PLOT\_NONSAMPLE\_REASON\_CD**

**Plot nonsampled reason code.** A code indicating the reason a plot was entirely nonsampled for the plot visit.

**Reference table:** [REF\\_PLOT\\_NONSAMPLE\\_REASON](#)**Codes: PLOT\_NONSAMPLE\_REASON\_CD**

Code	Description
1	<b>Outside U.S. boundary</b> - Entire plot is outside of the U.S. border.
2	<b>Denied access</b> - Access to the entire plot is denied by the legal owner, or by the owner of the only reasonable route to the plot.
3	<b>Hazardous situation</b> - Entire plot cannot be accessed because of a hazard or danger.
5	<b>Lost data</b> - This code is for office use only.
6	<b>Lost plot</b> - Entire plot cannot be found.
7	<b>Wrong location</b> - Previous plot can be found, but its placement is beyond the tolerance limits for plot location.
8	<b>Skipped visit</b> - This code is for office use only.
9	<b>Dropped intensified plot</b> - This code is for office use only.
10	<b>Other</b> - Entire plot not sampled due to a reason other than one of the specific reasons already listed.
11	<b>Ocean</b> - Plot falls in ocean water below mean high tide line.

**3.6.14 SAMPLE\_METHOD\_CD**

**Plot sample method code.** A code indicating the sampling method used for a plot visit.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**Reference table:** [REF\\_SAMPLE\\_METHOD\\_CD](#)

**Codes: SAMPLE\_METHOD\_CD**

<b>Code</b>	<b>Description</b>
1	Sampled on the ground by field crews.
2	Photo-interpretation in the office.
3	Office sampled by entering data in the field data collection system.

**3.6.15 MANUAL\_NATIONAL**

**National urban manual (field guide) version.** The version of the National Urban FIA Field Guide used to make measurements for the plot visit. This value is used when cross-referencing legal code values in code definition reference tables to assure the codes returned are the codes the crews used for data collection.

**3.6.16 MANUAL\_REGIONAL**

**Regional urban manual (field guide) version.** The version of the Regional Urban Field Guide used to make measurements for the plot visit. Note that each region makes regional modifications to the national field guide. Changes streamline data collection for the targeted region as well as append additional measurements that are only of interest in the given region.

**3.6.17 LAT**

**Latitude.** The approximate latitude of the plot in decimal degrees using the NAD 83 datum. Actual plot coordinates cannot be released because of a Privacy provision enacted by Congress in the Food Security Act of 1985. Therefore, this attribute is approximately +/- 1 mile. Most plots are within +/- 1/2 mile. There is additional uncertainty for private plots caused by swapping plot coordinates for up to 20 percent of the plots.

**3.6.18 LON**

**Longitude.** The approximate longitude of the plot in decimal degrees using NAD 83 datum. Actual plot coordinates cannot be released because of a Privacy provision enacted by Congress in the Food Security Act of 1985. Therefore, this attribute is approximately +/- 1 mile. Most plots are within +/- 1/2 mile. There is additional uncertainty for private plots caused by swapping plot coordinates for up to 20 percent of the plots.

**3.6.19 ROAD\_DIST\_CD**

**Horizontal distance to improved road code.** The straight-line distance from plot center to the nearest improved road. An improved road is a road of any width that is maintained as evidenced by pavement, gravel, grading, ditching, and/or other improvements. Improved roads should not have advanced rutting, old washouts, old fallen trees, vegetation, etc. that inhibits regular vehicular travel.

**Reference table:** [REF\\_HORIZ\\_DIST\\_IMPRVD\\_ROAD](#)

**Codes: ROAD\_DIST\_CD**

<b>Code</b>	<b>Description</b>
1	100 feet or less.
2	101 to 300 feet.
3	301 to 500 feet.
4	501 to 1000 feet.

Code	Description
5	1001 feet to 1/2 mile.
6	1/2 to 1 mile.
7	1 to 3 miles.
8	3 to 5 miles.
9	Greater than 5 miles.

### 3.6.20 WATER\_CD

**Water on plot code.** The water body <1 acre in size or a stream <30 feet wide that has the greatest impact on the area within the accessible forest/nonforest land portion of the plot. The coding hierarchy is listed in order from large permanent water to temporary water. This attribute is not recorded for water that is already defined as a separate noncensus or census water condition.

**Reference table:** [REF\\_WATER\\_ON\\_PLOT](#)

**Codes: WATER\_CD**

Code	Description
0	None - no water sources within the accessible forest/nonforest land.
1	Permanent streams or ponds too small to qualify as noncensus water.
2	Permanent water in the form of deep swamps, bogs, marshes without standing trees present and less than 1.0 acre in size, or forested swamps, bogs, or marshes classified as accessible forest land with standing trees.
3	Ditch/canal - human-made channels used as a means of moving water, such as irrigation or drainage, which are too small to qualify as noncensus water.
4	Temporary streams.
5	Flood zones - evidence of flooding when bodies of water exceed their natural banks.
9	Other temporary water - specify in plot notes (includes springs).

### 3.6.21 SUBP\_EXAMINE\_CD

**Subplots examined code.** A code indicating the number of subplots examined during a plot visit.

**Codes: SUBP\_EXAMINE\_CD**

Code	Description
1	One subplot examined.

### 3.6.22 CN

**Plot sequence number.** A unique sequence number used to identify the plot visit record (in ID\_PLOT). This sequence number identifies a sampling point at a specific point in time.

### 3.6.23 PREV\_PLT\_CN

**Previous plot sequence number.** The sequence number (CN) linking the plot visit record to the previous plot visit record (ID\_PLOT.PREV\_PLT\_CN = ID\_PLOT.CN).



## 3.7 Plot Inventory Assignment Table

### Oracle table name: ID\_PLOT\_INV\_ASSGN

The purpose of the **ID\_PLOT\_INV\_ASSGN** table is to store the linkage between plots (see **ID\_PLOT** table) and inventories (see **SO\_INVENTORY** table). This relationship is modeled as many-to-many. This means a given inventory can be associated with many plots and a given plot can be associated with many inventories. As a result, a single plot visit can participate in multiple inventories.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.7.1	<a href="#">CN</a>	Plot inventory assignment sequence number	INTEGER
3.7.2	<a href="#">PLT_CN</a>	Plot sequence number	INTEGER
3.7.3	<a href="#">INV_CN</a>	Inventory sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PINVA_PK	CN	N/A
Unique	PINVA_UK	PLT_CN, INV_CN	N/A
Foreign	PINVA_PLT_FK	PLT_CN	ID_PLOT_INV_ASSGN.PLT_CN = ID_PLOT.CN
Foreign	PINVA_INV_FK	INV_CN	ID_PLOT_INV_ASSGN.INV_CN = SO_INVENTORY.CN

#### 3.7.1 CN

**Plot inventory assignment sequence number.** A unique sequence number used to identify the plot inventory assignment record (in **ID\_PLOT\_INV\_ASSGN**).

#### 3.7.2 PLT\_CN

**Plot sequence number.** Foreign key linking the plot inventory assignment record to the plot visit record (**ID\_PLOT\_INV\_ASSGN.PLT\_CN = ID\_PLOT.CN**).

#### 3.7.3 INV\_CN

**Inventory sequence number.** Foreign key linking the plot inventory assignment record to the inventory record (**ID\_PLOT\_INV\_ASSGN.INV\_CN = SO\_INVENTORY.CN**).



## 3.8 Plot Statistical Sample Assignment Table

### Oracle table name: ID\_PLOT\_STAT\_SAMP\_ASSGN

The purpose of the **ID\_PLOT\_STAT\_SAMP\_ASSGN** table is to store the linkage between plots (see **ID\_PLOT** table) and statistical samples (see **POP\_STAT\_SAMP** table). This relationship is modeled as many-to-many. This means a given statistical sample can be composed of many plots and a given plot can be assigned to many statistical samples. This allows a plot to fulfill multiple purposes for a single visit. By modeling this relationship, the user can easily identify the particular sample they are interested in and then link to the plots that are included in that sample without repeating plot data. This relationship is critical for all sample-based estimates produced by the database.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.8.1	CN	Plot statistical sample assignment sequence number	INTEGER
3.8.2	PLT_CN	Plot sequence number	INTEGER
3.8.3	PSS_CN	Population statistical sample sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSSA_PK	CN	N/A
Unique	PSSA_UK	PLT_CN, PSS_CN	N/A
Foreign	PSSA_PLT_FK	PLT_CN	ID_PLOT_STAT_SAMP_ASSGN.PLT_CN = ID_PLOT.CN
Foreign	PSSA_PSS_FK	PSS_CN	ID_PLOT_STAT_SAMP_ASSGN.PSS_CN = POP_STAT_SAMP.CN

#### 3.8.1 CN

**Plot statistical sample assignment sequence number.** A unique sequence number used to identify the plot statistical sample assignment record (in **ID\_PLOT\_STAT\_SAMP\_ASSGN**).

#### 3.8.2 PLT\_CN

**Plot sequence number.** Foreign key linking the plot statistical sample assignment record to the plot visit record (**ID\_PLOT\_STAT\_SAMP\_ASSGN.PLT\_CN** = **ID\_PLOT.CN**).

#### 3.8.3 PSS\_CN

**Population statistical sample sequence number.** Foreign key linking the plot statistical sample assignment record to the population statistical sample record (**ID\_PLOT\_STAT\_SAMP\_ASSGN.PSS\_CN** = **POP\_STAT\_SAMP.CN**).



## 3.9 Plot Stratum Calculation Assignment Table

### Oracle table name: ID\_PLOT\_STRAT\_CALC\_ASSGN

The purpose of the **ID\_PLOT\_STRAT\_CALC\_ASSGN** table is to store the linkage between plots (see [ID\\_PLOT](#) table) and strata (see [POP\\_STRATUM\\_CALC](#) table). This relationship is modeled as many-to-many. This means a given stratum can be associated with many plots and a given plot can be assigned to many strata. This allows a plot to be used in many stratifications with a minimum of repeated data. Different stratifications may perform better than others for certain types of estimates.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.9.1	<a href="#">CN</a>	Plot stratum calculation assignment sequence number	INTEGER
3.9.2	<a href="#">PLT_CN</a>	Plot sequence number	INTEGER
3.9.3	<a href="#">PSC_CN</a>	Population stratum calculation sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSCA_PK	CN	N/A
Unique	PSCA_UK	PLT_CN, PSC_CN	N/A
Foreign	PSCA_PLT_FK	PLT_CN	ID_PLOT_STRAT_CALC_ASSGN.PLT_CN = ID_PLOT.CN
Foreign	PSCA_PSC_FK	PSC_CN	ID_PLOT_STRAT_CALC_ASSGN.PSC_CN = POP_STRATUM_CALC.CN

#### 3.9.1 CN

**Plot stratum calculation assignment sequence number.** A unique sequence number used to identify the plot stratum calculation assignment record (in [ID\\_PLOT\\_STRAT\\_CALC\\_ASSGN](#)).

#### 3.9.2 PLT\_CN

**Plot sequence number.** Foreign key linking the plot stratum calculation assignment record to the plot visit record ([ID\\_PLOT\\_STRAT\\_CALC\\_ASSGN.PLT\\_CN](#) = [ID\\_PLOT.CN](#)).

#### 3.9.3 PSC\_CN

**Population stratum calculation sequence number.** Foreign key linking the plot stratum calculation assignment record to the population stratum calculation record ([ID\\_PLOT\\_STRAT\\_CALC\\_ASSGN.PSC\\_CN](#) = [POP\\_STRATUM\\_CALC.CN](#)).



## 3.10 Seedling Table

### Oracle table name: ID\_SEEDLING

The purpose of the **ID\_SEEDLING** table is to store the count of seedlings measured during a field visit. Descriptive characteristics of the sampled seedlings are also stored in this table in accordance with the field protocol used.

**Note:** Seedlings are sampled and stored as counts. A single record within the ID\_SEEDLING table denotes a count of 1 or many individuals of the same species.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.10.1	PLOTID	Plot identifier	INTEGER
3.10.2	VISIT_NBR	Visit number	NUMBER(2)
3.10.3	STATECD	State code	NUMBER(2)
3.10.4	UNITCD	Survey unit code	NUMBER(2)
3.10.5	COUNTYCD	County code	NUMBER(3)
3.10.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.10.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.10.8	CONDID	Condition class identifier	NUMBER(1)
3.10.9	SPCD	Species code	NUMBER(4)
3.10.10	SPGRPCD	Species group code	NUMBER(2)
3.10.11	SEEDLING_COUNT	Seedling count	NUMBER(3)
3.10.12	TPA_UNADJ	Trees per acre unadjusted	NUMBER
3.10.13	IS_MAINTAINED_AREA	Is tree in maintained area	VARCHAR2(1)
3.10.14	IS_PLANTED	Is tree planted	VARCHAR2(1)
3.10.15	CN	Seedling sequence number	INTEGER
3.10.16	PLT_CN	Plot sequence number	INTEGER
3.10.17	SBP_CN	Subplot sequence number	INTEGER
3.10.18	CND_CN	Condition sequence number	INTEGER
3.10.19	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	SDL_PK	CN	N/A
Unique	SDL_UK	PLOTID, VISIT_NBR, SUBP, CONDID, SPCD	N/A
Foreign	SDL_PLT_FK	PLT_CN	ID_SEEDLING.PLT_CN = ID_PLOT.CN

Key type	Alias	Constraint column(s)	Table joins
Foreign	SDL_SBP_FK	SBP_CN	ID_SEEDLING.SBP_CN = ID_SUBPLOT.CN
Foreign	SDL_CND_FK	CND_CN	ID_SEEDLING.CND_CN = ID_COND.CN

**3.10.1 PLOTID**

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

**3.10.2 VISIT\_NBR**

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

**3.10.3 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**3.10.4 UNITCD**

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

**3.10.5 COUNTYCD**

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

**3.10.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.10.7 SUBP**

**Subplot/microplot identifier.** The identity of the subplot or microplot. For seedling counts, codes are limited to the identity of the microplot (SUBP = 11, 12, 13, or 14 are the only valid codes).

**Codes: SUBP (seedling counts)**

Code	Description
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.

Code	Description
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

**3.10.8 CONDID**

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status (ID\_COND.COND\_STATUS\_CD). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

**3.10.9 SPCD**

**Species code.** An FIA numeric code identifying the tree species of the seedling count. Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#) for a link to the "FIA Master Tree Species List," which stores species codes and other information for each tree species.

**Reference table:** [REF\\_SPECIES](#)

**3.10.10 SPGRPCD**

**Species group code.** A code designating a general grouping of similar tree species for the purposes of organization and reporting. Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

**Note:** The REF\_SPECIES table, which is downloadable at the [Urban DataMart](#) (available at web address: <https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart>), contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

**Reference table:** [REF\\_SPECIES\\_GROUP](#)

**3.10.11 SEEDLING\_COUNT**

**Seedling count.** The number of live tally tree seedlings (DIA <1.0 inch) present on the microplot by species and condition class. To qualify for counting, conifer seedlings must be at least 6 inches tall and hardwood seedlings must be at least 12 inches tall.

**Note:** If water levels are excessive on the microplot, the seedling tally is restricted to the seedlings visible above the water.

**3.10.12 TPA\_UNADJ**

**Trees per acre unadjusted.** The number of seedlings per acre that the seedling count theoretically represents based on the fixed-radius subplot element (see [SUBP](#)) on which the seedlings were sampled.

When generating population estimates, this attribute must be adjusted by multiplying by the POP\_STRATUM\_CALC.[STRATUM\\_MICROPLOT\\_ADJ\\_FACTOR](#) to account for partially nonsampled plots (access denied or hazardous portions).

### **3.10.13 IS\_MAINTAINED\_AREA**

**Is tree in maintained area.** A code indicating if at least half of the seedling count for an individual species is located within a maintained area (seedling bole must be partially or fully contained within the maintained area to qualify).

Maintained areas are defined as those which are consistently being impacted by mowing, weeding, brushing, herbiciding, landscaping, etc. Examples include, but are not limited to, lawns, maintained shrub beds, rights-of-way, and manicured park areas. Examples of unmaintained areas are overgrown lots, small wooded areas, and riverbanks.

**Reference table:** [REF\\_SEEDLING\\_MAINTAINED\\_AREA](#)

**Codes: IS\_MAINTAINED\_AREA**

Code	Description
0	No, <50 percent of the seeding count for an individual species is in a maintained area.
1	Yes, 50 percent or more of the seedling count for an individual species is in a maintained area.

### **3.10.14 IS\_PLANTED**

**Is tree planted.** A code indicating if at least half of the seedling count for an individual species shows some evidence of being planted.

**Note:** Not populated for ID\_COND.COND\_STATUS\_CD = 1 (accessible forest land) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

**Reference table:** [REF\\_SEEDLING\\_PLANTED](#)

**Codes: IS\_PLANTED**

Code	Description
1	<b>Planted</b> - At least half of the seedling count for an individual species appear to have been planted at some point in the past.
2	<b>Natural</b> - At least half of the seedling count for an individual species appear to be of a natural origin.
3	<b>Not sure</b> - Unable to confidently determine if at least half of the seedling count for an individual species was planted or are natural.

### **3.10.15 CN**

**Seedling sequence number.** A unique sequence number used to identify the seedling record (in ID\_SEEDLING).

### **3.10.16 PLT\_CN**

**Plot sequence number.** Foreign key linking the seedling record to the plot visit record (ID\_SEEDLING.PLT\_CN = ID\_PLOT.CN).

**3.10.17 SBP\_CN**

**Subplot sequence number.** Foreign key linking the seedling record to the subplot record (ID\_SEEDLING.SBP\_CN = ID\_SUBPLOT.CN).

**3.10.18 CND\_CN**

**Condition sequence number.** Foreign key linking the seedling record to the condition record (ID\_SEEDLING.CND\_CN = ID\_COND.CN).

**3.10.19 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the seedling record to the previous plot visit record (ID\_SEEDLING.PREV\_PLT\_CN = ID\_PLOT.CN).



## 3.11 Site Tree Table

### Oracle table name: ID\_SITETREE

The purpose of the **ID\_SITETREE** table is to store information describing site trees measured in the field. Site trees are selected to be representative of the site productivity of one or more conditions encountered on the plot.

**Note:** When an individual site tree represents more than one condition on a plot, that site tree will appear in multiple records; each condition will have a separate record.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.11.1	PLOTID	Plot identifier	INTEGER
3.11.2	VISIT_NBR	Visit number	NUMBER(2)
3.11.3	STATECD	State code	NUMBER(2)
3.11.4	UNITCD	Survey unit code	NUMBER(2)
3.11.5	COUNTYCD	County code	NUMBER(3)
3.11.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.11.7	SUBP	Subplot identifier	NUMBER(2)
3.11.8	OFFSET_POINT	Offset point	NUMBER(3)
3.11.9	CONDLIST	Site tree condition list	VARCHAR2(10)
3.11.10	TREE	Site tree identifier	NUMBER(9)
3.11.11	SPCD	Species code	NUMBER(4)
3.11.12	DIA	Diameter	NUMBER(4,1)
3.11.13	HT	Total height	NUMBER(3)
3.11.14	AGEDIA	Age at diameter	NUMBER(3)
3.11.15	DIST	Horizontal distance	NUMBER(4,1)
3.11.16	AZIMUTH	Azimuth	NUMBER(3)
3.11.17	OFFSET_DIST	Horizontal distance from offset point	NUMBER(4,1)
3.11.18	OFFSET_AZIMUTH	Azimuth from offset point	NUMBER(3)
3.11.19	CN	Site tree sequence number	INTEGER
3.11.20	PLT_CN	Plot sequence number	INTEGER
3.11.21	SBP_CN	Subplot sequence number	INTEGER
3.11.22	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.11.23	SITE_INDEX	Site index for the site tree	NUMBER(3)
3.11.24	SITE_INDEX_METHOD_CD	Site index method code	NUMBER(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	SIT_PK	CN	N/A
Unique	SIT_UK	PLOTID, VISIT_NBR, SUBP, CONDLIST, TREE	N/A
Foreign	SIT_PLT_FK	PLT_CN	ID_SITETREE.PLT_CN = ID_PLOT.CN
Foreign	SIT_SB_P_FK	SBP_CN	ID_SITETREE.SBP_CN = ID_SUBPLOT.CN

### 3.11.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.11.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.11.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.11.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 3.11.5 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

### 3.11.6 RETIRED\_PLOT

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

### 3.11.7 SUBP

**Subplot identifier.** The identity of the subplot to which the site tree is referenced. When a subplot center cannot be occupied, site trees are referenced to an offset point to measure azimuth and distance (see [OFFSET\\_POINT](#)).

**Codes: SUBP (site tree)**

<b>Code</b>	<b>Description</b>
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).

**3.11.8 OFFSET\_POINT**

**Offset point.** A code indicating the offset point used to measure azimuth and distance to the site tree.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**Codes: OFFSET\_POINT**

<b>Code</b>	<b>Description</b>
0	Normal position (subplot center).
1	North subplot offset point.
2	East subplot offset point.
3	South subplot offset point.
4	West subplot offset point.
110	Normal position of microplot 11 (center).
111	North microplot 11 offset point.
112	East microplot 11 offset point.
113	South microplot 11 offset point.
114	West microplot 11 offset point.
120	Normal position of microplot 12 (center).
121	North microplot 12 offset point.
122	East microplot 12 offset point.
123	South microplot 12 offset point.
124	West microplot 12 offset point.
130	Normal position of microplot 13 (center).
131	North microplot 13 offset point.
132	East microplot 13 offset point.
133	South microplot 13 offset point.
134	West microplot 13 offset point.
140	Normal position of microplot 14 (center).
141	North microplot 14 offset point.
142	East microplot 14 offset point.
143	South microplot 14 offset point.
144	West microplot 14 offset point.

**3.11.9 CONDLIST**

**Site tree condition list.** A concatenated list of all condition class identifiers (see ID\_COND.CONDID) represented by the site tree. Each site tree can represent one or more conditions. For example, a value of 120000 indicates that conditions 1 and 2 are represented by this site tree.

**3.11.10 TREE**

**Site tree identifier.** A number that uniquely identifies each site tree on a subplot for the plot visit.

**3.11.11 SPCD**

**Species code.** An FIA numeric code identifying the tree species. Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#) for a link to the "FIA Master Tree Species List," which stores species codes and other information for each tree species.

**Reference table:** [REF\\_SPECIES](#)

**3.11.12 DIA**

**Diameter.** The diameter, in inches, of the site tree at the point of diameter measurement (d.b.h.).

**3.11.13 HT**

**Total height.** The total length (height), to the nearest foot, of the site tree from ground level to the top of the main stem.

**3.11.14 AGEDIA**

**Age at diameter.** The age, in years, of the site tree at the diameter measurement point.

**3.11.15 DIST**

**Horizontal distance.** The horizontal distance, to the nearest 0.1 foot, from the subplot center (PC) to the pith at the base of the site tree.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**3.11.16 AZIMUTH**

**Azimuth.** The direction, to the nearest degree, from the subplot center (PC) to the center of the base of the site tree. Due north is recorded as 360 degrees.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**3.11.17 OFFSET\_DIST**

**Horizontal distance from offset point.** The horizontal distance, to the nearest 0.1 foot, from the offset point to the pith at the base of the site tree.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](https://research.fs.usda.gov/programs/fia/sds) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**3.11.18 OFFSET\_AZIMUTH**

**Azimuth from offset point.** The direction, to the nearest degree, from the offset point to the center of the base of the site tree. Due north is recorded as 360 degrees.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](https://research.fs.usda.gov/programs/fia/sds) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**3.11.19 CN**

**Site tree sequence number.** A unique sequence number used to identify the site tree record (in ID\_SITETREE).

**3.11.20 PLT\_CN**

**Plot sequence number.** Foreign key linking the site tree record to the plot visit record (ID\_SITETREE.PLT\_CN = ID\_PLOT.CN).

**3.11.21 SBP\_CN**

**Subplot sequence number.** Foreign key linking the site tree record to the subplot record (ID\_SITETREE.SBP\_CN = ID\_SUBPLOT.CN).

**3.11.22 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the site tree record to the previous plot visit record (ID\_SITETREE.PREV\_PLT\_CN = ID\_PLOT.CN).

**3.11.23 SITE\_INDEX**

**Site index for the site tree.** The estimated site index for the site tree. Site index is calculated for dominant and co-dominant trees using one of several methods (see [SITE\\_INDEX\\_METHOD\\_CD](#)). It is expressed as height in feet that the tree is expected to attain at a base or reference age. Most commonly, site index is calculated using a family of curves that show site index as a function of total length and either breast-height age or total age. The height-intercept (or growth-intercept) method is commonly used for young trees or species that produce conspicuous annual branch whorls; using this method, site index is calculated with the height growth attained for a short period (usually 3 to 5 years) after the tree has reached breast height. Neither age nor total length determination are necessary when using the height-intercept method; therefore, one or more of those variables may be null for a site tree on which the height-intercept method was used.

**3.11.24 SITE\_INDEX\_METHOD\_CD**

**Site index method code.** A code indicating the method used to estimate site index for the tree.

**Codes: SITE\_INDEX\_METHOD\_CD**

Code	Description
1	Tree measurement (length, age, etc.) collected during this inventory.
2	Tree measurement (length, age, etc.) collected during a previous inventory.
3	Site index estimated either in the field or office.
4	Site index estimated by the height-intercept method during this inventory.

## 3.12 Subplot Table

### Oracle table name: ID\_SUBPLOT

The purpose of the **ID\_SUBPLOT** table is to store information describing the various subplot footprint components of the plot. Each plot can be thought of as a dimensionless point on the landscape on which one or more footprints are installed. For example, the FIA program installs a fixed-area footprint composed of four 24-foot subplots (each with a single nested microplot) arranged in a cluster pattern for the NFI. In contrast, a footprint composed of a single 48-foot subplot (with four nested microplots) is installed for the annualized urban FIA inventory.

This table stores subplot-level information in a normalized structure. Therefore, each individual subplot or microplot included on the plot footprint has its own record. This contrasts with the FIADB data structure used for the NFI, which assumes every subplot has one and only one nested microplot. This structure is more flexible and can more easily adapt to changes when inventory programs evolve.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.12.1	PLOTID	Plot identifier	INTEGER
3.12.2	VISIT_NBR	Visit number	NUMBER(2)
3.12.3	STATECD	State code	NUMBER(2)
3.12.4	UNITCD	Survey unit code	NUMBER(2)
3.12.5	COUNTYCD	County code	NUMBER(3)
3.12.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.12.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.12.8	CENTER_CONDID	Condition class identifier for center condition	NUMBER(1)
3.12.9	REMAINING_CONDID	Condition class identifier for remaining condition	NUMBER(1)
3.12.10	SUBP_STATUS_CD	Subplot status code	NUMBER(1)
3.12.11	SUBP_NONSAMPLE_REASN_CD	Subplot nonsampled reason code	NUMBER(2)
3.12.12	SLOPE	Subplot percent slope	NUMBER(3)
3.12.13	ASPECT	Subplot aspect	NUMBER(3)
3.12.14	WATER_DEPTH	Water/snow depth	NUMBER(2,1)
3.12.15	CN	Subplot sequence number	INTEGER
3.12.16	PLT_CN	Plot sequence number	INTEGER
3.12.17	CENTER_CND_CN	Center condition sequence number	INTEGER
3.12.18	REMAINING_CND_CN	Remaining condition sequence number	INTEGER
3.12.19	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	SBP_PK	CN	N/A
Unique	SBP_UK	PLOTID, VISIT_NBR, SUBP	N/A
Foreign	SBP_PLT_FK	PLT_CN	ID_SUBPLOT.PLT_CN = ID_PLOT.CN
Foreign	SBP_CND_FK	CENTER_CND_CN	ID_SUBPLOT.CENTER_CND_CN = ID_COND.CN
Foreign	SBP_REMG_CND_FK	REMAINING_CND_CN	ID_SUBPLOT.REMAINING_CND_CN = ID_COND.CN

### 3.12.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.12.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.12.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.12.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 3.12.5 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

### 3.12.6 RETIRED\_PLOT

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

### 3.12.7 SUBP

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

<b>Code</b>	<b>Description</b>
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

**3.12.8 CENTER\_CONDID**

**Condition class identifier for center condition.** The condition class identifier (see ID\_COND.CONDID) for the condition that intersects the center of the subplot/microplot. CONDID is a number that uniquely identifies each condition for the plot visit.

**3.12.9 REMAINING\_CONDID**

**Condition class identifier for remaining condition.** The condition class identifier (see ID\_COND.CONDID) for the condition that accounts for the remaining area of the subplot after all other mapped conditions are accounted for. CONDID is a number that uniquely identifies each condition for the plot visit.

For example, consider a subplot that contains two conditions. The first condition intersects the subplot center and has a mapped closed boundary. The remaining unmapped area within the subplot is considered the remaining condition.

**3.12.10 SUBP\_STATUS\_CD**

**Subplot status code.** A code indicating the sampling status of the subplot.

**Reference table:** [REF\\_SUBPLOT\\_STATUS](#)

**Codes: SUBP\_STATUS\_CD**

<b>Code</b>	<b>Description</b>
1	Sampled: Forest - at least one accessible forest land condition present on subplot.
2	Sampled: Nonforest - no accessible forest but at least one accessible nonforest land condition present on subplot.
3	Sampled: Water - no accessible forest or accessible nonforest land condition present on subplot (i.e., subplot is either census and/or noncensus water).
4	Nonsampled.

**3.12.11 SUBP\_NONSAMPLE\_REASON\_CD**

**Subplot nonsampled reason code.** A code indicating the reason why the subplot was not sampled.

**Reference table:** [REF\\_SUBPLOT\\_NONSAMPLE\\_REASON](#)

**Codes: SUBP\_NONSAMPLE\_REASN\_CD**

<b>Code</b>	<b>Description</b>
1	<b>Outside U.S. boundary</b> - Condition classes beyond the U.S. border.
2	<b>Denied access area</b> - Any area within the sampled area of a plot to which access is denied by the legal owner, or to which an owner of the only reasonable route to the plot denies access.
3	<b>Hazardous situation</b> - Any area within the sampled area on plot that cannot be accessed because of a hazard or danger.
4	<b>Time limitation</b> - Subplot cannot be sampled due to time restriction.
5	<b>Lost data</b> - This code is for office use only.
6	<b>Lost plot</b> - Entire plot cannot be found.
7	<b>Wrong location</b> - Previous plot can be found, but its placement is beyond the tolerance limits for plot location. Special code to be used only when instructed by office.
8	<b>Skipped visit</b> - This code is for office use only.
9	<b>Dropped intensified plot</b> - This code is for office use only.
10	<b>Other</b> - Condition class is not sampled due to a reason other than one of the specific reasons listed.
11	<b>Ocean</b> - Condition class falls in ocean water below mean high tide line.

**3.12.12 SLOPE**

**Subplot percent slope.** The predominant or average angle of the slope across the subplot, to the nearest 1 percent. Valid values are 0 through 155.

**3.12.13 ASPECT**

**Subplot aspect.** The aspect across the subplot, to the nearest 1 degree. Aspect is measured by sighting along the direction used to determine slope. North is recorded as 360. When slope is <5 percent, there is no aspect and it is recorded as 0.

**3.12.14 WATER\_DEPTH**

**Water/snow depth.** The average approximate depth of water or snow covering the subplot at the time of data collection, to the nearest 0.1 foot.

**3.12.15 CN**

**Subplot sequence number.** A unique sequence number used to identify the subplot record (in ID\_SUBPLOT).

**3.12.16 PLT\_CN**

**Plot sequence number.** Foreign key linking the subplot record to the plot visit record (ID\_SUBPLOT.PLT\_CN = ID\_PLOT.CN).

**3.12.17 CENTER\_CND\_CN**

**Center condition sequence number.** Foreign key linking the subplot record to the center condition record (ID\_SUBPLOT.CENTER\_CND\_CN = ID\_COND.CN).

**3.12.18 REMAINING\_CND\_CN**

**Remaining condition sequence number.** Foreign key linking the subplot record to the remaining condition record (ID\_SUBPLOT.REMAINING\_CND\_CN = ID\_COND.[CN](#)).

**3.12.19 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the subplot record to the previous plot visit record (ID\_SUBPLOT.PREV\_PLT\_CN = ID\_PLOT.[CN](#)).



## 3.13 Subplot Condition Table

### Oracle table name: ID\_SUBP\_COND

The purpose of the **ID\_SUBP\_COND** table is to store information describing the intersection of the plot footprint elements (such as subplots and microplots) and conditions. This table also stores the condition proportion for each plot footprint element as estimated from boundary data. These proportions can be expanded to the population level and expressed in areal units (e.g., acres or hectares).

**Note:** Boundary data are not available in the Urban Forest Inventory and Analysis Database (Urban FIADB) because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address:

<https://research.fs.usda.gov/programs/fia/sds>. See [appendix H](#) for a brief description of the supplemental urban database tables.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.13.1	PLOTID	Plot identifier	INTEGER
3.13.2	VISIT_NBR	Visit number	NUMBER(2)
3.13.3	STATECD	State code	NUMBER(2)
3.13.4	UNITCD	Survey unit code	NUMBER(2)
3.13.5	COUNTYCD	County code	NUMBER(3)
3.13.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.13.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.13.8	CONDID	Condition class identifier	NUMBER(1)
3.13.9	CONDPROP_UNADJ	Condition proportion unadjusted	NUMBER
3.13.10	PCT_TREE_COVER	Percent vegetation cover - tree	NUMBER(3)
3.13.11	PCT_SHRUB_SEED_COVER	Percent vegetation cover - shrub/seeding	NUMBER(3)
3.13.12	GR_COV_PCT_BLDG	Percent ground surface cover - building	NUMBER(3)
3.13.13	GR_COV_PCT_IMPERVIOUS	Percent ground surface cover - impervious	NUMBER(3)
3.13.14	GR_COV_PCT_PERMEABLE	Percent ground surface cover - permeable	NUMBER(3)
3.13.15	GR_COV_PCT_Herbaceous	Percent ground surface cover - herbaceous	NUMBER(3)
3.13.16	GR_COV_PCT_WATER	Percent ground surface cover - water	NUMBER(3)
3.13.17	CN	Subplot condition sequence number	INTEGER
3.13.18	PLT_CN	Plot sequence number	INTEGER
3.13.19	SBP_CN	Subplot sequence number	INTEGER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.13.20	CND_CN	Condition sequence number	INTEGER
3.13.21	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	SPCND_PK	CN	N/A
Unique	SPCND_UK	PLOTID, VISIT_NBR, SUBP, CONDID	N/A
Foreign	SPCND_PLT_FK	PLT_CN	ID_SUBP_COND.PLT_CN = ID_PLOT.CN
Foreign	SPCND_SBP_FK	SBP_CN	ID_SUBP_COND.SBP_CN = ID_SUBPLOT.CN
Foreign	SPCND_CND_FK	CND_CN	ID_SUBP_COND.CND_CN = ID_COND.CN

### 3.13.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.13.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.13.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.13.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 3.13.5 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

### 3.13.6 RETIRED\_PLOT

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.13.7 SUBP**

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

**3.13.8 CONDID**

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status ([ID\\_COND.COND\\_STATUS\\_CD](#)). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

**3.13.9 CONDPROP\_UNADJ**

**Condition proportion unadjusted.** The unadjusted proportion of the footprint area (subplot or microplot) that is in the condition. The sum of all condition proportions for each subplot or microplot equals 1.

When generating population area estimates, this proportion must be adjusted by multiplying by either the [POP\\_STRATUM\\_CALC.STRATUM\\_SUBPLOT\\_ADJ\\_FACTOR](#) or the [POP\\_STRATUM\\_CALC.STRATUM\\_MICROPLOT\\_ADJ\\_FACTOR](#) to account for partially nonsampled plots (access denied or hazardous portions).

**3.13.10 PCT\_TREE\_COVER**

**Percent vegetation cover - tree.** The percentage of the condition within the subplot covered by trees and saplings. This cover includes all tree species (tally and non-tally tree species)  $\geq 1.0$  inch in diameter.

**3.13.11 PCT\_SHRUB\_SEED\_COVER**

**Percent vegetation cover - shrub/seeding.** The percentage of the condition within the subplot covered by shrubs and seedlings. This cover includes all shrub species  $\geq 12$  inches in height, and all tree species (tally and non-tally tree species)  $< 1.0$ -inch in diameter and  $\geq 12$  inches in height. Woody vines are included as shrubs.

**3.13.12 GR\_COV\_PCT\_BLDG**

**Percent ground surface cover - building.** The percentage of the condition within the subplot covered by a building(s). The sum of all five ground cover variables (GR\_COV\_PCT\_BLDG, GR\_COV\_PCT\_IMPERVIOUS, GR\_COV\_PCT\_PERMEABLE, GR\_COV\_PCT\_Herbaceous, GR\_COV\_PCT\_WATER) equals 100.

**3.13.13 GR\_COV\_PCT\_IMPERVIOUS**

**Percent ground surface cover - impervious.** The percentage of the condition within the subplot covered by an impervious surface. Impervious is defined as non-building material that does not allow water to percolate through (e.g., rock, asphalt, concrete). The sum of all five ground cover variables (GR\_COV\_PCT\_BLDG, GR\_COV\_PCT\_IMPERVIOUS, GR\_COV\_PCT\_PERMEABLE, GR\_COV\_PCT\_Herbaceous, GR\_COV\_PCT\_WATER) equals 100.

**3.13.14 GR\_COV\_PCT\_PERMEABLE**

**Percent ground surface cover - permeable.** The percentage of the condition within the subplot covered by a permeable surface (e.g., soil, gravel, mulch, sand, duff). The sum of all five ground cover variables (GR\_COV\_PCT\_BLDG, GR\_COV\_PCT\_IMPERVIOUS, GR\_COV\_PCT\_PERMEABLE, GR\_COV\_PCT\_Herbaceous, GR\_COV\_PCT\_WATER) equals 100.

**3.13.15 GR\_COV\_PCT\_Herbaceous**

**Percent ground surface cover - herbaceous.** The percentage of the condition within the subplot covered by herbaceous vegetation (e.g., agricultural crops, grasses, low shrubs). The sum of all five ground cover variables (GR\_COV\_PCT\_BLDG, GR\_COV\_PCT\_IMPERVIOUS, GR\_COV\_PCT\_PERMEABLE, GR\_COV\_PCT\_Herbaceous, GR\_COV\_PCT\_WATER) equals 100.

**3.13.16 GR\_COV\_PCT\_WATER**

**Percent ground surface cover - water.** The percentage of the condition within the subplot covered by a permanent water surface (e.g., swimming pool, canal). The sum of all five ground cover variables (GR\_COV\_PCT\_BLDG, GR\_COV\_PCT\_IMPERVIOUS, GR\_COV\_PCT\_PERMEABLE, GR\_COV\_PCT\_Herbaceous, GR\_COV\_PCT\_WATER) equals 100.

**3.13.17 CN**

**Subplot condition sequence number.** A unique sequence number used to identify the subplot condition record (in ID\_SUBP\_COND).

**3.13.18 PLT\_CN**

**Plot sequence number.** Foreign key linking the subplot condition record to the plot visit record (ID\_SUBP\_COND.PLT\_CN = ID\_PLOT.CN).

**3.13.19 SBP\_CN**

**Subplot sequence number.** Foreign key linking the subplot condition record to the subplot record (ID\_SUBP\_COND.SBP\_CN = ID\_SUBPLOT.CN).

**3.13.20 CND\_CN**

**Condition sequence number.** Foreign key linking the subplot condition record to the condition record (ID\_SUBP\_COND.CND\_CN = ID\_COND.CN).

### 3.13.21 PREV\_PLT\_CN

**Previous plot sequence number.** The sequence number (CN) linking the subplot condition record to the previous plot visit record (ID\_SUBP\_COND.PREV\_PLT\_CN = ID\_PLOT.CN).



## 3.14 Tree Table

### Oracle table name: ID\_TREE

The purpose of the **ID\_TREE** table is to store information describing live and standing dead trees  $\geq 1.0$  inch in diameter. It is populated for timber- and woodland-classified species, and it stores data under FIA's traditional approach to identifying trees (see below for further detail).

The information stored for each record includes both field-measured values and calculated values. The computed values form the basis for most tree-related population estimates when the analysis is performed under the traditional FIA framework.

#### Terms "timber" and "woodland" species:

FIA classifies tree species into two categories: "timber" and "woodland." A species classified as "timber" generally has a growth form with a clear central stem and the diameter is taken at breast height (d.b.h.) (unless special conditions apply). A species classified as "woodland" is typically a small tree and does not have a growth form with a clear central stem, but rather multiple small stems originating from the same stump. The diameter of a woodland species is taken at the root collar (d.r.c.).

Woodland species are identified by a "w" in the WOODLAND column on the [FIA Master Tree Species List \(Excel format\)](#) (refer to Public Box folder available at web address: <https://usfs-public.box.com/v/FIA-TreeSpeciesList>). Otherwise, a species is considered to be a timber species.

Timber and woodland species are populated differently in the ID\_MOTHER\_TREE and ID\_TREE tables, as described below:

- **Timber species** - For timber-classified species, there is a single record for each stem whether or not the stem is part of a mother tree (see MOTHER\_TREE). Calculated values represent only the individual stem. For example, consider a red maple tree with three stems originating from the same stump and with the piths entering the ground at the same point. The ID\_TREE table would include three separate records, one for each stem. FIA has traditionally called each of these stems "trees." The calculated values stored on each record in the ID\_TREE table would represent only the individual stem. The trees-per-acre expander in the ID\_TREE table (see [TPA\\_UNADJ](#)) represents the "stems per acre."
- **Woodland species** - For woodland-classified species, there is a single record for the tree, regardless of the number of stems. Data for individual stems are stored in the [ID\\_WOODLAND\\_STEM](#) table. This is consistent with FIA's handling of woodland species within the FIA NFI inventory. Calculated values in the ID\_TREE table represent all constituent stems. The trees-per-acre expander (see [TPA\\_UNADJ](#)) counts this as a single tree within the population. **Note:** Woodland-classified species are populated with a single record in both the ID\_MOTHER\_TREE and ID\_TREE tables. Analyses that pull data from both tables must be done carefully to prevent double-counting of these records.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.14.1	PLOTID	Plot identifier	INTEGER
3.14.2	VISIT_NBR	Visit number	NUMBER(2)
3.14.3	STATECD	State code	NUMBER(2)
3.14.4	UNITCD	Survey unit code	NUMBER(2)
3.14.5	COUNTYCD	County code	NUMBER(3)
3.14.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.14.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.14.8	CONDID	Condition class identifier	NUMBER(1)
3.14.9	TREE	Tree identifier	NUMBER(9)
3.14.10	STEM	Stem identifier	NUMBER(9)
3.14.11	MOTHER_TREE	Mother tree identifier	NUMBER(9)
3.14.12	OFFSET_POINT	Offset point	NUMBER(3)
3.14.13	DIST	Horizontal distance	NUMBER(3,1)
3.14.14	AZIMUTH	Azimuth	NUMBER(3)
3.14.15	STATUSCD	Tree status code	NUMBER(1)
3.14.16	TREECLCD	Tree class code	NUMBER(2)
3.14.17	SPCD	Species code	NUMBER(4)
3.14.18	SPGRPCD	Species group code	NUMBER(2)
3.14.19	STANDING_DEAD_CD	Standing dead code	NUMBER(1)
3.14.20	UTILCLCD	Utilization class code	NUMBER(1)
3.14.21	MORTYR	Mortality year	NUMBER(4)
3.14.22	DIA	Current diameter	NUMBER(4,1)
3.14.23	DIACHECK	Diameter check code	NUMBER(2)
3.14.24	DIAHTCD	Diameter height code	NUMBER(1)
3.14.25	LTDMP	Length to diameter measurement point	NUMBER(3,1)
3.14.26	TOTAL_LENGTH	Total length	NUMBER(3)
3.14.27	ACTUAL_LENGTH	Actual length	NUMBER(3)
3.14.28	HTCD	Height method code	NUMBER(2)
3.14.29	ABNORMAL_STEM_TERMINATION	Abnormal stem termination	NUMBER(1)
3.14.30	RECONCILECD	Reconcile code	NUMBER(1)
3.14.31	BOLE_STUMP_REMOVED	Bole and stump removed	NUMBER(1)
3.14.32	FIELD_PREV_DIA	Field previous tree diameter	NUMBER(4,1)
3.14.33	FIELD_PREV_STATUS_CD	Field previous tree status code	NUMBER(1)
3.14.34	FIELD_PREV_NBR_STEMS	Field previous number of stems	NUMBER(2)
3.14.35	CROWN_CLASS_CD	Crown class code	NUMBER(1)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.14.36	COMP_CROWN_RATIO	Compacted crown ratio	NUMBER(2)
3.14.37	DMG_ROOT_STEM_GIRDLING	Urban specific damage - stem girdling from roots	NUMBER(1)
3.14.38	DMG_TRUNK_BARK_INCLUSION	Urban specific damage - trunk-bark inclusion	NUMBER(1)
3.14.39	DMG_TOPPING_PRUNING	Urban specific damage - severe topping or poor pruning	NUMBER(1)
3.14.40	DMG_EXCESS_MULCH	Urban specific damage - excessive mulch	NUMBER(1)
3.14.41	DMG_SIDEWALK_ROOT_CONFLICT	Urban specific damage - conflict with roots and sidewalks	NUMBER(1)
3.14.42	DMG_OVERHEAD_WIRES	Urban specific damage - conflict with crowns and overhead wires	NUMBER(1)
3.14.43	DMG_IMPROPER_PLANTING	Urban specific damage - improper planting	NUMBER(1)
3.14.44	DAMAGE_AGENT_1	Damage agent 1	NUMBER(5)
3.14.45	DAMAGE_AGENT_2	Damage agent 2	NUMBER(5)
3.14.46	DAMAGE_AGENT_3	Damage agent 3	NUMBER(5)
3.14.47	NBR_STEMS	Number of stems	NUMBER(2)
3.14.48	CULL_FLD	Rotten/missing cull, field recorded	NUMBER(2)
3.14.49	ROUGHCULL	[Data in preparation] Rough cull	NUMBER(2)
3.14.50	CAUSE_OF_DEATH	Cause of death	NUMBER(2)
3.14.51	DECAYCD	Decay class code	NUMBER(2)
3.14.52	MORTALITY_CD	Mortality code	VARCHAR2(5)
3.14.53	TREECLCD_NRS	Tree class code, Northern Research Station	NUMBER(2)
3.14.54	TREECLCD_SRS	Tree class code, Southern Research Station	NUMBER(2)
3.14.55	TREECLCD_PNWRS	Tree class code, Pacific Northwest Research Station	NUMBER(2)
3.14.56	TREECLCD_RMRS	Tree class code, Rocky Mountain Research Station	NUMBER(2)
3.14.57	TREE_GRADE	Tree grade	NUMBER(2)
3.14.58	TREE_SITE_INDEX	Site index for the tree	NUMBER
3.14.59	BASAL_AREA	Basal area	NUMBER
3.14.60	TPA_UNADJ	Trees per acre unadjusted	NUMBER
3.14.61	CARBON_AG	Aboveground carbon of wood and bark	NUMBER
3.14.62	CARBON_BG	Belowground carbon	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.14.63	DRYBIO_AG	Aboveground dry biomass of wood and bark	NUMBER
3.14.64	DRYBIO_BG	Belowground dry biomass	NUMBER
3.14.65	DRYBIO_BOLE	Dry biomass of wood in the merchantable bole	NUMBER
3.14.66	DRYBIO_BOLE_BARK	Dry biomass of bark in the merchantable bole	NUMBER
3.14.67	DRYBIO_BRANCH	Dry biomass of branches	NUMBER
3.14.68	DRYBIO_FOLIAGE	Dry biomass of foliage	NUMBER
3.14.69	DRYBIO_SAWLOG	Dry biomass of wood in the sawlog portion of a sawtimber tree	NUMBER
3.14.70	DRYBIO_SAWLOG_BARK	Dry biomass of bark in the sawlog portion of a sawtimber tree	NUMBER
3.14.71	DRYBIO_STEM	Dry biomass of wood in the total stem	NUMBER
3.14.72	DRYBIO_STEM_BARK	Dry biomass of bark in the total stem	NUMBER
3.14.73	DRYBIO_STUMP	Dry biomass of wood in the stump	NUMBER
3.14.74	DRYBIO_STUMP_BARK	Dry biomass of bark in the stump	NUMBER
3.14.75	VOLBFGRS	Gross board-foot wood volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.76	VOLBFNET	Net board-foot wood volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.77	VOLBSGRS	Gross board-foot wood volume in the sawlog portion of a sawtimber tree (Scribner Rule)	NUMBER
3.14.78	VOLBSNET	Net board-foot wood volume in the sawlog portion of a sawtimber tree (Scribner Rule)	NUMBER
3.14.79	VOLCFGRS	Gross cubic-foot stem wood volume	NUMBER
3.14.80	VOLCFGRS_BARK	Gross cubic-foot stem bark volume	NUMBER
3.14.81	VOLCFGRS_STUMP	Gross cubic-foot stump wood volume	NUMBER
3.14.82	VOLCFGRS_STUMP_BARK	Gross cubic-foot stump bark volume	NUMBER
3.14.83	VOLCFGRS_TOP	Gross cubic-foot stem-top wood volume	NUMBER
3.14.84	VOLCFGRS_TOP_BARK	Gross cubic-foot stem-top bark volume	NUMBER
3.14.85	VOLCFNET	Net cubic-foot stem wood volume	NUMBER
3.14.86	VOLCFNET_BARK	Net cubic-foot stem bark volume	NUMBER
3.14.87	VOLCFSND	Sound cubic-foot stem wood volume	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.14.88	VOLCFSND_BARK	Sound cubic-foot stem bark volume	NUMBER
3.14.89	VOLCFSND_STUMP	Sound cubic-foot stump wood volume	NUMBER
3.14.90	VOLCFSND_STUMP_BARK	Sound cubic-foot stump bark volume	NUMBER
3.14.91	VOLCFSND_TOP	Sound cubic-foot stem-top wood volume	NUMBER
3.14.92	VOLCFSND_TOP_BARK	Sound cubic-foot stem-top bark volume	NUMBER
3.14.93	VOLCSGRS	Gross cubic-foot wood volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.94	VOLCSGRS_BARK	Gross cubic-foot bark volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.95	VOLCSNET	Net cubic-foot wood volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.96	VOLCSNET_BARK	Net cubic-foot bark volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.97	VOLCSSND	Sound cubic-foot wood volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.98	VOLCSSND_BARK	Sound cubic-foot bark volume in the sawlog portion of a sawtimber tree	NUMBER
3.14.99	VOLTSGRS	Gross cubic-foot total-stem wood volume	NUMBER
3.14.100	VOLTSGRS_BARK	Gross cubic-foot total-stem bark volume	NUMBER
3.14.101	VOLTSSND	Sound cubic-foot total-stem wood volume	NUMBER
3.14.102	VOLTSSND_BARK	Sound cubic-foot total-stem bark volume	NUMBER
3.14.103	CN	Tree sequence number	INTEGER
3.14.104	PLT_CN	Plot sequence number	INTEGER
3.14.105	SBP_CN	Subplot sequence number	INTEGER
3.14.106	CND_CN	Condition sequence number	INTEGER
3.14.107	MTRE_CN	Mother tree sequence number	INTEGER
3.14.108	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.14.109	PREV_TRE_CN	Previous tree sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	TRE_PK	CN	N/A
Unique	TRE_UK	PLOTID, VISIT_NBR, SUBP, TREE, STEM	N/A
Foreign	TRE_PLT_FK	PLT_CN	ID_TREE.PLT_CN = ID_PLOT.CN
Foreign	TRE_SBP_FK	SBP_CN	ID_TREE.SBP_CN = ID_SUBPLOT.CN
Foreign	TRE_CND_FK	CND_CN	ID_TREE.CND_CN = ID_COND.CN
Foreign	TRE_MTRE_FK	MTRE_CN	ID_TREE.MTRE_CN = ID_MOTHER_TREE.CN

### 3.14.1 PLOTID

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

### 3.14.2 VISIT\_NBR

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

### 3.14.3 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 3.14.4 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 3.14.5 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

### 3.14.6 RETIRED\_PLOT

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

### 3.14.7 SUBP

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

### 3.14.8 CONDID

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status (ID\_COND.COND\_STATUS\_CD). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

### 3.14.9 TREE

**Tree identifier.** A number that uniquely and permanently identifies each tree on the plot. For remeasurement locations, tree numbers can be used to track trees between inventories when the sample design is the same. Tree numbers are never reused.

The TREE and STEM attributes are populated as follows:

- **Timber species -**
  - ◆ Single-stemmed trees:
    - TREE and STEM are populated with the same unique identifier.
  - ◆ Multi-stemmed trees:
    - TREE is populated with a unique identifier for the group of stems called a "mother tree."
    - STEM is populated with a unique identifier for the stem on the plot.

**Note:**

- FIA has traditionally referred to a stem as a "tree."
- The value for STEM is equal to the TREE number found in the FIADB TREE table for NFI.

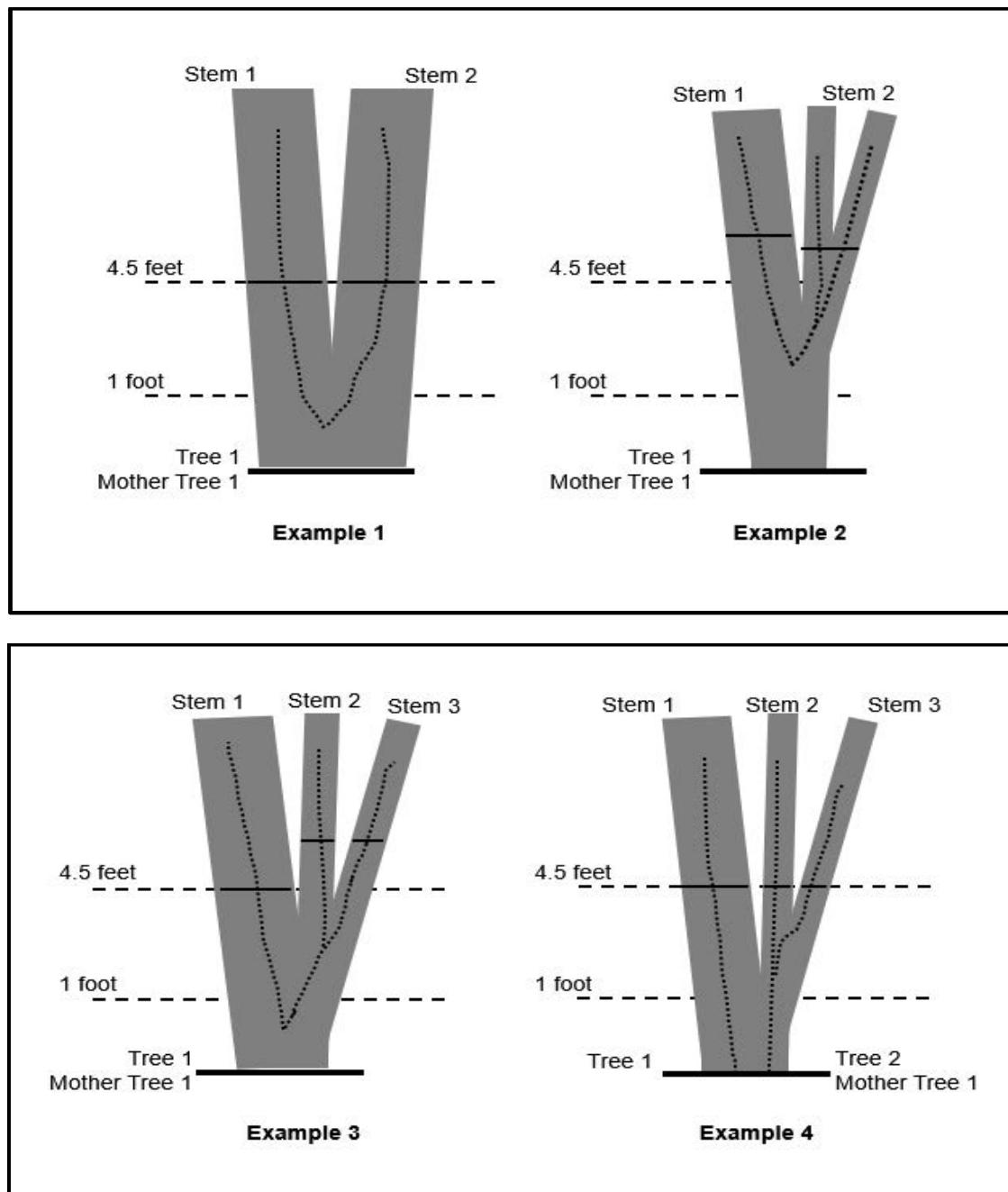
- **Woodland species -**

- All woodland trees:
  - TREE is populated with the unique identifier for the group of stems called a "mother tree."
  - STEM is populated with a value = 0.

**Note:**

- FIA has always treated woodland species like a "mother tree."
- Only woodland species have "mother-tree" records in the ID\_TREE table.
- The data for woodland species stems are stored in a separate table (see [ID\\_WOODLAND\\_STEM](#) table). This information is stored for full transparency. However, it is not typically used directly in analyses.

See the following diagrams for tree and stem numbering examples:



**Figure 3-5:** Tree and stem numbering examples.

Example	TREE	STEM	MOTHER_TREE
1	1	1	1
1	1	2	1
2	1	1	1
2	1	2	1
3	1	1	1
3	1	2	1
3	1	3	1
4	1	1	—
4	2	2	1
4	2	3	1

### 3.14.10 STEM

**Stem identifier.** A number that uniquely and permanently identifies a tree stem on the plot. For timber-classified species, FIA has traditionally referred to a stem as a "tree." For woodland-classified species, STEM is populated with a value = 0.

Refer to [TREE](#) for further details.

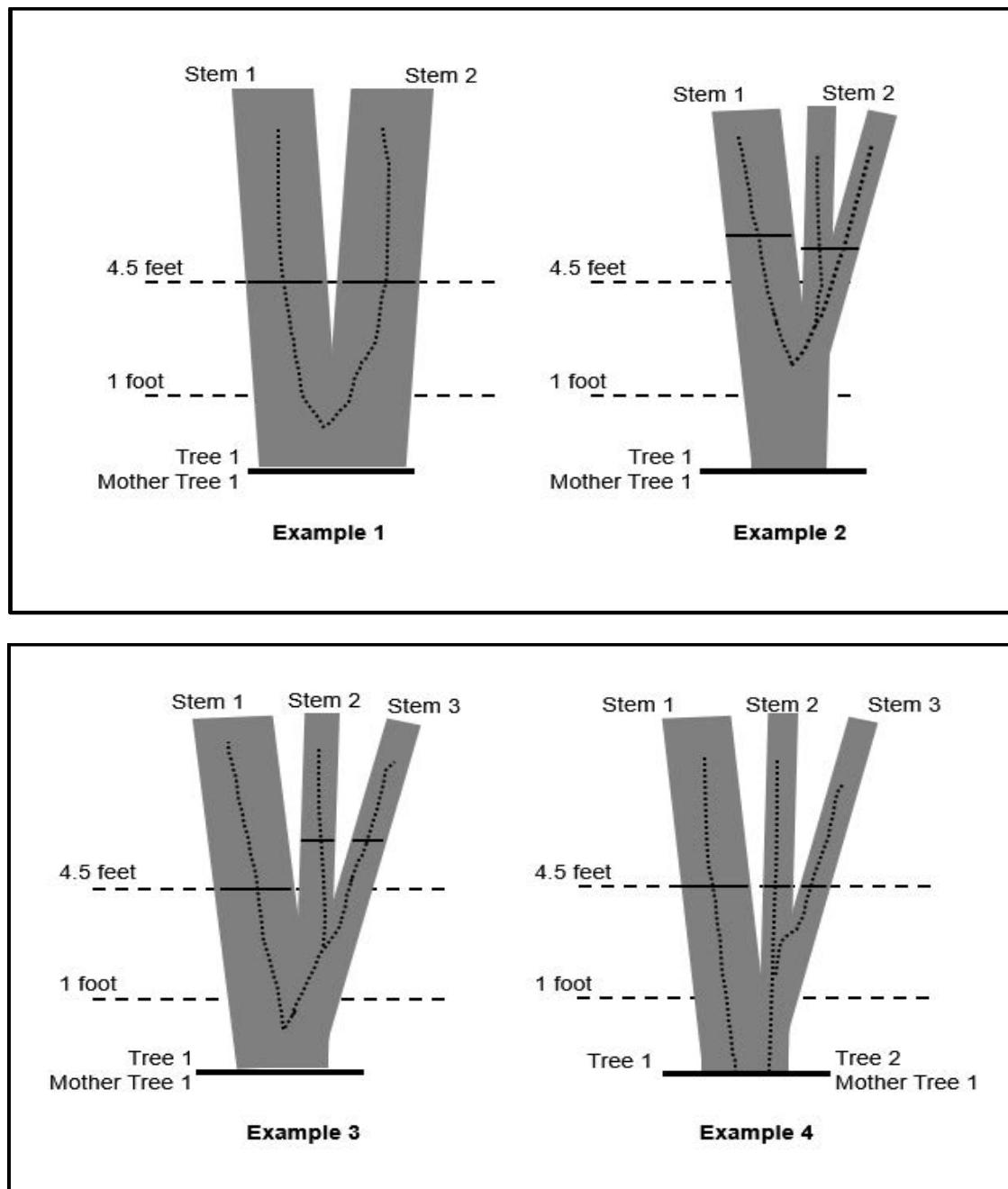
**Note:** For woodland species, individual stem measurements are stored in the [ID\\_WOODLAND\\_STEM](#) table. This information is stored for full transparency. However, it is not typically used directly in analyses.

### 3.14.11 MOTHER\_TREE

**Mother tree identifier.** A number that uniquely and permanently identifies each mother tree on the plot. A "mother tree" is a term FIA has defined to identify a single organism originating from the same stump, regardless of the number of stems (piths enter the ground as one). This attribute is only populated for timber species ([ID\\_MOTHER\\_TREE.TREE](#) = [ID\\_TREE.MOTHER\\_TREE](#)).

The MOTHER\_TREE column is the mechanism used in the field to identify a multi-stemmed timber species that qualifies as a mother tree. It is presented in this database for full transparency. When data are loaded into this database, the information in MOTHER\_TREE is translated into the [TREE](#) and [STEM](#) columns, which are all that analysts need to understand these data.

See the following diagrams for tree and stem numbering examples (for further details, see [TREE](#) and [STEM](#)).



**Figure 3-6:** Tree and stem numbering examples.

Example	TREE	STEM	MOTHER_TREE
1	1	1	1
1	1	2	1
2	1	1	1
2	1	2	1
3	1	1	1
3	1	2	1
3	1	3	1
4	1	1	—
4	2	2	1
4	2	3	1

### 3.14.12 **OFFSET\_POINT**

**Offset point.** A code indicating the offset point used to measure azimuth and distance to the tree.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**Codes: OFFSET\_POINT**

Code	Description
0	Normal position (subplot center).
1	North subplot offset point.
2	East subplot offset point.
3	South subplot offset point.
4	West subplot offset point.
110	Normal position of microplot 11 (center).
111	North microplot 11 offset point.
112	East microplot 11 offset point.
113	South microplot 11 offset point.
114	West microplot 11 offset point.
120	Normal position of microplot 12 (center).
121	North microplot 12 offset point.
122	East microplot 12 offset point.
123	South microplot 12 offset point.
124	West microplot 12 offset point.
130	Normal position of microplot 13 (center).
131	North microplot 13 offset point.

Code	Description
132	East microplot 13 offset point.
133	South microplot 13 offset point.
134	West microplot 13 offset point.
140	Normal position of microplot 14 (center).
141	North microplot 14 offset point.
142	East microplot 14 offset point.
143	South microplot 14 offset point.
144	West microplot 14 offset point.

### 3.14.13 DIST

**Horizontal distance.** The horizontal distance, to the nearest 0.1 foot, from the subplot center (PC) (microplot center for saplings) or the offset point to the pith at the base of the tree (geographic center for multi-stemmed woodland species).

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

### 3.14.14 AZIMUTH

**Azimuth.** The direction, to the nearest degree, from the subplot center (PC) (microplot center for saplings) or the offset point to the center of the base of the tree (geographic center for multi-stemmed woodland species). Due north is recorded as 360 degrees.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

### 3.14.15 STATUSCD

**Tree status code.** A code indicating the status of the tree at the time of measurement.

**Reference table:** [REF\\_TREE\\_STATUS](#)

**Codes: STATUSCD**

Code	Description
0	<b>No status</b> - Tree is not presently in the sample (remeasurement plots only). Tree was incorrectly tallied at the previous inventory, currently not tallied due to definition or procedural change, or is not tallied because it is located on a nonsampled condition (e.g., hazardous or denied). Requires a reconcile code ( <a href="#">RECONCILECD</a> ) = 5-9.
1	<b>Live tree</b> - Any live tree (new, remeasured, or ingrowth).
2	<b>Dead tree</b> - Any dead tree (new, remeasured, or ingrowth) where the bole of the tree remains on the site, regardless of cause of death. Includes all previously standing dead trees that no longer qualify as standing dead. Does not include trees that are removed from the site.

**3.14.16 TREECLCD**

**Tree class code.** A code indicating the general quality of the tree at the time of measurement.

**Reference table:** [REF\\_TREE\\_CLASS](#)

**Codes:** TREECLCD

Code	Description
2	<b>Growing stock</b> - Trees with 1/3 or more of the gross board-foot volume in the entire sawlog section with commercial logs meeting grade, soundness, and size requirements or the potential to do so for poletimber-sized trees. A tree class 2 tree must have one 12-foot log or two 8-foot logs, now or prospectively, for live poletimber-sized trees to qualify as growing stock.
3	<b>Rough cull</b> - Trees that do not contain at least one 12-foot sawlog or two 8-foot logs now or prospectively, primarily because of roughness or poor form. Less than 1/3 of its gross board-foot volume meets size, soundness, and grade requirements and less than 1/2 of the cubic-foot cull is rotten or unsound.
4	<b>Rotten cull</b> - Trees that do not contain at least one 12-foot sawlog or two 8-foot logs now or prospectively and/or do not meet grade specifications for percent sound primarily because of rot. All species not having 1/3 or more of its gross board-foot volume meeting size, soundness, and grade requirements, and over 1/2 of the cubic-foot cull is rotten or unsound.

**3.14.17 SPCD**

**Species code.** An FIA numeric code identifying the tree species. Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#) for a link to the "FIA Master Tree Species List," which stores species codes and other information for each tree species.

**Reference table:** [REF\\_SPECIES](#)

**3.14.18 SPGRPCD**

**Species group code.** A code designating a general grouping of similar tree species for the purposes of organization and reporting. Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

**Note:** The REF\_SPECIES table, which is downloadable at the [Urban DataMart](#) (available at web address: <https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart>), contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

**Reference table:** [REF\\_SPECIES\\_GROUP](#)

**3.14.19 STANDING\_DEAD\_CD**

**Standing dead code.** A code indicating if a tree qualifies as standing dead. To qualify as a standing dead tally tree, the dead tree must be  $\geq 1.0$  inch d.b.h. on the microplot or  $\geq 5.0$  inches d.b.h. on the subplot, have a bole that has an unbroken actual length ([ACTUAL\\_LENGTH](#))  $\geq 4.5$  feet, and lean  $< 45$  degrees from vertical as measured from the base of the tree to 4.5 feet.

For woodland species with multiple stems, a tree is considered down dead if more than 2/3 of the volume is no longer attached or upright. For qualifying stems that are cut, the volume that has been removed is not counted towards the 2/3 rule because it is assumed to be utilized. For a woodland species with a single stem to qualify as a standing dead tally

tree, the dead tree must be  $\geq 1.0$  inch d.r.c. on the microplot or  $\geq 5.0$  inches d.r.c. on the subplot, be  $\geq 1.0$  foot in unbroken actual length ([ACTUAL\\_LENGTH](#)), and lean  $<45$  degrees from vertical.

**Note:** Starting with ID\_PLOT.[MANUAL\\_NATIONAL](#) = 7.0, the *core* minimum diameter to qualify for a standing dead tree was changed from 5.0 inches to 1.0 inch.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes:** [STANDING\\_DEAD\\_CD](#)

Code	Description
0	No - Tree does not qualify as standing dead.
1	Yes - Tree does qualify as standing dead.

### 3.14.20 UTILCLCD

**Utilization class code.** A code indicating the utilization class of trees that are dead ([STATUSCD](#) = 2) and no longer standing ([STANDING\\_DEAD\\_CD](#) = 0).

**Reference table:** [REF\\_UTILIZATION\\_CLASS](#)

**Codes:** [UTILCLCD](#)

Code	Description
0	Not utilized - tree bole is presumed to not have been utilized for any purpose (e.g., piled and burned trees, piles of trees that have been cut or knocked over).
1	Commercial utilization - some portion of the tree removed for commercial purposes. Commercial uses include sawlogs, pulpwood, veneer logs, poles, and other products such as firewood cut by commercial firewood operations.
2	Noncommercial utilization - some portion of the tree removed for non-commercial purposes. Non-commercial uses may include private landowner domestic firewood use, barn poles, fence posts, domestic landscaping, rough slabs, etc.
3	Unknown (urban only) - utilization status is unknown.

### 3.14.21 MORTYR

**Mortality year.** The estimated year in which a remeasured tree died or was cut.

### 3.14.22 DIA

**Current diameter.** The current diameter, in inches, of the tree/stem at the point of diameter measurement. Populated for live and standing dead trees  $\geq 1.0$  inch d.b.h./d.r.c. Trees with diameters ranging from 1.0-4.9 inches are measured on the 6.8-foot radius microplots. Trees with diameters  $\geq 5.0$  inches are measured on the 48-foot radius subplot.

Diameter measurements differ for timber and woodland species, as described below:

- **Timber species** - For single-stemmed timber species, diameter is measured at breast height (d.b.h.), which is usually measured at 4.5 feet above the ground line. For multi-stemmed (forked) timber species, a separate record is populated in the ID\_TREE table for each stem qualifying for measurement. FIA has traditionally called each of these stems "trees." To qualify as a fork, the stem in question must be at least 1/3 the diameter of the main stem and must branch out from the main stem at an angle of 45 degrees or less, and must be judged to have, or have the potential to assume an

obvious "tree like" form and function as opposed to an obvious "branch like" form and function. Diameters for forked trees are measured differently depending on whether the fork originates below 1.0 foot, between 1.0 and 4.5 feet, or above 4.5 feet. For additional information on how trees with forks or irregularities (e.g., bottlenecks, swellings) are measured, refer to the ID\_PLOT.[MANUAL\\_NATIONAL](#).

- **Woodland species** - For woodland species, which are often multi-stemmed, diameter is measured at the ground line or at the stem root collar (d.r.c.), whichever is higher. An individual stem must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement. DIA for woodland species (DRC) is computed using the following formula:

$DRC = \text{SQRT} [\text{SUM}(\text{stem diameter}^2)]$ , where stem diameter is the diameter of each individual stem.

Refer to [DIAHTCD](#) to determine the point of diameter measurement for the tree. Refer to [LTDMMP](#) to determine the length (in feet) to the diameter measurement point for timber species that are not measured at 4.5 feet above ground (due to tree form or other obstruction).

### 3.14.23 DIACHECK

**Diameter check code.** A code indicating the accuracy of the current diameter measurement.

**Note:** If both codes 1 and 2 apply, code 2 is used.

**Reference table:** [REF\\_DIA\\_CHECK](#)

**Codes: DIACHECK**

Code	Description
0	<b>Measured</b> - Diameter measured accurately.
1	<b>Estimated</b> - Diameter estimated.
2	<b>Moved measurement point</b> - Diameter measured at different location than previous measurement (remeasurement trees only).

### 3.14.24 DIAHTCD

**Diameter height code.** A code indicating the point of diameter measurement.

**Codes: DIAHTCD**

Code	Description
1	<b>Breast height</b> - Diameter at breast height (d.b.h.) is the targeted diameter measurement. If the tree form or other obstruction prevent this measurement, then the closest measurement to d.b.h. is made according to the field protocol under which it was collected.
2	<b>Root collar</b> - Diameter at the root collar (d.r.c.) is the targeted diameter measurement.

### 3.14.25 LTDMMP

**Length to diameter measurement point.** The actual length, to the nearest 0.1 foot, from ground level to the point of diameter measurement. This attribute is populated for timber

species ≥1.0 inch d.b.h. that were not measured at 4.5 feet above the ground line (due to abnormal swelling, branches, damage, or other). This attribute is blank (null) for timber species measured directly at 4.5 feet above the ground line and for woodland species where diameter is measured at root collar.

### 3.14.26 TOTAL\_LENGTH

**Total length.** The total length (height) of the bole, to the nearest foot, from ground level to the tip of the apical meristem, including any missing pieces due to broken tops. The total length of a tree is not always its actual length (see [ACTUAL\\_LENGTH](#)). If the main stem is broken, the actual length is measured or estimated, and the missing piece is added to the actual length to estimate total length. The amount added is determined by measuring the broken piece if it can be located on the ground; otherwise, it is estimated. For leaning trees, total length is estimated along the lean. The minimum height for timber species is 5 feet and for woodland species is 1 foot (woodland species can be identified by [REF\\_SPECIES.WOODLAND = 'Y'](#)). For multi-stemmed woodland species, this attribute is based on the length of the longest stem present.

**Notes:** Starting with PLOT.MANUAL\_NATIONAL = 7.0, the core minimum diameter to qualify for a standing dead tree was changed from 5.0 inches to 1.0 inch.

### 3.14.27 ACTUAL\_LENGTH

**Actual length.** The actual length (height) of the tree, to the nearest foot, from ground level to the highest remaining portion of the tree still present and attached to the bole. This attribute is blank (null) if a tree does not have a broken or missing top. If [ACTUAL\\_LENGTH](#) is less than [TOTAL\\_LENGTH](#), then the tree has a broken or missing top. The minimum height for timber species is 5 feet and for woodland species is 1 foot.

### 3.14.28 HTCD

**Height method code.** A code indicating how length (height) was determined.

**Reference table:** [REF\\_LENGTH\\_METHOD](#)

**Codes:** HTCD

Code	Description
1	Total and actual lengths are field measured with a measurement instrument (e.g., clinometer, relascope, tape).
2	Total length is visually estimated, actual length is measured with an instrument.
3	Total and actual lengths are visually estimated.

### 3.14.29 ABNORMAL\_STEM\_TERMINATION

**Abnormal stem termination.** A code indicating whether or not the tree length was unnaturally terminated. This is an optional attribute and is not populated for every tree record.

**Reference table:** [REF\\_ABNORMAL\\_TERMINATION](#)

**Codes: ABNORMAL\_STEM\_TERMINATION**

Code	Description
0	<b>Not abnormal</b> - Stem is not abnormally terminated.
1	<b>Abnormal</b> - Stem is abnormally terminated.

**3.14.30 RECONCILECD**

**Reconcile code.** A code indicating the reason a tree either enters or is no longer a part of the inventory. Only recorded for remeasurement locations.

**Notes:**

- Starting with ID\_PLOT.[MANUAL\\_NATIONAL](#) = 9.0, codes 1-2 are only valid for new trees ([STATUSCD](#) = 1, 2) on the plot and exclude trees associated with a change in procedures/definitions or previous cruiser error, as such trees are accounted for with RECONCILECD = 7 or 8. Codes 6-9 are valid for both new tally trees and remeasured trees that no longer qualify as tally.
- When ID\_PLOT.[MANUAL\\_NATIONAL](#) = 7.0 through 8.0, standing dead saplings that were not included in the previous inventory were assigned RECONCILECD = 4.

**Reference table:** [REF\\_RECONCILE](#)

**Codes: RECONCILECD**

Code	Description
1	<b>Ingrowth</b> - Either (a) a new tally tree not qualifying as through growth, or (b) a new tree on land that was formerly nonforest and now qualifies as forest land unrelated to cruiser error or procedural/definition change.
2	<b>Through growth</b> - A new tally tree 5.0 inches d.b.h./d.r.c. and larger, within the microplot, which was not missed at the previous inventory (i.e., grew from seedling to at least 5.0 inches d.b.h. between plot inventory cycles - such trees were never tallied on a microplot). This code would be used for trees that were transplanted to the site and had a d.b.h./d.r.c. of 5 inches or greater.
3	<b>RETIRED code</b> - Starting with ID_PLOT. <a href="#">MANUAL_NATIONAL</a> = 9.0, this code is no longer used; it is still valid for ID_PLOT. <a href="#">MANUAL_NATIONAL</a> <9.0. <i>Missed live</i> - A live tree missed at previous inventory and that is live or dead now. Includes currently tallied trees on previously nonsampled conditions.
4	<b>RETIRED code</b> - Starting with ID_PLOT. <a href="#">MANUAL_NATIONAL</a> = 9.0, this code is no longer used; it is still valid for ID_PLOT. <a href="#">MANUAL_NATIONAL</a> <9.0. <i>Missed dead</i> - A dead tree missed at previous inventory and that is dead now. Includes currently tallied trees on previously nonsampled conditions.
5	<b>Shrank</b> - A live tree that shrank below threshold diameter on microplot/subplot. Must currently be alive. Only valid for remeasured trees that no longer qualify as tally ( <a href="#">STATUSCD</a> = 0).
6	<b>Physical movement</b> - Either (a) tree was correctly tallied in previous inventory, but has now moved beyond the radius of the plot due to natural causes (e.g., small earth movement, hurricane), or (b) tree was outside the radius of the plot previously, but has now moved within the plot due to natural causes. Tree must be either live before and still alive now, or dead before and dead now. If tree was live before and now dead, this is a mortality tree and should have <a href="#">STATUSCD</a> = 2 (not 0).
7	<b>Cruiser error</b> - Either (a) tree was erroneously tallied (added tree), or (b) tree was erroneously not tallied (missed tree) at the previous inventory.

Code	Description
8	<b>Procedural change</b> - Either (a) tree was tallied at the previous inventory, but is no longer tallied due to a definition or procedural change, or (b) tree was not tallied at the previous inventory, but is now tallied due to a definition or procedural change, regardless of d.b.h./d.r.c. at the time of the previous inventory.
9	<b>Nonsampled area</b> - Either (a) tree was located in a sampled condition at the previous inventory, but now is in a nonsampled condition, or (b) the area where the tree is located was previously not sampled, but now is sampled. All trees located in a nonsampled area (either now or previously) have RECONCILECD = 9.

### 3.14.31 BOLE\_STUMP\_Removed

**Bole and stump removed.** A code indicating if the bole and stump have been removed from the site since the previous measurement. This attribute is only populated on remeasurement plots.

**Reference table:** [REF\\_BOLE\\_STUMP\\_Removed](#)

**Codes: BOLE\_STUMP\_Removed**

Code	Description
1	<b>Bole removed</b> - The bole of the tree was removed but the stump remains on site.
2	<b>Bole and stump removed</b> - The bole and stump were removed from the site. This code is used if the entire surface of the stump has been reduced below ground level or removed completely.

### 3.14.32 FIELD\_PREV\_DIA

**Field previous tree diameter.** The diameter of the tree that was recorded by the field crew at the previous plot visit.

### 3.14.33 FIELD\_PREV\_STATUS\_CD

**Field previous tree status code.** The status of the tree that was recorded by the field crew at the previous plot visit for tally trees  $\geq 1.0$  inch d.b.h./d.r.c. Includes all new standing dead trees ([STATUSCD](#) = 2, [STANDING\\_DEAD\\_CD](#) = 1, [RECONCILECD](#) >0).

**Reference table:** [REF\\_PREV\\_TREE\\_STATUS](#)

**Codes: FIELD\_PREV\_STATUS\_CD**

Code	Description
1	<b>Live tree</b> - alive at the previous inventory.
2	<b>Dead tree</b> - standing dead at the previous inventory.

### 3.14.34 FIELD\_PREV\_NBR\_STEMS

**Field previous number of stems.** The number of stems (live and dead) that were recorded by the field crew at the previous plot visit.

### 3.14.35 CROWN\_CLASS\_CD

**Crown class code.** A code indicating the relative crown position of the tree within the stand. This assessment is based on the position of the crown at the time of observation.

**Reference table:** [REF\\_CROWN\\_CLASS](#)**Codes: CROWN\_CLASS\_CD**

<b>Code</b>	<b>Description</b>
1	<b>Open grown</b> - Trees with crowns that received full light from above and from all sides throughout most of their life, particularly during early development.
2	<b>Dominant</b> - Trees with crown extending above the general level of the crown canopy and receiving full light from above and partly from the sides. These trees are taller than the average trees in the stand and their crowns are well developed, but they could be somewhat crowded on the sides.
3	<b>Co-dominant</b> - Trees with crowns at the general level of the crown canopy. Crowns receive full light from above but little direct sunlight penetrates their sides. These trees usually have medium-sized crowns and are somewhat crowded from the sides.
4	<b>Intermediate</b> - Trees that are shorter than dominants and co-dominants, but their crowns extend into the canopy of co-dominant and dominant trees. They receive little direct light from above and none from the sides. As a result, intermediate trees usually have small crowns and are very crowded from the sides.
5	<b>Overtopped</b> - Trees with crowns entirely below the general level of the crown canopy that receive no direct sunlight either from above or the sides.

**3.14.36 COMP\_CROWN\_RATIO**

**Compacted crown ratio.** The ratio of compacted live crown length to tree length, expressed as a percent. The compacted live crown length is visually determined by the field crew who ocularly fills in gaps in the live canopy with other live areas of the canopy. If the top is broken, the actual length (see [ACTUAL\\_LENGTH](#)) is used. If the top is intact or a recovered leader, the total length (see [TOTAL\\_LENGTH](#)) is used. COMP\_CROWN\_RATIO indicates the portion of the tree length supporting live foliage, after the crown has been compacted.

When trees have an associated mother tree, only one COMP\_CROWN\_RATIO measurement is taken for all trees with the same mother tree number ([ID\\_MOTHER\\_TREE.TREE](#)). In these cases, the COMP\_CROWN\_RATIO measurement is determined using the crowns of all boles, forks, and branches (including any supported by the same stump that were not tallied) of the mother tree.

**3.14.37 DMG\_ROOT\_STEM\_GIRDLING**

**Urban specific damage - stem girdling from roots.** A code indicating whether or not stem damage from a girdling root is present. Stem girdling occurs when roots begin to grow around the main stem of the tree and cut off or restrict the movement of water, plant nutrients, and stored food reserves. Certain trees are more prone to this problem than others. Lindens, magnolias, pines, and maples (other than the silver maple) are susceptible to root girdling.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes: DMG\_ROOT\_STEM\_GIRDLING**

<b>Code</b>	<b>Description</b>
0	Absent.
1	Present.

**3.14.38 DMG\_TRUNK\_BARK\_INCLUSION**

**Urban specific damage - trunk-bark inclusion.** A code indicating whether or not a trunk-bark inclusion is present. An inclusion occurs when branches are not strongly attached to the tree. A weak union occurs when two or more branches grow so closely together that bark grows between the branches and inside the union. The ingrown or included bark does not have the structural strength of wood and the union can be very weak. Trees with a tendency to form upright branches, such as elm and maple, often produce weak branch unions.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes: DMG\_TRUNK\_BARK\_INCLUSION**

<b>Code</b>	<b>Description</b>
0	Absent.
1	Present.

**3.14.39 DMG\_TOPPING\_PRUNING**

**Urban specific damage - severe topping or poor pruning.** A code indicating whether or not severe topping or poor pruning damage is present. Severe topping is the cutting of branches down to stubs or reducing the stem height by 25 percent or more. Poor pruning includes leaving stubs outside the branch collar, or cutting into the branch collar. Topping is usually done to reduce the total height of the tree, while pruning is done to reduce the over form or volume of the crown.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes: DMG\_TOPPING\_PRUNING**

<b>Code</b>	<b>Description</b>
0	Absent.
1	Present.

**3.14.40 DMG\_EXCESS\_MULCH**

**Urban specific damage - excessive mulch.** A code indicating whether or not excessive mulching is present. Excessive mulching occurs when mulch is piled high around the

steam at a depth greater than 3 inches. Mulch can take the form of many different materials and is not limited to wood chips.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes:** DMG\_EXCESS\_MULCH

Code	Description
0	Absent.
1	Present.

#### 3.14.41 DMG\_SIDEWALK\_ROOT\_CONFLICT

**Urban specific damage - conflict with roots and sidewalks.** A code indicating whether or not a conflict with roots is present. Conflict occurs when roots cause direct damage to infrastructures such as sidewalks, curbs, driveways, roads, or other hardscapes.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes:** DMG\_SIDEWALK\_ROOT\_CONFLICT

Code	Description
0	Absent.
1	Present.

#### 3.14.42 DMG\_OVERHEAD\_WIRES

**Urban specific damage - conflict with crowns and overhead wires.** A code indicating whether or not a conflict with overhead utility wires is present. Conflict occurs when utility wires of any type (e.g., electric, telephone, cable) are within 5 feet of tree branches, foliage, or boles.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes:** DMG\_OVERHEAD\_WIRES

Code	Description
0	Absent.
1	Present.

### 3.14.43 DMG\_IMPROPER\_PLANTING

**Urban specific damage - improper planting.** A code indicating whether or not improper planting is observed. Improper planting occurs when burlap, twine, or root ball wire are not removed prior to planting, or when the tree root flare is buried.

This attribute is one of seven "urban specific damages" recorded for the urban forest inventory. Urban specific damages are applied at the stem level and not the mother-tree level.

**Reference table:** [REF\\_ABSENT\\_PRESENT](#)

**Codes: DMG\_IMPROPER\_PLANTING**

Code	Description
0	Absent.
1	Present.

### 3.14.44 DAMAGE\_AGENT\_1

**Damage agent 1.** A code indicating the first damage agent recorded by the field crew when inspecting the tree from bottom to top (roots, bole, branches, foliage). Damage is a composite variable. Up to three damage agents can be recorded per tree (DAMAGE\_AGENT\_1, DAMAGE\_AGENT\_2, and DAMAGE\_AGENT\_3). Damage agents are not necessarily recorded in order of severity.

The codes used for damage agents come from the January 2012 Pest Trend Impact Plot System (PTIPS) list from the Forest Health Assessment and Applied Sciences Team (FHAASST) that has been modified to meet FIA's needs. This list is made up of general agents (the damage agent group) and then further subdivided into specific agents. Regions decide which specific agents they will identify in their areas. The general agent can be recorded unless the region opts to collect specific agents. Specific agents can later be collapsed into the general agent categories for cross-region comparisons.

The general agent codes are listed here. Refer to [appendix E \(Damage Agent Codes and Thresholds\)](#) for a complete list of damage codes and thresholds.

**Note:** Some regional specific damage agents within a category may have differing damage thresholds.

**Reference table:** [REF\\_DAMAGE\\_AGENT](#)

**Codes: DAMAGE\_AGENT\_1**

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
0	—	No damage.	—
10000	General insects.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	Insect damage that cannot be placed in any of the following insect categories.
11000	Bark beetles.	Any evidence of a successful attack (successful attacks generally exhibit boring dust, many pitch tubes and/or fading crowns).	Bark beetles ( <i>Dendroctonus</i> , <i>Ips</i> , and other genera) are phloem-feeding insects that bore through the bark and create extensive galleries between the bark and the wood. Symptoms of beetle damage include fading or discolored tree crown (yellow or red), pitch tubes or pitch streaks on the bark, extensive egg galleries in the phloem, boring dust in the bark crevices or at the base of the tree. Bark chipping by woodpeckers may be conspicuous. They inflict damage or destroy all parts of trees at all stages of growth by boring in the bark, inner bark, and phloem. Visible signs of attack include pitch tubes or large pitch masses on the tree, dust and frass on the bark and ground, and resin streaming. Internal tunneling has various patterns. Most have tunnels of uniform width with smaller galleries of variable width radiating from them. Galleries may or may not be packed with fine boring dust.
12000	Defoliators.	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	These are foliage-feeding insects that may reduce growth and weaken the tree causing it to be more susceptible to other damaging agents. General symptoms of defoliation damage include large amounts of missing foliage, browning foliage, extensive branch mortality, or dead tree tops.
13000	Chewing insects.	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	Insects, like grasshoppers and cicadas that chew on trees (those insects not covered by defoliators in code 12000).

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
14000	Sucking insects.	Any damage to the terminal leader; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Adelgids, scales and aphids feed on all parts of the tree. Often they cause galling on branches and trunks. Some appear benign but enable fungi to invade where they otherwise could not (e.g., beech bark disease). The most important ones become conspicuous because of the mass of white, cottony wax that conceals eggs and young nymphs.
15000	Boring insects.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots, stems, or branches.	Most wood boring insects attack only severely declining and dead trees. Certain wood boring insects cause significant damage to trees, especially the exotic Asian longhorn beetle, emerald ash borer, and Sirex wood wasp. Bark beetles have both larval and adult galleries in the phloem and adjacent surface of the wood. Wood borers have galleries caused only by larval feeding. Some, such as the genus <i>Agrilus</i> (including the emerald ash borer) have galleries only in the phloem and surface of the wood. Other wood borers, such as Asian longhorn beetle bore directly into the phloem and wood. Sirex adults oviposit their eggs through the bark, and developing larvae bore directly into the wood of pines.
19000	General diseases.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Diseases that cannot be placed in any of the following disease categories.

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
21000	Root/butt diseases.	Any occurrence.	<p>Root disease kills all or a portion of a tree's roots. Quite often, the pathogenic fungus girdles the tree at the root collar. Tree damage includes mortality (often occurring in groups or "centers"), reduced tree growth, and increased susceptibility to other agents (especially bark beetles). General symptoms include resin at the root collar, thin, chlorotic (faded) foliage, and decay of roots. A rot is a wood decay caused by fungi. Rots are characterized by a progression of symptoms in the affected wood. First, the wood stains and discolors, then it begins to lose its structural strength, and finally the wood starts to break down, forming cavities in the stem. Even early stages of wood decay can cause cull due to losses in wood strength and staining of the wood. Rot can lead to mortality, cull, an increased susceptibility to other agents (such as insects), wind throw, and stem breakage.</p>

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
22000	Cankers (non-rust).	Any occurrence.	<p>A canker -- a sunken lesion on the stem caused by the death of cambium -- may cause tree breakage or kill the portion of the tree above the canker. Cankers may be caused by various agents but are most often caused by fungi. A necrotic lesion begins in the bark of branches, trunk or roots, and progresses inward killing the cambium and underlying cells. The causal agent may or may not penetrate the wood. This results in areas of dead tissue that become deeper and wider.</p> <p>There are two types of cankers, annual and perennial. Annual cankers enlarge only once and do so within an interval briefer than the growth cycle of the tree, usually less than one year. Little or no callus is associated with annual cankers, and they may be difficult to distinguish from mechanical injuries. Perennial cankers are usually the more serious of the two, and grow from year to year with callus forming each year on the canker margin, often resulting in a target shape. The most serious non-rust cankers occur on hardwoods, although branch mortality often occurs on conifers.</p>
22500	Stem decays.	Any visual evidence (conks; fruiting bodies; rotten wood).	Rot occurring in the bole/stems of trees above the roots and stump.
23000	Parasitic / Epiphytic plants.	Dwarf mistletoes with Hawksworth rating of $\geq 3$ ; true mistletoes and vines covering $\geq 50\%$ of crown.	Parasitic and epiphytic plants can cause damage to trees in a variety of ways. The most serious ones are dwarf mistletoes, which reduce growth and can cause severe deformities. Vines may damage trees by strangulation, shading, or physical damage. Benign epiphytes, such as lichens or mosses, are not considered damaging agents.
24000	Decline Complexes/ Dieback/Wilts.	Damage $\geq 20\%$ dieback of crown area.	Tree disease which results not from a single causal agent but from an interacting set of factors. Terms that denote the symptom syndrome, such as dieback and wilt, are commonly used to identify these diseases.
25000	Foliage diseases.	Damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Foliage diseases are caused by fungi and result in needle shed, growth loss, and, potentially, tree mortality. This category includes needle casts, blights, and needle rusts.

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
26000	Stem rusts.	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches $\leq$ 1 foot from boles or stems; damage to $\geq$ 20% of branches.	A stem rust is a disease caused by fungi that kill or deform all or a portion of the stem or branches of a tree. Stem rusts are obligate parasites and host specialization is very common. They infect and develop on fast-growing tissues and cause accelerated growth of infected tissues resulting in galls or cankers. Heavy resinosis is usually associated with infections. Sometimes yellow or reddish-orange spores are present giving a "rusty" appearance. Damage occurs when the disease attacks the cambium of the host, girdling and eventually killing the stem above the attack. Symptoms of rusts include galls (an abnormal and pronounced swelling or deformation of plant tissue that forms on branches or stems) and cankers (a sunken lesion on the stem caused by death of the cambium which often results in the death of tree tops and branches).
27000	Broom rusts.	$\geq$ 50% of crown area affected.	Broom rust is a disease caused by fungi that kill or deform all or a portion of the branches of a tree. Broom rusts are obligate parasites and host specialization is very common. They infect and develop on fast-growing tissues and cause accelerated growth of infected tissues resulting in galls. Symptoms of rusts include galls, an abnormal and pronounced swelling or deformation of plant tissue that forms on branches or stems.
30000	Fire.	Damage $\geq$ 20% of bole circumference; $>$ 20% of stems on multi-stemmed woodland species affected; $\geq$ 20% of crown affected.	Fire damage may be temporary, such as scorched foliage, or may be permanent, such as in cases where cambium is killed around some portion of the bole. The location and amount of fire damage will determine how the damage may affect the growth and survival of the tree. Fire often causes physiological stress, which may predispose the tree to attack by insects of other damaging agents.

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
41000	Wild animals.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Wild animals from birds to large mammals cause open wounds. Some common types of damage include: sapsucker bird peck, deer rub, bear clawing, porcupine feeding, and beaver gnawing.
42000	Domestic animals.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Open wounds caused by cattle and horses occur on the roots and lower trunk. Soil compaction from the long term presence of these animals in a woodlot can also cause indirect damage.
50000	Abiotic.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Abiotic damages are those that are not caused by other organisms. In some cases, the type and severity of damage may be similar for different types of agents (e.g., broken branches from wind, snow, or ice).
60000	Competition.	Overtopped shade-intolerant trees that are not expected to survive for 5 years or saplings not expected to reach tree size (5.0 inches d.b.h./d.r.c.).	Suppression of overtapped shade intolerant species. Trees that are not expected to survive for 5 years or saplings not expected to reach tree size (5.0 inches d.b.h./d.r.c.).
70000	Human activities.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	People can injure trees in a variety of ways, from poor pruning, to vandalism, to logging injury. Signs include open wounds or foreign embedded objects.
71000	Harvest.	Removal of $\geq 10\%$ of cubic volume.	Only recorded for woodland species trees that have partial cutting.

<b>Code</b>	<b>General Agent</b>	<b>Damage Threshold*</b>	<b>Descriptions</b>
90000	Other damage.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	—
99000	Unknown damage.	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	Use this code only when observed damage cannot be attributed to a general or specific agent.

### 3.14.45 DAMAGE\_AGENT\_2

**Damage agent 2.** A code corresponding to a second damage agent recorded by the field crew. See [DAMAGE\\_AGENT\\_1](#) for details. If DAMAGE\_AGENT\_1 = 0, then DAMAGE\_AGENT\_2 = blank (null) or 0.

**Reference table:** [REF\\_DAMAGE\\_AGENT](#)

### 3.14.46 DAMAGE\_AGENT\_3

**Damage agent 3.** A code corresponding to a third damage agent recorded by the field crew. See [DAMAGE\\_AGENT\\_1](#) for details. If DAMAGE\_AGENT\_2 = 0, then DAMAGE\_AGENT\_3 = blank (null) or 0.

**Reference table:** [REF\\_DAMAGE\\_AGENT](#)

### 3.14.47 NBR\_STEMS

**Number of stems.** The total number of live and dead stems for a woodland-classified species that were used to calculate the current diameter (see [DIA](#)). This attribute is blank (null) for timber-classified species.

### 3.14.48 CULL\_FLD

**Rotten/missing cull, field recorded.** The percent rotten and/or missing cubic-foot cull, to the nearest 1 percent, in the merchantable bole of the tree, as estimated by the field crew. This attribute is collected for live tally trees greater than or equal to 5.0 inches d.b.h./d.r.c. (*core*), and standing dead tally trees greater than or equal to 5.0 inches d.b.h./d.r.c. (*core optional*).

For timber species (trees where diameter is measured at breast height [d.b.h.]), the merchantable bole of a tree is from a 1-foot stump to a 4-inch diameter outside bark

(DOB) top. For woodland species (trees where diameter is measured at root collar [d.r.c.]), the merchantable portion is between the point of d.r.c. measurement to a 1.5-inch DOB top. CULL\_FLD estimates do not include portions above the actual tree length.

### 3.14.49 ROUGHCULL

[Data in preparation]

**Rough cull.** The percentage of cubic-foot volume in the merchantable bole that is cull due to sound dead material or tree form. Recorded for live trees  $\geq 5.0$  inches d.b.h./d.r.c. The merchantable bole is from a 1-foot stump to a 4-inch top diameter outside bark (DOB). For woodland species (REF\_SPECIES.WOODLAND = 'Y'), the merchantable portion is between the point of d.r.c. measurement to a 1.5-inch top DOB, and ROUGHCULL only includes sound dead material.

### 3.14.50 CAUSE\_OF\_DEATH

**Cause of death.** A code indicating the cause of death for all trees that have died or been cut since the previous inventory, as estimated by the field crew. This attribute is only populated on remeasurement plots.

**Reference table:** [REF\\_CAUSE\\_OF\\_DEATH](#)

**Codes: CAUSE\_OF\_DEATH**

Code	Description
10	Insect.
20	Disease.
30	Fire.
40	Animal.
50	Weather.
60	Vegetation (suppression, competition, vines/kudzu).
70	Unknown / not sure / other - includes death from human activity not related to silvicultural or land clearing activity (accidental, random, etc.).
80	Silvicultural or land clearing activity (death caused by harvesting or other silvicultural activity, including girdling, chaining, etc., or to land clearing activity).

### 3.14.51 DECAYCD

**Decay class code.** A code indicating the stage of decay in a standing dead tree ([STANDING\\_DEAD\\_CD](#) = 1).

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when [ID\\_PLOT.MANUAL\\_NATIONAL](#) < 7.0.

**Reference table:** [REF\\_DECAY\\_CLASS](#)

**Codes: DECAYCD**

<b>Code</b>	<b>Description</b>
1	<b>All limbs and branches are present</b> - The tree top is pointed and 100 percent bark remains. For Douglas-fir species, sapwood presence and condition is intact, sound, incipient decay, hard, original color, and heartwood condition is sound, hard, with original color - used as a guide for other species.
2	<b>Few limbs and no fine branches</b> - The tree top may be broken and variable bark remaining. For Douglas-fir species, sapwood presence and condition is sloughing, advance decay, fibrous, firm to soft, light brown, and the heartwood condition is sound at base, incipient decay in outer edge of upper bole, hard, light to reddish brown - used as a guide for other species.
3	<b>Limbs stubs only</b> - Tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, fibrous, soft, light to reddish brown and heartwood condition is incipient decay at base, advanced decay throughout upper bole, fibrous, hard to firm, reddish brown - used as a guide for other species.
4	<b>Few or no limb stubs present</b> - The tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, cubical, soft, reddish to dark brown, and the heartwood condition is advanced decay at base, sloughing from upper bole, fibrous to cubical, soft dark reddish brown - used as a guide for other species.
5	<b>No limbs or branches</b> - The top is broken and less than 20 percent of the bark remains. For Douglas-fir species sapwood presence and condition is none and heartwood condition is sloughing, cubical, soft, dark brown, or fibrous, very soft, dark reddish brown, encased in hardened shell - used as a guide for other species.

**3.14.52 MORTALITY\_CD**

**Mortality code.** A code indicating if the tree was alive within the past five years, but was dead at the time of measurement, regardless of cause of death. This attribute is optional and not populated for all plots.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL < 7.0.

**Reference table:** [REF\\_NO\\_YES](#)

**Codes: MORTALITY\_CD**

<b>Code</b>	<b>Description</b>
0	No - Tree does not qualify as mortality.
1	Yes - Tree does qualify as mortality.

**3.14.53 TREECLCD\_NRS**

**Tree class code, Northern Research Station (NRS).** A NRS regional code indicating the general quality of the tree at the time of measurement.

**Codes: TREECLCD\_NRS**

<b>Code</b>	<b>Description</b>
2	<b>Growing stock</b> - A live sawtimber-size tree with 1/3 or more of the gross board-foot volume in the entire sawlog length meeting grade, soundness, and size requirements; or the potential to do so for poletimber-size trees. It must contain one merchantable 12-foot log or two non-contiguous merchantable 8-foot logs, now (sawtimber) or prospectively (poletimber).
3	<b>Rough cull</b> - A live tree that does not contain at least one 12-foot sawlog or two noncontiguous 8-foot logs now (sawtimber) or prospectively (poletimber), primarily because of roughness or poor form within the sawlog length. Or sawtimber and prospectively poletimber with 2/3 or more of its gross board-foot volume that does not meet size, soundness, and grade requirements; and 50% or more of the assigned total board-foot cull within the sawlog length is rough cull.
4	<b>Rotten cull</b> - A live tree that does not contain at least one 12-foot sawlog or two noncontiguous 8-foot logs now (sawtimber) or prospectively (poletimber) and/or do not meet grade specifications for percent sound primarily because of rot within the sawlog length. Or sawtimber and prospectively poletimber with 2/3 or more of its gross board-foot volume that does not meet size, soundness, and grade requirements; and 50% or more of the assigned total board-foot cull within the sawlog length is rotten cull.
5	<b>Salvable dead</b> - A standing dead tree with at least 1/3 merchantable sound volume. Rotten/missing cubic-foot cull does not exceed 67%. Note: Rough cubic-foot cull is not a criterion for determining salvable dead.
6	<b>Nonsalvable dead</b> - A standing dead tree that does not qualify as salvable.

**3.14.54****TREECLCD\_SRS**

**Tree class code, Southern Research Station (SRS).** A SRS regional code indicating the general quality of the tree at the time of measurement.

**Codes: TREECLCD\_SRS**

<b>Code</b>	<b>Description</b>
2	<b>Growing stock</b> - All trees that have at least one 12-foot log or two 8-foot logs that meet grade and size requirements and at least 1/3 of the total board foot volume is merchantable. Poletimber-sized trees are evaluated based on their potential.
3	<b>Rough cull</b> - Trees that do not contain at least one 12-foot log or two 8-foot logs, or more than 1/3 of the total board foot volume is not merchantable, primarily due to roughness or poor form.
4	<b>Rotten cull</b> - Trees that do not contain at least one 12-foot log or two 8-foot logs, or more than 1/3 of the total board foot volume is not merchantable, primarily due to rotten, unsound wood.

**3.14.55****TREECLCD\_PNWRS**

**Tree class code, Pacific Northwest Research Station (PNWRS).** A PNWRS regional code indicating the general quality of the tree at the time of measurement.

**Codes: TREECLCD\_PNWRS**

<b>Code</b>	<b>Description</b>
2	<b>Growing stock</b> - All live trees of commercial species that meet minimum merchantability standards. In general, these trees have at least one solid 8-foot section, are reasonably free of form defect on the merchantable bole, and at least 34% or more of the volume is merchantable. For the California, Oregon, and Washington inventories, a 26% or more merchantable volume standard is applied, rather than 34% or more. Excludes rough or rotten cull trees.
3	<b>Rough cull</b> - All live trees that do not now, or prospectively, have at least one solid 8-foot section, reasonably free of form defect on the merchantable bole, or have 67% or more of the merchantable volume cull; and more than half of this cull is due to sound dead wood cubic-foot loss or severe form defect volume loss. For the California, Oregon, and Washington inventories, 75% or more cull, rather than 67% or more cull, applies. This class also contains all trees of noncommercial species, or those species where <a href="#">SPGRPCD</a> equals 23 (woodland softwoods), 43 (eastern noncommercial hardwoods), or 48 (woodland hardwoods). For dead trees, this code indicates that the tree is salvable (sound).
4	<b>Rotten cull</b> - All live trees with 67% or more of the merchantable volume cull, and more than half of this cull is due to rotten or missing cubic-foot volume loss. California, Oregon, and Washington inventories use a 75% cutoff. For dead trees, this code indicates that the tree is nonsalvageable (not sound).

**3.14.56 TREECLCD\_RMRS**

**Tree class code, Rocky Mountain Research Station (RMRS).** A RMRS regional code indicating the general quality of the tree at the time of measurement.

**Codes: TREECLCD\_RMRS**

<b>Code</b>	<b>Description</b>
1	<b>Sound-live timber species</b> - All live timber trees (species with diameter measured at breast height) that meet minimum merchantability standards. In general, these trees have at least one solid 8-foot section, are reasonably free of form defect on the merchantable bole, and at least 34% or more of the volume is merchantable. Excludes rough or rotten cull timber trees.
2	<b>All live woodland species</b> - All live woodland trees (woodland species can be identified by <a href="#">REF_SPECIES.WOODLAND</a> = 'Y').
3	<b>Rough-live timber species</b> - All live trees that do not now, or prospectively, have at least one solid 8-foot section, reasonably free of form defect on the merchantable bole, or have 67% or more of the merchantable volume cull; and more than half of this cull is due to sound dead wood cubic-foot loss or severe form defect volume loss.
4	<b>Rotten-live timber species</b> - All live trees with 67% or more of the merchantable volume cull, and more than half of this cull is due to rotten or missing cubic-foot volume loss.
5	<b>Hard (salvable) dead</b> - Dead trees that have less than 67% of the volume cull due to rotten or missing cubic-foot volume loss.
6	<b>Soft (nonsalvageable) dead</b> - Dead trees that have 67% or more of the volume cull due to rotten or missing cubic-foot volume loss.

**3.14.57 TREE\_GRADE**

**Tree grade code.** A code indicating the tree grade, as assessed by the field crew. Standards for tree grading are specific to species and differ slightly by region. Tree grade codes range from 1 to 5. This attribute is optional and not populated for all regions. Refer to regional field guides for further detail.

**Codes: TREE\_GRADE**

Code	Description
1	Tree grade 1
2	Tree grade 2
3	Tree grade 3
4	Tree grade 4
5	Tree grade 5

**3.14.58 TREE\_SITE\_INDEX**

**Site index for the tree.** The estimated site index value, in feet, for an individual tree derived by translating the condition-level site index (based on the site tree species) to the species of the tree.

**3.14.59 BASAL\_AREA**

**Basal area.** The basal area of the tree, in square feet per acre, computed as  $DIA^2 * 0.005454$ , where [DIA](#) is the current diameter of the tree. Populated for live and dead trees  $\geq 1.0$  inch d.b.h./d.r.c.

**3.14.60 TPA\_UNADJ**

**Trees per acre unadjusted.** The number of trees per acre that the sample tree theoretically represents as determined by the fixed-radius subplot element (see [SUBP](#)) on which the tree was sampled.

When generating population estimates, this attribute must be adjusted by multiplying by either the [POP\\_STRATUM\\_CALC.STRATUM\\_SUBPLOT\\_ADJ\\_FACTOR](#) or the [POP\\_STRATUM\\_CALC.STRATUM\\_MICROPLOT\\_ADJ\\_FACTOR](#) to account for partially nonsampled plots (access denied or hazardous portions).

**3.14.61 CARBON\_AG**

**Aboveground carbon of wood and bark.** The carbon, in pounds, of wood and bark in the aboveground portion, excluding foliage, of live and standing dead trees  $\geq 1.0$  inch d.b.h./d.r.c. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. The amount of carbon is calculated based on applying species-specific carbon fractions to the aboveground biomass:

$$\text{CARBON\_AG} = \text{REF\_SPECIES.CARBON\_RATIO\_LIVE} * \text{DRYBIO\_AG}$$

This attribute is populated for all tree species tallied in the continental U.S. as well as both the Caribbean and Pacific Islands, including Hawaii (refer to the [FIA Master Tree Species List \[Excel format\]](#) in Public Box folder available at web address: <https://usfs-public.box.com/v/FIA-TreeSpeciesList>). Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

### 3.14.62 CARBON\_BG

**Belowground carbon.** The carbon, in pounds, of the belowground portion of a tree, including coarse roots with a root diameter  $\geq 0.1$  inch. Calculated for live and standing dead trees  $\geq 1.0$  inch d.b.h./d.r.c. This is a per tree value and must be multiplied by TPA\_UNADJ to obtain per acre information. The amount of carbon is calculated based on applying species-specific carbon fractions to the belowground biomass:

$$\text{CARBON\_BG} = \text{REF\_SPECIES.CARBON\_RATIO\_LIVE} * \text{DRYBIO\_BG}$$

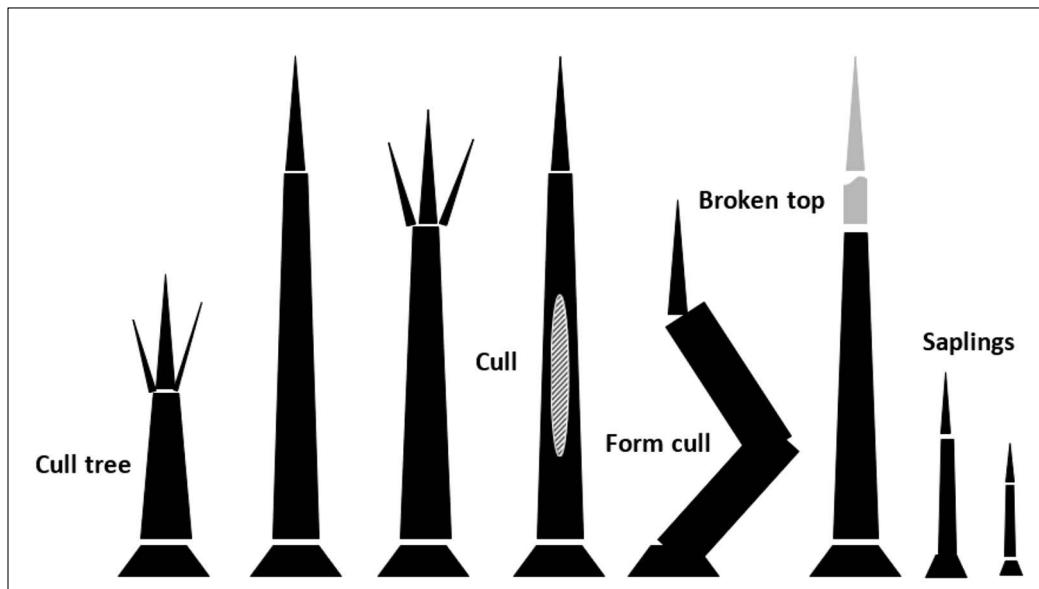
Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

### 3.14.63 DRYBIO\_AG

**Aboveground dry biomass of wood and bark.** The oven-dry biomass, in pounds, of wood and bark in the aboveground portion, excluding foliage, of live and standing dead trees  $\geq 1.0$  inch d.b.h./d.r.c. This is a per tree value and must be multiplied by TPA\_UNADJ to obtain per acre information. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL <7.0.



**Figure 3-7:** Illustration of aboveground dry biomass of wood and bark (DRYBIO\_AG) in black. Roots, foliage, and missing wood are excluded. Wood biomass is proportionally reduced to account for cull, represented by the cross-hatched area in the figure. See DRYBIO\_AG for a full description of this attribute.

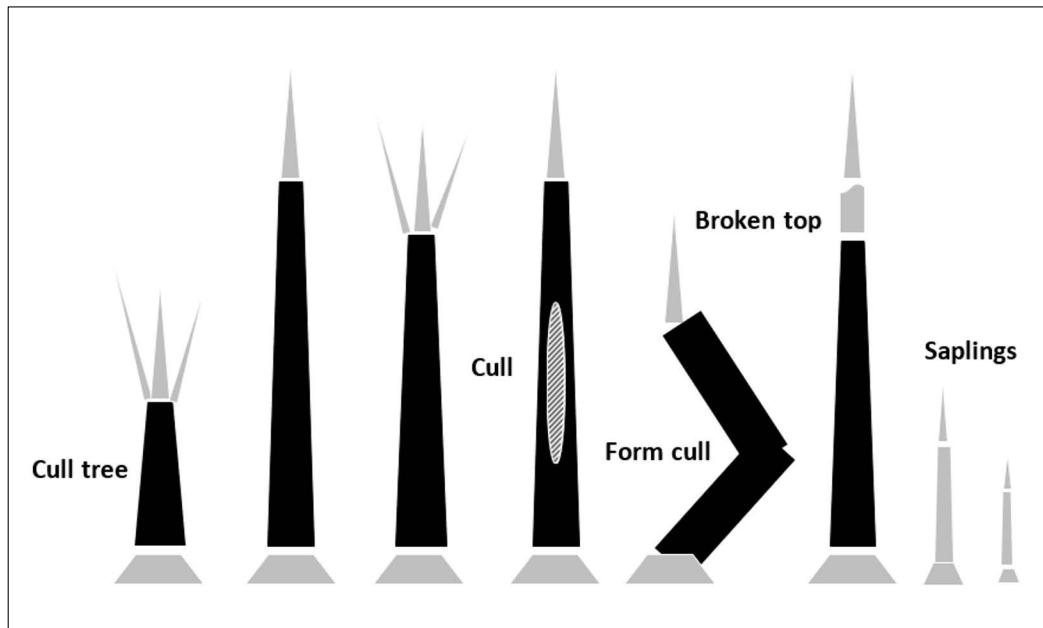
### 3.14.64 DRYBIO\_BG

**Belowground dry biomass.** The oven-dry biomass, in pounds, of the belowground portion of a tree, including coarse roots with a root diameter  $\geq 0.1$  inch. This is a modeled estimate, calculated for live and standing dead trees  $\geq 1.0$  inch d.b.h./d.r.c. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when [ID\\_PLOT.MANUAL\\_NATIONAL <7.0](#).

### 3.14.65 DRYBIO\_BOLE

**Dry biomass of wood in the merchantable bole.** The oven-dry biomass, in pounds, of wood in the merchantable bole of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq 5.0$  inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter. Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.



**Figure 3-8:** Illustration of timber species dry biomass of wood in the merchantable bole (DRYBIO\_BOLE) in black. Gray trees and gray tree parts are excluded. Wood biomass is proportionally reduced to account for cull; the cull wood, represented by the cross-hatched area in the figure, has lost some of its structural integrity and therefore its mass. See DRYBIO\_BOLE for a full description of this attribute.

### 3.14.66 DRYBIO\_BOLE\_BARK

**Dry biomass of bark in the merchantable bole.** The oven-dry biomass, in pounds, of bark in the merchantable bole of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq 5.0$  inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter.

Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

#### 3.14.67 **DRYBIO\_BRANCH**

**Dry biomass of branches.** The oven-dry biomass, in pounds, of wood and bark in the branches/limbs of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 1.0$  inch d.b.h.) **DRYBIO\_BRANCH** is only branches; it does not include any portion of the total stem. Calculated for live and standing dead trees. For live trees, this value is reduced for broken tops. For standing dead trees, this value is reduced for broken tops as well as [DECAYCD](#). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

#### 3.14.68 **DRYBIO\_FOLIAGE**

**Dry biomass of foliage.** The oven-dry biomass, in pounds, of foliage for live trees  $\geq 1.0$  inch d.b.h./d.r.c. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

#### 3.14.69 **DRYBIO\_SAWLOG**

**Dry biomass of wood in the sawlog portion of a sawtimber tree.** The oven-dry biomass, in pounds, of wood in the sawlog portion of timber species trees of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches minimum d.b.h. for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods) or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods) and standing dead trees. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

#### 3.14.70 **DRYBIO\_SAWLOG\_BARK**

**Dry biomass of bark in the sawlog portion of a sawtimber tree.** The oven-dry biomass, in pounds, of bark in the sawlog portion of timber species trees of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches minimum d.b.h. for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods) or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods) and standing dead trees. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

#### 3.14.71 **DRYBIO\_STEM**

**Dry biomass of wood in the total stem.** The oven-dry biomass, in pounds, of wood in the total stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 1.0$  inch d.b.h., from ground line to the tree tip). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.72 DRYBIO\_STEM\_BARK**

**Dry biomass of bark in the total stem.** The oven-dry biomass, in pounds, of bark in the total stem of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq 1.0$  inch d.b.h., from ground line to the tree tip. Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.73 DRYBIO\_STUMP**

**Dry biomass of wood in the stump.** The oven-dry biomass, in pounds, of wood in the stump of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq 5.0$  inches d.b.h. The stump is that portion of the tree from the ground line to the bottom of the merchantable bole (i.e., below 1 foot). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.74 DRYBIO\_STUMP\_BARK**

**Dry biomass of bark in the stump.** The oven-dry biomass, in pounds, of bark in the stump of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq 5.0$  inches d.b.h. The stump is that portion of the tree from the ground line to the bottom of the merchantable bole (i.e., below 1 foot). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

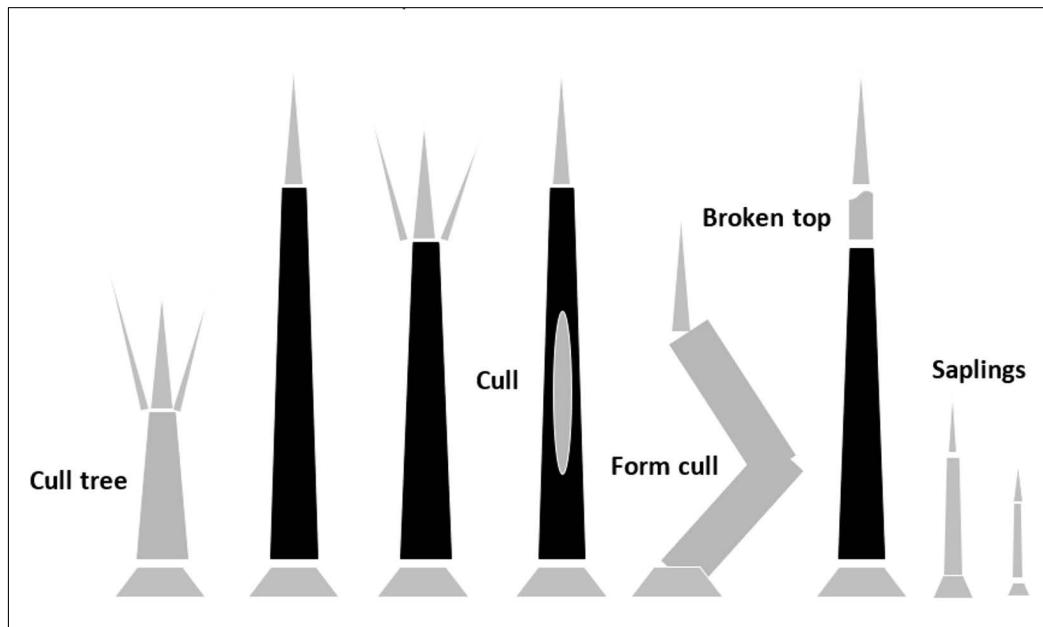
**3.14.75 VOLBFGRS**

**Gross board-foot wood volume in the sawlog portion of a sawtimber tree.** The total board-foot volume (International 1/4-inch Rule) of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per unit area information. This attribute is blank (null) for softwood trees with DIA  $< 9.0$  inches ( $< 11.0$  inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field.

**3.14.76 VOLBFNET**

**Net board-foot wood volume in the sawlog portion of a sawtimber tree.** The net board-foot volume (International 1/4-inch Rule) of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per unit area information. This attribute is blank (null) for softwood trees with DIA  $< 9.0$  inches ( $< 11.0$  inches for hardwoods). All

sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Form cull and rotten/missing cull are excluded.



**Figure 3-9:** Illustration of timber species net board-foot wood volume in the sawlog portion of a sawtimber tree (VOLBFNET) in black. Gray trees and gray tree parts are excluded. See VOLBFNET for a full description of this attribute.

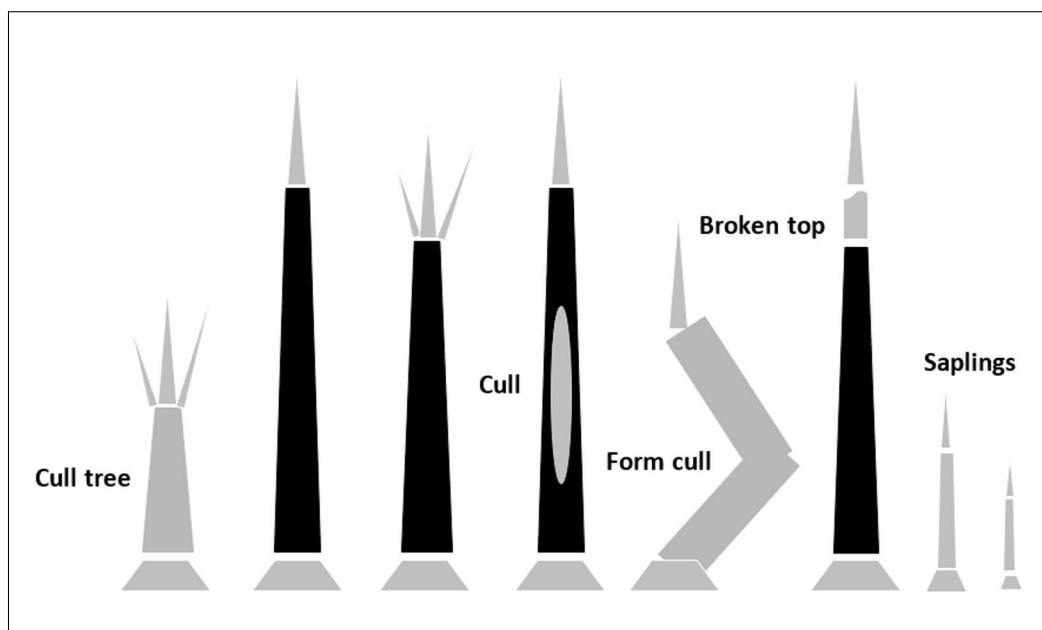
### 3.14.77 VOLBSGRS

**Gross board-foot wood volume in the sawlog portion of a sawtimber tree (Scribner Rule).** The total board-foot (Scribner Rule) volume of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per unit area information. This attribute is blank (null) for softwood trees with DIA < 9.0 inches (< 11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Only populated by certain FIA work units ([SO\\_RESEARCH\\_ORGANIZATION.CODE](#) = 22, 26, 27).

### 3.14.78 VOLBSNET

**Net board-foot wood volume in the sawlog portion of a sawtimber tree (Scribner Rule).** The net board-foot (Scribner Rule) volume of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs all of

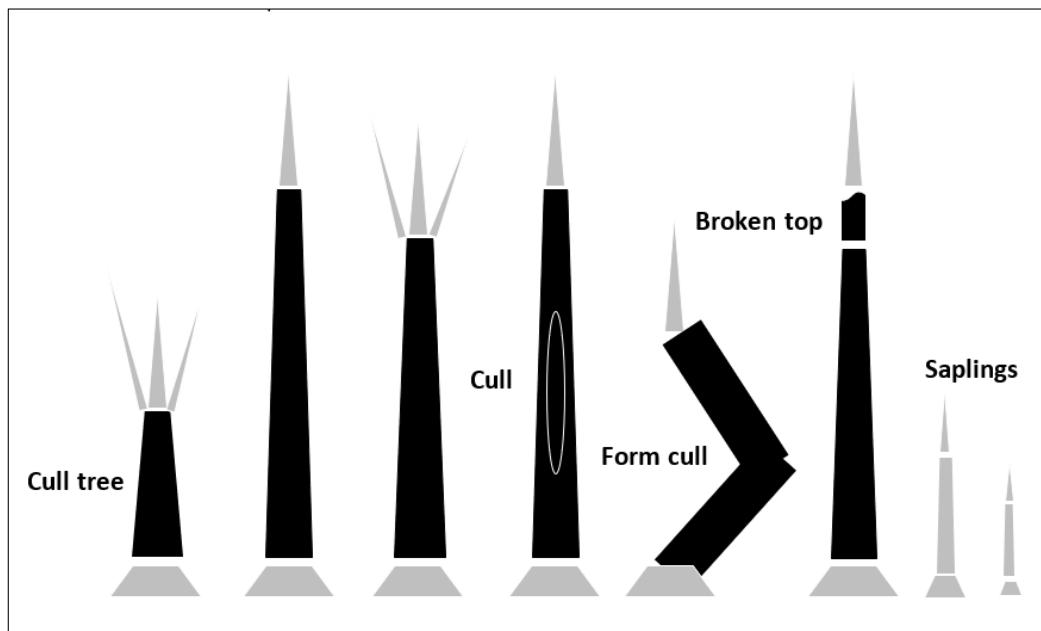
which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per unit area information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREELCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREELCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Form cull and rotten/missing cull are excluded. Only populated by certain FIA work units ([SO\\_RESEARCH\\_ORGANIZATION.CODE](#) = 22, 26, 27).



**Figure 3-10:** Illustration of timber species net board-foot wood volume in the sawlog portion of a sawtimber tree (VOLBSNET) in black. Gray trees and gray tree parts are excluded. See VOLBSNET for a full description of this attribute.

### 3.14.79 VOLCFGRS

**Gross cubic-foot stem wood volume.** The total cubic-foot volume of wood in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq$ 5.0 inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter, or to where the central stem breaks into limbs all of which are <4.0 inches in diameter. Calculated for live and standing dead trees. Includes rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has not been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.



**Figure 3-11:** Illustration of timber species gross cubic-foot stem wood volume (VOLCFGGRS) in black. Gray trees and gray tree parts are excluded. See VOLCFGGRS for a full description of this attribute.

### 3.14.80 VOLCFGGRS\_BARK

**Gross cubic-foot stem bark volume.** The total cubic-foot volume of bark in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 5.0$  inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter, or to where the central stem breaks into limbs all of which are  $< 4.0$  inches in diameter. Calculated for live and standing dead trees. Includes rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has not been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.81 VOLCFGGRS\_STUMP

**Gross cubic-foot stump wood volume.** The total cubic-foot volume of wood in the stump of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 5.0$  inches d.b.h. The stump is that portion of the tree from the ground line to the bottom of the merchantable bole (i.e., below 1 foot). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.82 VOLCFGGRS\_STUMP\_BARK

**Gross cubic-foot stump bark volume.** The total cubic-foot volume of bark in the stump of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 5.0$  inches

d.b.h. The stump is that portion of the tree from the ground line to the bottom of the merchantable bole (i.e., below 1 foot). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.83 VOLCFGRS\_TOP

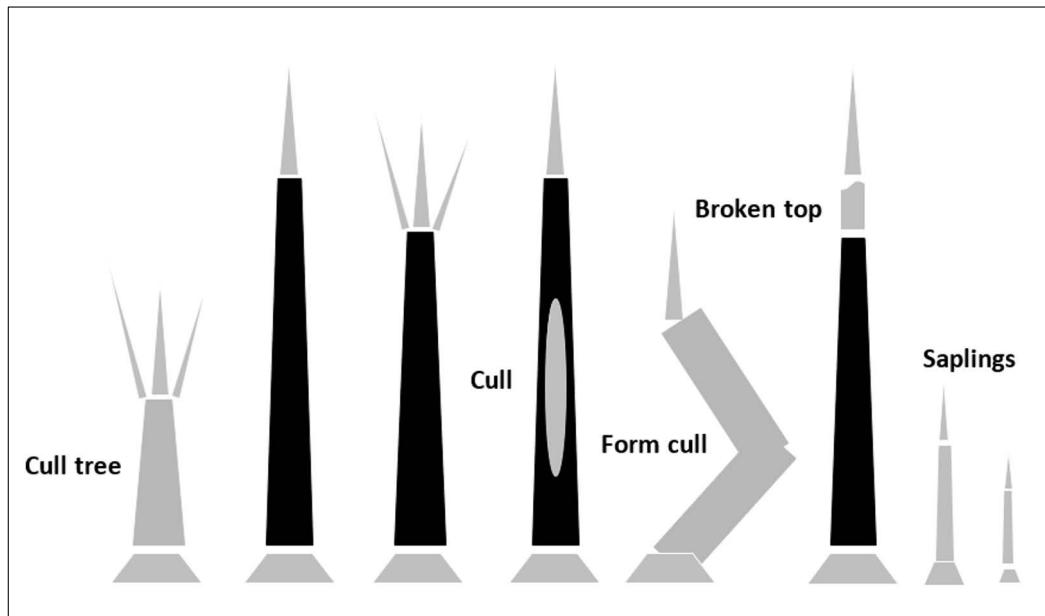
**Gross cubic-foot stem-top wood volume.** The total cubic-foot volume of wood in the non-merchantable top of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq$ 5.0 inches d.b.h. The top is the portion of the stem above the merchantable bole (i.e., above the 4-inch top diameter). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.84 VOLCFGRS\_TOP\_BARK

**Gross cubic-foot stem-top bark volume.** The total cubic-foot volume of bark in the non-merchantable top of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq$ 5.0 inches d.b.h. The top is the portion of the stem above the merchantable bole (i.e., above the 4-inch top diameter). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.85 VOLCFNET

**Net cubic-foot stem wood volume.** The net cubic-foot volume of wood in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.])  $\geq$ 5.0 inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter, or to where the central stem breaks into limbs all of which are <4.0 inches in diameter. Calculated for live and standing dead trees. Does not include rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.



**Figure 3-12:** Illustration of timber species net cubic-foot stem wood volume (VOLCFNET) in black. Gray trees and gray tree parts are excluded. See VOLCFNET for a full description of this attribute.

### 3.14.86 VOLCFNET\_BARK

**Net cubic-foot stem bark volume.** The net cubic-foot volume of bark in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 5.0$  inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter, or to where the central stem breaks into limbs all of which are  $< 4.0$  inches in diameter. Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.87 VOLCFSND

**Sound cubic-foot stem wood volume.** The sound cubic-foot volume of wood in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 5.0$  inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter, or to where the central stem breaks into limbs all of which are  $< 4.0$  inches in diameter. Calculated for live and standing dead trees. Does not include rotten and missing cull (volume loss due to rotten and missing cull defect has been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA  $< 5.0$  inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.88 VOLCFSND\_BARK

**Sound cubic-foot stem bark volume.** The sound cubic-foot volume of bark in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 5.0$  inches d.b.h., from a 1-foot stump to a minimum 4-inch top diameter, or to where the

central stem breaks into limbs all of which are <4.0 inches in diameter. Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.89 VOLCFSND\_STUMP

**Sound cubic-foot stump wood volume.** The sound cubic-foot volume of wood in the stump of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq$ 5.0 inches d.b.h. The stump is that portion of the tree from the ground line to the bottom of the merchantable bole (i.e., below 1 foot). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.90 VOLCFSND\_STUMP\_BARK

**Sound cubic-foot stump bark volume.** The sound cubic-foot volume of bark in the stump of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq$ 5.0 inches d.b.h. The stump is that portion of the tree from the ground line to the bottom of the merchantable bole (i.e., below 1 foot). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.91 VOLCFSND\_TOP

**Sound cubic-foot stem-top wood volume.** The sound cubic-foot volume of wood in the non-merchantable top of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq$ 5.0 inches d.b.h. The top is the portion of the stem above the merchantable bole (i.e., above the 4-inch top diameter). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.92 VOLCFSND\_TOP\_BARK

**Sound cubic-foot stem-top bark volume.** The sound cubic-foot volume of bark in the non-merchantable top of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq$ 5.0 inches d.b.h. The top is the portion of the stem above the merchantable bole (i.e., above the 4-inch top diameter). Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.93 VOLCSGRS

**Gross cubic-foot wood volume in the sawlog portion of a sawtimber tree.** The total cubic-foot volume of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods),

from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### **3.14.94 VOLCSGRS\_BARK**

**Gross cubic-foot bark volume in the sawlog portion of a sawtimber tree.** The total cubic-foot volume of bark in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### **3.14.95 VOLCSNET**

**Net cubic-foot wood volume in the sawlog portion of a sawtimber tree.** The net cubic-foot volume of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter, (7.0 inches for softwoods, 9.0 inches for hardwoods) or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Form cull and rotten/missing cull are excluded. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### **3.14.96 VOLCSNET\_BARK**

**Net cubic-foot bark volume in the sawlog portion of a sawtimber tree.** The net cubic-foot volume of bark in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.97 VOLCSSND**

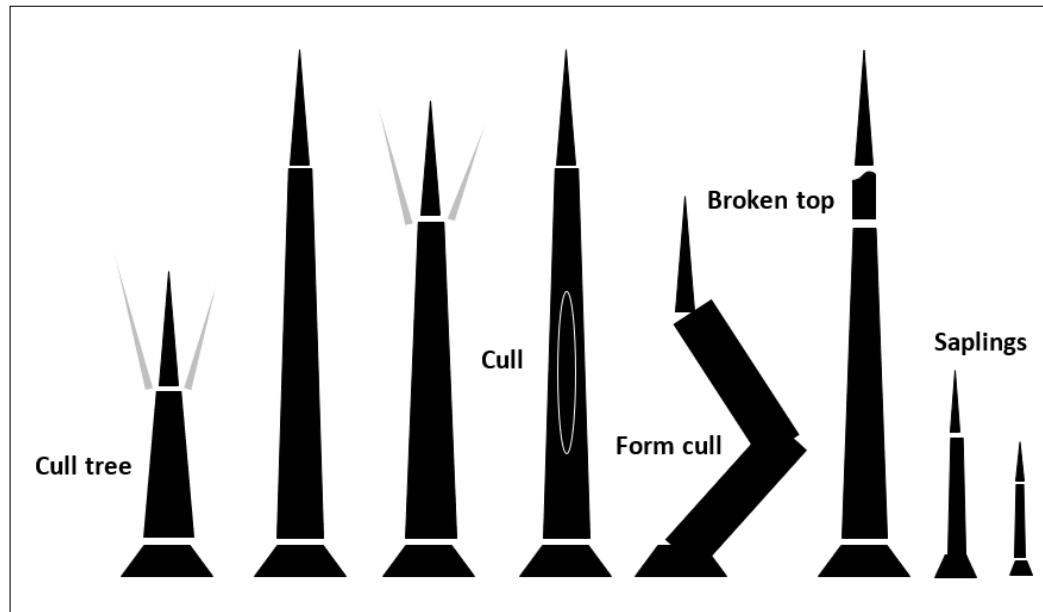
**Sound cubic-foot wood volume in the sawlog portion of a sawtimber tree.** The sound cubic-foot volume of wood in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches minimum d.b.h. for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods) or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Does not include rotten and missing cull (volume loss due to rotten and missing cull defect has been deducted). Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.98 VOLCSSND\_BARK**

**Sound cubic-foot bark volume in the sawlog portion of a sawtimber tree.** The sound cubic-foot volume of bark in the central stem of a timber species tree of sawtimber size (9.0 inches d.b.h. minimum for softwoods, 11.0 inches d.b.h. minimum for hardwoods), from a 1-foot stump to a minimum top diameter (7.0 inches for softwoods, 9.0 inches for hardwoods), or to where the central stem breaks into limbs, all of which are less than the minimum top diameter. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for softwood trees with DIA <9.0 inches (<11.0 inches for hardwoods). All sawtimber-size trees have entries in this field if they are growing-stock trees ([TREECLCD](#) = 2 and [STATUSCD](#) = 1). All rough and rotten trees ([TREECLCD](#) = 3 or 4) and dead and cut trees ([STATUSCD](#) = 2 or 3) are blank (null) in this field. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.99 VOLTSGRS**

**Gross cubic-foot total-stem wood volume.** For timber species (trees where the diameter is measured at breast height [d.b.h.]  $\geq$ 1.0 inch d.b.h., this is the total cubic-foot volume of wood in the central stem from ground line to the tree tip. For woodland species (trees where the diameter is measured at root collar [d.r.c.]; identified by [REF\\_SPECIES.WOODLAND](#) = 'Y')  $\geq$ 1.5 inches d.r.c., this is the total cubic-foot volume of wood and bark from the d.r.c. measurement point(s) to a 1.5-inch top diameter, including branches that are at least 1.5 inches in diameter along the length of the branch. Calculated for live and standing dead trees. Includes rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has not been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species with DIA <1.5 inches d.r.c. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.



**Figure 3-13:** Illustration of timber species gross cubic-foot total-stem wood volume (VOLTSGRS) in black. Gray tree parts are excluded. See VOLTSGRS for a full description of this attribute.

### 3.14.100 VOLTSGRS\_BARK

**Gross cubic-foot total-stem bark volume.** The total cubic-foot volume of bark in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 1.0$  inch d.b.h., from ground line to the tree tip. Calculated for live and standing dead trees. Includes rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has not been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

### 3.14.101 VOLTSSND

**Sound cubic-foot total-stem wood volume.** For timber species (trees where the diameter is measured at breast height [d.b.h.]  $\geq 1.0$  inch d.b.h., this is the total sound cubic-foot volume of wood in the central stem from ground line to the tree tip. For woodland species (trees where the diameter is measured at root collar [d.r.c.]; identified by [REF\\_SPECIES.WOODLAND = 'Y'](#))  $\geq 1.5$  inches d.r.c., this is the total sound cubic-foot volume of wood and bark from the d.r.c. measurement point(s) to a 1.5-inch top diameter, including branches that are at least 1.5 inches in diameter along the length of the branch. Calculated for live and standing dead trees. Does not include rotten and missing cull (volume loss due to rotten and missing cull defect has been deducted). This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species with DIA  $< 1.5$  inches d.r.c. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.102 VOLTSSND\_BARK**

**Sound cubic-foot total-stem bark volume.** The total sound cubic-foot volume of bark in the central stem of timber species (trees where diameter is measured at breast height [d.b.h.]  $\geq 1.0$  inch d.b.h., from ground line to the tree tip. Calculated for live and standing dead trees. This is a per tree value and must be multiplied by [TPA\\_UNADJ](#) to obtain per acre information. This attribute is blank (null) for woodland species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**3.14.103 CN**

**Tree sequence number.** A unique sequence number used to identify the tree record (in ID\_TREE).

**3.14.104 PLT\_CN**

**Plot sequence number.** Foreign key linking the tree record to the plot visit record (ID\_TREE.PLT\_CN = ID\_PLOT.[CN](#)).

**3.14.105 SBP\_CN**

**Subplot sequence number.** Foreign key linking the tree record to the subplot record (ID\_TREE.SBP\_CN = ID\_SUBPLOT.[CN](#)).

**3.14.106 CND\_CN**

**Condition sequence number.** Foreign key linking the tree record to the condition record (ID\_TREE.CND\_CN = ID\_COND.[CN](#)).

**3.14.107 MTRE\_CN**

**Mother tree sequence number.** Foreign key linking the tree record to the mother tree record (ID\_TREE.MTRE\_CN = ID\_MOTHER\_TREE.[CN](#)).

**3.14.108 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the tree record to the previous plot visit record (ID\_TREE.PREV\_PLT\_CN = ID\_PLOT.[CN](#)).

**3.14.109 PREV\_TRE\_CN**

**Previous tree sequence number.** The sequence number (CN) linking the tree record to the previous tree record (ID\_TREE.PREV\_TRE\_CN = ID\_TREE.[CN](#)). This attribute is only populated for trees remeasured from a previous inventory.



## 3.15 Woodland Stem Table

### Oracle table name: ID\_WOODLAND\_STEM

The purpose of the **ID\_WOODLAND\_STEM** table is to store data for the individual stems of a woodland-classified species. Individual woodland stem diameter measurements contribute to the value of the diameter stored on the parent **ID\_TREE** record.

**Note:** The information in this table is stored for full transparency. However, it is not typically used directly in analyses.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.15.1	PLOTID	Plot identifier	INTEGER
3.15.2	VISIT_NBR	Visit number	NUMBER(2)
3.15.3	STATECD	State code	NUMBER(2)
3.15.4	UNITCD	Survey unit code	NUMBER(2)
3.15.5	COUNTYCD	County code	NUMBER(3)
3.15.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.15.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.15.8	CONDID	Condition class identifier	NUMBER(1)
3.15.9	TREE	Woodland tree identifier	NUMBER(9)
3.15.10	STEM_NBR	Woodland stem number	NUMBER(3)
3.15.11	STATUSCD	Woodland stem status code	NUMBER(1)
3.15.12	DIA	Woodland stem diameter	NUMBER(4,1)
3.15.13	CN	Woodland stem sequence number	INTEGER
3.15.14	PLT_CN	Plot sequence number	INTEGER
3.15.15	SBP_CN	Subplot sequence number	INTEGER
3.15.16	CND_CN	Condition sequence number	INTEGER
3.15.17	MTRE_CN	Mother tree sequence number	INTEGER
3.15.18	TRE_CN	Tree sequence number	INTEGER
3.15.19	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	WDS_PK	CN	N/A
Unique	WDS_UK	PLOTID, VISIT_NBR, SUBP, TREE, STEM_NBR	N/A
Foreign	WDS_PLT_FK	PLT_CN	ID_WOODLAND_STEM.PLT_CN = ID_PLOT.CN
Foreign	WDS_SBP_FK	SBP_CN	ID_WOODLAND_STEM.SBP_CN = ID_SUBPLOT.CN

Key type	Alias	Constraint column(s)	Table joins
Foreign	WDS_CND_FK	CND_CN	ID_WOODLAND_STEM.CND_CN = ID_COND.CN
Foreign	WDS_MTRE_FK	MTRE_CN	ID_WOODLAND_STEM.MTRE_CN = ID_MOTHER_TREE.CN
Foreign	WDS_TRE_FK	TRE_CN	ID_WOODLAND_STEM.TRE_CN = ID_TREE.CN

**3.15.1 PLOTID**

**Plot identifier.** A unique identifier for the sampling point. This value has no interpretation beyond a unique identifier for a spot on the ground.

**3.15.2 VISIT\_NBR**

**Visit number.** An iterating counter recording the number of times the sampling point has been visited.

**3.15.3 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**3.15.4 UNITCD**

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

**3.15.5 COUNTYCD**

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

**3.15.6 RETIRED\_PLOT**

**Retired plot number.** The retired plot number. This value no longer uniquely identifies the sampling point. It is retained for the purpose of compatibility with past data sets as well as the FIADB product for NFI.

**3.15.7 SUBP**

**Subplot/microplot identifier.** The identity of the subplot or microplot. The national urban protocol has one subplot and four microplots.

**Codes: SUBP**

Code	Description
1	Urban subplot: 48.0-foot subplot centered on plot center (PC).
11	East microplot: 6.8-foot microplot located 12 feet from PC, 90 degrees.

Code	Description
12	South microplot: 6.8-foot microplot located 12 feet from PC, 180 degrees.
13	West microplot: 6.8-foot microplot located 12 feet from PC, 270 degrees.
14	North microplot: 6.8-foot microplot located 12 feet from PC, 360 degrees.

### 3.15.8 CONDID

**Condition class identifier.** A number that uniquely identifies each condition delineated for the plot visit. Each plot visit is assumed to have at least one condition.

A condition is initially defined by the condition class status (ID\_COND.COND\_STATUS\_CD). Differences in reserved status, owner group, forest type, stand-size class, regeneration status, and tree density further define a condition for forest land. Differences in reserved status, owner group, and nonforest land use further define a condition for nonforest land.

At the time of the plot establishment, the condition class at plot center (the center of subplot 1) is usually designated as condition class 1. Other condition classes are assigned numbers sequentially at the time each condition class is delineated. On a plot, each sampled condition class must have a unique number that can change at remeasurement to reflect new conditions on the plot.

### 3.15.9 TREE

**Woodland tree identifier.** A number that uniquely identifies the woodland tree on the plot to which the individual stem belongs.

Woodland species are often multi-stemmed. Individual stems (live or dead) must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement.

### 3.15.10 STEM\_NBR

**Woodland stem number.** A number that uniquely identifies the individual stem on a woodland tree, which was used to measure the tree diameter.

Woodland species are often multi-stemmed. Individual stems (live or dead) must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement.

**Note:** The total number of live and dead stems for a woodland-classified species that were used to calculate the diameter (ID\_TREE.DIA) is stored in the mother tree table and the tree table (see ID\_MOTHER\_TREE.NBR\_STEMS and ID\_TREE.NBR\_STEMS).

### 3.15.11 STATUSCD

**Woodland stem status code.** A code indicating whether the individual stem on a woodland tree is live or dead.

Woodland species are often multi-stemmed. Individual stems (live or dead) must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement.

**Codes: STATUSCD**

Code	Description
1	Live stem.
2	Dead stem.

**3.15.12 DIA**

**Woodland stem diameter.** The current diameter, in inches, at the point of diameter measurement for the individual stem on the woodland tree. Individual stems (live or dead) must be at least 1 foot in length and at least 1.0 inch in diameter 1 foot up from the stem diameter measurement point to qualify for measurement.

For woodland species, which are often multi-stemmed, diameter is measured at the ground line or at the stem root collar (d.r.c.), whichever is higher. The overall diameter for woodland species tree (DRC) is computed using the following formula:

$$\text{DRC} = \text{SQRT} [\text{SUM} (\text{stem diameter}^2)]$$

The computed DRC value for the woodland tree is stored in the ID\_TREE.[DIA](#) column.

**3.15.13 CN**

**Woodland stem sequence number.** A unique sequence number used to identify the woodland stem record (in ID\_WOODLAND\_STEM).

**3.15.14 PLT\_CN**

**Plot sequence number.** Foreign key linking the woodland stem record to the plot visit record (ID\_WOODLAND\_STEM.PLT\_CN = ID\_PLOT.[CN](#)).

**3.15.15 SBP\_CN**

**Subplot sequence number.** Foreign key linking the woodland stem record to the subplot record (ID\_WOODLAND\_STEM.SBP\_CN = ID\_SUBPLOT.[CN](#)).

**3.15.16 CND\_CN**

**Condition sequence number.** Foreign key linking the woodland stem record to the condition record (ID\_WOODLAND\_STEM.CND\_CN = ID\_COND.[CN](#)).

**3.15.17 MTRE\_CN**

**Mother tree sequence number.** Foreign key linking the woodland stem record to the mother tree record (ID\_WOODLAND\_STEM.MTRE\_CN = ID\_MOTHER\_TREE.[CN](#)).

**3.15.18 TRE\_CN**

**Tree sequence number.** Foreign key linking the woodland stem record to the tree record (ID\_WOODLAND\_STEM.TRE\_CN = ID\_TREE.[CN](#)).

**3.15.19 PREV\_PLT\_CN**

**Previous plot sequence number.** The sequence number (CN) linking the woodland stem record to the previous plot visit record (ID\_WOODLAND\_STEM.PREV\_PLT\_CN = ID\_PLOT.[CN](#)).

Section revision: 09.02.2024

# Chapter 4: Table Group - Population Estimation

This chapter provides a detailed description of each table in the **Population Estimation** table group.

## Chapter Contents:

Section	Database table	Oracle table name
4.1	<a href="#">Population Attribute Table</a>	POP_ATTRIBUTE
4.2	<a href="#">Population Calculation Table</a>	POP_CALCULATION
4.3	<a href="#">Population Domain Table</a>	POP_DOMAIN
4.4	<a href="#">Population Sample Constraint Table</a>	POP_SAMPLE_CONSTRAINT
4.5	<a href="#">Population Sample Constraint Assignment Table</a>	POP_SAMPLE_CONSTRAINT_ASSGN
4.6	<a href="#">Population Sample Constraint Group Table</a>	POP_SAMPLE_CONSTRAINT_GROUP
4.7	<a href="#">Population Statistical Sample Table</a>	POP_STAT_SAMP
4.8	<a href="#">Population Statistical Sample Attribute Assignment Table</a>	POP_STAT_SAMP_ATTRIBUTE_ASSGN
4.9	<a href="#">Population Statistical Sample Domain Assignment Table</a>	POP_STAT_SAMP_DOMAIN_ASSGN
4.10	<a href="#">Population Stratum Calculation Table</a>	POP_STRATUM_CALC

## Overview: Table Group - Population Estimation

### Prefix: POP\_

The purpose of the **Population Estimation** table group is to store critical information required to produce population-level estimates using the FIA stratified estimator. The two main components required for this are a *statistical sample* and a *stratification* of the target population. FIA uses the term 'evaluation' to refer to this combination. More formally, an **evaluation** is an FIA convention that is defined as the unique combination of a statistical sample and a stratification of the target population for the purpose of producing estimates of a specific set of population attributes at a given point in time.

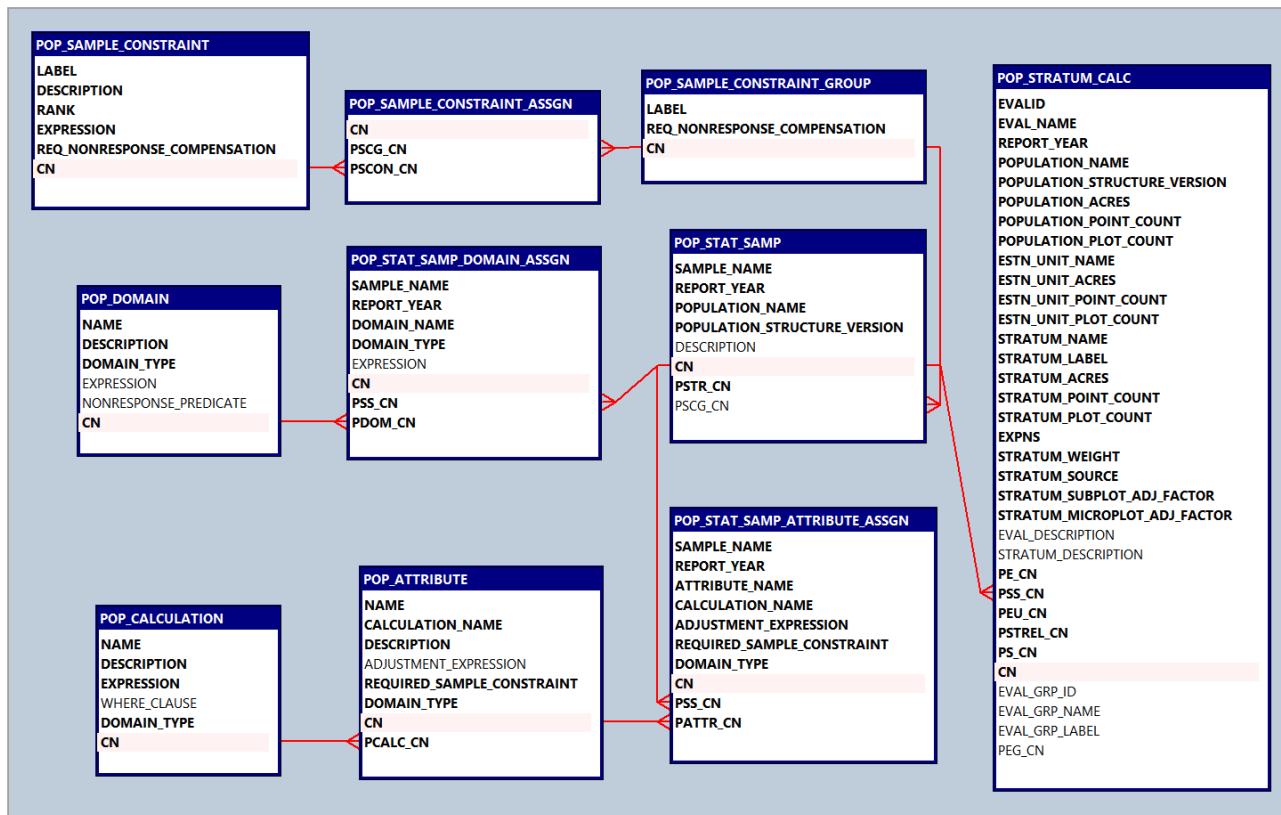
**Statistical samples** (stored in the [POP\\_STAT\\_SAMP](#) table) are composed of plot visits from one or many **inventories** and constitute the full set of the most recently sampled plot visits as of the reporting year of the statistical sample. Statistical samples are constructed to support specific estimation goals such as estimating the sample response rate, estimating current estimates of area or tree quantities, or estimating change. The goal of the sample is expressed by a set of population attributes assigned to the sample (stored in the [POP\\_STAT\\_SAMP\\_ATTRIBUTE\\_ASSGN](#) table). The plot visits that participate in a given statistical sample are filtered by a set of constraints associated with the goal of the sample (refer

to the [POP\\_SAMPLE\\_CONSTRAINT\\_ASSGN](#) and [POP\\_SAMPLE\\_CONSTRAINT\\_GROUP](#) tables). Statistical samples are also associated with important population domains (stored in the [POP\\_STAT\\_SAMP\\_DOMAIN\\_ASSGN](#) table) available for estimation by that sample.

**Stratifications** of the target population (stored in the [POP\\_STRATUM\\_CALC](#) table) are constructed in the following manner. The target population is first divided into one or many independent subpopulations called **estimation units**. These estimation units are defined for two main purposes: (1) to account for differences in sampling intensity or temporal pace, or (2) to provide area-controlled estimates of specific subpopulations that are of special significance to the population (such as a conservation area). Estimation units are then divided into one or many mutually exclusive strata.

**Strata** are defined by some stratification variable (such as land cover class) that is thought to have a predictive relationship with estimates of interest. Strata have known areas and the sum of those areas equals the area of the parent estimation unit.

Figure 4-1 shows an Entity Relationship Diagram (ERD) for the Population Estimation table group.



**Figure 4-1:** Population estimation table group.

## 4.1 Population Attribute Table

### Oracle table name: POP\_ATTRIBUTE

The **POP\_ATTRIBUTE** table contains a list of population attributes that can be estimated by inventory data. This list is not exhaustive and is not meant to limit analyses. Rather, this list represents common attributes of a population used in standard reporting. Each population attribute is supported by a calculation stored in the [POP\\_CALCULATION](#) table.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.1.1	NAME	Population attribute name	VARCHAR2(200)
4.1.2	CALCULATION_NAME	Calculation name	VARCHAR2(50)
4.1.3	DESCRIPTION	Population attribute description	VARCHAR2(2000)
4.1.4	ADJUSTMENT_EXPRESSION	Adjustment expression	VARCHAR2(250)
4.1.5	REQUIRED_SAMPLE_CONSTRAINT	Required sample constraint	VARCHAR2(30)
4.1.6	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.1.7	CN	Population attribute sequence number	INTEGER
4.1.8	PCALC_CN	Population calculation sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PATTR_PK	CN	N/A
Unique	PATTR_UK	NAME	N/A
Foreign	PATTR_PCALC_FK	PCALC_CN	POP_ATTRIBUTE.PCALC_CN = POP_CALCULATION.CN

#### 4.1.1 NAME

**Population attribute name.** A descriptive name for the population attribute (e.g., Total Trees, Total above ground biomass, Total Electricity Use Avoided).

#### 4.1.2 CALCULATION\_NAME

**Calculation name.** A descriptive name for the associated calculation (e.g., Dry Total Biomass, Electricity Use Avoided, Proportion Tree Cover).

#### 4.1.3 DESCRIPTION

**Population attribute description.** A brief summary description of the population attribute.

#### 4.1.4 ADJUSTMENT\_EXPRESSION

**Adjustment expression.** An expression showing the appropriate stratum adjustment to make when computing an estimate of the population attribute using the FIA stratified estimator. This adjustment compensates for nonresponse in the sample.

**4.1.5 REQUIRED\_SAMPLE\_CONSTRAINT**

**Required sample constraint.** The sample constraint required to estimate the population attribute (e.g., SAMPLED). See [POP\\_SAMPLE\\_CONSTRAINT](#) table.

**4.1.6 DOMAIN\_TYPE**

**Population domain type.** A classifier identifying the domain type of the population (e.g., LAND, TREE, SEEDLING). The domain type identifies the segment of the population that is being described.

**4.1.7 CN**

**Population attribute sequence number.** A unique sequence number used to identify the population attribute record (in POP\_ATTRIBUTE).

**4.1.8 PCALC\_CN**

**Population calculation sequence number.** Foreign key linking the population attribute record to the population calculation record (POP\_ATTRIBUTE.PCALC\_CN = POP\_CALCULATION.CN).

## 4.2 Population Calculation Table

### Oracle table name: POP\_CALCULATION

The **POP\_CALCULATION** table contains a list of named calculations along with the expression required to perform the calculation and any constraints. The expression defines the value that should be summed for each plot within the domain of interest. This table is useful for users who want to compute plot-level estimates without the use of the FIA stratified estimator.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.2.1	NAME	Calculation name	VARCHAR2(50)
4.2.2	DESCRIPTION	Calculation description	VARCHAR2(2000)
4.2.3	EXPRESSION	Calculation expression	VARCHAR2(250)
4.2.4	WHERE_CLAUSE	Where clause	VARCHAR2(2000)
4.2.5	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.2.6	CN	Population calculation sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PCALC_PK	CN	N/A
Unique	PCALC_UK	NAME	N/A

#### 4.2.1 NAME

**Calculation name.** A descriptive name for the calculation (e.g., Dry Total Biomass, Electricity Use Avoided, Proportion Tree Cover).

#### 4.2.2 DESCRIPTION

**Calculation description.** A brief summary description of the calculation.

#### 4.2.3 EXPRESSION

**Calculation expression.** An expression that is used to execute the calculation. The expression is formatted to conform to standard SQL.

#### 4.2.4 WHERE\_CLAUSE

**Where clause.** A SQL expression that must be included in the WHERE clause for the calculation to be correctly executed.

#### 4.2.5 DOMAIN\_TYPE

**Population domain type.** A classifier identifying the domain type of the population (e.g., LAND, TREE). The domain type identifies the segment of the population that is being described.

#### 4.2.6 CN

**Population calculation sequence number.** A unique sequence number used to identify the population calculation record (in POP\_CALCULATION).

## 4.3 Population Domain Table

### Oracle table name: POP\_DOMAIN

The **POP\_DOMAIN** table contains a list of population domains. These are segments of the population for which a separate estimate may be desired. Population domains can be defined geographically (e.g., a particular county) or by properties of a particular population entity (e.g., live trees at least 5 inches in diameter). It is impossible to define all possible domains and their relation to a statistical sample. This table focuses on important domains that have special significance within the inventory program.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.3.1	NAME	Population domain name	VARCHAR2(50)
4.3.2	DESCRIPTION	Population domain description	VARCHAR2(2000)
4.3.3	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.3.4	EXPRESSION	Population domain expression	VARCHAR2(2000)
4.3.5	NONRESPONSE_PREDICATE	Population domain nonresponse predicate	VARCHAR2(2000)
4.3.6	CN	Population domain sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PDOM_PK	CN	N/A
Unique	PDOM_UK	NAME	N/A

#### 4.3.1 NAME

**Population domain name.** A descriptive name for the population domain (e.g., Sampled Land, Live Seedling, Invasive Plant Species).

#### 4.3.2 DESCRIPTION

**Population domain description.** A brief summary description of the population domain.

#### 4.3.3 DOMAIN\_TYPE

**Population domain type.** A classifier identifying the domain type of the population (e.g., LAND, TREE, SEEDLING). The domain type identifies the segment of the population that is being described.

#### 4.3.4 EXPRESSION

**Population domain expression.** An expression than can be used to constrain a set of records to the population domain. The expression is in the form of TABLE\_NAME.COLUMN\_NAME [OPERATOR] [CONSTRAINT]. For example, ID\_TREE.STATUSCD = 1: ID\_TREE is the table name, STATUSCD is the column name, "=" is the operator, and 1 is the constraint.

#### 4.3.5 **NONRESPONSE\_PREDICATE**

**Population domain nonresponse predicate.** An expression for any filter predicates applied to this population domain to compensate for nonresponse. This expression is optional and provides the ability to filter which records are subject to the population domain type if compensation for nonresponse is required.

#### 4.3.6 **CN**

**Population domain sequence number.** A unique sequence number used to identify the population domain record (in POP\_DOMAIN).

## 4.4 Population Sample Constraint Table

### Oracle table name: POP\_SAMPLE\_CONSTRAINT

The **POP\_SAMPLE\_CONSTRAINT** table contains a list of sample constraints that can be applied to any defined statistical sample. Sample constraints are the mechanism used to filter the list of plots when forming a sample.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.4.1	LABEL	Sample constraint label	VARCHAR2(50)
4.4.2	DESCRIPTION	Sample constraint description	VARCHAR2(2000)
4.4.3	RANK	Sample constraint rank	INTEGER
4.4.4	EXPRESSION	Sample constraint expression	VARCHAR2(2000)
4.4.5	REQ_NONRESPONSE_COMPENSATION	Requires nonresponse compensation	CHAR(1)
4.4.6	CN	Population sample constraint sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSCON_PK	CN	N/A
Unique	PSCON_UK	LABEL	N/A

#### 4.4.1 LABEL

**Population sample constraint label.** A label for the population sample constraint (e.g., SAMPLED, REMEASURED, INVASIVE).

#### 4.4.2 DESCRIPTION

**Sample constraint description.** A brief summary description of the sample constraint.

#### 4.4.3 RANK

**Sample constraint rank.** A number indicating the hierarchical rank on the sample constraint. For example, for any sampling point to be included in a sample, it must be SELECTED (rank = 1), which is at the top of the hierarchy. As another example, for a sampling point to be included in an invasive species sample, it must be SELECTED (rank 1), SAMPLED (rank = 2), and INVASIVE (rank = 3).

##### Codes: RANK

RANK	LABEL	DESCRIPTION
1	SELECTED	Sampling point must be selected for inclusion in the sample.
2	SAMPLED	Sampling points must be at least partially sampled.
3	INVASIVE	Sampling point must participate in the Invasive Species Protocol.

RANK	LABEL	DESCRIPTION
3	FULLY SAMPLED	Sampling points must be completely sampled.
4	REMEASURED	Sampling points must be at least partially sampled at two consecutive points in time.

#### 4.4.4 EXPRESSION

**Sample constraint expression.** A SQL expression that enforces the constraint when placed in the WHERE clause of a SQL expression.

#### 4.4.5 REQ\_NONRESPONSE\_COMPENSATION

**Requires nonresponse compensation.** A code indicating whether or not the population sample constraint group requires compensation for nonresponse.

**Codes: REQ\_NONRESPONSE\_COMPENSATION**

Code	Description
N	No, the sample constraint group does not require compensation for nonresponse.
Y	Yes, the sample constraint group requires compensation for nonresponse.

#### 4.4.6 CN

**Population sample constraint sequence number.** A unique sequence number used to identify the population sample constraint record (in POP\_SAMPLE\_CONSTRAINT).

## 4.5 Population Sample Constraint Assignment Table

### Oracle table name: POP\_SAMPLE\_CONSTRAINT\_ASSGN

The **POP\_SAMPLE\_CONSTRAINT\_ASSGN** table stores the assignment of sample constraints to constraint groups.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.5.1	CN	Population sample constraint assignment sequence number	INTEGER
4.5.2	PSCG_CN	Population sample constraint group sequence number	INTEGER
4.5.3	PSCON_CN	Population sample constraint sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSCONA_PK	CN	N/A
Unique	PSCONA_UK	PSCG_CN, PSCON_CN	N/A
Foreign	PSCONA_PSCG_FK	PSCG_CN	POP_SAMPLE_CONSTRAINT_ASSGN.PSCG_CN = POP_SAMPLE_CONSTRAINT_GROUP.CN
Foreign	PSCONA_PSCON_FK	PSCON_CN	POP_SAMPLE_CONSTRAINT_ASSGN.PSCON_CN = POP_SAMPLE_CONSTRAINT.CN

#### 4.5.1 CN

**Population sample constraint assignment sequence number.** A unique sequence number used to identify the population sample constraint assignment record (in POP\_SAMPLE\_CONSTRAINT\_ASSGN).

#### 4.5.2 PSCG\_CN

**Population sample constraint group sequence number.** Foreign key linking the population sample constraint assignment record to the population sample constraint group record (POP\_SAMPLE\_CONSTRAINT\_ASSGN.PSCG\_CN = POP\_SAMPLE\_CONSTRAINT\_GROUP.CN).

#### 4.5.3 PSCON\_CN

**Population sample constraint sequence number.** Foreign key linking the population sample constraint assignment record to the population sample constraint record (POP\_SAMPLE\_CONSTRAINT\_ASSGN.PSCON\_CN = POP\_SAMPLE\_CONSTRAINT.CN).



## 4.6 Population Sample Constraint Group Table

### Oracle table name: POP\_SAMPLE\_CONSTRAINT\_GROUP

The **POP\_SAMPLE\_CONSTRAINT\_GROUP** table stores the identity of population sample constraint groups. Sample constraint groups define a specific set of constraints used to filter the set of available plot visits to form the statistical sample. For example, if a statistical sample is intended to assess invasive species populations, the sample should be filtered to include only plot visits where the invasive protocol was implemented.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.6.1	LABEL	Sample constraint group label	VARCHAR2(50)
4.6.2	REQ_NONRESPONSE_COMPENSATION	Requires nonresponse compensation	CHAR(1)
4.6.3	CN	Population sample constraint group sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSCG_PK	CN	N/A
Unique	PSCG_UK	LABEL	N/A

#### 4.6.1 LABEL

**Population sample constraint group label.** A label for the population sample constraint group (e.g., Current Sample, Invasive Plot Sample).

#### 4.6.2 REQ\_NONRESPONSE\_COMPENSATION

**Requires nonresponse compensation.** A code indicating whether or not the population sample constraint group requires compensation for nonresponse.

**Codes: REQ\_NONRESPONSE\_COMPENSATION**

Code	Description
N	No, the sample constraint group does not require compensation for nonresponse.
Y	Yes, the sample constraint group requires compensation for nonresponse.

#### 4.6.3 CN

**Population sample constraint group sequence number.** A unique sequence number used to identify the population sample constraint group record (in POP\_SAMPLE\_CONSTRAINT\_GROUP).



## 4.7 Population Statistical Sample Table

### Oracle table name: POP\_STAT\_SAMP

The purpose of the **POP\_STAT\_SAMP** table is to store the identity of statistical samples. For further details regarding **statistical samples**, refer to the chapter 4 [overview](#) for the Population Estimation table group.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.7.1	SAMPLE_NAME	Statistical sample name	VARCHAR2(50)
4.7.2	REPORT_YEAR	Reporting year	NUMBER(4)
4.7.3	POPULATION_NAME	Population name	VARCHAR2(50)
4.7.4	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
4.7.5	DESCRIPTION	Statistical sample description	VARCHAR2(2000)
4.7.6	CN	Population statistical sample sequence number	INTEGER
4.7.7	PSTR_CN	Population structure sequence number	INTEGER
4.7.8	PSCG_CN	Population sample constraint group sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSS_PK	CN	N/A
Unique	PSS_UK	PSTR_CN, PSCG_CN, REPORT_YEAR	N/A
Foreign	PSS_PSCG_FK	PSCG_CN	POP_STAT_SAMP.PSCG_CN = POP_SAMPLE_CONSTRAINT_GROUP.CN

#### 4.7.1 SAMPLE\_NAME

**Statistical sample name.** The name assigned to the statistical sample. This name functions as a unique identifier (e.g., Houston, TX 2017 All Plots; San Diego, CA 2017 Invasive Plot Sample).

#### 4.7.2 REPORT\_YEAR

**Reporting year.** The reporting year for which the sample was built. This includes the most recent visits to all qualifying plots as of this reporting year.

#### 4.7.3 POPULATION\_NAME

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

**4.7.4 POPULATION\_STRUCTURE\_VERSION**

**Population structure version.** The version of the target population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

**4.7.5 DESCRIPTION**

**Statistical sample description.** A brief summary description of the statistical sample. It typically includes the purpose of the sample, the targeted population and time frame, and any special qualities about the sample to which the analyst should be informed.

**4.7.6 CN**

**Population statistical sample sequence number.** A unique sequence number used to identify the population statistical sample record (in POP\_STAT\_SAMP).

**4.7.7 PSTR\_CN**

**Population structure sequence number.** A unique sequence number used to identify the target population structure.

**4.7.8 PSCG\_CN**

**Population sample constraint group sequence number.** Foreign key linking the population statistical sample record to the population sample constraint group record (POP\_STAT\_SAMP.PSCG\_CN = POP\_SAMPLE\_CONSTRAINT\_GROUP.CN).

## 4.8 Population Statistical Sample Attribute Assignment Table

**Oracle table name: POP\_STAT\_SAMP\_ATTRIBUTE\_ASSGN**

The purpose of the **POP\_STAT\_SAMP\_ATTRIBUTE\_ASSGN** table is to store the assignment of population attributes available for estimation to statistical samples. Characteristics of the population attribute (e.g., ADJUSTMENT\_EXPRESSION) are also stored for the convenience of the user. The full list of population attributes can be found in the [POP\\_ATTRIBUTE](#) table.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.8.1	SAMPLE_NAME	Statistical sample name	VARCHAR2(50)
4.8.2	REPORT_YEAR	Reporting year	NUMBER(4)
4.8.3	ATTRIBUTE_NAME	Population attribute name	VARCHAR2(200)
4.8.4	CALCULATION_NAME	Calculation name	VARCHAR2(50)
4.8.5	ADJUSTMENT_EXPRESSION	Adjustment expression	VARCHAR2(250)
4.8.6	REQUIRED_SAMPLE_CONSTRAINT	Required sample constraint	VARCHAR2(30)
4.8.7	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.8.8	CN	Population statistical sample attribute assignment sequence number	INTEGER
4.8.9	PSS_CN	Population statistical sample sequence number	INTEGER
4.8.10	PATTR_CN	Population attribute sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSSAA_PK	CN	N/A
Unique	PSSAA_UK	PSS_CN, PATTR_CN	N/A
Foreign	PSSAA_PSS_FK	PSS_CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN.PSS_CN = POP_STAT_SAMP.CN
Foreign	PSSAA_PATTR_FK	PATTR_CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN.PATTR_CN = POP_ATTRIBUTE.CN

### 4.8.1 SAMPLE\_NAME

**Statistical sample name.** The name assigned to the statistical sample. This name functions as a unique identifier (e.g., Houston, TX 2017 Fully Sampled; San Diego, CA 2017 Invasive Plot Sample).

**4.8.2 REPORT\_YEAR**

**Reporting year.** The reporting year for which the sample was built. This includes the most recent visits to all qualifying plots as of this reporting year.

**4.8.3 ATTRIBUTE\_NAME**

**Population attribute name.** A descriptive name for the population attribute (e.g., Total Trees, Total above ground biomass, Total Electricity Use Avoided).

**4.8.4 CALCULATION\_NAME**

**Calculation name.** A descriptive name for the calculation (e.g., Dry Total Biomass, Electricity Use Avoided, Proportion Tree Cover).

**4.8.5 ADJUSTMENT\_EXPRESSION**

**Adjustment expression.** An expression showing the appropriate stratum adjustment to make when computing an estimate of the population attribute using the FIA stratified estimator. This adjustment compensates for nonresponse in the sample.

**4.8.6 REQUIRED\_SAMPLE\_CONSTRAINT**

**Required sample constraint.** The sample constraint required to estimate the population attribute (e.g., SAMPLED). See [POP\\_SAMPLE\\_CONSTRAINT](#) table.

**4.8.7 DOMAIN\_TYPE**

**Population domain type.** A classifier identifying the domain type of the population (e.g., LAND, TREE, SEEDLING). The domain type identifies the segment of the population that is being described.

**4.8.8 CN**

**Population statistical sample attribute assignment sequence number.** A unique sequence number used to identify the population statistical sample attribute assignment record (in POP\_STAT\_SAMP\_ATTRIBUTE\_ASSGN).

**4.8.9 PSS\_CN**

**Population statistical sample sequence number.** Foreign key linking the population statistical sample attribute assignment record to the population statistical sample record (POP\_STAT\_SAMP\_ATTRIBUTE\_ASSGN.PSS\_CN = POP\_STAT\_SAMP.CN).

**4.8.10 PATTR\_CN**

**Population attribute sequence number.** Foreign key linking the population statistical sample attribute assignment record to the population attribute record (POP\_STAT\_SAMP\_ATTRIBUTE\_ASSGN.PATTR\_CN = POP\_ATTRIBUTE.CN).

## 4.9 Population Statistical Sample Domain Assignment Table

**Oracle table name: POP\_STAT\_SAMP\_DOMAIN\_ASSGN**

The purpose of the **POP\_STAT\_SAMP\_DOMAIN\_ASSGN** table is to store the assignment of population domains to statistical samples. **Population domains** are subgroups within the population that are of interest or for which a separate estimate is desired. Population domains can be defined geographically (e.g., a particular county) or by properties of a particular population entity (e.g., live trees at least 5 inches in diameter). It is impossible to define all possible domains and their relation to a statistical sample. This table focuses on important domains that have special significance within the inventory program. Characteristics of the population domain (e.g., EXPRESSION) are also included in this table for the convenience of the user. The full list of population domains can be found in the [POP\\_DOMAIN](#) table.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.9.1	SAMPLE_NAME	Statistical sample name	VARCHAR2(50)
4.9.2	REPORT_YEAR	Reporting year	NUMBER(4)
4.9.3	DOMAIN_NAME	Population domain name	VARCHAR2(50)
4.9.4	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.9.5	EXPRESSION	Population domain expression	VARCHAR2(2000)
4.9.6	CN	Population statistical sample domain assignment sequence number	INTEGER
4.9.7	PSS_CN	Population statistical sample sequence number	INTEGER
4.9.8	PDOM_CN	Population domain sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSSDA_PK	CN	N/A
Unique	PSSDA_UK	PSS_CN, PDOM_CN	N/A
Foreign	PSSDA_PSS_FK	PSS_CN	POP_STAT_SAMP_DOMAIN_ASSGN.PSS_CN = POP_STAT_SAMP.CN
Foreign	PSSDA_PDOM_FK	PDOM_CN	POP_STAT_SAMP_DOMAIN_ASSGN.PDOM_CN = POP_DOMAIN.CN

### 4.9.1 SAMPLE\_NAME

**Statistical sample name.** The name assigned to the statistical sample. This name functions as a unique identifier (e.g., Houston, TX 2017 Fully Sampled; San Diego, CA 2017 Invasive Plot Sample).

**4.9.2 REPORT\_YEAR**

**Reporting year.** The reporting year for which the sample was built. This includes the most recent visits to all qualifying plots as of this reporting year.

**4.9.3 DOMAIN\_NAME**

**Population domain name.** A descriptive name for the population domain (e.g., Sampled Land, Live Seedling, Invasive Plant Species).

**4.9.4 DOMAIN\_TYPE**

**Population domain type.** A classifier identifying the domain type of the population (e.g., LAND, TREE, SEEDLING). The domain type identifies the segment of the population that is being described.

**4.9.5 EXPRESSION**

**Population domain expression.** A SQL expression that identifies the population domain when placed in the WHERE clause of a SQL expression.

**4.9.6 CN**

**Population statistical sample domain assignment sequence number.** A unique sequence number used to identify the population statistical sample domain assignment record (in POP\_STAT\_SAMP\_DOMAIN\_ASSGN).

**4.9.7 PSS\_CN**

**Population statistical sample sequence number.** Foreign key linking the population statistical sample domain assignment record to the population statistical sample record (POP\_STAT\_SAMP\_DOMAIN\_ASSGN.PSS\_CN = POP\_STAT\_SAMP.CN).

**4.9.8 PDOM\_CN**

**Population domain sequence number.** Foreign key linking the population statistical sample domain assignment record to the population domain record (POP\_STAT\_SAMP\_DOMAIN\_ASSGN.PDOM\_CN = POP\_DOMAIN.CN).

## 4.10 Population Stratum Calculation Table

### Oracle table name: POP\_STRATUM\_CALC

The purpose of the **POP\_STRATUM\_CALC** table is to store the information required to support an FIA evaluation.

An **evaluation** is an FIA convention that is defined as the unique combination of a statistical sample and a stratification of the target population for the purpose of producing estimates of a specific set of population attributes at a given point in time. Evaluations are uniquely identified by an EVALID: an alpha-numeric identifier. This information is bundled together in an evaluation and used to produce sample-based estimates using the FIA stratified estimator.

Information in this table is presented in a three-tier structure representing the population, estimation unit, and stratum levels. Target populations are divided into one or more independent subpopulations called **estimation units**. These are then divided into one or more strata. **Strata** are nonoverlapping subdivisions of the estimation unit such that each primary sampling unit is assigned to one and only one subdivision (or stratum). The relative sizes of these strata are used to compute strata weights.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.10.1	EVALID	Evaluation identifier	VARCHAR2(20)
4.10.2	EVAL_NAME	Evaluation name	VARCHAR2(50)
4.10.3	REPORT_YEAR	Reporting year	NUMBER(4)
4.10.4	POPULATION_NAME	Population name	VARCHAR2(50)
4.10.5	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
4.10.6	POPULATION_ACRES	Population acres	NUMBER
4.10.7	POPULATION_POINT_COUNT	Population point count	NUMBER
4.10.8	POPULATION_PLOT_COUNT	Population plot count	NUMBER
4.10.9	ESTN_UNIT_NAME	Estimation unit name	VARCHAR2(70)
4.10.10	ESTN_UNIT_ACRES	Estimation unit acres	NUMBER
4.10.11	ESTN_UNIT_POINT_COUNT	Estimation unit point count	NUMBER(12)
4.10.12	ESTN_UNIT_PLOT_COUNT	Estimation unit plot count	NUMBER(6)
4.10.13	STRATUM_NAME	Stratum name	VARCHAR2(50)
4.10.14	STRATUM_LABEL	Stratum label	VARCHAR2(15)
4.10.15	STRATUM_ACRES	Stratum acres	NUMBER
4.10.16	STRATUM_POINT_COUNT	Stratum point count	NUMBER(12)
4.10.17	STRATUM_PLOT_COUNT	Stratum plot count	NUMBER(4)
4.10.18	EXPNS	Stratum expansion factor	NUMBER
4.10.19	STRATUM_WEIGHT	Stratum weight	NUMBER
4.10.20	STRATUM_SOURCE	Stratum source	VARCHAR2(100)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.10.21	STRATUM_SUBPLOT_ADJ_FACTOR	Stratum subplot adjustment factor	NUMBER
4.10.22	STRATUM_MICROPLOT_ADJ_FACTOR	Stratum microplot adjustment factor	NUMBER
4.10.23	EVAL_DESCRIPTION	Evaluation description	VARCHAR2(2000)
4.10.24	STRATUM_DESCRIPTION	Stratum description	VARCHAR2(2000)
4.10.25	PE_CN	Population statistical evaluation sequence number	INTEGER
4.10.26	PSS_CN	Population statistical sample sequence number	INTEGER
4.10.27	PEU_CN	Population estimation unit sequence number	INTEGER
4.10.28	PSTREL_CN	Population structure element sequence number	INTEGER
4.10.29	PS_CN	Population stratum sequence number	INTEGER
4.10.30	CN	Population stratum calculation sequence number	INTEGER
4.10.31	EVAL_GRP_ID	Evaluation group identifier	VARCHAR2(20)
4.10.32	EVAL_GRP_NAME	Evaluation group name	VARCHAR2(50)
4.10.33	EVAL_GRP_LABEL	Evaluation group label	VARCHAR2(20)
4.10.34	PEG_CN	Evaluation group sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSC_PK	CN	N/A
Unique	PSC_UK	EVALID, POPULATION_NAME, POPULATION_STRUCTURE_VERSION, ESTN_UNIT_NAME, STRATUM_NAME	N/A
Foreign	PSC_PSS_FK	PSS_CN	POP_STRATUM_CALC.PSS_CN = POP_STAT_SAMP.CN
Foreign	PSC_PSTREL_FK	PSTREL_CN	POP_STRATUM_CALC.PSTREL_CN = SO_POP_STRUCT_ELMT.CN

#### 4.10.1 EVALID

**Evaluation identifier.** A short and descriptive name given to an evaluation that functions as a unique identifier (e.g., Houston2017All, Houston2017Curr). This name is an alpha-numeric identifier that typically follows a pattern of Population-Reporting year-Evaluation type.

**Note:** Users familiar with the FIADB data structure, which is used for the NFI, will notice a difference in EVALIDs. In the FIADB for the NFI, the EVALID is composed of a concatenation of STATECD (2 digits), reporting year (last 2 digits), and a numeric code

indicating the evaluation type (2 digits). Urban inventories, however, do not have 2-digit codes similar to STATECD. Rather than attempt to replicate this, the name uses a more flexible verbal style.

#### 4.10.2 **EVAL\_NAME**

**Evaluation name.** A descriptive name used to identify the evaluation and its purpose (e.g., Houston, TX 2017 All Area; San Diego, CA 2017 Current Estimates).

#### 4.10.3 **REPORT\_YEAR**

**Reporting year.** The year in which the estimates generated by the evaluation are reported. Annualized inventories collect portions of the overall sample each year and produce updated estimates using the newest data. In these cases, the reporting year indicates the year of the most recent data. Data from previous inventory years are also included, so that the entire sample is involved in making estimates.

#### 4.10.4 **POPULATION\_NAME**

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

#### 4.10.5 **POPULATION\_STRUCTURE\_VERSION**

**Population structure version.** The version of the population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

#### 4.10.6 **POPULATION\_ACRES**

**Population acres.** The area within the population in acres.

#### 4.10.7 **POPULATION\_POINT\_COUNT**

**Population point count.** The count of points within the population. These are typically the count of pixels from the remote-sensing product used to stratify the population. In older products, they can be photo interpretation points used to estimate stratum weights.

#### 4.10.8 **POPULATION\_PLOT\_COUNT**

**Population plot count.** The count of plots (primary sampling points) within the population.

#### 4.10.9 **ESTN\_UNIT\_NAME**

**Estimation unit name.** The name of the estimation unit (e.g., City of Houston, TX; City of San Antonio, TX). An estimation unit is a particular geographic area for which a particular computation applies. Estimation units are determined by a combination of sampling intensity and geographical boundaries.

#### 4.10.10 **ESTN\_UNIT\_ACRES**

**Estimation unit acres.** The area of the entire estimation unit in acres.

#### 4.10.11 **ESTN\_UNIT\_POINT\_COUNT**

**Estimation unit point count.** The count of points within the entire estimation unit. These are typically the count of pixels from the remote-sensing product used to stratify the

population. In older products, they can be photo interpretation points used to estimate stratum weights.

#### 4.10.12 **ESTN\_UNIT\_PLOT\_COUNT**

**Estimation unit plot count.** The count of plots (primary sampling points) within the entire estimation unit.

#### 4.10.13 **STRATUM\_NAME**

**Stratum name.** The name of the stratum within the estimation unit (e.g., A, B, C). This name functions as a unique identifier for the stratum.

#### 4.10.14 **STRATUM\_LABEL**

**Stratum label.** A short label that can be used to identify the stratum on reports (e.g., Forest, Dev-High, Shrub/Veg).

#### 4.10.15 **STRATUM\_ACRES**

**Stratum acres.** The area of the stratum within the estimation unit in acres.

#### 4.10.16 **STRATUM\_POINT\_COUNT**

**Stratum point count.** The count of points within the stratum. These are typically the count of pixels from the remote-sensing product used to stratify the population. In older products, they can be photo interpretation points used to estimate stratum weights.

#### 4.10.17 **STRATUM\_PLOT\_COUNT**

**Stratum plot count.** The count of plots (primary sampling points) within the stratum.

#### 4.10.18 **EXPNS**

**Stratum expansion factor.** The expansion factor applied to all plots assigned to the stratum within the statistical sample. The units of the expansion factor are acres per plot. This is a critical component for the FIA stratified estimator for producing population-attribute estimates and sampling errors. This value is a function of the specific statistical sample used to build the evaluation.

#### 4.10.19 **STRATUM\_WEIGHT**

**Stratum weight.** The stratum weight presented as a proportion.

#### 4.10.20 **STRATUM\_SOURCE**

**Stratum source.** The source of the stratification information.

#### 4.10.21 **STRATUM\_SUBPLOT\_ADJ\_FACTOR**

**Stratum subplot adjustment factor.** An adjustment factor for the subplot footprint used to adjust population estimates to account for nonsampled plots or portions of plots. It is computed as the inverse of the ratio of the total area of subplots sampled to the total area of subplots that were possible to sample. Using the adjustment factor is intended to minimize a potential bias in estimates caused by nonresponse and assumes that areas not sampled can be represented by the stratum mean of the areas that were sampled. This adjustment factor is used with any population estimates of elements sampled on subplots, such as trees ( $DIA \geq 5$ ) or area estimates.

**4.10.22 STRATUM\_MICROPLOT\_ADJ\_FACTOR**

**Stratum microplot adjustment factor.** An adjustment factor for the microplot footprint used to adjust population estimates to account for nonsampled plots or portions of plots. It is computed as the inverse of the ratio of the total area of microplots sampled to the total area of microplots that were possible to sample. Using the adjustment factor is intended to minimize a potential bias in estimates caused by nonresponse and assumes that areas not sampled can be represented by the stratum mean of the areas that were sampled. This adjustment factor is used with any population estimates of elements sampled on microplots, such as saplings (trees with  $1 \geq \text{DIA} < 5$ ).

**4.10.23 EVAL\_DESCRIPTION**

**Evaluation description.** A brief summary description of the evaluation, the population it targets, and the purpose.

**4.10.24 STRATUM\_DESCRIPTION**

**Stratum description.** A description of the stratum within the statistical sample.

**4.10.25 PE\_CN**

**Population statistical evaluation sequence number.** A unique sequence number used to identify the population statistical evaluation.

**4.10.26 PSS\_CN**

**Population statistical sample sequence number.** A unique sequence number used to identify the population statistical sample. This attribute is a foreign key linking the population stratum calculation record to the population statistical sample record (POP\_STRATUM\_CALC.PSS\_CN = POP\_STAT\_SAMP.CN).

**4.10.27 PEU\_CN**

**Population estimation unit sequence number.** A unique sequence number used to identify the population estimation unit.

**4.10.28 PSTREL\_CN**

**Population structure element sequence number.** A unique sequence number used to identify the population structure element that defines the population estimation unit. This attribute is a foreign key linking the population stratum calculation record to the population structure element record (POP\_STRATUM\_CALC.PSTREL\_CN = SO\_POP\_STRUCT\_ELMNT.CN).

**4.10.29 PS\_CN**

**Population stratum sequence number.** A unique sequence number used to identify the population stratum.

**4.10.30 CN**

**Population stratum calculation sequence number.** A unique sequence number used to identify the population stratum calculation record (in POP\_STRATUM\_CALC). Each record represents a unique combination of a statistical sample and stratum.

**4.10.31 EVAL\_GRP\_ID**

**Evaluation group identifier.** A unique identifier for the evaluation group.

**4.10.32 EVAL\_GRP\_NAME**

**Evaluation group name.** A descriptive name used to identify the evaluation group and its purpose.

**4.10.33 EVAL\_GRP\_LABEL**

**Evaluation group label.** A short label for the evaluation group that can be used in reporting outputs. Labels are purely descriptive and contain no information not already present in the other attributes for the evaluation group.

**4.10.34 PEG\_CN**

**Evaluation group sequence number.** A unique sequence number used to identify the evaluation group.

Section revision: 09.02.2024

# Chapter 5: Table Group - Population Model

**(DROP IN FUTURE RELEASE)**

## **ALERT**

- The Population Model (MOD) tables in this chapter will be dropped in a future release.
- The columns in these tables will be replaced with new tree-level attributes; these attributes are in preparation and have been added to the ID\_MOTHER\_TREE table structure.

This chapter provides a detailed description of each table in the **Population Model** table group.

## **Chapter Contents:**

Section	Database table	Oracle table name
5.1	Model Pollution Health Factor Table	MOD_POLLUTION_HEALTH_FCTR
5.2	Model Pollution Removal Table	MOD_POLLUTION_REMOVAL
5.3	Model Rainfall Table	MOD_RAINFALL
5.4	Model Volatile Organic Compound (VOC) Emissions Table	MOD_VOC_EMISSION

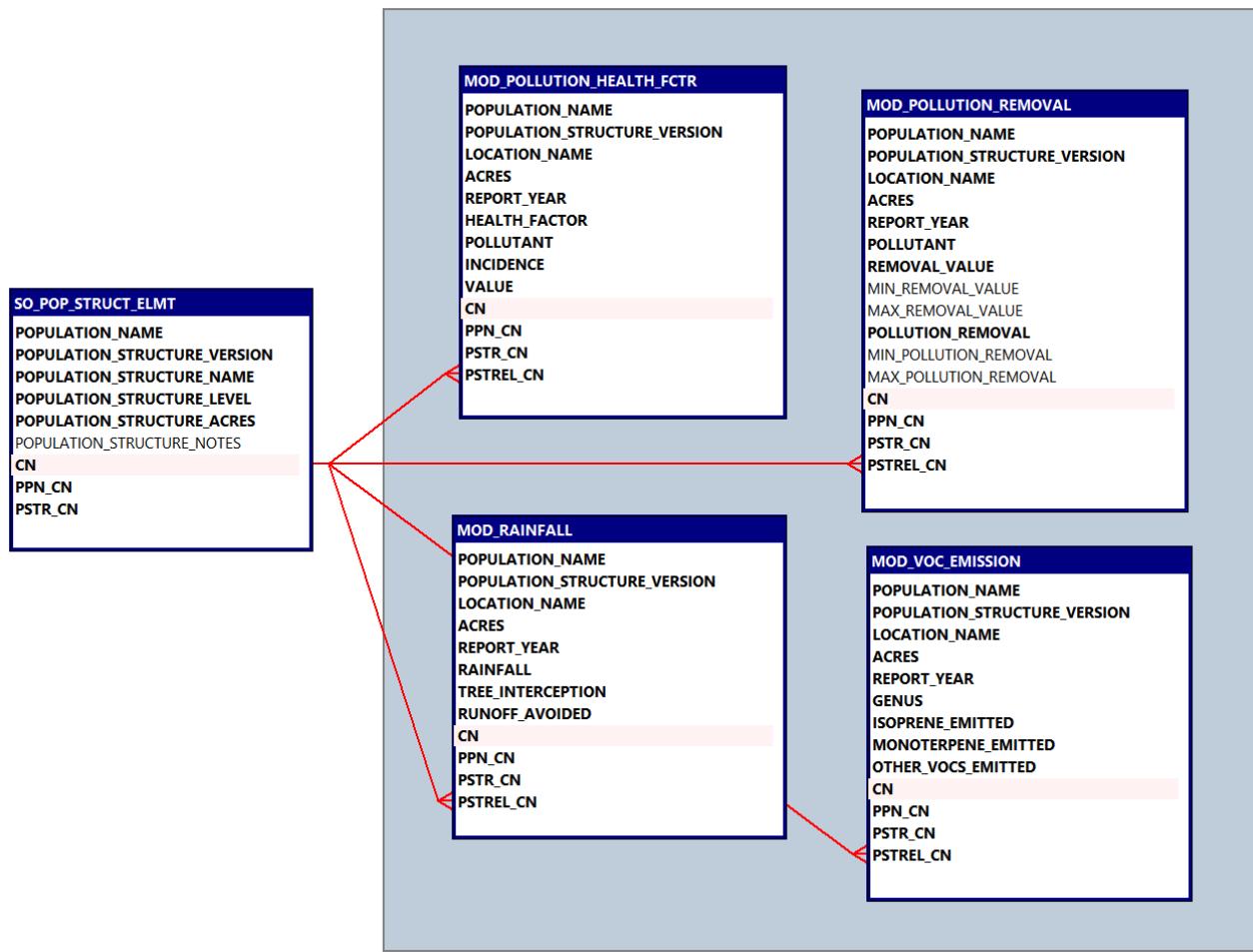
## **Overview: Table Group - Population Model**

### **Prefix: MOD\_**

The **Population Model** table group stores output from various computer models that estimate properties of the urban forest at the population level. These model outputs are unique to the urban inventory and have no counterpart within the FIADB used for the NFI. These models make use of inputs from various sources including, but not limited to, climate/meteorological data, pollution flux data, economic data, and population estimates derived from inventory data. These data must be treated differently than other data when used for custom analyses.

The model output is generated for defined geographic areas within the population being studied. The specific geographic area is defined within the population structure (stored in the [SO\\_POP\\_STRUCT\\_ELMT](#) table). Foreign keys are used to link model output to the associated population structure element. The REPORT\_YEAR attribute describes the time period for which the estimates are representative.

Figure 5-1 shows an Entity Relationship Diagram (ERD) for the Population Model table group.



**Figure 5-1:** Population model table group.

## 5.1 Model Pollution Health Factor Table

**Oracle table name: MOD\_POLLUTION\_HEALTH\_FCTR**

**Alert: DROP IN FUTURE RELEASE**

The purpose of the **MOD\_POLLUTION\_HEALTH\_FCTR** table is to store output from the i-Tree Health Effects model. This model estimates the number of incidents avoided and the associated dollar value of several health factors related to four major pollutants: NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub>, and PM2.5 (see table below).

Urban forests affect the level of these pollutants by acting as an air filter. Specifically, the leaf area of tree canopies filters these pollutants from the air. Due to this relationship, the population-level model output can be allocated across population domains of interest in proportion to the amount of leaf area in the domain of interest.

Pollutant	Description
NO <sub>2</sub>	Nitrogen dioxide.
SO <sub>2</sub>	Sulfur dioxide.
O <sub>3</sub>	Ozone.
PM25	Particulate matter ≤2.5 micrometers (μm).

Subsection	Column name (attribute)	Descriptive name	Oracle data type
5.1.1	POPULATION_NAME	Population name	VARCHAR2(50)
5.1.2	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
5.1.3	LOCATION_NAME	Location name	VARCHAR2(70)
5.1.4	ACRES	Area in acres	NUMBER
5.1.5	REPORT_YEAR	Reporting year	NUMBER(4)
5.1.6	HEALTH_FACTOR	Health factor	VARCHAR2(50)
5.1.7	POLLUTANT	Pollutant	VARCHAR2(30)
5.1.8	INCIDENCE	Incidence	NUMBER
5.1.9	VALUE	Pollutant health factor value	NUMBER
5.1.10	CN	Pollution health factor sequence number	INTEGER
5.1.11	PPN_CN	Population sequence number	INTEGER
5.1.12	PSTR_CN	Population structure sequence number	INTEGER
5.1.13	PSTREL_CN	Population structure element sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	MPHF_PK	CN	N/A
Unique	MPHF_UK	POPULATION_NAME, POPULATION_STRUCTURE _VERSION, LOCATION_NAME, POLLUTANT, HEALTH_FACTOR, REPORT_YEAR	N/A
Foreign	MPHF_PSTREL_FK	PSTREL_CN	MOD_POLLUTION_HEALTH_FCTR.PSTREL_CN = SO_POP_STRUCT_ELMT.CN

### 5.1.1 **POPULATION\_NAME**

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

### 5.1.2 **POPULATION\_STRUCTURE\_VERSION**

**Population structure version.** The version of the population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

### 5.1.3 **LOCATION\_NAME**

**Location name.** The name of the location for which estimates are presented.

### 5.1.4 **ACRES**

**Area in acres.** The area of the location in acres.

### 5.1.5 **REPORT\_YEAR**

**Reporting year.** The year for which the estimates generated by the model apply. The computer models generating these estimates are complex and require inputs from various sources that change over time, such as demographics or inventory data. Organizing model output by reporting year allows the same model to be applied over time using updated inputs as they become available.

### 5.1.6 **HEALTH\_FACTOR**

**Health factor.** The adverse health factor described by the model (e.g., Acute Respiratory Symptoms, Asthma Exacerbation, Hospital Admissions).

### 5.1.7 **POLLUTANT**

**Pollutant.** The pollutant being described.

#### Codes: POLLUTANT

Code	Description
NO2	Nitrogen dioxide.
SO2	Sulfur dioxide.

<b>Code</b>	<b>Description</b>
O3	Ozone.
PM25	Particulate matter ≤2.5 micrometers ( $\mu\text{m}$ ).

**5.1.8 INCIDENCE**

**Incidence.** The number of cases avoided per year attributable to the reduction of the pollutant. Positive values represent cases avoided due to pollution reduction. Negative values represent cases incurred due to pollution reduction.

**5.1.9 VALUE**

**Pollutant health factor value.** The total value, in dollars per year, of cases avoided attributable to the reduction of the pollutant. Positive values represent the cost in treatment and lost productivity avoided as a result of pollution reduction. Negative values represent costs incurred as a result of pollution reduction.

**5.1.10 CN**

**Pollution health factor sequence number.** A unique sequence number used to identify the pollution health factor record (in MOD\_POLLUTION\_HEALTH\_FCTR).

**5.1.11 PPN\_CN**

**Population sequence number.** A unique sequence number used to identify the population record (see SO\_POP\_STRUCT\_ELMT.[PPN\\_CN](#)).

**5.1.12 PSTR\_CN**

**Population structure sequence number.** A unique sequence number used to identify the population structure record (see SO\_POP\_STRUCT\_ELMT.[PSTR\\_CN](#)).

**5.1.13 PSTREL\_CN**

**Population structure element sequence number.** Foreign key linking the pollution health factor record to the population structure element record (MOD\_POLLUTION\_HEALTH\_FCTR.PSTREL\_CN = SO\_POP\_STRUCT\_ELMT.[CN](#)).



## 5.2 Model Pollution Removal Table

**Oracle table name: MOD\_POLLUTION\_REMOVAL**

**Alert: DROP IN FUTURE RELEASE**

The purpose of the **MOD\_POLLUTION\_REMOVAL** table is to store estimates from a computer model that indicates the quantity and associated value of pollution reduction by urban forests. The four pollutants evaluated by the model are NO<sub>2</sub>, SO<sub>2</sub>, O<sub>3</sub> and PM25, which are defined by the table below. Urban forests affect the level of these pollutants by acting as an air filter. Specifically, the leaf area of tree canopies filters these pollutants from the air. Due to this relationship the population-level model output can be allocated across population domains of interest in proportion to the amount of leaf area in the domain of interest.

Pollutant	Description
NO <sub>2</sub>	Nitrogen dioxide.
SO <sub>2</sub>	Sulfur dioxide.
O <sub>3</sub>	Ozone.
PM25	Particulate matter <2.5 micrometers ( $\mu\text{m}$ ).

Subsection	Column name (attribute)	Descriptive name	Oracle data type
5.2.1	POPULATION_NAME	Population name	VARCHAR2(50)
5.2.2	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
5.2.3	LOCATION_NAME	Location name	VARCHAR2(70)
5.2.4	ACRES	Area in acres	NUMBER
5.2.5	REPORT_YEAR	Reporting year	NUMBER(4)
5.2.6	POLLUTANT	Pollutant	VARCHAR2(30)
5.2.7	REMOVAL_VALUE	Pollutant removal value	NUMBER
5.2.8	MIN_REMOVAL_VALUE	Minimum pollutant removal value	NUMBER
5.2.9	MAX_REMOVAL_VALUE	Maximum pollutant removal value	NUMBER
5.2.10	POLLUTION_REMOVAL	Pollutant removal	NUMBER
5.2.11	MIN_POLLUTION_REMOVAL	Minimum pollutant removal	NUMBER
5.2.12	MAX_POLLUTION_REMOVAL	Maximum pollutant removal	NUMBER
5.2.13	CN	Pollution removal sequence number	INTEGER
5.2.14	PPN_CN	Population sequence number	INTEGER
5.2.15	PSTR_CN	Population structure sequence number	INTEGER
5.2.16	PSTREL_CN	Population structure element sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	MPR_PK	CN	N/A
Unique	MPR_UK	POPULATION_NAME, POPULATION_STRUCTURE _VERSION, LOCATION_NAME, POLLUTANT, REPORT_YEAR	N/A
Foreign	MPR_PSTREL_FK	PSTREL_CN	MOD_POLLUTION_REMOVAL.PSTREL_CN = SO_POP_STRUCT_ELMT.CN

### 5.2.1 POPULATION\_NAME

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

### 5.2.2 POPULATION\_STRUCTURE\_VERSION

**Population structure version.** The version of the population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

### 5.2.3 LOCATION\_NAME

**Location name.** The name of the location for which estimates are presented.

### 5.2.4 ACRES

**Area in acres.** The area of the location in acres.

### 5.2.5 REPORT\_YEAR

**Reporting year.** The year for which the estimates generated by the model apply. The computer models generating these estimates are complex and require inputs from various sources that change over time, such as demographics or inventory data. Organizing model output by reporting year allows the same model to be applied over time using updated inputs as they become available.

### 5.2.6 POLLUTANT

**Pollutant.** The pollutant being described.

**Codes: POLLUTANT**

Code	Description
NO2	Nitrogen dioxide.
SO2	Sulfur dioxide.
O3	Ozone.
PM25	Particulate matter $\leq 2.5$ micrometers ( $\mu\text{m}$ ).

**5.2.7 REMOVAL\_VALUE**

**Pollutant removal value.** The total economic value, in dollars per year, of the change in pollutant concentration. Positive values indicate a cost savings due to fewer hospitalizations and other economic indicators. Negative values indicate a cost incurred.

**5.2.8 MIN\_REMOVAL\_VALUE**

**Minimum pollutant removal value.** The minimum pollution removal economic value, in dollars per year. The minimum is estimated based on a minimum dry deposition velocity of pollutants. The minimum velocity is used to derive estimates of minimum economic value. This value is not the model error. It does provide, however, some measure of uncertainty in the overall value of pollution reduction.

**5.2.9 MAX\_REMOVAL\_VALUE**

**Maximum pollutant removal value.** The maximum removal economic value, in dollars per year. The maximum is estimated based on a maximum dry deposition velocity of pollutants. The maximum velocity is used to derive estimates of maximum economic value. This value is not the model error. It does, however, provide some measure of uncertainty in the overall value of pollution reduction.

**5.2.10 POLLUTION\_REMOVAL**

**Pollutant removal.** The quantity of current pollutant, in tons per year, removed from the air by urban forests. Positive values indicate a reduction in pollution concentration. Negative values indicate an increase in pollution concentration.

**5.2.11 MIN\_POLLUTION\_REMOVAL**

**Minimum pollutant removal.** The minimum pollution removal, in tons per year. The minimum is estimated based on a minimum dry deposition velocity of pollutants. The minimum velocity is used to derive estimates of minimum pollution removal. This value is not the model error. It does provide, however, some measure of uncertainty in the overall pollution reduction.

**5.2.12 MAX\_POLLUTION\_REMOVAL**

**Maximum pollutant removal.** The maximum pollution removal, in tons per year. The maximum is estimated based on a maximum dry deposition velocity of pollutants. The maximum velocity is used to derive estimates of maximum pollution removal. This value is not the model error. It does provide, however, some measure of uncertainty in the overall pollution reduction.

**5.2.13 CN**

**Pollution removal sequence number.** A unique sequence number used to identify the pollution removal record (in MOD\_POLLUTION\_REMOVAL).

**5.2.14 PPN\_CN**

**Population sequence number.** A unique sequence number used to identify the population record (see SO\_POP\_STRUCT\_ELMT.[PPN\\_CN](#)).

**5.2.15 PSTR\_CN**

**Population structure sequence number.** A unique sequence number used to identify the population structure record (see SO\_POP\_STRUCT\_ELMT.[PSTR\\_CN](#)).

**5.2.16 PSTREL\_CN**

**Population structure element sequence number.** Foreign key linking the pollution removal record to the population structure element record (MOD POLLUTION REMOVAL.PSTREL\_CN = SO\_POP\_STRUCT\_ELMT.CN).

## 5.3 Model Rainfall Table

**Oracle table name: MOD\_RAINFALL**

**Alert: DROP IN FUTURE RELEASE**

The purpose of the **MOD\_RAINFALL** table is to store output from a computer model that estimates the amount of rainfall intercepted by urban forest tree canopies as well as the volume of runoff avoided. Urban tree canopies intercept rainfall in proportion to the amount of leaf area in the canopy. Due to this relationship, the population-level model output can be allocated across population domains of interest in proportion to the amount of leaf area in the domain of interest.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
5.3.1	POPULATION_NAME	Population name	VARCHAR2(50)
5.3.2	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
5.3.3	LOCATION_NAME	Location name	VARCHAR2(70)
5.3.4	ACRES	Area in acres	NUMBER
5.3.5	REPORT_YEAR	Reporting year	NUMBER(4)
5.3.6	RAINFALL	Rainfall	NUMBER
5.3.7	TREE_INTERCEPTION	Tree interception	NUMBER
5.3.8	RUNOFF_AVOIDED	Runoff avoided	NUMBER
5.3.9	CN	Rainfall sequence number	INTEGER
5.3.10	PPN_CN	Population sequence number	INTEGER
5.3.11	PSTR_CN	Population structure sequence number	INTEGER
5.3.12	PSTREL_CN	Population structure element sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	MR_PK	CN	N/A
Unique	MR_UK	POPULATION_NAME, POPULATION_STRUCTURE _VERSION, LOCATION_NAME, REPORT_YEAR	N/A
Foreign	MR_PSTREL_FK	PSTREL_CN	MOD_RAINFALL.PSTREL_CN = SO_POP_STRUCT_ELMT.CN

### 5.3.1 POPULATION\_NAME

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

**5.3.2 POPULATION\_STRUCTURE\_VERSION**

**Population structure version.** The version of the population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

**5.3.3 LOCATION\_NAME**

**Location name.** The name of the location for which estimates are presented.

**5.3.4 ACRES**

**Area in acres.** The area of the location in acres.

**5.3.5 REPORT\_YEAR**

**Reporting year.** The year for which the estimates generated by the model apply. The computer models generating these estimates are complex and require inputs from various sources that change over time, such as demographics or inventory data. Organizing model output by reporting year allows the same model to be applied over time using updated inputs as they become available.

**5.3.6 RAINFALL**

**Rainfall.** The volume of rainfall, in cubic feet per year, on the target geographic area for the reporting year.

**5.3.7 TREE\_INTERCEPTION**

**Tree interception.** The volume of rainfall, in cubic feet per year, intercepted by tree canopies on the target geographic area for the reporting year.

**5.3.8 RUNOFF\_AVOIDED**

**Runoff avoided.** The volume of runoff, in cubic feet per year, avoided due to the mitigating influence of urban forests.

**5.3.9 CN**

**Rainfall sequence number.** A unique sequence number used to identify the rainfall record (in MOD\_RAINFALL).

**5.3.10 PPN\_CN**

**Population sequence number.** A unique sequence number used to identify the population record (see SO\_POP\_STRUCT\_ELMT.[PPN\\_CN](#)).

**5.3.11 PSTR\_CN**

**Population structure sequence number.** A unique sequence number used to identify the population structure record (see SO\_POP\_STRUCT\_ELMT.[PSTR\\_CN](#)).

**5.3.12 PSTREL\_CN**

**Population structure element sequence number.** Foreign key linking the rainfall record to the population structure element record (MOD\_RAINFALL.PSTREL\_CN = SO\_POP\_STRUCT\_ELMT.[CN](#)).

## 5.4 Model Volatile Organic Compound (VOC) Emissions Table

Oracle table name: MOD\_VOC\_EMISsion

**Alert: DROP IN FUTURE RELEASE**

The purpose of the **MOD\_VOC\_EMISsion** table is to store estimates of Volatile Organic Compound (VOC) emissions. Estimates of VOC emissions are produced by a computer model. VOC emission is correlated with the amount of leaf biomass. Further, different genera of trees emit different levels of VOCs. Therefore, the model produces VOC emission estimates by tree genus. Model outputs can be allocated across population domains of interest by computing the proportion of leaf biomass (by tree genus) occurring in the domain of interest and multiplying it by the model output for each genus.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
5.4.1	POPULATION_NAME	Population name	VARCHAR2(50)
5.4.2	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
5.4.3	LOCATION_NAME	Location name	VARCHAR2(70)
5.4.4	ACRES	Area in acres	NUMBER
5.4.5	REPORT_YEAR	Reporting year	NUMBER(4)
5.4.6	GENUS	Genus	VARCHAR2(50)
5.4.7	ISOPRENE_EMITTED	Isoprene emitted	NUMBER
5.4.8	MONOTERPENE_EMITTED	Monoterpene emitted	NUMBER
5.4.9	OTHER_VOCS_EMITTED	Other VOCs emitted	NUMBER
5.4.10	CN	VOC emissions sequence number	INTEGER
5.4.11	PPN_CN	Population sequence number	INTEGER
5.4.12	PSTR_CN	Population structure sequence number	INTEGER
5.4.13	PSTREL_CN	Population structure element sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	MVOCE_PK	CN	N/A
Unique	MVOCE_UK	POPULATION_NAME, POPULATION_STRUCTURE _VERSION, LOCATION_NAME, GENUS, REPORT_YEAR	N/A
Foreign	MVOCE_PSTREL_ FK	PSTREL_CN	MOD_VOC_EMISsion.PSTREL_CN = SO_POP_STRUCT_ELMT.CN

**5.4.1 POPULATION\_NAME**

**Population name.** The name of the target population that is under study for the project (e.g., Houston, Texas Urban Area; San Diego, CA Urban Area).

**5.4.2 POPULATION\_STRUCTURE\_VERSION**

**Population structure version.** The version of the population structure. The structure of a targeted population can change over time. When such a change is recognized by the inventory planners, the structure of the population is redefined and the version is iterated to reflect the new standard.

**5.4.3 LOCATION\_NAME**

**Location name.** The name of the location for which estimates are presented.

**5.4.4 ACRES**

**Area in acres.** The area of the location in acres.

**5.4.5 REPORT\_YEAR**

**Reporting year.** The year for which the estimates generated by the model apply. The computer models generating these estimates are complex and require inputs from various sources that change over time, such as demographics or inventory data. Organizing model output by reporting year allows the same model to be applied over time using updated inputs as they become available.

**5.4.6 GENUS**

**Genus.** The genus name associated with the tree species for which the Volatile Organic Compound (VOC) emissions are estimated.

**5.4.7 ISOPRENE\_EMITTED**

**Isoprene emitted.** The quantity of isoprene, in pounds per year, emitted by the genus of the current record.

**5.4.8 MONOTERPENE\_EMITTED**

**Monoterpene emitted.** The quantity of monoterpene, in pounds per year, emitted by the genus of the current record.

**5.4.9 OTHER\_VOCs\_EMITTED**

**Other VOCs emitted.** The quantity of other VOCs, in pounds per year, emitted by the genus of the current record. This value is not always populated by the model.

**5.4.10 CN**

**VOC emissions sequence number.** A unique sequence number used to identify the VOC emissions record (in MOD\_VOC\_EMISSION).

**5.4.11 PPN\_CN**

**Population sequence number.** A unique sequence number used to identify the population record (see SO\_POP\_STRUCT\_ELMT.[PPN\\_CN](#)).

**5.4.12 PSTR\_CN**

**Population structure sequence number.** A unique sequence number used to identify the population structure record (see SO\_POP\_STRUCT\_ELMT.[PSTR\\_CN](#)).

#### 5.4.13 PSTREL\_CN

**Population structure element sequence number.** Foreign key linking the VOC emissions record to the population structure element record (MOD\_VOC\_EMISSION.PSTREL\_CN = SO\_POP\_STRUCT\_ELMT.CN).



Section revision: 11.01.2024

# Chapter 6: Table Group - Reference Data

This chapter provides a detailed description of each table in the **Reference Data** table group.

## Chapter Contents:

Section	Database table	Oracle table name
6.1	Reference Abnormal Termination Table	REF_ABNORMAL_TERMINATION
6.2	Reference Absent Present Table	REF_ABSENT_PRESENT
6.3	Reference Bole/Stump Removed Table	REF_BOLE_STUMP_REMOVED
6.4	Reference Canopy Cover Sample Method Table	REF_CANOPY_COVER_SAMPLE_METHOD
6.5	Reference Cause of Death Table	REF_CAUSE_OF_DEATH
6.6	Reference Citation Table	REF_CITATION
6.7	Reference Condition Nonsampled Reason Table	REF_CONDITION_NONSAMPLE_REASON
6.8	Reference Condition Sampling Status Table	REF_CONDITION_SAMPLING_STATUS
6.9	Reference County Table	REF_COUNTY
6.10	Reference Cover Class Table	REF_COVER_CLASS
6.11	Reference Crown Class Table	REF_CROWN_CLASS
6.12	Reference Crown Light Exposure Table	REF_CROWN_LIGHT_EXPOSURE
6.13	Reference Damage Agent Table	REF_DAMAGE_AGENT
6.14	Reference Damage Agent Group Table	REF_DAMAGE_AGENT_GROUP
6.15	Reference Decay Class Table	REF_DECAY_CLASS
6.16	Reference Diameter Check Table	REF_DIA_CHECK
6.17	Reference Disturbance Table	REF_DISTURBANCE
6.18	Reference FIA Land Use Table	REF_FIA_LANDUSE
6.19	Reference FIA Land Use Detailed Table	REF_FIA_LANDUSE_DETAILED
6.20	Reference Forest Land Condition Status Change Table	REF_FOREST_LAND_COND_STAT_CHG

<b>Section</b>	<b>Database table</b>	<b>Oracle table name</b>
6.21	Reference Forest Type Table	REF_FOREST_TYPE
6.22	Reference Forest Type Group Table	REF_FOREST_TYPE_GROUP
6.23	Reference Horizontal Distance to Improved Road Table	REF_HORIZ_DIST_IMPRVD_ROAD
6.24	Reference Invasive Species Table	REF_INVASIVE_SPECIES
6.25	Reference Invasive Condition Sampling Status	REF_INVS_COND_SAMPLING_STATUS
6.26	Reference i-Tree Land Use Table	REF_ITREE_LANDUSE
6.27	Reference i-Tree Land Use Detailed Table	REF_ITREE_LANDUSE_DETAILED
6.28	Reference Land Cover Class Table	REF_LAND_COVER_CLASS <b>RETIRED</b>
6.29	Reference Length Method Table	REF_LENGTH_METHOD
6.30	Reference No/Yes Table	REF_NO_YES
6.31	Reference Owner Class Table	REF_OWNER_CLASS
6.32	Reference Owner Group Table	REF_OWNER_GROUP
6.33	Reference Percent Class Code Table	REF_PERCENT_CLASS_CODE
6.34	Reference Physiographic Class Table	REF_PHYSIOGRAPHIC_CLASS
6.35	Reference Plant Dictionary	REF_PLANT_DICTIONARY
6.36	Reference Plot Nonsampled Reason Table	REF_PLOT_NONSAMPLE_REASON
6.37	Reference Plot Status Table	REF_PLOT_STATUS
6.38	Reference Previous Tree Status Table	REF_PREV_TREE_STATUS
6.39	Reference Productivity Status Table	REF_PRODUCTIVITY_STATUS
6.40	Reference Reconcile Table	REF_RECONCILE
6.41	Reference Regeneration Status Table	REF_REGENERATION_STATUS
6.42	Reference Reserved Status Table	REF_RESERVED_STATUS
6.43	Reference Sample Kind Table	REF_SAMPLE_KIND
6.44	Reference Sample Method Code Table	REF_SAMPLE_METHOD_CD
6.45	Reference Seedling Maintained Area Table	REF_SEEDLING_MAINTAINED_AREA
6.46	Reference Seedling Planted Table	REF_SEEDLING_PLANTED

Section	Database table	Oracle table name
6.47	Reference Site Class Code Table	REF_SITE_CLASS_CODE
6.48	Reference Species Table	REF_SPECIES
6.49	Reference Species Group Table	REF_SPECIES_GROUP
6.50	Reference Stand-Size Class Table	REF_STAND_SIZE_CLASS
6.51	Reference Subplot Nonsampled Reason Table	REF_SUBPLOT_NONSAMPLE_REASON
6.52	Reference Subplot Status Table	REF_SUBPLOT_STATUS
6.53	Reference Treatment Table	REF_TREATMENT
6.54	Reference Tree Carbon Ratio Dead Table	REF_TREE_CARBON_RATIO_DEAD
6.55	Reference Tree Class Table	REF_TREE_CLASS
6.56	Reference Tree Decay Proportion Table	REF_TREE_DECAY_PROP
6.57	Reference Tree Density Table	REF_TREE_DENSITY
6.58	Reference Tree Planted Table	REF_TREE_PLANTED
6.59	Reference Tree Status Table	REF_TREE_STATUS
6.60	Reference Tree Standing Dead Crown Ratio Proportion Table	REF_TREE_STND_DEAD_CR_PROP
6.61	Reference Unit Table	REF_UNIT
6.62	Reference Utilization Class	REF_UTILIZATION_CLASS
6.63	Reference Water on Plot Table	REF_WATER_ON_PLOT

## Overview: Table Group - Reference Data

**Prefix:** REF\_

The **Reference Data** table group provides code descriptions and related information for various attributes in the database.

Reference data are static or semi-static data that define codes used in other table groups of the database. For example, a numeric code is used to specify the species identified by the field crew, which is more efficient for crews to record than common or scientific names. These codes can be translated back to the common or scientific name by joining to the appropriate reference data.

Most of the codes in this table group are assigned in the field by the field crew and are populated on the appropriate table in the database. These data are useful when analyzing data as well as for presenting results in tabular form.

Refer to table 6-1 for a summary list of referencing columns by reference table.

**Table 6-1:** Reference table referencing column(s).

Section	Reference table (Oracle table name)	Referencing column(s)
6.1	Reference Abnormal Termination Table (REF_ABNORMAL_TERMINATION)	<ul style="list-style-type: none"> <li>ID_TREE.ABNORMAL_STEM_TERMINATION</li> </ul>
6.2	Reference Absent Present Table (REF_ABSENT_PRESENT)	<ul style="list-style-type: none"> <li>ID_TREE.DMG_EXCESS_MULCH</li> <li>ID_TREE.DMG_IMPROPER_PLANTING</li> <li>ID_TREE.DMG_OVERHEAD_WIRES</li> <li>ID_TREE.DMG_ROOT_STEM_GIRDLING</li> <li>ID_TREE.DMG_SIDEWALK_ROOT_CONFLICT</li> <li>ID_TREE.DMG_TOPPING_PRUNING</li> <li>ID_TREE.DMG_TRUNK_BARK_INCLUSION</li> </ul>
6.3	Reference Boles/Stump Removed Table (REF_BOLE_STUMP_REMOVED)	<ul style="list-style-type: none"> <li>ID_TREE.BOLE_STUMP_REMOVED</li> </ul>
6.4	Reference Canopy Cover Sample Method Table (REF_CANOPY_COVER_SAMPLE_METHOD)	<ul style="list-style-type: none"> <li>ID_COND.CANOPY_CVR_SAMPLE_METHOD_CD</li> </ul>
6.5	Reference Cause of Death Table (REF_CAUSE_OF_DEATH)	<ul style="list-style-type: none"> <li>ID_TREE.CAUSE_OF_DEATH</li> </ul>
6.6	Reference Citation Table (REF_CITATION)	<ul style="list-style-type: none"> <li>REF_SPECIES.BARK_SPGR_GREENVOL_DRYWT_CIT</li> <li>REF_SPECIES.BARK_VOL_PCT_CIT</li> <li>REF_SPECIES.MC_PCT_GREEN_BARK_CIT</li> <li>REF_SPECIES.MC_PCT_GREEN_WOOD_CIT</li> <li>REF_SPECIES.WOOD_SPGR_GREENVOL_DRYWT_CIT</li> <li>REF_SPECIES.WOOD_SPGR_MC12VOL_DRWT_CIT</li> </ul>
6.7	Reference Condition Nonsampled Reason Table (REF_CONDITION_NONSAMPLE_REASON)	<ul style="list-style-type: none"> <li>ID_COND.COND_NONSAMPLE_REASN_CD</li> </ul>
6.8	Reference Condition Sampling Status Table (REF_CONDITION_SAMPLING_STATUS)	<ul style="list-style-type: none"> <li>ID_COND.COND_STATUS_CD</li> </ul>
6.9	Reference County Table (REF_COUNTY)	<ul style="list-style-type: none"> <li>ID_BUILDING_INTERACTION.COUNTYCD</li> <li>ID_COND.COUNTYCD</li> <li>ID_ENERGY_EFFECT.COUNTYCD</li> <li>ID_INVASIVE_SUBP_COND.COUNTYCD</li> <li>ID_MOTHER_TREE.COUNTYCD</li> <li>ID_PLOT.COUNTYCD</li> <li>ID_SEEDLING.COUNTYCD</li> <li>ID_SITETREE.COUNTYCD</li> <li>ID_SUBPLOT.COUNTYCD</li> <li>ID_SUBP_COND.COUNTYCD</li> <li>ID_TREE.COUNTYCD</li> <li>ID_WOODLAND_STEM.COUNTYCD</li> </ul>
6.10	Reference Cover Class Table (REF_COVER_CLASS)	<ul style="list-style-type: none"> <li>ID_COND.COVER_CLASS</li> </ul>
6.11	Reference Crown Class Table (REF_CROWN_CLASS)	<ul style="list-style-type: none"> <li>ID_TREE.CROWN_CLASS_CD</li> </ul>
6.12	Reference Crown Light Exposure Table (REF_CROWN_LIGHT_EXPOSURE)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.CROWN_LIGHT_EXPOSURE</li> </ul>
6.13	Reference Damage Agent Table (REF_DAMAGE_AGENT)	<ul style="list-style-type: none"> <li>ID_TREE.DAMAGE_AGENT_1</li> <li>ID_TREE.DAMAGE_AGENT_2</li> <li>ID_TREE.DAMAGE_AGENT_3</li> </ul>
6.14	Reference Damage Agent Group Table (REF_DAMAGE_AGENT_GROUP)	<ul style="list-style-type: none"> <li>REF_DAMAGE_AGENT.DAG_CODE</li> <li>REF_DAMAGE_AGENT_GROUP.CODE</li> </ul>

Section	Reference table (Oracle table name)	Referencing column(s)
6.15	Reference Decay Class Table (REF_DECAY_CLASS)	<ul style="list-style-type: none"> <li>ID_TREE.DECAYCD</li> </ul>
6.16	Reference Diameter Check Table (REF_DIA_CHECK)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.DIACHECK</li> <li>ID_TREE.DIACHECK</li> </ul>
6.17	Reference Disturbance Table (REF_DISTURBANCE)	<ul style="list-style-type: none"> <li>ID_COND.DISTURBANCE_CD1</li> <li>ID_COND.DISTURBANCE_CD2</li> <li>ID_COND.DISTURBANCE_CD3</li> </ul>
6.18	Reference FIA Land Use Table (REF_FIA_LANDUSE)	<ul style="list-style-type: none"> <li>ID_COND.FIA_LANDUSE</li> </ul>
6.19	Reference FIA Land Use Detailed Table (REF_FIA_LANDUSE_DETAILED)	N/A
6.20	Reference Forest Land Condition Status Change Table (REF_FOREST_LAND_COND_STAT_CHG)	<ul style="list-style-type: none"> <li>ID_COND.FOREST_COND_STATUS_CHANGE_CD</li> </ul>
6.21	Reference Forest Type Table (REF_FOREST_TYPE)	<ul style="list-style-type: none"> <li>ID_COND.FLDTYP_CD</li> </ul>
6.22	Reference Forest Type Group Table (REF_FOREST_TYPE_GROUP)	N/A
6.23	Reference Horizontal Distance to Improved Road Table (REF_HORIZ_DIST_IMPRVD_ROAD)	<ul style="list-style-type: none"> <li>ID_PLOT.ROAD_DIST_CD</li> </ul>
6.24	Reference Invasive Species Table (REF_INVASIVE_SPECIES)	<ul style="list-style-type: none"> <li>ID_INVASIVE_SUBP_COND.SPECIES_SYMBOL</li> </ul>
6.25	Reference Invasive Condition Sampling Status (REF_INVS_COND_SAMPLING_STATUS)	<ul style="list-style-type: none"> <li>ID_COND.INVASIVE_STATUS_CD</li> </ul>
6.26	Reference i-Tree Land Use Table (REF_ITREE_LANDUSE)	<ul style="list-style-type: none"> <li>ID_COND.ITREE_LANDUSE</li> </ul>
6.27	Reference i-Tree Land Use Detailed Table (REF_ITREE_LANDUSE_DETAILED)	N/A
6.28	<b>RETIRED</b> Reference Land Cover Class Table (REF_LAND_COVER_CLASS)	<b>RETIRED</b> <ul style="list-style-type: none"> <li>ID_COND.LAND_COVER_CLASS_CD</li> </ul>
6.29	Reference Length Method Table (REF_LENGTH_METHOD)	<ul style="list-style-type: none"> <li>ID_TREE.HTCD</li> </ul>
6.30	Reference No/Yes Table (REF_NO_YES)	<ul style="list-style-type: none"> <li>ID_COND.AFFORESTATION_CD</li> <li>ID_COND.CHAINING_CD</li> <li>ID_COND.PREV_AFFORESTATION_CD</li> <li>ID_INVASIVE_SUBP_COND.IS_MAINTAINED_AREA</li> <li>ID_MOTHER_TREE.STANDING_DEAD_CD</li> <li>ID_MOTHER_TREE.IS_MAINTAINED_AREA</li> <li>ID_MOTHER_TREE.IS_RIPARIAN</li> <li>ID_MOTHER_TREE.IS_STREET_TREE</li> <li>ID_TREE.MORTALITY_CD</li> <li>ID_TREE.STANDING_DEAD_CD</li> </ul>
6.31	Reference Owner Class Table (REF_OWNER_CLASS)	<ul style="list-style-type: none"> <li>ID_COND.OWNCD</li> </ul>
6.32	Reference Owner Group Table (REF_OWNER_GROUP)	<ul style="list-style-type: none"> <li>ID_COND.OWNGRPCD</li> </ul>
6.33	Reference Percent Class Code Table (REF_PERCENT_CLASS_CODE)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.CROWN_DIEBACK_CD</li> </ul>

<b>Section</b>	<b>Reference table (Oracle table name)</b>	<b>Referencing column(s)</b>
6.34	Reference Physiographic Class Table (REF_PHYSIOGRAPHIC_CLASS)	<ul style="list-style-type: none"> <li>ID_COND.PHYSCLCD</li> </ul>
6.35	Reference Plant Dictionary (REF_PLANT_DICTIONARY)	N/A
6.36	Reference Plot Nonsampled Reason Table (REF_PLOT_NONSAMPLE_REASON)	<ul style="list-style-type: none"> <li>ID_PLOT.PLOT_NONSAMPLE_REASN_CD</li> </ul>
6.37	Reference Plot Status Table (REF_PLOT_STATUS)	<ul style="list-style-type: none"> <li>ID_PLOT.PLOT_STATUS_CD</li> </ul>
6.38	Reference Previous Tree Status Table (REF_PREV_TREE_STATUS)	<ul style="list-style-type: none"> <li>ID_TREE.FIELD_PREV_STATUS_CD</li> </ul>
6.39	Reference Productivity Status Table (REF_PRODUCTIVITY_STATUS)	<ul style="list-style-type: none"> <li>ID_COND.PRODUCTIVITY_STATUS</li> </ul>
6.40	Reference Reconcile Table (REF_RECONCILE)	<ul style="list-style-type: none"> <li>ID_TREE.RECONCILECD</li> </ul>
6.41	Reference Regeneration Status Table (REF_REGENERATION_STATUS)	<ul style="list-style-type: none"> <li>ID_COND.STDORGCD</li> </ul>
6.42	Reference Reserved Status Table (REF_RESERVED_STATUS)	<ul style="list-style-type: none"> <li>ID_COND.RESERVCD</li> </ul>
6.43	Reference Sample Kind Table (REF_SAMPLE_KIND)	<ul style="list-style-type: none"> <li>ID_PLOT.KINDCD</li> </ul>
6.44	Reference Sample Method Code Table (REF_SAMPLE_METHOD_CD)	<ul style="list-style-type: none"> <li>ID_PLOT.SAMPLE_METHOD_CD</li> </ul>
6.45	Reference Seedling Maintained Area Table (REF_SEEDLING_MAINTAINED_AREA)	<ul style="list-style-type: none"> <li>ID_SEEDLING.IS_MAINTAINED_AREA</li> </ul>
6.46	Reference Seedling Planted Table (REF_SEEDLING_PLANTED)	<ul style="list-style-type: none"> <li>ID_SEEDLING.IS_PLANTED</li> </ul>
6.47	Reference Site Class Code Table (REF_SITE_CLASS_CODE)	<ul style="list-style-type: none"> <li>ID_COND.COND_SITECLASS_FLD</li> <li>ID_COND.SITE_CLASS_CD</li> </ul>
6.48	Reference Species Table (REF_SPECIES)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.SPCD</li> <li>ID_SEEDLING.SPCD</li> <li>ID_SITETREE.SPCD</li> <li>ID_TREE.SPCD</li> </ul>
6.49	Reference Species Group Table (REF_SPECIES_GROUP)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.SPGRPCD</li> <li>ID_SEEDLING.SPGRPCD</li> <li>ID_TREE.SPGRPCD</li> </ul>
6.50	Reference Stand-Size Class Table (REF_STAND_SIZE_CLASS)	<ul style="list-style-type: none"> <li>ID_COND.FLDSZCD</li> </ul>
6.51	Reference Subplot Nonsampled Reason Table (REF_SUBPLOT_NONSAMPLE_REASON)	<ul style="list-style-type: none"> <li>ID_SUBPLOT.SUBP_NONSAMPLE_REASN_CD</li> </ul>
6.52	Reference Subplot Status Table (REF_SUBPLOT_STATUS)	<ul style="list-style-type: none"> <li>ID_SUBPLOT.SUBP_STATUS_CD</li> </ul>
6.53	Reference Treatment Table (REF_TREATMENT)	<ul style="list-style-type: none"> <li>ID_COND.TREATMENT_CD1</li> <li>ID_COND.TREATMENT_CD2</li> <li>ID_COND.TREATMENT_CD3</li> </ul>
6.54	Reference Tree Carbon Ratio Dead Table (REF_TREE_CARBON_RATIO_DEAD)	N/A
6.55	Reference Tree Class Table (REF_TREE_CLASS)	<ul style="list-style-type: none"> <li>ID_TREE.TREECLCD</li> </ul>

Section	Reference table (Oracle table name)	Referencing column(s)
6.56	Reference Tree Decay Proportion Table (REF_TREE_DECAY_PROP)	N/A
6.57	Reference Tree Density Table (REF_TREE_DENSITY)	<ul style="list-style-type: none"> <li>ID_COND.MAPDEN</li> </ul>
6.58	Reference Tree Planted Table (REF_TREE_PLANTED)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.IS_PLANTED</li> </ul>
6.59	Reference Tree Status Table (REF_TREE_STATUS)	<ul style="list-style-type: none"> <li>ID_MOTHER_TREE.STATUSCD</li> <li>ID_TREE.STATUSCD</li> </ul>
6.60	Reference Tree Standing Dead Crown Ratio Proportion Table (REF_TREE_STND_DEAD_CR_PROP)	N/A
6.61	Reference Unit Table (REF_UNIT)	<ul style="list-style-type: none"> <li>ID_BUILDING_INTERACTION.UNITCD</li> <li>ID_COND.UNITCD</li> <li>ID_ENERGY_EFFECT.UNITCD</li> <li>ID_INVASIVE_SUBP_COND.UNITCD</li> <li>ID_MOTHER_TREE.UNITCD</li> <li>ID_PLOT.UNITCD</li> <li>ID_SEEDLING.UNITCD</li> <li>ID_SITETREE.UNITCD</li> <li>ID_SUBP.PLOT.UNITCD</li> <li>ID_SUBP_COND.UNITCD</li> <li>ID_TREE.UNITCD</li> <li>ID_WOODLAND_STEM.UNITCD</li> </ul>
6.62	Reference Utilization Class (REF_UTILIZATION_CLASS)	<ul style="list-style-type: none"> <li>ID_TREEUTILCLASS.UNITCD</li> </ul>
6.63	Reference Water on Plot Table (REF_WATER_ON_PLOT)	<ul style="list-style-type: none"> <li>ID_PLOT.WATER_CD</li> </ul>



## 6.1 Reference Abnormal Termination Table

### Oracle table name: REF\_ABNORMAL\_TERMINATION

The **REF\_ABNORMAL\_TERMINATION** table stores reference data for the ABNORMAL\_STEM\_TERMINATION attribute. Code for this attribute indicates whether or not a tree stem has an abnormal termination (broken top).

#### Referencing column(s):

- ID\_TREE.[ABNORMAL\\_STEM\\_TERMINATION](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.1.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.1.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(12)
6.1.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(43)
6.1.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RAT_PK	VALUE	N/A

#### 6.1.1 **VALUE**

**Code value.** The value of the code.

**Codes: VALUE (ABNORMAL\_STEM\_TERMINATION)**

Code	Description
0	<b>Not abnormal</b> - Stem is not abnormally terminated.
1	<b>Abnormal</b> - Stem is abnormally terminated.

#### 6.1.2 **ABBR**

**Code abbreviation.** The abbreviation for the code.

#### 6.1.3 **MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.1.4 **RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.2 Reference Absent Present Table

### Oracle table name: REF\_ABSENT\_PRESENT

The **REF\_ABSENT\_PRESENT** table stores reference data for attributes that use "generic" codes of Absent (value = 0) or Present (value = 1). These codes are used to indicate the absence or presence of entities or conditions during sampling.

#### Referencing column(s):

- ID\_TREE.DMG\_EXCESS\_MULCH
- ID\_TREE.DMG\_IMPROPER\_PLANTING
- ID\_TREE.DMG\_OVERHEAD\_WIRES
- ID\_TREE.DMG\_ROOT\_STEM\_GIRDLING
- ID\_TREE.DMG\_SIDEWALK\_ROOT\_CONFLICT
- ID\_TREE.DMG\_TOPPING\_PRUNING
- ID\_TREE.DMG\_TRUNK\_BARK\_INCLUSION

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.2.1	VALUE	Code value	NUMBER(1)
6.2.2	ABBR	Code abbreviation	VARCHAR2(7)
6.2.3	MEANING	Code meaning	VARCHAR2(17)
6.2.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RAP_PK	VALUE	N/A

#### 6.2.1 VALUE

**Code value.** The value of the code.

**Codes:** VALUE (Absent/Present)

Code	Description
0	Absent.
1	Present.

#### 6.2.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.2.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.2.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.3 Reference Bole/Stump Removed Table

### Oracle table name: REF\_BOLE\_STUMP\_REMOVED

The **REF\_BOLE\_STUMP\_REMOVED** table stores reference data for the BOLE\_STUMP\_REMOVED attribute. Code for this attribute indicates if a tree bole and/or stump was removed since a previous measurement.

#### Referencing column(s):

- ID\_TREE.[BOLE\\_STUMP\\_REMOVED](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.3.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.3.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(18)
6.3.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(189)
6.3.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RBSR_PK	VALUE	N/A

#### 6.3.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (BOLE\_STUMP\_REMOVED)**

Code	Description
1	<b>Bole removed</b> - The bole of the tree was removed but the stump remains on site.
2	<b>Bole and stump removed</b> - The bole and stump were removed from the site. This code is used if the entire surface of the stump has been reduced below ground level or removed completely.

#### 6.3.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.3.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.3.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.4 Reference Canopy Cover Sample Method Table

### Oracle table name: REF\_CANOPY\_COVER\_SAMPLE\_METHOD

The **REF\_CANOPY\_COVER\_SAMPLE\_METHOD** table stores reference data for the CANOPY\_CVR\_SAMPLE\_METHOD\_CD attribute. Code for this attribute indicates the method employed to estimate the canopy cover on a given plot visit.

#### Referencing column(s):

- ID\_COND.CANOPY\_CVR\_SAMPLE\_METHOD\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.4.1	VALUE	Code value	NUMBER(1)
6.4.2	ABBR	Code abbreviation	VARCHAR2(8)
6.4.3	MEANING	Code meaning	VARCHAR2(816)
6.4.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCCSM_PK	VALUE	N/A

#### 6.4.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (CANOPY\_CVR\_SAMPLE\_METHOD\_CD)**

Code	Method name	Description
1	Ocular method	Visual inspection of what is on the ground along with various types of aerial imagery to help determine ID_COND.LIVE_CANOPY_CVR_PCT and ID_COND.LIVE_MISSING_CANOPY_CVR_PCT. Used only in areas that are obviously 0 percent ID_COND.LIVE_MISSING_CANOPY_CVR_PCT or obviously greater than 10 percent ID_COND.LIVE_MISSING_CANOPY_CVR_PCT.
2	Sub-acre method	Used only when the ocular method is not appropriate and when the acre method cannot be established due to the condition's shape, dimensions or accessibility. The crew samples all live, dead, and missing tree canopies on the canopy cover sample plot as described in ID_COND.LIVE_MISSING_CANOPY_CVR_PCT. The 10 percent threshold is dependent on the sample plot size and respective area in square feet.
3	Acre method	Used when the ocular method is not appropriate and when it is safe and practical to sample on the entire acre. To determine if minimum 10 percent ID_COND.LIVE_MISSING_CANOPY_CVR_PCT is reached, the crew samples all live, dead, and missing tree canopies on the one-acre sample plot as described in ID_COND.LIVE_MISSING_CANOPY_CVR_PCT.

#### 6.4.2 ABBR

**Code abbreviation.** The abbreviation for the code.

**6.4.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.4.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.5 Reference Cause of Death Table

### Oracle table name: REF\_CAUSE\_OF\_DEATH

The **REF\_CAUSE\_OF\_DEATH** table stores reference data for the CAUSE\_OF\_DEATH attribute. Code for this attribute indicates the cause of death for a sample tree that was alive at a previous inventory and observed to be dead or removed at a subsequent inventory.

#### Referencing column(s):

- ID\_TREE.CAUSE\_OF\_DEATH

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.5.1	VALUE	Code value	NUMBER(2)
6.5.2	ABBR	Code abbreviation	VARCHAR2(13)
6.5.3	MEANING	Code meaning	VARCHAR2(176)
6.5.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCOD_PK	VALUE	N/A

#### 6.5.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (CAUSE\_OF\_DEATH)

Code	Description
10	Insect.
20	Disease.
30	Fire.
40	Animal.
50	Weather.
60	Vegetation (suppression, competition, vines/kudzu).
70	Unknown / not sure / other - includes death from human activity not related to silvicultural or land clearing activity (accidental, random, etc.).
80	Silvicultural or land clearing activity (death caused by harvesting or other silvicultural activity, including girdling, chaining, etc., or to land clearing activity).

#### 6.5.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.5.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.5.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.6 Reference Citation Table

### Oracle table name: REF\_CITATION

The **REF\_CITATION** table stores reference data for attributes that identify publication citations, which support values or methods employed by FIA.

#### Referencing column(s):

- REF\_SPECIES.BARK\_SPGR\_GREENVOL\_DRYWT\_CIT
- REF\_SPECIES.BARK\_VOL\_PCT\_CIT
- REF\_SPECIES.MC\_PCT\_GREEN\_BARK\_CIT
- REF\_SPECIES.MC\_PCT\_GREEN\_WOOD\_CIT
- REF\_SPECIES.WOOD\_SPGR\_GREENVOL\_DRYWT\_CIT

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.6.1	CITATION_NBR	Citation number	NUMBER(7)
6.6.2	CITATION	Citation	VARCHAR2(2000)
6.6.3	CREATED_BY	Created by	VARCHAR2(30)
6.6.4	CREATED_DATE	Created date	DATE
6.6.5	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.6.6	MODIFIED_BY	Modified by	VARCHAR2(30)
6.6.7	MODIFIED_DATE	Modified date	DATE
6.6.8	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCIT_PK	CITATION_NBR	N/A

#### 6.6.1 CITATION\_NBR

**Citation number.** A unique number used to identify a citation. This number can be used to link the reference citation table record to a reference species table ([REF\\_SPECIES](#)) record. CITATION\_NBR is equivalent to the citation number listed in the REF\_SPECIES table for REF\_SPECIES columns that have a name ending with a '\_CIT' suffix (for example, for the citation for the BARK\_VOL\_PCT attribute, REF\_CITATION.CITATION\_NBR = REF\_SPECIES.BARK\_VOL\_PCT\_CIT).

#### 6.6.2 CITATION

**Citation.** The citation associated with the citation number (CITATION\_NBR).

#### 6.6.3 CREATED\_BY

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.6.4 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.6.5 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.6.6 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.6.7 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.6.8 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.

## 6.7 Reference Condition Nonsampled Reason Table

**Oracle table name: REF\_CONDITION\_NONSAMPLE\_REASON**

The **REF\_CONDITION\_NONSAMPLE\_REASON** table stores reference data for the COND\_NONSAMPLE\_REASN\_CD attribute. Code for this attribute identifies the reason a condition was not sampled.

**Referencing column(s):**

- ID\_COND.COND\_NONSAMPLE\_REASN\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.7.1	VALUE	Code value	NUMBER(2)
6.7.2	ABBR	Code abbreviation	VARCHAR2(22)
6.7.3	MEANING	Code meaning	VARCHAR2(519)
6.7.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCNR_PK	VALUE	N/A

### 6.7.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (COND\_NONSAMPLE\_REASN\_CD)**

Code	Description
1	<b>Outside U.S. boundary</b> - Condition class is outside the U.S. border.
2	<b>Denied access area</b> - Access to the condition class is denied by the legal owner, or by the owner of the only reasonable route to the condition class.
3	<b>Hazardous situation</b> - Condition class cannot be accessed because of a hazard or danger; for example, cliffs, quarries, strip mines, illegal substance plantations, temporary high water, etc.
5	<b>Lost data</b> - The data file was discovered to be corrupt after a panel was completed and submitted for processing. Used for the single condition that is required for this plot. This code is for office use only.
6	<b>Lost plot</b> - Entire plot cannot be found. Used for the single condition that is required for this plot.
7	<b>Wrong location</b> - Previous plot can be found, but its placement is beyond the tolerance limits for plot location. Used for the single condition that is required for this plot.
8	<b>Skipped visit</b> - Entire plot skipped. Used for plots that are not completed prior to the time a panel is finished and submitted for processing. Used for the single condition that is required for this plot. This code is for office use only.

Code	Description
9	<b>Dropped intensified plot</b> - Intensified plot dropped due to a change in grid density. Used for the single condition that is required for this plot. This code used only by units engaged in intensification. This code is for office use only.
10	<b>Other</b> - Condition class not sampled due to a reason other than one of the specific reasons listed.
11	<b>Ocean</b> - Condition class falls in ocean water below mean high tide line.

#### 6.7.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.7.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.7.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.8 Reference Condition Sampling Status Table

### Oracle table name: REF\_CONDITION\_SAMPLING\_STATUS

The **REF\_CONDITION\_SAMPLING\_STATUS** table stores reference data for the COND\_STATUS\_CD attribute. Code for this attribute defines the sampling status of a condition.

#### Referencing column(s):

- ID\_COND.COND\_STATUS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.8.1	VALUE	Code value	NUMBER(1)
6.8.2	ABBR	Code abbreviation	VARCHAR2(25)
6.8.3	MEANING	Code meaning	VARCHAR2(35)
6.8.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCSS_PK	VALUE	N/A

#### 6.8.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (COND\_STATUS\_CD)

Code	Description
1	<b>Accessible forest land</b> - Land within the population of interest that can be occupied safely and has at least 10 percent canopy cover by live tally trees of any size or has had at least 10 percent canopy cover of live tally species in the past, based on the presence of stumps, snags, or other evidence. To qualify, the area must be at least 1.0 acre in size and 120.0 feet wide. Forest land includes transition zones, such as areas between forest and nonforest lands that meet the minimal tree canopy cover and forest areas adjacent to urban and built-up lands. Roadside, streamside, and shelterbelt strips of trees must have a width of at least 120 feet and continuous length of at least 363 feet to qualify as forest land. Unimproved roads and trails, streams, and clearings in forest areas are classified as forest if they are less than 120 feet wide or less than an acre in size. Tree-covered areas in agricultural production settings, such as fruit orchards, or tree-covered areas in urban settings, such as city parks, are not considered forest land.

Code	Description
2	<p><b>Accessible nonforest land</b> - Land that has less than 10 percent canopy cover of tally tree species of any size and, in the case of afforested land, fewer than 150 established trees per acre; or land that has sufficient canopy cover or stems, but is classified as nonforest land use (see ID_COND.<a href="#">FIA_LANDUSE</a>). Nonforest includes areas that have sufficient cover or live stems to meet the forest land definition, but do not meet the dimensional requirements.</p> <p>Note: Nonforest land includes "other wooded land" that has at least 5 percent, but less than 10 percent, canopy cover of live tally tree species of any size or has had at least 5 percent, but less than 10 percent, canopy cover of tally species in the recent past, based on the presence of stumps, snags, or other evidence. Other wooded land is recognized as a subset of nonforest land, and therefore is not currently considered a separate condition class. Other wooded land is not subject to nonforest use(s) that prevent normal tree regeneration and succession, such as regular mowing, intensive grazing, or recreation activities. In addition, other wooded land is classified according to the same nonforest land use rules as forest land (e.g., 6 percent cover in an urban setting is not considered other wooded land). Other wooded land is therefore defined as having <math>\geq 5</math> percent and <math>&lt; 10</math> percent canopy cover at present, or evidence of such in the past, and detailed land use codes = 200, 400, 420, 430, and 450 (refer to the <a href="#">REF_FIA_LANDUSE_DETAILED</a> table for detailed land use code descriptions).</p>
3	<p><b>Noncensus water</b> - Lakes, reservoirs, ponds, and similar bodies of water 1.0 acre to 4.5 acre in size. Rivers, streams, canals, etc., 30.0 feet to 200 feet wide. This definition was used in the 1990 census and applied when the data became available. Earlier inventories defined noncensus water differently.</p>
4	<p><b>Census water</b> - Lakes, reservoirs, ponds, and similar bodies of water 4.5 acre in size and larger; and rivers, streams, canals, etc., more than 200 feet wide.</p>
5	<p><b>Nonsampled</b> - Any portion of a plot that cannot be sampled is delineated as a separate condition. There is no minimum size requirement. The reason the condition was not sampled is provided in ID_COND.COND_NONSAMPLE_REASN_CD.</p>

## 6.8.2 ABBR

**Code abbreviation.** The abbreviation for the code.

## 6.8.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

## 6.8.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.9 Reference County Table

### Oracle table name: REF\_COUNTY

The **REF\_COUNTY** table stores the code set for county codes (COUNTYCD). It also stores associated attributes, such as corresponding State codes (STATECD) and FIA survey unit codes (UNITCD). COUNTYCD is one of the attributes used on the inventory data tables to describe the location of the sampling point. The codes that are used for COUNTYCD come from the Federal Information Processing Standard (FIPS) code set developed to identify the primary divisions of States. In most States, these divisions are called counties. However, in some States they are known as a parish, watershed, borough, or other name. The data in this table are useful for translating codes into labels for use in reporting.

#### Referencing column(s):

- ID\_BUILDING\_INTERACTION.COUNTYCD
- ID\_COND.COUNTYCD
- ID\_ENERGY\_EFFECT.COUNTYCD
- ID\_INVASIVE\_SUBP\_COND.COUNTYCD
- ID\_MOTHER\_TREE.COUNTYCD
- ID\_PLOT.COUNTYCD
- ID\_SEEDLING.COUNTYCD
- ID\_SITETREE.COUNTYCD
- ID\_SUBPLOT.COUNTYCD
- ID\_SUBP\_COND.COUNTYCD
- ID\_TREE.COUNTYCD
- ID\_WOODLAND\_STEM.COUNTYCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.9.1	STATECD	State code	NUMBER(4)
6.9.2	UNITCD	Survey unit code	NUMBER(2)
6.9.3	COUNTYCD	County code	NUMBER(3)
6.9.4	COUNTYNM	County name	VARCHAR2(50)
6.9.5	CN	County sequence number	VARCHAR2(34)
6.9.6	CREATED_BY	Created by	VARCHAR2(30)
6.9.7	CREATED_DATE	Created date	DATE
6.9.8	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.9.9	MODIFIED_BY	Modified by	VARCHAR2(30)
6.9.10	MODIFIED_DATE	Modified date	DATE
6.9.11	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCTY_PK	CN	N/A
Unique	RCTY_UK	STATECD, UNITCD, COUNTYCD	N/A

### 6.9.1 STATECD

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 6.9.2 UNITCD

**Survey unit code.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

### 6.9.3 COUNTYCD

**County code.** The identification number for a county, parish, watershed, borough, or similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_COUNTY](#)

### 6.9.4 COUNTYNM

**County name.** The name of a county, parish, watershed, borough, or other similar governmental unit in a State. FIPS codes from the Bureau of the Census are used. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

### 6.9.5 CN

**County sequence number.** A unique sequence number used to identify a reference county record (in REF\_COUNTY).

### 6.9.6 CREATED\_BY

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

### 6.9.7 CREATED\_DATE

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

### 6.9.8 CREATED\_IN\_INSTANCE

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.9.9 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.9.10 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.9.11 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.



## 6.10 Reference Cover Class Table

### Oracle table name: REF\_COVER\_CLASS

The **REF\_COVER\_CLASS** table stores reference data for the COVER\_CLASS attribute. Code for this attribute is used to classify land cover on sampled conditions.

**Note:** This is the revised cover class attribute implemented in ID\_PLOT.MANUAL\_NATIONAL = 8.0. Many of the codes are the same between the retired code set (see [REF\\_LAND\\_COVER\\_CLASS](#)) and the current code set. However, there is no national crosswalk to translate the retired codes into the new codes. The cover classification key used by crews has been modified to remove all aspects of land use and focus on land cover.

#### Referencing column(s):

- ID\_COND.COVER\_CLASS

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.10.1	VALUE	Code value	NUMBER(2)
6.10.2	ABBR	Code abbreviation	VARCHAR2(29)
6.10.3	MEANING	Code meaning	VARCHAR2(549)
6.10.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCC_PK	VALUE	N/A

#### 6.10.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (COVER\_CLASS - codes that are  $\geq 10\%$  live vegetative cover)**

Code	Description
1	<b>Tree cover</b> - Areas on which live trees provide 10% or greater canopy cover and are part of the dominant (uppermost) vegetation layer, including areas that have been planted to produce woody crops, Christmas trees, orchards, etc. Only include tree species that are listed on the <a href="#">FIA Master Tree Species List</a> (Excel format) (refer to Public Box folder available at web address: <a href="https://usfs-public.box.com/v/FIA-TreeSpeciesList">https://usfs-public.box.com/v/FIA-TreeSpeciesList</a> ) after taking into account the three exclusion zones. Varieties and subspecies are tallied at the species level and hybrids are based on the dominant external characteristics. Species not included on the <a href="#">FIA Master Tree Species List</a> are considered shrub cover. Example areas include forests, forest plantations, reverting fields with $\geq 10\%$ tree canopy cover, clearcuts with $\geq 10\%$ tree canopy cover. This category includes cypress swamps and mangroves (not to be confused with aquatic vegetation).

Code	Description
2	<b>Shrub cover</b> - Areas on which live shrubs or subshrubs provide 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Tree Cover. Shrub/Subshrub - a woody plant that generally has several erect, spreading, or prostrate stems, which give it a bushy appearance. This includes dwarf shrubs, and low or short woody vines (Federal Geographic Data Committee Vegetation Subcommittee 2008) and excludes any species on FIA's tree list. Examples include cranberry bogs, berry crops, and other shrub-dominated wetlands, chaparral, and sagebrush.
3	<b>Herbaceous cover</b> - Areas on which live herbaceous vegetation (including seasonally senescent cover) provides 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Tree Cover or Shrub Cover. This includes herbs, forbs, and graminoid species. Examples include meadows, prairies, croplands (while crops are present), and improved pasture. This category also includes emergent wetland vegetation like seasonally flooded grasslands, cattail marshes, etc.
4	<b>Non-vascular vegetation cover</b> - Areas on which non-vascular vegetation provides 10% or greater cover and are part of the dominant vegetation layer, provided these areas do not qualify as Tree Cover, Shrub Cover, or Herbaceous Cover. Examples include mosses, sphagnum moss bogs, liverworts, hornworts, lichens, and algae.
5	<b>Mixed vegetation cover</b> - Area with 10% or greater live vegetative cover but no one life form has 10% or more cover. That is, these areas do not qualify as Tree Cover, Shrub Cover, Herbaceous Cover or Non-vascular Vegetation Cover, and thus are a mixture of plant life forms. Examples can include early stages of reverting fields and high deserts.

**Codes: VALUE (COVER\_CLASS - codes that are <10% live vegetative cover)**

Code	Description
8	<b>Barren</b> - Areas predominately covered by bare rock, gravel, sand, silt, clay, or other earthen material, which contains <10% vegetation cover regardless of its inherent ability to support life. Examples include naturally barren areas such as lava fields, gravel bars, sand dunes, salt flats, deserts, playas, and rock outcroppings, as well as areas of bare soil exposed by land clearing (including plowed, harvested, or planted but not yet emerged cropland), wildfire, and other forms of disturbance. Also includes minerals and other geologic materials exposed by surface mining and roads made of dirt and gravel.
9	<b>Impervious</b> - Areas predominantly covered with constructed materials that contain <10% vegetation cover. Examples include paved roads, parking lots, driveways, sidewalks, rooftops, and other man-made structures.
10	<b>Water</b> - Areas persistently covered and predominated by water and have <10% emergent vegetative cover. Examples include census water, noncensus water, permanent snow and ice as well as glaciers. For example, only the open water portion of a bog is to be included.
12	<b>Unknown</b> - No classification was possible.

## 6.10.2 ABBR

**Code abbreviation.** The abbreviation for the code.

## 6.10.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.10.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.11 Reference Crown Class Table

### Oracle table name: REF\_CROWN\_CLASS

The **REF\_CROWN\_CLASS** table stores reference data for the CROWN\_CLASS\_CD attribute. Code for this attribute indicates the relative crown position of a tree within a stand. This assessment is based on the position of the crown at the time of observation.

#### Referencing column(s):

- ID\_TREE.CROWN\_CLASS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.11.1	VALUE	Code value	NUMBER(1)
6.11.2	ABBR	Code abbreviation	VARCHAR2(12)
6.11.3	MEANING	Code meaning	VARCHAR2(510)
6.11.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCC2_PK	VALUE	N/A

#### 6.11.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (CROWN\_CLASS\_CD)

Code	Description
1	<b>Open grown</b> - Trees with crowns that received full light from above and from all sides throughout most of its life, particularly during its early developmental period. Tree growing in clumps or trees that are the result of the forking protocols are not considered open grown.
2	<b>Dominant</b> - Trees with crown extending above the general level of the crown canopy and receiving full light from above and partly from the sides. These trees are taller than the average trees in the stand and their crowns are well developed, but they could be somewhat crowded on the sides. Also, trees whose crowns have received full light from above and from all sides during early development and most of their life. Their crown form or shape appears to be free of influence from neighboring trees.
3	<b>Co-dominant</b> - Trees with crowns at the general level of the crown canopy. Crowns receive full light from above but little direct sunlight penetrates their sides. Usually they have medium-sized crowns and are somewhat crowded from the sides. In stagnated stands, co-dominant trees have small-sized crowns and are crowded on the sides.

Code	Description
4	<b>Intermediate</b> - Trees that are shorter than dominants and co-dominant, but their crowns extend into the canopy of co-dominant and dominant trees. They receive little direct light from above and none from the sides. As a result, intermediate trees usually have small crowns and are very crowded from the sides.
5	<b>Overtopped</b> - Trees with crowns entirely below the general level of the crown canopy that receive no direct sunlight either from above or the sides.

**6.11.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.11.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.11.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.12 Reference Crown Light Exposure Table

### Oracle table name: REF\_CROWN\_LIGHT\_EXPOSURE

The **REF\_CROWN\_LIGHT\_EXPOSURE** table stores reference data for the CROWN\_LIGHT\_EXPOSURE attribute. Code for this attribute indicates the amount of tree crown that is exposed to light.

#### Referencing column(s):

- ID\_MOTHER\_TREE.CROWN\_LIGHT\_EXPOSURE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.12.1	VALUE	Code value	NUMBER(1)
6.12.2	ABBR	Code abbreviation	VARCHAR2(15)
6.12.3	MEANING	Code meaning	VARCHAR2(201)
6.12.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCLE_PK	VALUE	N/A

#### 6.12.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (CROWN\_LIGHT\_EXPOSURE)

Code	Description
0	<b>No light</b> - The tree receives no full light because it is shaded by trees, vines, or other vegetation; the tree has no crown by definition.
1	<b>Top or 1 side</b> - The tree receives full light from the top or 1 quarter.
2	<b>Top and 1 side</b> - The tree receives full light from the top and 1 quarter (or 2 quarters without the top).
3	<b>Top and 2 sides</b> - The tree receives full light from the top and 2 quarters (or 3 quarters without the top).
4	<b>Top and 3 sides</b> - The tree receives full light from the top and 3 quarters.
5	<b>Top and 4 sides</b> - The tree receives full light from the top and 4 quarters.

#### 6.12.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.12.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.12.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.13 Reference Damage Agent Table

### Oracle table name: REF\_DAMAGE\_AGENT

The **REF\_DAMAGE\_AGENT** table stores the code set for tree damage agents, their common and scientific names, and severity thresholds.

Refer to [appendix E \(Damage Agent Codes and Thresholds\)](#) for a complete list of damage codes and thresholds. Refer to regional field guides for further detail describing when tree damage agents are to be recorded.

#### Referencing column(s):

- ID\_TREE.DAMAGE\_AGENT\_1
- ID\_TREE.DAMAGE\_AGENT\_2
- ID\_TREE.DAMAGE\_AGENT\_3

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.13.1	CODE	Damage agent code	NUMBER(5)
6.13.2	COMMON_NAME	Common name of damage agent	VARCHAR2(80)
6.13.3	SCIENTIFIC_NAME	Scientific name of damage agent	VARCHAR2(80)
6.13.4	THRESHOLD	Threshold for damage agent	VARCHAR2(2000)
6.13.5	CREATED_BY	Created by	VARCHAR2(30)
6.13.6	CREATED_DATE	Created date	DATE
6.13.7	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.13.8	MODIFIED_BY	Modified by	VARCHAR2(30)
6.13.9	MODIFIED_DATE	Modified date	DATE
6.13.10	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)
6.13.11	DAG_CODE	Damage agent group code	NUMBER(5)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDA_PK	CODE	N/A
Foreign	RDA_DAG_FK	DAG_CODE	REF_DAMAGE_AGENT.DAG_CODE = REF_DAMAGE_AGENT_GROUP.CODE

#### 6.13.1 CODE

**Damage agent code.** The code assigned to a tree damage agent.

Damage is a composite variable. Up to three damage agents can be recorded per tree (DAMAGE\_AGENT\_1, DAMAGE\_AGENT\_2, and DAMAGE\_AGENT\_3). Damage agents are not necessarily recorded in order of severity. Many damaging agents are host specific and their potential for damage could vary by region.

The codes used for damage agents come from the January 2012 Pest Trend Impact Plot System (PTIPS) list from the Forest Health Assessment and Applied Sciences Team (FHAASST) that has been modified to meet FIA's needs. This list is made up of general agents (the damage agent group) and then further subdivided into specific agents. Regions decide which specific agents they will identify in their areas. The general agent can be recorded unless the region opts to collect specific agents. Specific agents can later be collapsed into the general agent categories for cross-region comparisons.

Refer to [appendix E \(Damage Agent Codes and Thresholds\)](#) for a complete list of damage codes and thresholds.

#### **6.13.2 COMMON\_NAME**

**Common name of damage agent.** The common name assigned to the tree damage agent.

#### **6.13.3 SCIENTIFIC\_NAME**

**Scientific name of damage agent.** The scientific name assigned to the tree damage agent.

#### **6.13.4 THRESHOLD**

**Threshold for damage agent.** The threshold required for a tree damage agent to be recorded.

#### **6.13.5 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

#### **6.13.6 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

#### **6.13.7 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

#### **6.13.8 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

#### **6.13.9 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

#### **6.13.10 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.

### 6.13.11 DAG\_CODE

**Damage agent group code.** The code assigned to a tree damage agent group. This attribute is a foreign key linking the reference damage agent record to the reference damage agent group record (REF\_DAMAGE\_AGENT.DAG\_CODE = REF\_DAMAGE\_AGENT\_GROUP.CODE).

**Reference table:** [REF\\_DAMAGE\\_AGENT\\_GROUP](#)



## 6.14 Reference Damage Agent Group Table

### Oracle table name: REF\_DAMAGE\_AGENT\_GROUP

The **REF\_DAMAGE\_AGENT\_GROUP** table stores the code set for tree damage agent groups. These groups are used to aggregate individual tree damage agents into general groupings for summarization.

Refer to [appendix E \(Damage Agent Codes and Thresholds\)](#) for a complete list of damage codes and thresholds. Refer to regional field guides for further detail describing when tree damage agents are to be recorded.

#### Referencing column(s):

- REF\_DAMAGE\_AGENT.DAG\_CODE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.14.1	CODE	Damage agent group code	NUMBER(5)
6.14.2	DESCRIPTION	Damage agent group description	VARCHAR2(80)
6.14.3	CREATED_BY	Created by	VARCHAR2(30)
6.14.4	CREATED_DATE	Created date	DATE
6.14.5	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.14.6	MODIFIED_BY	Modified by	VARCHAR2(30)
6.14.7	MODIFIED_DATE	Modified date	DATE
6.14.8	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDAG_PK	CODE	N/A

#### 6.14.1 CODE

**Damage agent group code.** The code assigned to a tree damage agent group.

Damage is a composite variable. Up to three damage agents can be recorded per tree (DAMAGE\_AGENT\_1, DAMAGE\_AGENT\_2, and DAMAGE\_AGENT\_3). Damage agents are not necessarily recorded in order of severity. Many damaging agents are host specific and their potential for damage could vary by region.

The codes used for damage agents come from the January 2012 Pest Trend Impact Plot System (PTIPS) list from the Forest Health Assessment and Applied Sciences Team (FHAAT) that has been modified to meet FIA's needs. This list is made up of general agents (the damage agent group) and then further subdivided into specific agents. Regions decide which specific agents they will identify in their areas. The general agent can be recorded unless the region opts to collect specific agents. Specific agents can later be collapsed into the general agent categories for cross-region comparisons.

The general agent codes are listed here. Refer to [appendix E \(Damage Agent Codes and Thresholds\)](#) for a complete list of damage codes and thresholds.

#### Codes: VALUE (Damage Agent Group)

Code	Description
00000	No damage.
10000	General Insects.
11000	Bark Beetles.
12000	Defoliators.
13000	Chewing Insects.
14000	Sucking Insects.
15000	Boring Insects.
16000	Seed/Cone/Flower/Fruit Insects.
17000	Gallmaker Insects.
18000	Insect Predators.
19000	General Diseases.
20000	Biotic Damage.
21000	Root/Butt Diseases.
22000	Cankers.
22500	Stem Decay.
23000	Parasitic/Epiphytic plants.
24000	Decline Complexes/Dieback/Wilts.
25000	Foliage diseases.
26000	Stem Rusts.
27000	Broom Rusts.
30000	Fire.
41000	Wild Animals.
42000	Domestic Animals.
50000	Abiotic Damage.
60000	Competition.
70000	Human Activities.
71000	Harvest.
80000	Multi-Damage (Insect/Disease).
85000	Invasive Plants.
90000	Other Damages and Symptoms.
99000	Unknown.

#### 6.14.2 DESCRIPTION

**Damage agent group description.** The general title assigned to the damage agent group (e.g., Bark Beetles, Cankers, Defoliators, Fire).

**6.14.3 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.14.4 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.14.5 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.14.6 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.14.7 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.14.8 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.



## 6.15 Reference Decay Class Table

**Oracle table name: REF\_DECAY\_CLASS**

The **REF\_DECAY\_CLASS** table stores reference data for the DECAYCD attribute. Code for this attribute indicates the state of decay of dead wood.

**Referencing column(s):**

- ID\_TREE.[DECAYCD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.15.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.15.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(1)
6.15.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(377)
6.15.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDC_PK	VALUE	N/A

### 6.15.1 **VALUE**

**Code value.** The value of the code.

**Codes: VALUE (DECAYCD)**

Code	Description
1	<b>All limbs and branches are present</b> - The tree top is pointed and 100 percent bark remains. For Douglas-fir species, sapwood presence and condition is intact, sound, incipient decay, hard, original color, and heartwood condition is sound, hard, with original color - used as a guide for other species.
2	<b>Few limbs and no fine branches</b> - The tree top may be broken and variable bark remaining. For Douglas-fir species, sapwood presence and condition is sloughing, advance decay, fibrous, firm to soft, light brown, and the heartwood condition is sound at base, incipient decay in outer edge of upper bole, hard, light to reddish brown - used as a guide for other species.
3	<b>Limbs stubs only</b> - Tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, fibrous, soft, light to reddish brown and heartwood condition is incipient decay at base, advanced decay throughout upper bole, fibrous, hard to firm, reddish brown - used as a guide for other species.

<b>Code</b>	<b>Description</b>
4	<b>Few or no limb stubs present</b> - The tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, cubical, soft, reddish to dark brown, and the heartwood condition is advanced decay at base, sloughing from upper bole, fibrous to cubical, soft dark reddish brown - used as a guide for other species.
5	<b>No limbs or branches</b> - The top is broken and less than 20 percent of the bark remains. For Douglas-fir species sapwood presence and condition is none and heartwood condition is sloughing, cubical, soft, dark brown, or fibrous, very soft, dark reddish brown, encased in hardened shell - used as a guide for other species.

**6.15.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.15.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.15.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.16 Reference Diameter Check Table

### Oracle table name: REF\_DIA\_CHECK

The **REF\_DIA\_CHECK** table stores reference data for the DIACHECK attribute. Code for this attribute indicates the quality of a diameter measurement.

#### Referencing column(s):

- ID\_MOTHER\_TREE.DIACHECK
- ID\_TREE.DIACHECK

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.16.1	VALUE	Code value	NUMBER(1)
6.16.2	ABBR	Code abbreviation	VARCHAR2(23)
6.16.3	MEANING	Code meaning	VARCHAR2(103)
6.16.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDC2_PK	VALUE	N/A

#### 6.16.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (DIACHECK)**

Code	Description
0	<b>Measured</b> - Diameter measured accurately.
1	<b>Estimated</b> - Diameter estimated.
2	<b>Moved measurement point</b> - Diameter measured at different location than previous measurement (remeasurement trees only).

#### 6.16.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.16.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.16.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.17 Reference Disturbance Table

### Oracle table name: REF\_DISTURBANCE

The **REF\_DISTURBANCE** table stores reference data for the DISTURBANCE\_CD1, DISTURBANCE\_CD2, and DISTURBANCE\_CD3 attributes. Code for these attributes describe disturbance on sampled conditions.

#### Referencing column(s):

- ID\_COND.[DISTURBANCE\\_CD1](#)
- ID\_COND.[DISTURBANCE\\_CD2](#)
- ID\_COND.[DISTURBANCE\\_CD3](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.17.1	<a href="#">VALUE</a>	Code value	NUMBER(2)
6.17.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(10)
6.17.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(217)
6.17.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RD_PK	VALUE	N/A

#### 6.17.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (DISTURBANCE\_CD1, DISTURBANCE\_CD2, DISTURBANCE\_CD3)

Code	Description
0	None - no observable disturbance.
10	Insect damage (to both understory vegetation and trees).
11	Insect damage to understory vegetation, excluding tree species.
12	Insect damage to tree species.
20	Disease damage (to both understory vegetation and trees).
21	Disease damage to understory vegetation, excluding tree species.
22	Disease damage to tree species.
30	Fire damage (from crown and ground fire, either prescribed or natural).
31	Ground fire damage (either prescribed or natural).
32	Crown fire damage (either prescribed or natural).
40	Animal damage (other than listed below).
41	Beaver (includes flooding caused by beaver).
42	Porcupine.

<b>Code</b>	<b>Description</b>
43	Deer/ungulate.
44	Bear ( <i>core optional</i> ).
45	Rabbit ( <i>core optional</i> ).
46	Domestic animal/livestock (includes grazing).
50	Weather damage (other than listed below).
51	Ice.
52	Wind (includes hurricane, tornado).
53	Flooding (weather induced).
54	Drought.
60	Vegetation (suppression, competition, vines).
70	Unknown / not sure / other.
80	Human-caused damage - any minimum threshold of human-caused damage not described in the disturbance codes listed or in the treatment codes listed.
90	Geologic disturbances.
91	Landslide.
92	Avalanche track.
93	Volcanic blast zone.
94	Other geologic event.
95	Earth movement / avalanches.

**6.17.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.17.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.17.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.18 Reference FIA Land Use Table

### Oracle table name: REF\_FIA\_LANDUSE

The **REF\_FIA\_LANDUSE** table stores reference data for the FIA\_LANDUSE attribute. Code for this attribute describes the land use for a condition. This code set was developed by the FIA program.

#### Referencing column(s):

- ID\_COND.FIA\_LANDUSE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.18.1	VALUE	Code value	NUMBER(2)
6.18.2	ABBR	Code abbreviation	VARCHAR2(21)
6.18.3	MEANING	Code meaning	VARCHAR2(180)
6.18.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RFL_PK	VALUE	N/A

#### 6.18.1 VALUE

**Code value.** The value of the code.

**Note:** Refer to the [REF\\_FIA\\_LANDUSE\\_DETAILED](#) table for the detailed land use code descriptions.

#### Codes: VALUE (FIA\_LANDUSE)

Collapsed code	FIA land use	Detailed codes
10	Forest land	<ul style="list-style-type: none"> <li>• 1 = Forest land</li> </ul>
11	Agriculture	<ul style="list-style-type: none"> <li>• 100 = Agricultural land</li> <li>• 110 = Cropland</li> <li>• 120 = Pasture (improved through cultural practices)</li> <li>• 130 = Idle farmland</li> <li>• 140 = Orchard/Nursery</li> <li>• 150 = Christmas tree plantation</li> <li>• 160 = Maintained wildlife opening</li> <li>• 170 = Windbreak/Shelterbelt</li> </ul>
12	Rangeland/Chaparral	<ul style="list-style-type: none"> <li>• 200 = Rangeland</li> <li>• 450 = Nonforest-Chaparral</li> </ul>
13	Commercial/Industrial	<ul style="list-style-type: none"> <li>• 300 = Developed</li> <li>• 310 = Cultural</li> <li>• 313 = Institutional</li> <li>• 314 = Commercial/Industrial</li> <li>• 340 = Mining and wasteland</li> </ul>
14	Residential	<ul style="list-style-type: none"> <li>• 311 = Residential</li> </ul>

<b>Collapsed code</b>	<b>FIA land use</b>	<b>Detailed codes</b>
15	Multi-family Residential	<ul style="list-style-type: none"> <li>• 312 = Multi-family residential</li> </ul>
16	Recreation/Cemetery	<ul style="list-style-type: none"> <li>• 316 = Cemetery</li> <li>• 330 = Recreation</li> <li>• 331 = Park</li> <li>• 332 = Golf courses</li> </ul>
17	Rights-of-Way	<ul style="list-style-type: none"> <li>• 320 = Rights-of-way</li> <li>• 321 = Transportation</li> <li>• 322 = Utility</li> </ul>
18	Other Nonforest	<ul style="list-style-type: none"> <li>• 400 = Other</li> <li>• 410 = Nonvegetated</li> <li>• 420 = Wetland</li> <li>• 430 = Beach</li> </ul>
19	Water	<ul style="list-style-type: none"> <li>• 900 = Water</li> </ul>
20	Nonsampled	<ul style="list-style-type: none"> <li>• 910 = Nonsampled</li> </ul>

**6.18.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.18.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.18.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.19 Reference FIA Land Use Detailed Table

### Oracle table name: REF\_FIA\_LANDUSE\_DETAILED

The **REF\_FIA\_LANDUSE\_DETAILED** table stores descriptions for detailed land use codes used by the FIA program.

**Note:** The "detailed codes" are not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

For the Urban FIADB, the detailed codes have been collapsed into broader categories. Refer to the [REF\\_FIA\\_LANDUSE](#) table for the "collapsed code" set.

#### Referencing column(s):

- N/A

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.19.1	<a href="#">VALUE</a>	Code value	NUMBER(3)
6.19.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(19)
6.19.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(1483)
6.19.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RFLD_PK	VALUE	N/A

#### 6.19.1 [VALUE](#)

**Code value.** The value of the code.

##### Codes: VALUE (FIA\_LANDUSE - detailed code descriptions)

Code	Description
1	<b>Forest land</b> - Land meeting the Forest Inventory & Analysis (FIA) definition of forest land and is not used for any conflicting purpose. Such land is simply used to maintain forest cover in a natural state.
100	<b>Agricultural land</b> - Land managed for crops, pasture, or other agricultural use. The area must be at least 1.0 acre in size and 120.0 feet wide (with the exception of windbreak/shelterbelt, which has no minimum width and can be less than an acre.) If a windbreak or shelterbelt meets the size and definition requirements of accessible forest land, then it is not considered nonforest. Note: This code is only used for cases not better described by a more detailed sub-code in the 100 series.
110	<b>Cropland</b> - Land utilized for agricultural crops including silage and feed grains; and bare farm fields resulting from cultivation or harvest.

<b>Code</b>	<b>Description</b>
120	<b>Pasture (improved through cultural practices)</b> - Land maintained and used for grazing with canopy cover less than 10 percent in live trees (established seedlings, saplings or larger trees). Evidence of maintenance, besides the degree of grazing, includes condition of fencing, presence of stock ponds or water tanks. Land also may be periodically brush hogged indicated by seedlings 3 to 4 feet in height and basal scars present on trees.
130	<b>Idle farmland</b> - Former cropland or pasture that has not been tended within the last 2 years and that has less than 10 percent canopy cover with live trees, (established seedlings or larger trees) regardless of species. Note: A field that is between crop rotations should not be classified as Idle Farmland.
140	<b>Orchard/Nursery</b> - Land utilized for orchards and nursery stock.
150	<b>Christmas tree plantation.</b>
160	<b>Maintained wildlife opening</b> - Land maintained as a permanent opening of primarily herbaceous vegetation within woodland areas to provide food and cover benefits for early successional wildlife species. [Source: USDA NRCS] These may be located on public or private land.
170	<b>Windbreak/Shelterbelt</b> - Windbreaks or shelterbelts are plantings of single or multiple rows of trees or shrubs that are established for environmental purposes. Windbreaks or shelterbelts are generally established to protect or shelter nearby leeward areas from troublesome winds. Such plantings are used to reduce wind erosion, protect growing plants (crops and forage), manage snow, and improve irrigation efficiency. Windbreaks also protect structures and livestock, provide wildlife habitat, improve aesthetics, and provide tree or shrub products. Also, when used as a living screen, windbreaks control views and lessen noise. [Source: USDA NRCS, Windbreak/Shelterbelt Conservation Practice Job Sheet 380, April 1997] Note: This code is a subdivision of the Agriculture land use (100) and should only be coded when located within or directly adjacent to agricultural land.
200	<b>Rangeland</b> - Land primarily composed of grasses, forbs, or shrubs. This includes lands vegetated naturally or artificially to provide a plant cover managed like native vegetation and does not meet the definition of pasture. The area must be at least 1.0 acre in size and 120.0 feet wide.
300	<b>Developed</b> - Land used primarily by humans for purposes other than forestry or agriculture. Note: This code is only used for cases not better described by a more detailed sub-code in the 300 series. For mixed-use buildings, land use is based on the dominant use, i.e., the use that receives the majority of the pedestrian foot traffic.
310	<b>Cultural</b> - Business (industrial/commercial), residential, and other places of intense human activity. Note: The 310 code is only used for land not better described by one of the more detailed sub-codes (e.g., 311, 312, 313).
311	<b>Residential</b> - Free standing structures and associated green space/hardscape (maintained or unmaintained) serving a single independent housing unit. Such units (normally with a single family) include fully detached, semidetached (semiattached, side-by-side), row houses, and townhouses. In the case of attached units, each must be separated from the adjacent unit by a ground-to-roof wall (completely walled off from other units, without any common space) in order to be classified as a single-family structure. Also, these units must not share heating/air-conditioning systems or utilities. Units built one on top of another and those built side-by-side that do not have a ground-to-roof wall (a clear divider between units eliminating any potential for common space) and/or have common facilities (i.e., shared attic, basement, heating plant, plumbing, etc.) are not included in the single-family statistics. Note: When the presence or absence of shared common space is not clearly visible, evidence of separate utilities is used to determine if it is a single independent housing unit.

Code	Description
312	<b>Multi-family residential</b> - Structures containing more than one housing unit and associated green space/hardscape (maintained or unmaintained). Residential buildings containing units built one on top of another and those built side-by-side, which may have common space due to the lack of a ground-to-roof wall (clear divider between units preventing common space), and/or have common facilities (e.g., attic, basement, heating plant, plumbing) and their associated green/gray spaces.
313	<b>Institutional</b> - Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).
314	<b>Commercial/Industrial</b> - In addition to standard commercial and industrial land uses, associated green space/hardscape (maintained or unmaintained), outdoor storage/staging areas, and parking lots in downtown areas that are not connected with institutional or residential use are also included. Home businesses, such as day care, tax preparation, hair styling, etc. that are run out of residential buildings are considered commercial.
315	<b>Unused</b> - This category includes land with no clear intended use. <b>RETIRED</b> (this code was retired starting with the National Urban FIA Field Guide version 6.1 [ID_PLOT.MANUAL_NATIONAL]; it is still a valid code for the National Urban FIA Field Guide version 6.0).
316	<b>Cemetery</b> - This category includes associated access roads, buildings and green space/hardscape (maintained and unmaintained) while excluding obvious public roads which would be considered rights-of-way.
320	<b>Rights-of-way</b> - Improved roads, maintained canal. The 320 code is only used for cases not better described by sub-codes 321 or 322.
321	<b>Transportation</b> - Limited access roadway (highways with on-off ramps) and associated green space/hardscape (maintained or unmaintained) such as rest areas, railway or airport.
322	<b>Utility</b> - Power lines, pipelines, maintained levees, and flood control channels.
330	<b>Recreation</b> - Skiing, campgrounds, playing fields, athletic, sports tracks, etc. and associated green space/hardscape (maintained or unmaintained). These are areas where persons participate in sports and outdoor activities. This code excludes complexes such as professional football stadiums, such areas would be considered commercial/industrial.
331	<b>Park</b> - Parks are developed green space that are generally publicly owned and are always open to the public. This land use generally consists of open maintained green space, playgrounds, recreational trails, buildings and/or athletic fields and includes associated parking areas and access roads. Related unmaintained woods/vegetation that do not qualify as forest land and other areas that cannot stand alone as a separate urban nonforest land use are treated as an inclusion in the park. Obvious public roads that do not exclusively serve the park are considered rights-of-way and mapped as a separate condition. Ownership by a parks department or other public agency does not, by itself, determine the urban nonforest land use to be 331. Maintenance or development as described above must be present. Developed recreational trails (concrete, asphalt, or structural wood throughout) running through narrow corridors (less than 120 feet) that would have otherwise been considered inclusions in the surrounding condition serve as the evidence necessary to call such areas Parks as opposed to inclusions.
332	<b>Golf courses</b> - This category includes associated access roads, buildings and green space/hardscape (maintained and unmaintained) while excluding obvious public roads which would be considered rights-of-way.
340	<b>Mining and wasteland</b> - Surface mining, gravel pits, dumps, landfills or reclaimed mining areas that are at least 1.0 acre and 120.0 feet in width.

<b>Code</b>	<b>Description</b>
400	<b>Other</b> - Land parcels greater than 1.0 acre in size and greater than 120.0 feet wide, which do not fall into one of the uses described above. Examples include undeveloped beaches, barren land (rock, sand), marshes, bogs, ice, and snow. Note: This code is only used for cases not better described by a more detailed sub-code in the 400 series.
410	<b>Nonvegetated.</b>
420	<b>Wetland</b> - Areas subjected to periodic tidal flooding or other areas where water is present for extended periods during the growing season and for longer periods during the non-growing season. Water usually comes from rainfall, snowmelt, a rising water table, groundwater seepage, or incoming tides. Water may be present on the surface of wetlands for varying periods, as in flooded or ponded wetlands, or it may simply keep the underlying soils saturated near the surface with no surface water present. Wetlands include bogs, marshes, salt marshes, swamps, meadows and fens. [Source: Tiner (1997)]  Note: <ul style="list-style-type: none"><li>• Bogs are not always nonforest. Some tree species such as black spruce can adapt to bog conditions. If the 10% canopy cover requirement is met, the land is considered forest land. The decision as to whether the land is productive or unproductive is made by the field crews.</li><li>• Swamps are not always nonforest. Some tree species readily adapt to the swamp conditions. If the 10% canopy cover requirement is met, the land is considered forest land. The decision of whether the land is productive or unproductive is made by the field crews.</li><li>• Drained beaver ponds that are not stocked are included in this category.</li></ul>
430	<b>Beach</b> - Sandy or pebbly shore associated with an ocean or lake.
450	<b>Nonforest-Chaparral.</b>
900	<b>Water</b> - Noncensus and census water conditions (ID_COND.COND_STATUS_CD = 3, 4).
910	<b>Nonsampled</b> - Nonsampled (ID_COND.COND_STATUS_CD = 5) and has the potential to be forest land.

**6.19.2 ABBR****Code abbreviation.** The abbreviation for the code.**6.19.3 MEANING****Code meaning.** A brief summary description of the meaning of the code.**6.19.4 RETIRED****Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.20 Reference Forest Land Condition Status Change Table

**Oracle table name: REF\_FOREST\_LAND\_COND\_STAT\_CHG**

The **REF\_FOREST\_LAND\_COND\_STAT\_CHG** table stores reference data for the FOREST\_COND\_STATUS\_CHANGE\_CD attribute. Code for this attribute indicates the reason why the forest land condition status changed since the last inventory. If the status did not change, FOREST\_COND\_STATUS\_CHANGE\_CD = 0 is recorded.

**Referencing column(s):**

- ID\_COND.FOREST\_COND\_STATUS\_CHANGE\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.20.1	VALUE	Code value	NUMBER(1)
6.20.2	ABBR	Code abbreviation	VARCHAR2(18)
6.20.3	MEANING	Code meaning	VARCHAR2(177)
6.20.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RFLCSC_PK	VALUE	N/A

### 6.20.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (FOREST\_COND\_STATUS\_CHANGE\_CD)**

Code	Description
0	<b>No change</b> - The condition is not a new forested condition (not originating from a previous forested condition) nor is it a new condition that is the result of a previously forested condition no longer qualifying as such or the condition was previously not field visited or was previously classified as nonsampled.
1	<b>Physical changes</b> - Condition status changed due to actual on-the-ground physical change either natural or human-caused.
2	<b>Crew error</b> - Condition status changed due to a previous crew's error.
3	<b>Procedural changes</b> – Condition status changed due to a change in variable definition or procedures.

### 6.20.2 ABBR

**Code abbreviation.** The abbreviation for the code.

### 6.20.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.20.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.21 Reference Forest Type Table

### Oracle table name: REF\_FOREST\_TYPE

The **REF\_FOREST\_TYPE** table stores reference data for the FLDTYPED attribute. Code for this attribute identifies the forest type assigned by the field crew.

Refer to [appendix F \(Forest Type Codes and Names\)](#) for a list of forest type groups, forest types, and forest type descriptions.

#### Referencing column(s):

- ID\_COND.FLDTYPED

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.21.1	VALUE	Code value	NUMBER(3)
6.21.2	MEANING	Code meaning	VARCHAR2(80)
6.21.3	TYPGRPCD	Forest type group code	NUMBER(3)
6.21.4	MANUAL_START	Manual start	NUMBER(3,1)
6.21.5	MANUAL_END	Manual end	NUMBER(3,1)
6.21.6	ALLOWED_IN_FIELD	Allowed in field	VARCHAR2(1)
6.21.7	CREATED_BY	Created by	VARCHAR2(30)
6.21.8	CREATED_DATE	Created date	DATE
6.21.9	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.21.10	MODIFIED_BY	Modified by	VARCHAR2(30)
6.21.11	MODIFIED_DATE	Modified date	DATE
6.21.12	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RFT_PK	VALUE	N/A

#### 6.21.1 VALUE

**Code value.** A numeric code indicating the FIA forest type. Refer to [appendix F \(Forest Type Codes and Names\)](#) for codes.

#### 6.21.2 MEANING

**Code meaning.** A descriptive name corresponding to the FIA forest type code (VALUE).

#### 6.21.3 TYPGRPCD

**Forest type group code.** A numeric code assigned to individual FIA forest types to group them for reporting purposes.

**6.21.4 MANUAL\_START**

**Manual start.** The version of the first field guide (ID\_PLOT.[MANUAL\\_NATIONAL](#)) that the FIA forest type was used.

**6.21.5 MANUAL\_END**

**Manual end.** The version of the last field guide (ID\_PLOT.[MANUAL\\_NATIONAL](#)) that the FIA forest type was used. When MANUAL\_END is blank (null), the forest type code is still valid.

**6.21.6 ALLOWED\_IN\_FIELD**

**Allowed in field.** An indicator to show whether or not the forest type code ([VALUE](#)) is valid for assignment in the field. This is a yes/no (Y/N) field. ALLOWED\_IN\_FIELD is set to a value of 'N' for nonstocked forest types (VALUE = 999).

**6.21.7 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.21.8 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.21.9 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.21.10 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.21.11 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.21.12 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.

## 6.22 Reference Forest Type Group Table

### Oracle table name: REF\_FOREST\_TYPE\_GROUP

The **REF\_FOREST\_TYPE\_GROUP** table stores averages and ratios for down woody material attributes by forest type group. Forest type groups are collections of forest types that are used for reporting and analyses.

Refer to [appendix F \(Forest Type Codes and Names\)](#) for a list of forest type groups, forest types, and forest type descriptions.

#### Referencing column(s):

- N/A

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.22.1	VALUE	Code value	NUMBER(3)
6.22.2	MEANING	Code meaning	VARCHAR2(80)
6.22.3	ABBR	Code abbreviation	VARCHAR2(40)
6.22.4	DUFF_DENSITY	Duff density	NUMBER(12,10)
6.22.5	DUFF_CARBON_RATIO	Duff carbon ratio	NUMBER(12,11)
6.22.6	LITTER_DENSITY	Litter density	NUMBER(12,10)
6.22.7	LITTER_CARBON_RATIO	Litter carbon ratio	NUMBER(12,11)
6.22.8	PILE_DENSITY	Pile density	NUMBER(12,10)
6.22.9	PILE_CARBON_RATIO	Pile carbon ratio	NUMBER(12,11)
6.22.10	PILE_DECAY_RATIO	Pile decay ratio	NUMBER(12,11)
6.22.11	FWD_DENSITY	Fine woody debris density	NUMBER(12,10)
6.22.12	FWD_CARBON_RATIO	Fine woody debris carbon ratio	NUMBER(12,11)
6.22.13	FWD_DECAY_RATIO	Fine woody debris decay ratio	NUMBER(12,11)
6.22.14	FWD_SMALL_QMD	Small fine woody debris quadratic mean diameter	NUMBER(12,10)
6.22.15	FWD_MEDIUM_QMD	Medium fine woody debris quadratic mean diameter	NUMBER(12,10)
6.22.16	FWD_LARGE_QMD	Large fine woody debris quadratic mean diameter	NUMBER(12,10)
6.22.17	CREATED_BY	Created by	VARCHAR2(30)
6.22.18	CREATED_DATE	Created date	DATE
6.22.19	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.22.20	MODIFIED_BY	Modified by	VARCHAR2(30)
6.22.21	MODIFIED_DATE	Modified date	DATE
6.22.22	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RFTG_PK	VALUE	N/A

**6.22.1 VALUE**

**Code value.** A numeric code used for the FIA forest type group, which is assigned to individual FIA forest types for reporting purposes. VALUE is linked to the [TYPGRPCD](#) in the REF\_FOREST\_TYPE table. Refer to [appendix F \(Forest Type Codes and Names\)](#) for codes.

**6.22.2 MEANING**

**Code meaning.** A descriptive name corresponding to the FIA forest type group code (VALUE).

**6.22.3 ABBR**

**Code abbreviation.** An abbreviation for the FIA forest type group.

**6.22.4 DUFF\_DENSITY**

**Duff density.** The average oven-dry density of duff, in pounds per cubic foot, for the FIA forest type group.

**6.22.5 DUFF\_CARBON\_RATIO**

**Duff carbon ratio.** The ratio of carbon weight to biomass of duff for the FIA forest type group.

**6.22.6 LITTER\_DENSITY**

**Litter density.** The average oven-dry density of litter, in pounds per cubic foot, for the FIA forest type group.

**6.22.7 LITTER\_CARBON\_RATIO**

**Litter carbon ratio.** The ratio of carbon weight to biomass of litter for the FIA forest type group.

**6.22.8 PILE\_DENSITY**

**Pile density.** The average oven-dry density of piles, in pounds per cubic foot, for the FIA forest type group.

**6.22.9 PILE\_CARBON\_RATIO**

**Pile carbon ratio.** The ratio of carbon weight to biomass of piles for the FIA forest type group.

**6.22.10 PILE\_DECAY\_RATIO**

**Pile decay ratio.** The ratio of decayed to sound wood weight of piles for the FIA forest type group.

**6.22.11 FWD\_DENSITY**

**Fine woody debris density.** The average oven-dry density of fine woody debris, in pounds per cubic foot, for the FIA forest type group.

**6.22.12 FWD\_CARBON\_RATIO**

**Fine woody debris carbon ratio.** The ratio of carbon weight to biomass of fine woody debris for the FIA forest type group.

**6.22.13 FWD\_DECAY\_RATIO**

**Fine woody debris decay ratio.** The ratio of decayed to sound wood weight of fine woody debris for the FIA forest type group.

**6.22.14 FWD\_SMALL\_QMD**

**Small fine woody debris quadratic mean diameter.** The quadratic mean diameter of small fine woody debris for the FIA forest type group.

**6.22.15 FWD\_MEDIUM\_QMD**

**Medium fine woody debris quadratic mean diameter.** The quadratic mean diameter of medium fine woody debris for the FIA forest type group.

**6.22.16 FWD\_LARGE\_QMD**

**Large fine woody debris quadratic mean diameter.** The quadratic mean diameter of large fine woody debris for the FIA forest type group.

**6.22.17 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.22.18 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.22.19 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.22.20 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.22.21 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.22.22 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.



## 6.23 Reference Horizontal Distance to Improved Road Table

**Oracle table name: REF\_HORIZ\_DIST\_IMPRVD\_ROAD**

The **REF\_HORIZ\_DIST\_IMPRVD\_ROAD** table stores reference data for the ROAD\_DIST\_CD attribute. Code for this attribute indicates the horizontal distance from a plot visit to an improved road.

**Referencing column(s):**

- ID\_PLOT.ROAD\_DIST\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.23.1	VALUE	Code value	NUMBER(1)
6.23.2	ABBR	Code abbreviation	VARCHAR2(17)
6.23.3	MEANING	Code meaning	VARCHAR2(30)
6.23.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RHDIR_PK	VALUE	N/A

### 6.23.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (ROAD\_DIST\_CD)**

Code	Description
1	100 feet or less.
2	101 to 300 feet.
3	301 to 500 feet.
4	501 to 1000 feet.
5	1001 feet to 1/2 mile.
6	1/2 to 1 mile.
7	1 to 3 miles.
8	3 to 5 miles.
9	Greater than 5 miles.

### 6.23.2 ABBR

**Code abbreviation.** The abbreviation for the code.

### 6.23.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.23.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.24 Reference Invasive Species Table

### Oracle table name: REF\_INVASIVE\_SPECIES

The **REF\_INVASIVE\_SPECIES** table stores the species symbol code and other information for invasive species that are sampled in the annualized urban inventory.

**Note:** FIA identifies species and other taxonomic ranks for plants using symbols (SYMBOL) as assigned by the Natural Resources Conservation Service (NRCS) for the [PLANTS database](https://plants.usda.gov) (available at web address: <https://plants.usda.gov>) on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.

#### Referencing column(s):

- ID\_INVASIVE\_SUBP\_COND.[SPECIES\\_SYMBOL](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.24.1	CN	Invasive species sequence number	VARCHAR2(34)
6.24.2	STATECD	State code	NUMBER(4)
6.24.3	SYMBOL	Symbol	VARCHAR2(16)
6.24.4	INV_GROUP_CD	Invasive group code	NUMBER
6.24.5	UNITCD_LIST	Unit code list	VARCHAR2(20)
6.24.6	START_DATE	Start date	DATE
6.24.7	END_DATE	End date	DATE
6.24.8	MANUAL_START	Manual start	NUMBER(3,1)
6.24.9	MANUAL_END	Manual end	NUMBER(3,1)
6.24.10	NOTES	Invasive species notes	VARCHAR2(2000)
6.24.11	CREATED_BY	Created by	VARCHAR2(30)
6.24.12	CREATED_DATE	Created date	DATE
6.24.13	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.24.14	MODIFIED_BY	Modified by	VARCHAR2(30)
6.24.15	MODIFIED_DATE	Modified date	DATE
6.24.16	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RIS_PK	CN	N/A
Unique	RIS_UK	STATECD, SYMBOL	N/A

#### 6.24.1 CN

**Invasive species sequence number.** A unique sequence number used to identify a reference invasive species record (in REF\_INVASIVE\_SPECIES).

**6.24.2 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**6.24.3 SYMBOL**

**Symbol.** The Natural Resources Conservation Service (NRCS) [PLANTS database](#) symbol code assigned to a specific plant taxon.

**6.24.4 INV\_GROUP\_CD**

**Invasive group code.** A code that can be used to group multiple species that are difficult to distinguish from one another. This code typically represents the most likely species in the invasive species group, or the first one in the group, if the field person was unable to make a positive identification. These groups are typically defined by region.

**6.24.5 UNITCD\_LIST**

**Unit code list.** A list of survey unit codes (UNITCD) separated by commas, which identifies the geographical areas within the State where the species is likely to be found. For example, for Oregon (STATECD = 41), UNITCD\_LIST = 0,1,2 indicates that the species is likely to be found in the Northwest, West Central, and Southwest survey units.

See [appendix B \(State, Survey Unit, and County Codes\)](#) for survey unit codes (UNITCD) by State.

**6.24.6 START\_DATE**

**Start date.** The date the species was inserted in the REF\_INVASIVE\_SPECIES table for use as a recordable invasive species for a State.

**6.24.7 END\_DATE**

**End date.** The date the species was no longer considered an invasive species for a State.

**6.24.8 MANUAL\_START**

**Manual start.** The version of the first field guide (ID\_PLOT.[MANUAL\\_NATIONAL](#)) that the invasive species was used.

**6.24.9 MANUAL\_END**

**Manual end.** The version of the last field guide (ID\_PLOT.[MANUAL\\_NATIONAL](#)) that the invasive species was used. When MANUAL\_END is blank (null), the species code is still valid.

**6.24.10 NOTES**

**Invasive species notes.** Notes on this invasive species for the State (e.g., why added or removed from list).

**6.24.11 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.24.12 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.24.13 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.24.14 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.24.15 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.24.16 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.



## 6.25 Reference Invasive Condition Sampling Status

### Oracle table name: REF\_INVS\_COND\_SAMPLING\_STATUS

The **REF\_INVS\_COND\_SAMPLING\_STATUS** table stores reference data indicating the sampling status of invasive species for a condition.

#### Referencing column(s):

- ID\_COND.INVASIVE\_STATUS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.25.1	VALUE	Code value	NUMBER(1)
6.25.2	ABBR	Code abbreviation	VARCHAR2(27)
6.25.3	MEANING	Code meaning	VARCHAR2(56)
6.25.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RICSS_PK	VALUE	N/A

#### 6.25.1 VALUE

**Code value.** The value of the code.

**Note:** If INVASIVE\_STATUS\_CD = 3, the plot was assigned to be part of the invasive plant sample, however, the sample was not taken at the time of the plot visit (see ID\_COND.INVASIVE\_NONSAMPLE\_REASON\_CD).

##### Codes: VALUE (INVASIVE\_STATUS\_CD)

Code	Description
1	Condition sampled, invasive plants present.
2	Condition sampled, invasive plants not present.
3	Condition not sampled for invasive plants.

#### 6.25.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.25.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.25.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.26 Reference i-Tree Land Use Table

### Oracle table name: REF\_ITREE\_LANDUSE

The **REF\_ITREE\_LANDUSE** table stores reference data for the ITREE\_LANDUSE attribute. Code for this attribute defines land uses based on a code set developed for the i-Tree urban inventory.

#### Referencing column(s):

- ID\_COND.[ITREE\\_LANDUSE](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.26.1	<a href="#">VALUE</a>	Code value	NUMBER(2)
6.26.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(24)
6.26.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(1305)
6.26.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RIL_PK	VALUE	N/A

#### 6.26.1 **VALUE**

**Code value.** The value of the code.

**Note:** Refer to the [REF\\_ITREE\\_LANDUSE\\_DETAILED](#) table for the detailed land use code descriptions.

#### Codes: VALUE (ITREE\_LANDUSE)

Collapsed code	i-Tree land use	Detailed codes
1	Agriculture	• 10 = Agriculture
2	Institutional/Commercial	• 22 = Institutional • 23 = Commercial/Industrial
3	Residential	• 20 = Residential
4	Multi-family Residential	• 21 = Multi-family residential
5	Cemetery/Park/Golf	• 25 = Cemetery • 40 = Park • 41 = Golf course
6	Transportation/Utility	• 30 = Transportation • 31 = Utility
7	Water	• 50 = Water/Wetland
8	Unused/Other	• 24 = Unused • 60 = Other

**6.26.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.26.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.26.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.27 Reference i-Tree Land Use Detailed Table

### Oracle table name: REF\_ITREE\_LANDUSE\_DETAILED

The **REF\_ITREE\_LANDUSE\_DETAILED** table stores descriptions for detailed land use codes used for the i-Tree urban inventory.

**Note:** The "detailed codes" are not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](https://research.fs.usda.gov/programs/fia/sds) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

For the Urban FIADB, the detailed codes have been collapsed into broader categories. Refer to the [REF\\_ITREE\\_LANDUSE](#) table for the "collapsed code" set.

#### Referencing column(s):

- N/A

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.27.1	<a href="#">VALUE</a>	Code value	NUMBER(2)
6.27.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(14)
6.27.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(1305)
6.27.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RILD_PK	VALUE	N/A

#### 6.27.1 [VALUE](#)

**Code value.** The value of the code.

##### Codes: VALUE (ITREE\_LANDUSE - detailed code descriptions)

Code	Description
10	<b>Agriculture</b> - This category is defined as cropland, pasture, idle farmland, orchards, vineyards, nurseries, maintained wildlife openings, farmsteads and related buildings, feed lots, rangeland, and includes windbreaks and shelterbelts that do not meet the definition for forest land. Wooded areas and plantations that are managed for a specific crop such as nuts or Christmas trees or forest land that shows obvious evidence of management activity related specifically to wood production are also included.

Code	Description
20	<p><b>Residential</b> - Free standing structures and associated green space/hardscape (maintained or unmaintained) serving a single independent housing unit. Such units (normally with a single family) include fully detached, semidetached (semiattached, side-by-side), row houses, and townhouses. In the case of attached units, each must be separated from the adjacent unit by a ground-to-roof wall (completely walled off from other units, without any common space) in order to be classified as a single-family structure. Also, these units must not share heating/air-conditioning systems or utilities. Units built one on top of another and those built side-by-side that do not have a ground-to-roof wall (a clear divider between units eliminating any potential for common space) and/or have common facilities (e.g., shared attic, basement, heating plant, plumbing) are not included in the single-family statistics. Note: When the presence or absence of shared common space is not clearly visible, evidence of separate utilities is used to determine if it is a single independent housing unit.</p>
21	<p><b>Multi-family residential</b> - Residential buildings containing units built one on top of another and those built side-by-side, which may have common space due to the lack of a ground-to-roof wall (clear divider between units to prevent common space), and/or have common facilities (e.g., attic, basement, heating plant, plumbing) and their associated green space/hardscape (maintained or unmaintained).</p>
22	<p><b>Institutional</b> - Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).</p>
23	<p><b>Commercial/Industrial</b> - In addition to standard commercial and industrial land uses and their associated green space/hardscape (maintained or unmaintained, this category includes outdoor storage/staging areas as well as parking lots in downtown areas that are not connected with an institutional or residential use. Note: For mixed-use buildings, land use is based on the dominant use, i.e., the use that receives the majority of the pedestrian foot traffic.</p>
24	<p><b>Unused</b> - This category includes land with no clear intended present or past use. An empty lot where its associated structures have been removed should be called Unused. Abandoned buildings, vacant structures, and their associated infrastructure and green space/hardscape should be classified based on their original intended use. For example, an overgrown parking lot and playground associated with an abandoned apartment complex would be classified as Multi-family Residential, not Unused. Idle farmland should be classified as Agriculture. Forest land that is not clearly actively managed for timber production and is not contained within the boundaries of a Park, Golf Course, or Cemetery land use would be coded as Unused. For example, forest land in the form of a woodlot in the middle of a corn field that is not being managed for wood products would be considered Unused, as the land is not associated with a particular land use. Forest land contained within the boundaries of a Park, Golf Course, or Cemetery would be coded respectively.</p>
25	<p><b>Cemetery</b> - Includes associated access roads, buildings, and associated green space/hardscape (maintained &amp; unmaintained), and forest land within the Cemetery boundary that is not being managed for wood products.</p>
30	<p><b>Transportation</b> - Includes limited access roadways and related green space/hardscape (maintained or unmaintained) (such as interstate highways with on and off ramps, sometimes fenced); railroad stations, tracks and yards; shipyards; airports; etc. If plot falls on any other type of road, or associated median strip, classify according to nearest adjacent land use.</p>
31	<p><b>Utility</b> - Power-generating facilities, sewage treatment facilities, covered and uncovered reservoirs, empty storm-water runoff retention areas, flood control channels, conduits, and associated green space/hardscape (maintained or unmaintained).</p>

<b>Code</b>	<b>Description</b>
40	<b>Park</b> - The i-Tree land use code for Park differs slightly from the FIA land use code for Park in that the i-Tree land use code may be used to describe both nonforest conditions as well as forested conditions that are not being managed for wood products and associated green space/hardscape (maintained or unmaintained). Nonforest parks are developed green space that are generally publicly owned and are always open to the public. These areas generally consist of open maintained green space, playgrounds, recreational trails, buildings and/or athletic fields and include associated parking areas and access roads. Forested parks take on many forms but normally include "park," "wilderness," "wild river," "reserve," or "preserve" in their names, are normally publicly owned, and are generally open to the public although they may be closed for resource protection or public safety reasons. The i-Tree land use code for Park is based on the condition's urban nonforest land use, not the actual park boundary. For example, a wetland within the park boundaries would receive a detailed i-Tree land use code of 50 not 40.
41	<b>Golf course</b> - Includes associated access roads, buildings, green space/hardscape (maintained and unmaintained), and forest land within the golf course boundary that is not being managed for wood products.
50	<b>Water/Wetland</b> - Streams, rivers, lakes, storm-water retention areas and other water bodies and wetlands (natural or manmade) that meet the definition of ID_COND.COND_STATUS_CD = 3 or 4 (see <a href="#">REF_CONDITION_SAMPLING_STATUS</a> table) or areas meeting the definition of detailed FIA land use code = 420 (see <a href="#">REF_FIA_LANDUSE_DETAILED</a> table). Areas of standing water and wetlands that do not meet minimum size requirements should be classified based on the adjacent land use; such areas may include small pools and fountains.
60	<b>Other</b> - Land uses that are not better described by one of the categories listed above. This designation should be used very sparingly as it provides very little useful information for the model.

**6.27.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.27.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.27.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.28 Reference Land Cover Class Table

**Oracle table name: REF\_LAND\_COVER\_CLASS**

### RETIRED

The **REF\_LAND\_COVER\_CLASS** table stores reference data for the LAND\_COVER\_CLASS\_CD attribute. Code for this attribute is used to classify land cover or use on sampled conditions.

**Note:** This attribute is retired when ID\_PLOT.MANUAL\_NATIONAL  $\geq 8.0$  and replaced by a newer cover class version (see [REF\\_COVER\\_CLASS](#)). Many of the codes are the same between the retired and the current code sets. However, there is no national crosswalk to translate the retired codes into the new codes. The cover classification key used by crews has been modified to remove all aspects of land use and focus on land cover.

#### Referencing column(s):

- ID\_COND.[LAND\\_COVER\\_CLASS\\_CD](#) (RETIRED)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.28.1	<a href="#">VALUE</a>	Code value	NUMBER(2)
6.28.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(23)
6.28.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(1197)
6.28.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RLCC_PK	VALUE	N/A

### 6.28.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (LAND\_COVER\_CLASS\_CD - codes that are  $\geq 10\%$  vegetative cover)**

Code	Description
1	<b>Treeland</b> - Areas on which trees provide 10% or greater canopy cover and are part of the dominant (uppermost) vegetation layer, including areas that have been planted to produce woody crops. Only tree species that can be tallied in the region are considered. Example areas include forests, forest plantations, reverting fields with $\geq 10\%$ tree canopy cover, clearcuts with $\geq 10\%$ tree canopy cover. This category includes cypress swamps and mangroves.
2	<b>Shrubland</b> - Areas on which shrubs or subshrubs provide 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Treeland. Shrub/Subshrub - a woody plant that generally has several erect, spreading, or prostrate stems, which give it a bushy appearance. This includes dwarf shrubs, and low or short woody vines (NVCS 2008) and excludes any species on FIA's tree list. Examples include cranberry bogs and other shrub-dominated wetlands, chaparral, and sagebrush.

Code	Description
3	<b>Grassland</b> - Areas on which herbaceous vegetation provide 10% or greater cover and are part of the dominant (uppermost) vegetation layer, provided these areas do not qualify as Treeland or Shrubland. This includes herbs, forbs, and graminoid species. Examples include meadows and prairies. Grazed land is also included, but not if the pasture is improved to such an extent that it meets the requirements for Agricultural Vegetation. This category also includes emergent wetland vegetation like seasonally flooded grasslands, cattail marshes, etc.
4	<b>Non-vascular vegetation</b> - Areas on which non-vascular vegetation provide 10% or greater cover and are part of the dominant vegetation layer, provided these areas do not qualify as Treeland, Shrubland, or Grassland. Examples include mosses, sphagnum moss bogs, liverworts, hornworts, lichens, and algae.
5	<b>Mixed vegetation</b> - Areas with 10% or greater vegetative cover but no one life form has 10% or more cover. That is, these areas do not qualify as Treeland, Shrubland, Grassland, or Non-vascular Vegetation, and thus are a mixture of plant life forms. Examples can include early stages of reverting fields and high deserts.
6	<b>Agricultural vegetation</b> - Areas that are dominated by vegetation grown for the production of crops (food, non-woody fiber and/or ornamental horticulture), including land in any stage of annual crop production, and land being regularly cultivated for production of crops from perennial plants. Agricultural vegetation shows a) rapid turnover in structure, typically at least on an annual basis, either through harvesting and/or planting, or by continual removal of above ground structure (e.g., cutting, haying, or intensive grazing), or b) showing strong linear (planted) features. The herbaceous layer may be bare at various times of the year (NVCS 2008). Examples include row crops and closely sown crops; sod farms, hay and silage crops; orchards (tree fruits and nuts, Christmas trees, nurseries of trees and shrubs), small fruits, and berries; vegetables and melons; unharvested crops; cultivated or improved pasture; idle cropland (can include land in cover and soil-improvement crops and cropland on which no crops were planted) (NRI Field guide). When idle or fallow land ceases to be predominantly covered with manipulated vegetation, then it is no longer Agricultural Vegetation.
7	<b>Developed, vegetated</b> - Areas predominantly covered by vegetation with highly-manipulated growth forms (usually by mechanical pruning, mowing, clipping, etc.), but are not Agricultural. This vegetation type typically contains an almost continuous herbaceous (typically grass) layer, with a closely cropped physiognomy, typically through continual removal of above ground structure (e.g., cutting, mowing), and where tree cover is highly variable, or other highly manipulated planted gardens (NVCS 2008). Examples can include lawns, maintained utility rights-of-way, office parks, and cemeteries.

**Codes: VALUE (LAND\_COVER\_CLASS\_CD - codes that are <10% vegetative cover)**

Code	Description
8	<b>Barren</b> - Natural areas of limited plant life (<10%). Areas generally characterized by bare rock, gravel, sand, silt, clay, or other earthen material, with little or no "green" vegetation present regardless of its inherent ability to support life. Examples include naturally barren areas such as lava fields, gravel bars and sand dunes, as well as areas where land clearance has removed the vegetative cover. Can include the natural material portions of quarries, mines, gravel pits, and cut or burned land <10% vegetation.

<b>Code</b>	<b>Description</b>
9	<b>Developed</b> - Areas predominantly covered with constructed materials with limited plant life (<10%). Examples include completely paved surfaces like roads, parking lots and densely developed urban areas.
10	<b>Water</b> - Areas persistently covered and predominated by water and have <10% emergent vegetative cover. Examples include census and noncensus water and permanent snow and ice. For example, only the open water portion of a bog is to be included.

**6.28.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.28.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.28.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.29 Reference Length Method Table

### Oracle table name: REF\_LENGTH\_METHOD

The **REF\_LENGTH\_METHOD** table stores reference data for the HTCD attribute. Code for this attribute indicates the method used to measure the length of a tree.

#### Referencing column(s):

- ID\_TREE.HTCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.29.1	VALUE	Code value	NUMBER(1)
6.29.2	ABBR	Code abbreviation	VARCHAR2(30)
6.29.3	MEANING	Code meaning	VARCHAR2(127)
6.29.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RLM_PK	VALUE	N/A

#### 6.29.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (HTCD)

Code	Description
1	Total and actual lengths are field measured with a measurement instrument (e.g., clinometer, relascope, tape).
2	Total length is visually estimated, actual length is measured with an instrument.
3	Total and actual lengths are visually estimated.

#### 6.29.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.29.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.29.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.30 Reference No/Yes Table

### Oracle table name: REF\_NO\_YES

The **REF\_NO\_YES** table stores reference data for attributes that use "generic" codes of No/False (value = 0) or Yes/True (value = 1).

#### Referencing column(s):

- ID\_COND.[AFFORESTATION\\_CD](#)
- ID\_COND.[CHAINING\\_CD](#)
- ID\_COND.[PREV\\_AFFORESTATION\\_CD](#)
- ID\_INVASIVE\_SUBP\_COND.[IS\\_MAINTAINED\\_AREA](#)
- ID\_MOTHER\_TREE.[STANDING\\_DEAD\\_CD](#)
- ID\_MOTHER\_TREE.[IS\\_MAINTAINED\\_AREA](#)
- ID\_MOTHER\_TREE.[IS\\_RIPARIAN](#)
- ID\_MOTHER\_TREE.[IS\\_STREET\\_TREE](#)
- ID\_TREE.[MORTALITY\\_CD](#)
- ID\_TREE.[STANDING\\_DEAD\\_CD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.30.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.30.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(15)
6.30.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(25)
6.30.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RNY_PK	VALUE	N/A

#### 6.30.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (No/Yes)

Code	Description
0	No.
1	Yes.

**Codes: VALUE (False/True)**

Code	Description
0	False.
1	True.

**6.30.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.30.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.30.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.31 Reference Owner Class Table

### Oracle table name: REF\_OWNER\_CLASS

The **REF\_OWNER\_CLASS** table stores reference data for the OWNCD attribute. Code for this attribute is used to identify the ownership category of the land for the condition.

#### Referencing column(s):

- ID\_COND.OWNCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.31.1	VALUE	Code value	NUMBER(2)
6.31.2	ABBR	Code abbreviation	VARCHAR2(17)
6.31.3	MEANING	Code meaning	VARCHAR2(186)
6.31.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	ROC_PK	VALUE	N/A

#### 6.31.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (OWNCD)

Code	Description
11	National Forest.
12	National Grassland and/or Prairie.
13	Other Forest Service land.
21	National Park Service.
22	Bureau of Land Management.
23	Fish and Wildlife Service.
24	Departments of Defense/Energy (including the Army Corps of Engineers).
25	Other Federal.
31	State including State public universities.
32	Local (County, Municipality, etc.) including water authorities.
33	Other non-Federal public.
46	Undifferentiated private and Native American. Note: This code is used in the Urban FIADB for all private lands.

**Note:** The following detailed private owner land codes are not available in this database because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

**Codes: VALUE (OWNCD - private lands)**

<b>Code</b>	<b>Description</b>
41	Corporate, including Native Corporations in Alaska and private universities (Including private educational institutions).
42	Non-governmental conservation/natural resources organization.
43	Unincorporated local partnership/association/club.
44	Native American.
45	Individual and family, including trusts, estates, and family partnerships.

**6.31.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.31.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.31.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.32 Reference Owner Group Table

### Oracle table name: REF\_OWNER\_GROUP

The **REF\_OWNER\_GROUP** table stores reference data for the OWNGRPCD attribute. Code for this attribute is used to group owner classes into more general categories for summarization.

#### Referencing column(s):

- ID\_COND.OWNGRPCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.32.1	VALUE	Code value	NUMBER(2)
6.32.2	ABBR	Code abbreviation	VARCHAR2(13)
6.32.3	MEANING	Code meaning	VARCHAR2(36)
6.32.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	ROG_PK	VALUE	N/A

#### 6.32.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (OWNGRPCD)

Code	Description
10	Forest Service (ID_COND.OWNCD = 11, 12, 13).
20	Other Federal (ID_COND.OWNCD = 21, 22, 23, 24, 25).
30	State and local government (ID_COND.OWNCD = 31, 32, 33).
40	Private (ID_COND.OWNCD = 41, 42, 43, 44, 45, 46).

#### 6.32.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.32.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.32.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.33 Reference Percent Class Code Table

### Oracle table name: REF\_PERCENT\_CLASS\_CODE

The **REF\_PERCENT\_CLASS\_CODE** table stores reference data for the CROWN\_DIEBACK\_CD attribute. Code for this attribute is used to describe a discretized range of percentages.

#### Referencing column(s):

- ID\_MOTHER\_TREE.CROWN\_DIEBACK\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.33.1	VALUE	Code value	NUMBER(2)
6.33.2	ABBR	Code abbreviation	VARCHAR2(7)
6.33.3	MEANING	Code meaning	VARCHAR2(17)
6.33.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPCC_PK	VALUE	N/A

#### 6.33.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (CROWN\_DIEBACK\_CD)

Code	Description
0	0%
5	1-5%
10	6-10%
15	11-15%
20	16-20%
25	21-25%
30	26-30%
35	31-35%
40	36-40%
45	41-45%
50	46-50%
55	51-55%
60	56-60%
65	61-65%
70	66-70%

Code	Description
75	71-75%
80	76-80%
85	81-85%
90	86-90%
95	91-95%
99	96-100%

**6.33.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.33.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.33.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.34 Reference Physiographic Class Table

### Oracle table name: REF\_PHYSIOGRAPHIC\_CLASS

The **REF\_PHYSIOGRAPHIC\_CLASS** table stores reference data for the PHYSCLCD attribute. Code for this attribute indicates the physiographic classification of a land condition.

#### Referencing column(s):

- ID\_COND.PHYSCLCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.34.1	VALUE	Code value	NUMBER(2)
6.34.2	ABBR	Code abbreviation	VARCHAR2(30)
6.34.3	MEANING	Code meaning	VARCHAR2(413)
6.34.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPC_PK	VALUE	N/A

#### 6.34.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (PHYSCLCD)

Code	Description
—	<b>Xeric sites</b> (normally low or deficient in available moisture)
11	Dry tops - Ridge tops with thin rock outcrops and considerable exposure to sun and wind.
12	Dry slopes - Slopes with thin rock outcrops and considerable exposure to sun and wind. Includes most steep slopes with a southern or western exposure.
13	Deep sands - Sites with a deep, sandy surface subject to rapid loss of moisture following precipitation. Typical examples include sand hills, ridges, and flats in the South, sites along the beach and shores of lakes and streams, and many deserts.
19	Other xeric - All dry physiographic sites not described above.
—	<b>Mesic sites</b> (normally moderate but adequate available moisture)
21	Flatwoods - Flat or fairly level sites outside of floodplains. Excludes deep sands and wet, swampy sites.
22	Rolling uplands - Hills and gently rolling, undulating terrain and associated small streams. Excludes deep sands, all hydric sites, and streams with associated floodplains.
23	Moist slopes and coves - Moist slopes and coves with relatively deep, fertile soils. Often these sites have a northern or eastern exposure and are partially shielded from wind and sun. Includes moist mountain tops and saddles.

<b>Code</b>	<b>Description</b>
24	Narrow floodplains/bottomlands - Floodplains and bottomlands less than 1/4 mile in width along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces within a 1/4-mile limit. Excludes swamps, sloughs, and bogs.
25	Broad floodplains/bottomlands - Floodplains and bottomlands 1/4 mile or wider along rivers and streams. These sites are normally well drained but are subjected to occasional flooding during periods of heavy or extended precipitation. Includes associated levees, benches, and terraces. Excludes swamps, sloughs, and bogs with year-round water problems.
29	Other mesic - All moderately moist physiographic sites not described above.
—	<b>Hydric sites</b> (normally abundant or overabundant moisture all year)
31	Swamps/Bogs - Low, wet, flat, forested areas usually quite extensive that are flooded for long periods except during periods of extreme drought. Excludes cypress ponds and small drains.
32	Small drains - Narrow, stream-like, wet strands of forest land often without a well-defined stream channel. These areas are poorly drained or flooded throughout most of the year and drain the adjacent higher ground.
33	Bays and wet pocosins - Low, wet, boggy sites characterized by peaty or organic soils. May be somewhat dry during periods of extended drought. Examples include sites in the Carolina bays in the Southeast United States.
34	Beaver ponds.
35	Cypress ponds.
36	Forest or nonforest over permafrost - Low-lying, sometimes wet, flat areas, often characterized by a thick moss layered ground surface, sometimes comprised of tussocks that tend to form a waterlogged soils layer as the active layer thaws seasonally. Permafrost may be visible or detected with a soil probe. At later periods in the season when permafrost cannot be detected, waterlogged soils layered on top of deeper permafrost are possible.
39	Other hydric - All other hydric physiographic sites.

**6.34.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.34.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.34.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.35 Reference Plant Dictionary

### Oracle table name: REF\_PLANT\_DICTIONARY

The **REF\_PLANT\_DICTIONARY** table contains information about plant species as defined by the Natural Resources Conservation Service (NRCS) for the **PLANTS** database (available at web address: <https://plants.usda.gov>). The species symbol, common name, scientific name, growth habit, and other identifying information are included in this table.

**Note:** FIA identifies species and other taxonomic ranks for plants using symbols (SYMBOL) as assigned by NRCS for the **PLANTS** database (available at web address: <https://plants.usda.gov>) on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.

#### Referencing column(s):

- N/A

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.35.1	CN	Plant dictionary sequence number	VARCHAR2(34)
6.35.2	SYMBOL_TYPE	Symbol type	VARCHAR2(20)
6.35.3	SYMBOL	Symbol	VARCHAR2(16)
6.35.4	SCIENTIFIC_NAME	Scientific name	VARCHAR2(100)
6.35.5	NEW_SYMBOL	New symbol	VARCHAR2(16)
6.35.6	NEW_SCIENTIFIC_NAME	New scientific name	VARCHAR2(100)
6.35.7	COMMON_NAME	Common name	VARCHAR2(100)
6.35.8	CATEGORY	Category	VARCHAR2(15)
6.35.9	FAMILY	Family	VARCHAR2(25)
6.35.10	GROWTH_HABIT	Growth habit	VARCHAR2(50)
6.35.11	DURATION	Duration	VARCHAR2(50)
6.35.12	US_NATIVITY	United States nativity	VARCHAR2(100)
6.35.13	STATE_DISTRIBUTION	State distribution	VARCHAR2(300)
6.35.14	STATE_AND_PROVINCE	State and province	VARCHAR2(500)
6.35.15	SCIENTIFIC_NAME_W_AUTHOR	Scientific name with author	VARCHAR2(500)
6.35.16	GENERA_BINOMIAL_AUTHOR	Genera binomial author	VARCHAR2(100)
6.35.17	TRINOMIAL_AUTHOR	Trinomial author	VARCHAR2(100)
6.35.18	QUADRINOMIAL_AUTHOR	Quadrinomial author	VARCHAR2(100)
6.35.19	XGENUS	Cross genus	VARCHAR2(1)
6.35.20	GENUS	Genus	VARCHAR2(40)
6.35.21	XSPECIES	Cross species	VARCHAR2(1)
6.35.22	SPECIES	Species	VARCHAR2(50)
6.35.23	SSP	Subspecies indicator	VARCHAR2(4)
6.35.24	XSUBSPECIES	Cross subspecies	VARCHAR2(1)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.35.25	SUBSPECIES	Subspecies	VARCHAR2(30)
6.35.26	VAR	Variety indicator	VARCHAR2(4)
6.35.27	XVARIETY	Cross variety	VARCHAR2(1)
6.35.28	VARIETY	Variety	VARCHAR2(30)
6.35.29	SUBVAR	Subvariety indicator	VARCHAR2(7)
6.35.30	SUBVARIETY	Subvariety	VARCHAR2(30)
6.35.31	F	Forma indicator	VARCHAR2(2)
6.35.32	FORMA	Forma	VARCHAR2(30)
6.35.33	NOTES	Plant dictionary notes	VARCHAR2(2000)
6.35.34	CREATED_BY	Created by	VARCHAR2(30)
6.35.35	CREATED_DATE	Created date	DATE
6.35.36	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.35.37	MODIFIED_BY	Modified by	VARCHAR2(30)
6.35.38	MODIFIED_DATE	Modified date	DATE
6.35.39	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPD_PK	CN	N/A
Unique	RPD_UK	SYMBOL_TYPE, SYMBOL, NEW_SYMBOL	N/A

### 6.35.1 CN

**Plant dictionary sequence number.** A unique sequence number used to identify a reference plant dictionary record (in REF\_PLANT\_DICTIONARY).

### 6.35.2 SYMBOL\_TYPE

**Symbol type.** This attribute describes the type of NRCS PLANTS symbol.

**Codes: SYMBOL\_TYPE**

Code	Description
Species	Accepted symbol identified to species, subspecies, or variety.
Genus	Accepted symbol identified to genus.
Old	Synonym symbol for an old scientific name.
Unknown	Symbol used to identify generic categories of unknown plants.

### 6.35.3 SYMBOL

**Symbol.** The NRCS PLANTS database symbol code assigned to a specific plant taxon.

**6.35.4 SCIENTIFIC\_NAME**

**Scientific name.** The NRCS [PLANTS database](#) scientific name for the taxon SYMBOL.

**6.35.5 NEW\_SYMBOL**

**New symbol.** Populated only when 'Old' is recorded in the SYMBOL\_TYPE column. Represents the new NRCS [PLANTS database](#) accepted code that has been updated from the old synonym symbol. When SYMBOL\_TYPE = 'Species' or 'Genus' is recorded, the current accepted code is found in the SYMBOL column. See table 6-2 for an example that displays the old and current records for a species that was updated to a new symbol code.

**Table 6-2:** REF\_PLANT\_DICTIONARY table example displaying codes for an old and current record.

SYMBOL_TYPE	SYMBOL	SCIENTIFIC_NAME	NEW_SYMBOL	NEW_SCIENTIFIC_NAME	SCIENTIFIC_NAME_W_AUTHOR	GENERA_BINOMIAL_AUTHOR
Old	ABAM4	Abama americana	NAAM	Narthecium americanum	Abama americana (Ker Gawl.) Morong	(Ker Gawl.) Morong
Species	NAAM	Narthecium americanum	—	—	Narthecium americanum Ker Gawl.	Ker Gawl.

**6.35.6 NEW\_SCIENTIFIC\_NAME**

**New scientific name.** Populated only when 'Old' is recorded in the SYMBOL\_TYPE column. Represents the new NRCS [PLANTS database](#) accepted scientific name that has been updated from the old synonym scientific name. When SYMBOL\_TYPE = 'Species' or 'Genus' is recorded, the current accepted scientific name is found in the SCIENTIFIC\_NAME column. See table 6-2 in [NEW\\_SYMBOL](#) for an example that displays the old and current records for a species that was updated to a new symbol code.

**6.35.7 COMMON\_NAME**

**Common name.** The NRCS [PLANTS database](#) common name associated with the taxon SYMBOL.

**6.35.8 CATEGORY**

**Category.** Indicates the broad taxonomic category for the symbol. This attribute is blank (null) when 'Unknown' is recorded in the SYMBOL column.

**Codes: CATEGORY**

Code	Description
Dicot	Division Magnoliophyta; Class Magnoliopsida.
Fern	Division Pteridophyta.
Gymnosperm	Division Coniferophyta (conifers).
Horsetail	Division Equisetophyta.
Lycopod	Division Lycopodiophyta; Class Lycopodiopsida; Order Lycopodiales (clubmoss).
Monocot	Division Magnoliophyta; Class Liliopsida.

Code	Description
Psizophyte	Division Psizophyta (whisk-ferns).
Quillwort	Division Lycopodiophyta; Class Lycopodiopsida; Order Isoetales.

### 6.35.9 FAMILY

**Family.** The NRCS [PLANTS database](#) family name associated with the species SYMBOL.

### 6.35.10 GROWTH\_HABIT

**Growth habit.** The growth habit of the symbol (see SYMBOL). Some plants have different growth habits depending on environment or location; therefore, a plant can have more than one value. The code descriptions for this attribute are based on definitions from the NRCS [PLANTS database](#).

#### Codes: GROWTH\_HABIT

Code	Description
Forb/herb	Vascular plant without significant woody tissue above or at the ground. Forbs and herbs may be annual, biennial, or perennial but always lack significant thickening by secondary woody growth and have perennating buds borne at or below the ground surface. In PLANTS, graminoids are excluded, but ferns, horsetails, lycopods, and whisk-ferns are included.
Graminoid	Grass or grass-like plant, including grasses (Poaceae), sedges (Cyperaceae), rushes (Juncaceae), arrow-grasses (Juncaginaceae), and quillworts (Isoetes).
Liana	Climbing plant found in tropical forests with long, woody rope-like stems of anomalous anatomical structure.
Shrub	Perennial, multi-stemmed woody plant that is usually less than 4 to 5 meters (13 to 16 feet) in height. Shrubs typically have several stems arising from or near the ground, but may be taller than 5 meters or single-stemmed under certain environmental conditions.
Subshrub	Low-growing shrub usually under 0.5 m (1.5 feet) tall, never exceeding 1 meter (3 feet) tall at maturity.
Tree	Perennial, woody plant with a single stem (trunk), normally greater than 4 to 5 meters (13 to 16 feet) in height; under certain environmental conditions, some tree species may develop a multi-stemmed or short growth form (less than 4 meters or 13 feet in height).
Vine	Twining/climbing plant with relatively long stems, can be woody or herbaceous.

### 6.35.11 DURATION

**Duration.** The duration of a plant according to the NRCS [PLANTS database](#). A plant can be associated with more than one type of duration.

#### Codes: DURATION

Code	Description
Annual	Individual completes life cycle in a single year.
Biennial	Individual completes life cycle over two growing seasons.

Code	Description
Perennial	Individuals live for many years, including herbaceous plants that re-sprout from roots.
Unknown	Life cycle and duration unknown.

### 6.35.12 US\_NATIVITY

**United States nativity.** A code indicating the native status jurisdiction and the native status of the plant. There are plants present in the table that do not currently exist in the United States (i.e., jurisdiction is outside of the United States). A plant that is native to any part of a native status jurisdiction (e.g., L48 [the lower 48 States]) is considered native, even if some populations within that area are introduced. Thus the 'L48' native status for smooth cordgrass (*Spartina alterniflora*) is 'N' (Native) despite the existence of introduced populations on the West Coast. A plant like dandelion (*Taraxacum officinale*), however, is considered native and introduced because it has some infra-taxa that are native to 'L48' and some that are introduced there.

**Codes: US\_NATIVITY (Status - Native)**

Jurisdiction code	Description
AK	Alaska.
CAN	Canada.
GL	Greenland (Denmark).
HI	Hawaii.
L48	Lower 48 States.
NA	North America (only non-vascular plants and lichens have native status given at this level).
NAV	Navassa Island (the sole Caribbean member of the United States Minor Outlying Islands).
PB	Pacific Basin excluding Hawaii.
PR	Puerto Rico.
SPM	St. Pierre and Miquelon (France).
VI	U.S. Virgin Islands.
AS	American Samoa.
PW	Palau.
FM	Micronesia, Federated States.
MP	Northern Mariana Islands.

**Codes: US\_NATIVITY (Status - Native)**

Status code	Description
N	Native.
N?	Probably Native.
NI	Native and Introduced - some infra-taxa are native and others are introduced.
NI?	Native and Probably Introduced - some infra-taxa are native and others are probably introduced.

**Codes: US\_NATIVITY (Status - Introduced)**

Status code	Description
GP	Garden persistent - persists around gardens and old habitations, not naturalized.
GP?	Probably Garden persistent - persists around gardens and old habitations, not naturalized.
I	Introduced.
I?	Probably Introduced.
N?I	Probably Native and Introduced - some infra-taxa are probably native and others are introduced.
W	Waif - an ephemeral introduction, not persistently naturalized.
W?	Probably a Waif - an ephemeral introduction, not persistently naturalized.

**6.35.13 STATE\_DISTRIBUTION**

**State distribution.** State distribution of the plant according to the NRCS [PLANTS database](#).

**6.35.14 STATE\_AND\_PROVINCE**

**State and province.** State and province distribution of the plant according to the NRCS [PLANTS database](#).

**6.35.15 SCIENTIFIC\_NAME\_W\_AUTHOR**

**Scientific name with author.** Scientific name with author of the plant according to the NRCS [PLANTS database](#).

**6.35.16 GENERA\_BINOMIAL\_AUTHOR**

**Genera binomial author.** Genera binomial author of the plant according to the NRCS [PLANTS database](#).

**6.35.17 TRINOMIAL\_AUTHOR**

**Trinomial author.** Trinomial author of the plant according to the NRCS [PLANTS database](#).

**6.35.18 QUADRINOMIAL\_AUTHOR**

**Quadrinomial author.** Quadrinomial author of the plant according to the NRCS [PLANTS database](#).

**6.35.19 XGENUS**

**Cross genus.** The cross-genus hybridization indicator.

**6.35.20 GENUS**

**Genus.** The NRCS [PLANTS database](#) genus name.

**6.35.21 XSPECIES**

**Cross species.** The cross-species hybridization indicator.

**6.35.22 SPECIES**

**Species.** The NRCS [PLANTS database](#) species name.

**6.35.23 SSP**

**Subspecies indicator.** The term "ssp." is a botanical abbreviation for the taxonomic rank of "subspecies." This column is populated with 'ssp.' for plants that have this term included within their name as listed in the NRCS [PLANTS database](#). This column remains null for other plants. When populated, the subspecies name associated with the taxon symbol is listed in the SUBSPECIES column.

**6.35.24 XSUBSPECIES**

**Cross subspecies.** Cross-subspecies hybridization indicator.

**6.35.25 SUBSPECIES**

**Subspecies.** The NRCS [PLANTS database](#) subspecies name.

**6.35.26 VAR**

**Variety indicator.** The term "var." is a botanical abbreviation for the taxonomic rank of "variety." This column is populated with 'var.' for plants that have this term included within their name as listed in the NRCS [PLANTS database](#). This column remains null for other plants. When populated, the variety name associated with the taxon symbol is listed in the VARIETY column.

**6.35.27 XVARIETY**

**Cross variety.** Cross-variety hybridization indicator.

**6.35.28 VARIETY**

**Variety.** The NRCS [PLANTS database](#) variety name.

**6.35.29 SUBVAR**

**Subvariety indicator.** The term "subvar." is a botanical abbreviation for the taxonomic rank of "subvariety." This column is populated with 'subvar.' for plants that have this term included within their name as listed in the NRCS [PLANTS database](#). This column remains null for other plants. When populated, the subvariety name associated with the taxon symbol is listed in the SUBVARIETY column.

**6.35.30 SUBVARIETY**

**Subvariety.** Subvariety of the plant according to the NRCS [PLANTS database](#).

**6.35.31 F**

**Forma indicator.** The term "f." is a botanical abbreviation for the taxonomic rank of "forma." This column is populated with 'f.' for plants that have this term included within their name as listed in the NRCS [PLANTS database](#). This column remains null for other plants. When populated, the forma name associated with the taxon symbol is listed in the FORMA column.

**6.35.32 FORMA**

**Forma.** Forma of the plant according to the NRCS [PLANTS database](#).

**6.35.33 NOTES**

**Plant dictionary notes.** Notes pertaining to the record.

**6.35.34 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.35.35 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.35.36 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.35.37 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.35.38 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.35.39 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.

## 6.36 Reference Plot Nonsampled Reason Table

### Oracle table name: REF\_PLOT\_NONSAMPLE\_REASON

The **REF\_PLOT\_NONSAMPLE\_REASON** table stores reference data for the PLOT\_NONSAMPLE\_REASN\_CD attribute. Code for this attribute identifies the reason for a nonsampled plot visit.

#### Referencing column(s):

- ID\_PLOT.PLOT\_NONSAMPLE\_REASN\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.36.1	VALUE	Code value	NUMBER(2)
6.36.2	ABBR	Code abbreviation	VARCHAR2(22)
6.36.3	MEANING	Code meaning	VARCHAR2(357)
6.36.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPNR_PK	VALUE	N/A

#### 6.36.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (PLOT\_NONSAMPLE\_REASN\_CD)**

Code	Description
1	<b>Outside U.S. boundary</b> - Entire plot is outside of the U.S. border.
2	<b>Denied access</b> - Access to the entire plot is denied by the legal owner, or by the owner of the only reasonable route to the plot.
3	<b>Hazardous situation</b> - Entire plot cannot be accessed because of a hazard or danger.
5	<b>Lost data</b> - This code is for office use only.
6	<b>Lost plot</b> - Entire plot cannot be found.
7	<b>Wrong location</b> - Previous plot can be found, but its placement is beyond the tolerance limits for plot location.
8	<b>Skipped visit</b> - This code is for office use only.
9	<b>Dropped intensified plot</b> - This code is for office use only.
10	<b>Other</b> - Entire plot not sampled due to a reason other than one of the specific reasons already listed.
11	<b>Ocean</b> - Plot falls in ocean water below mean high tide line.

#### 6.36.2 ABBR

**Code abbreviation.** The abbreviation for the code.

**6.36.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.36.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.37 Reference Plot Status Table

### Oracle table name: REF\_PLOT\_STATUS

The **REF\_PLOT\_STATUS** table stores reference data for the PLOT\_STATUS\_CD attribute. Code for this attribute describes the sampling status of a plot visit. The sampling status indicates the result of an attempt to visit a given plot for sampling.

#### Referencing column(s):

- ID\_PLOT.PLOT\_STATUS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.37.1	VALUE	Code value	NUMBER(1)
6.37.2	ABBR	Code abbreviation	VARCHAR2(18)
6.37.3	MEANING	Code meaning	VARCHAR2(146)
6.37.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPS_PK	VALUE	N/A

#### 6.37.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (PLOT\_STATUS\_CD)

Code	Description
1	Sampled: Forest - at least one accessible forest land condition present on subplot.
2	Sampled: Nonforest - no accessible forest but at least one accessible nonforest land condition present on subplot.
3	Sampled: Water - no accessible forest or accessible nonforest land condition present on subplot (i.e., subplot is either census and/or noncensus water).
4	Nonsampled.

#### 6.37.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.37.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.37.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.38 Reference Previous Tree Status Table

### Oracle table name: REF\_PREV\_TREE\_STATUS

The **REF\_PREV\_TREE\_STATUS** table stores reference data for the FIELD\_PREV\_STATUS\_CD attribute. Code for attribute indicates the status of the tree that was recorded by the field crew at the previous plot visit (this code is also recorded for all new standing dead trees).

#### Referencing column(s):

- ID\_TREE.FIELD\_PREV\_STATUS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.38.1	VALUE	Code value	NUMBER(1)
6.38.2	ABBR	Code abbreviation	VARCHAR2(4)
6.38.3	MEANING	Code meaning	VARCHAR2(66)
6.38.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPTS_PK	VALUE	N/A

#### 6.38.1 VALUE

**Code value.** The value of the code.

**Codes:** VALUE (FIELD\_PREV\_STATUS\_CD)

Code	Description
1	Live tree - alive at the previous inventory.
2	Dead tree - standing dead at the previous inventory.

#### 6.38.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.38.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.38.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.39 Reference Productivity Status Table

### Oracle table name: REF\_PRODUCTIVITY\_STATUS

The **REF\_PRODUCTIVITY\_STATUS** table stores reference data for the PRODUCTIVITY\_STATUS attribute. Code for this attribute is used to classify the productivity of a land condition.

#### Referencing column(s):

- ID\_COND.[PRODUCTIVITY\\_STATUS](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.39.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.39.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(12)
6.39.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(394)
6.39.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPS2_PK	VALUE	N/A

#### 6.39.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (PRODUCTIVITY\_STATUS)

Code	Description
0	<b>Unproductive</b> - Forest land incapable of producing 20 cubic feet per acre per year because of adverse site conditions. Adverse conditions include sterile soils, dry climate, poor drainage, high elevation, steepness, and rockiness. Vegetation, if present, is widely spaced and scrubby, or tree growth cannot be established. These conditions can be due to forces of nature or human-caused disturbances.
1	<b>Productive</b> - Forest land capable of producing in excess of 20 cubic feet per acre per year. Productive forest land may be nonstocked provided that neither any natural condition, nor any activity by humans, prevents or inhibits the establishment of tree seedlings.

#### 6.39.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.39.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.39.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.40 Reference Reconcile Table

### Oracle table name: REF\_RECONCILE

The **REF\_RECONCILE** table stores reference data for the RECONCILECD attribute. Code for this attribute describes the reconciliation of trees measured during a previous visit with trees measured during the current visit. These codes identify the reason why a given tree enters or leaves the inventory.

#### Referencing column(s):

- ID\_TREE.RECONCILECD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.40.1	VALUE	Code value	NUMBER(1)
6.40.2	ABBR	Code abbreviation	VARCHAR2(17)
6.40.3	MEANING	Code meaning	VARCHAR2(502)
6.40.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RR_PK	VALUE	N/A

#### 6.40.1 VALUE

**Code value.** The value of the code.

#### Notes:

- Starting with ID\_PLOT.[MANUAL\\_NATIONAL](#) = 9.0, codes 1-2 are only valid for new trees (ID\_TREE.[STATUSCD](#) = 1, 2) on the plot and exclude trees associated with a change in procedures/definitions or previous cruiser error, as such trees are accounted for with RECONCILECD = 7 or 8. Codes 6-9 are valid for both new tally trees and remeasured trees that no longer qualify as tally.
- When ID\_PLOT.[MANUAL\\_NATIONAL](#) = 7.0 through 8.0, standing dead saplings that were not included in the previous inventory were assigned RECONCILECD = 4.

#### Codes: VALUE (RECONCILECD)

Code	Description
1	<b>Ingrowth</b> - Either (a) a new tally tree not qualifying as through growth, or (b) a new tree on land that was formerly nonforest and now qualifies as forest land unrelated to cruiser error or procedural/definition change.
2	<b>Through growth</b> - A new tally tree 5.0 inches d.b.h./d.r.c. and larger, within the microplot, which was not missed at the previous inventory (i.e., grew from seedling to at least 5.0 inches d.b.h. between plot inventory cycles - such trees were never tallied on a microplot). This code would be used for trees that were transplanted to the site and had a d.b.h./d.r.c. of 5 inches or greater.

Code	Description
3	<b>RETIRED code</b> - Starting with ID_PLOT.MANUAL_NATIONAL = 9.0, this code is no longer used; it is still valid for ID_PLOT.MANUAL_NATIONAL <9.0. <i>Missed live - A live tree missed at previous inventory and that is live or dead now. Includes currently tallied trees on previously nonsampled conditions.</i>
4	<b>RETIRED code</b> - Starting with ID_PLOT.MANUAL_NATIONAL = 9.0, this code is no longer used; it is still valid for ID_PLOT.MANUAL_NATIONAL <9.0. <i>Missed dead - A dead tree missed at previous inventory and that is dead now. Includes currently tallied trees on previously nonsampled conditions.</i>
5	<b>Shrank</b> - A live tree that shrank below threshold diameter on microplot/subplot. Must currently be alive. Only valid for remeasured trees that no longer qualify as tally (ID_TREE.STATUSCD = 0).
6	<b>Physical movement</b> - Either (a) tree was correctly tallied in previous inventory, but has now moved beyond the radius of the plot due to natural causes (e.g., small earth movement, hurricane), or (b) tree was outside the radius of the plot previously, but has now moved within the plot due to natural causes. Tree must be either live before and still alive now, or dead before and dead now. If tree was live before and now dead, this is a mortality tree and should have ID_TREE.STATUSCD = 2 (not 0).
7	<b>Cruiser error</b> - Either (a) tree was erroneously tallied (added tree), or (b) tree was erroneously not tallied (missed tree) at the previous inventory.
8	<b>Procedural change</b> - Either (a) tree was tallied at the previous inventory, but is no longer tallied due to a definition or procedural change, or (b) tree was not tallied at the previous inventory, but is now tallied due to a definition or procedural change, regardless of d.b.h./d.r.c. at the time of the previous inventory.
9	<b>Nonsampled area</b> - Either (a) tree was located in a sampled condition at the previous inventory, but now is in a nonsampled condition, or (b) the area where the tree is located was previously not sampled, but now is sampled. All trees located in a nonsampled area (either now or previously) have RECONCILECD = 9.

#### 6.40.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.40.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.40.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.41 Reference Regeneration Status Table

### Oracle table name: REF\_REGENERATION\_STATUS

The **REF\_REGENERATION\_STATUS** table stores reference data for the STDORGCD attribute. Code for this attribute indicates the regeneration status of a stand of trees.

#### Referencing column(s):

- ID\_COND.STDORGCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.41.1	VALUE	Code value	NUMBER(1)
6.41.2	ABBR	Code abbreviation	VARCHAR2(10)
6.41.3	MEANING	Code meaning	VARCHAR2(124)
6.41.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RRS_PK	VALUE	N/A

#### 6.41.1 VALUE

**Code value.** The value of the code.

**Codes:** VALUE (STDORGCD)

Code	Description
0	<b>Natural</b> - Present stand shows no clear evidence of artificial regeneration.
1	<b>Artificial</b> - Present stand shows clear evidence of artificial regeneration.

#### 6.41.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.41.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.41.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.42 Reference Reserved Status Table

### Oracle table name: REF\_RESERVED\_STATUS

The **REF\_RESERVED\_STATUS** table stores reference data for the RESERVCD attribute. Code for this attribute indicates the reserved status of a land condition. These codes are supported by an FIA definition of reserved land. For further details, refer to ID\_COND.[RESERVCD](#).

#### Referencing column(s):

- ID\_COND.[RESERVCD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.42.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.42.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(12)
6.42.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(22)
6.42.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RRS2_PK	VALUE	N/A

#### 6.42.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (RESERVCD)**

Code	Description
0	Not reserved.
1	Reserved.

#### 6.42.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.42.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.42.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.43 Reference Sample Kind Table

### Oracle table name: REF\_SAMPLE\_KIND

The **REF\_SAMPLE\_KIND** table stores reference data for the KINDCD attribute. Code for this attribute indicates the type of plot visit. The term "sample kind" is used to indicate the kind of measurements that will be taken during the visit within an on-going annualized inventory. Some visits constitute the initial establishment of a permanent sampling point, while other visits are remeasurements of a previously established point.

#### Referencing column(s):

- ID\_PLOT.KINDCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.43.1	VALUE	Code value	NUMBER(1)
6.43.2	ABBR	Code abbreviation	VARCHAR2(20)
6.43.3	MEANING	Code meaning	VARCHAR2(367)
6.43.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSK_PK	VALUE	N/A

#### 6.43.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (KINDCD)

Code	Description
1	Initial - Initial plot establishment, or a remeasured national design plot that was coded as nonsampled (PLOT_STATUS_CD = 4) at the previous inventory.
2	Remeasurement - remeasurement of a national design plot that was sampled at the previous inventory.
3	Replacement - a replacement plot for a previously established plot.

#### 6.43.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.43.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.43.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.44 Reference Sample Method Code Table

### Oracle table name: REF\_SAMPLE\_METHOD\_CD

The **REF\_SAMPLE\_METHOD\_CD** table stores reference data for the SAMPLE\_METHOD\_CD attribute. Code for this attribute indicates the sampling method used for a plot visit.

**Note:** This attribute is not available in the Urban FIADB because of the FIA data confidentiality policy. Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](https://research.fs.usda.gov/programs/fia/sds) team by following the instructions provided at the following web address: <https://research.fs.usda.gov/programs/fia/sds>.

#### Referencing column(s):

- ID\_PLOT.[SAMPLE\\_METHOD\\_CD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.44.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.44.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(10)
6.44.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(180)
6.44.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSMC_PK	VALUE	N/A
Unique	RSMC_UK	ABBR	N/A

#### 6.44.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (SAMPLE\_METHOD\_CD)

Code	Description
1	Sampled on the ground by field crews.
2	Photo-interpretation in the office.
3	Office sampled by entering data in the field data collection system.

#### 6.44.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.44.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.44.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.45 Reference Seedling Maintained Area Table

**Oracle table name: REF\_SEEDLING\_MAINTAINED\_AREA**

The **REF\_SEEDLING\_MAINTAINED\_AREA** table stores reference data for the **IS\_MAINTAINED\_AREA** attribute in the **ID\_SEEDLING** table. Code for this attribute indicates whether or not a group of seedlings is located within a maintained area.

**Referencing column(s):**

- ID\_SEEDLING.IS\_MAINTAINED\_AREA

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.45.1	VALUE	Code value	NUMBER(1)
6.45.2	ABBR	Code abbreviation	VARCHAR2(3)
6.45.3	MEANING	Code meaning	VARCHAR2(105)
6.45.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSMA_PK	VALUE	N/A

### 6.45.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (IS\_MAINTAINED\_AREA)**

Code	Description
0	No, <50 percent of the seeding count for an individual species is in a maintained area.
1	Yes, 50 percent or more of the seedling count for an individual species is in a maintained area.

### 6.45.2 ABBR

**Code abbreviation.** The abbreviation for the code.

### 6.45.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

### 6.45.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.46 Reference Seedling Planted Table

### Oracle table name: REF\_SEEDLING\_PLANTED

The **REF\_SEEDLING\_PLANTED** table stores reference data for the IS\_PLANTED attribute in the ID\_SEEDLING table. Code for this attribute indicates if a group of seedlings has been planted or has been established by natural mechanisms.

**Note:** Not populated for ID\_COND.COND\_STATUS\_CD = 1 (accessible forest land) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

#### Referencing column(s):

- ID\_SEEDLING.IS\_PLANTED

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.46.1	VALUE	Code value	NUMBER(1)
6.46.2	ABBR	Code abbreviation	VARCHAR2(8)
6.46.3	MEANING	Code meaning	VARCHAR2(133)
6.46.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSP_PK	VALUE	N/A

#### 6.46.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (IS\_PLANTED)

Code	Description
1	<b>Planted</b> - At least half of the seedling count for an individual species appear to have been planted at some point in the past.
2	<b>Natural</b> - At least half of the seedling count for an individual species appear to be of a natural origin.
3	<b>Not sure</b> - Unable to confidently determine if at least half of the seedling count for an individual species was planted or are natural.

#### 6.46.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.46.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.46.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.47 Reference Site Class Code Table

**Oracle table name: REF\_SITE\_CLASS\_CODE**

The **REF\_SITE\_CLASS\_CODE** table stores reference data for the COND\_SITECLASS\_FLD and SITE\_CLASS\_CD attributes. Code for these attributes indicate the estimated site productivity for a land condition. These codes are ordinal and classify productivity in terms of cubic feet per acre per year.

**Referencing column(s):**

- ID\_COND.COND\_SITECLASS\_FLD
- ID\_COND.SITE\_CLASS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.47.1	VALUE	Code value	NUMBER(1)
6.47.2	ABBR	Code abbreviation	VARCHAR2(18)
6.47.3	MEANING	Code meaning	VARCHAR2(39)
6.47.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSCC_PK	VALUE	N/A

### 6.47.1 VALUE

**Code value.** The value of the code.

**Codes:** VALUE (COND\_SITECLASS\_FLD, SITE\_CLASS\_CD)

Code	Description
1	225+ cubic feet/acre/year.
2	165-224 cubic feet/acre/year.
3	120-164 cubic feet/acre/year.
4	85-119 cubic feet/acre/year.
5	50-84 cubic feet/acre/year.
6	20-49 cubic feet/acre/year.
7	0-19 cubic feet/acre/year.

### 6.47.2 ABBR

**Code abbreviation.** The abbreviation for the code.

### 6.47.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.47.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.48 Reference Species Table

### Oracle table name: REF\_SPECIES

The **REF\_SPECIES** table stores the species code, species group code, descriptive common name, scientific name, and many other attributes for tree species that are sampled in the annualized urban inventory. This is a critical reference table for FIA inventories.

**Note:** FIA identifies species and other taxonomic ranks for plants using symbols (SPECIES\_SYMBOL) as assigned by the Natural Resources Conservation Service (NRCS) for the [PLANTS database](https://plants.usda.gov) (available at web address: <https://plants.usda.gov>) on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.

#### Referencing column(s):

- ID\_MOTHER\_TREE.[SPCD](#)
- ID\_SEEDLING.[SPCD](#)
- ID\_SITETREE.[SPCD](#)
- ID\_TREE.[SPCD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.48.1	<a href="#">SPCD</a>	Species code	INTEGER
6.48.2	<a href="#">COMMON_NAME</a>	Common name	VARCHAR2(100)
6.48.3	<a href="#">SHARED_COMMON_NAME_IND</a>	Shared common name indicator	CHAR(1)
6.48.4	<a href="#">GENUS</a>	Genus	VARCHAR2(4000)
6.48.5	<a href="#">SPECIES</a>	Species	VARCHAR2(4000)
6.48.6	<a href="#">VARIETY</a>	Variety	VARCHAR2(4000)
6.48.7	<a href="#">SUBSPECIES</a>	Subspecies	VARCHAR2(4000)
6.48.8	<a href="#">SCIENTIFIC_NAME</a>	Scientific name	VARCHAR2(4000)
6.48.9	<a href="#">SPECIES_SYMBOL</a>	Species symbol	VARCHAR2(10)
6.48.10	<a href="#">E_SPGRPCD</a>	Eastern species group code	NUMBER
6.48.11	<a href="#">W_SPGRPCD</a>	Western species group code	NUMBER
6.48.12	<a href="#">C_SPGRPCD</a>	Caribbean Islands species group code	NUMBER
6.48.13	<a href="#">P_SPGRPCD</a>	Pacific Islands species group code	NUMBER
6.48.14	<a href="#">MAJOR_SPGRPCD</a>	Major species group code	NUMBER
6.48.15	<a href="#">STOCKING_SPGRPCD</a>	Stocking species group code	NUMBER
6.48.16	<a href="#">FOREST_TYPE_SPGRPCD</a>	Forest type species group code	NUMBER
6.48.17	<a href="#">JENKINS_SPGRPCD</a>	Jenkins species group code	NUMBER
6.48.18	<a href="#">JENKINS_SAPLING_ADJUSTMENT</a>	Jenkins sapling adjustment factor	NUMBER
6.48.19	<a href="#">SITETREE</a>	Site tree	VARCHAR2(1)
6.48.20	<a href="#">SFTWD_HRDWD</a>	Softwood or hardwood	VARCHAR2(1)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.48.21	WOODLAND	Woodland species indicator	VARCHAR2(1)
6.48.22	WOOD_SPGR_GREENVOL_DRYWT	Green specific gravity of wood	NUMBER
6.48.23	WOOD_SPGR_GREENVOL_DRYWT_CIT	Citation for WOOD_SPGR_GREENVOL_DRYWT	NUMBER
6.48.24	BARK_SPGR_GREENVOL_DRYWT	Green specific gravity of bark	NUMBER
6.48.25	BARK_SPGR_GREENVOL_DRYWT_CIT	Citation for BARK_SPGR_GREENVOL_DRYWT	NUMBER
6.48.26	MC_PCT_GREEN_WOOD	Moisture content of green bark as a percent of oven-dry weight	NUMBER
6.48.27	MC_PCT_GREEN_WOOD_CIT	Citation for MC_PCT_GREEN_BARK	NUMBER
6.48.28	MC_PCT_GREEN_BARK	Moisture content of green wood as a percent of oven-dry weight	NUMBER
6.48.29	MC_PCT_GREEN_BARK_CIT	Citation for MC_PCT_GREEN_WOOD	NUMBER
6.48.30	BARK_VOL_PCT	Bark volume as a percent of wood volume	NUMBER
6.48.31	BARK_VOL_PCT_CIT	Citation for BARK_VOL_PCT	NUMBER
6.48.32	CWD_DECAY_RATIO1	Coarse woody debris decay ratio 1	NUMBER
6.48.33	CWD_DECAY_RATIO2	Coarse woody debris decay ratio 2	NUMBER
6.48.34	CWD_DECAY_RATIO3	Coarse woody debris decay ratio 3	NUMBER
6.48.35	CWD_DECAY_RATIO4	Coarse woody debris decay ratio 4	NUMBER
6.48.36	CWD_DECAY_RATIO5	Coarse woody debris decay ratio 5	NUMBER
6.48.37	DWM_CARBON_RATIO	Down woody debris carbon ratio	NUMBER
6.48.38	CARBON_RATIO_LIVE	Wood carbon fraction	NUMBER
6.48.39	DRYWT_TO_GREENWT_CONVERSION	Dry weight to green weight conversion	NUMBER
6.48.40	CREATED_DATE	Created date	DATE
6.48.41	MODIFIED_DATE	Modified date	DATE

Key type	Alias	Constraint column(s)	Table joins
Unique	RS_UK	SPCD	N/A

#### 6.48.1 SPCD

**Species code.** An FIA numeric code identifying the species of the tree. Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#) for a link to the "FIA Master Tree Species List," which stores species codes and other information for each tree species.

#### 6.48.2 COMMON\_NAME

**Common name.** The common name of the species. Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#) for codes and names.

**6.48.3 SHARED\_COMMON\_NAME\_IND**

**Shared common name indicator.** A yes/no (Y/N) value indicating whether or not the common name for the species (see [COMMON\\_NAME](#)) is shared by multiple species. Species with a shared common name are marked with a 'Y' in this column.

**Codes: SHARED\_COMMON\_NAME\_IND**

Code	Description
Y	Yes, the common name is shared by multiple species.
N	No, the common name is unique to this species.

**6.48.4 GENUS**

**Genus.** The genus name associated with the FIA species code (SPCD). Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#).

**6.48.5 SPECIES**

**Species.** The species name associated with the FIA species code (SPCD). Refer to [appendix D \(Tree Species Codes, Names, and Occurrences\)](#).

**6.48.6 VARIETY**

**Variety.** The variety name associated with the FIA species code (SPCD), if applicable.

**6.48.7 SUBSPECIES**

**Subspecies.** The subspecies name associated with the FIA species code (SPCD), if applicable.

**6.48.8 SCIENTIFIC\_NAME**

**Scientific name.** The Natural Resources Conservation Service (NRCS) [PLANTS database](#) scientific name for the taxon SYMBOL.

**6.48.9 SPECIES\_SYMBOL**

**Species symbol.** The NRCS [PLANTS database](#) symbol code assigned to the specific plant taxon and associated with the FIA species code (SPCD).

**6.48.10 E\_SPGRPCD**

**Eastern species group code.** A code indicating the FIA species group assignment for eastern species. The assignment of a species group code is dependent on the State or region (e.g., All, Eastern, Western, Tropical/Subtropical) in which a tree is tallied. This attribute can be used to link the reference species record to the reference species group record under the context of the Eastern United States (REF\_SPECIES.E\_SPGRPCD = REF\_SPECIES\_GROUP.SPGRPCD). Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

**6.48.11 W\_SPGRPCD**

**Western species group code.** A code indicating the FIA species group assignment for western species. The assignment of a species group code is dependent on the State or region (e.g., All, Eastern, Western, Tropical/Subtropical) in which a tree is tallied. This attribute can be used to link the reference species record to the reference species group record under the context of the Western United States (REF\_SPECIES.W\_SPGRPCD =

REF\_SPECIES\_GROUP.SPGRPCD). Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

#### 6.48.12 C\_SPGRPCD

**Caribbean Islands species group code.** A code indicating the species group assignment for [Caribbean Islands](#) species. The assignment of a species group code is dependent on the State or region (e.g., All, Eastern, Western, Tropical/Subtropical) in which a tree is tallied. This attribute can be used to link the reference species record to the reference species group record under the context of the Caribbean Islands (REF\_SPECIES.C\_SPGRPCD = REF\_SPECIES\_GROUP.SPGRPCD). Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

#### 6.48.13 P\_SPGRPCD

**Pacific Islands species group code.** A code indicating the species group assignment for [Pacific Islands](#) species. The assignment of a species group code is dependent on the State or region (e.g., All, Eastern, Western, Tropical/Subtropical) in which a tree is tallied. This attribute can be used to link the reference species record to the reference species group record under the context of the Pacific Islands (REF\_SPECIES.P\_SPGRPCD = REF\_SPECIES\_GROUP.SPGRPCD). Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

#### 6.48.14 MAJOR\_SPGRPCD

**Major species group code.** A code indicating the FIA major species group assignment for the FIA species code (SPCD), which can be used for reporting purposes.

**Codes: MAJOR\_SPGRPCD**

Code	Description
1	Pines.
2	Other softwoods.
3	Soft hardwoods.
4	Hard hardwoods.

#### 6.48.15 STOCKING\_SPGRPCD

**Stocking species group code.** A code indicating the FIA stocking species group assignment for a FIA species code (SPCD). These codes identify which stocking equation to use for a particular species.

**Codes: STOCKING\_SPGRPCD**

Code	Description
1	Spruce-fir.
2	Western larch.
3	Black spruce.
4	Jack pine.
5	Lodgepole pine.
6	Shortleaf pine.
7	Slash pine.

<b>Code</b>	<b>Description</b>
8	Western white pine.
9	Longleaf pine.
10	Ponderosa pine.
11	Red pine.
12	Pond pine.
13	Eastern white pine
14	Loblolly pine.
15	Douglas-fir.
16	Northern white cedar.
17	Eastern hemlock.
18	Western hemlock.
19	Redwood.
20	Average softwood.
25	Red maple.
26	Red alder.
27	Maple, beech, birch.
28	Paper birch.
29	Oaks and hickory.
30	Black walnut.
31	Sweetgum.
32	Aspen.
33	Cherry, ash, yellow poplar.
35	Basswood.
36	Elm, ash, cottonwood.
37	Average hardwood.
38	Dryland species.

**6.48.16 FOREST\_TYPE\_SPGRPCD**

**Forest type species group code.** An FIA code used during processing to assign a forest type to a condition. This is for office use only. These processing codes differ from the codes listed for `REF_FOREST_TYPE_GROUP.VALUE` and the codes listed in [appendix F \(Forest Type Codes and Names\)](#).

**6.48.17 JENKINS\_SPGRPCD**

**Jenkins species group code.** A code that identifies a group of similar species, which is used to apply the correct biomass estimation equation and coefficient developed by Jenkins and others (2003). A specific set of biomass equation coefficients is assigned to each group. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**Codes: JENKINS\_SPGRPCD**

<b>Code</b>	<b>Description</b>
1	Cedar/larch.
2	Douglas-fir.
3	True fir/hemlock.
4	Pine.
5	Spruce.
6	Aspen/alder/cottonwood-willow.
7	Soft maple/birch.
8	Mixed hardwood.
9	Hard maple/oak/hickory/beech.
10	Juniper/oak/mesquite.

**6.48.18 JENKINS\_SAPLING\_ADJUSTMENT**

**Jenkins sapling adjustment factor.** A factor used to compute the biomass of saplings. Sapling biomass is computed by multiplying diameter (ID\_TREE.DIA) by the appropriate species adjustment factor (from Jenkins and others [2003]). The sapling adjustment factor was computed as a national average ratio of the total dry biomass divided by the Jenkins total biomass for all 5.0-inch trees, which is the size at which biomass based on volume begins. Because this adjustment factor was computed at the species level, there is a specific adjustment factor for each species. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

**6.48.19 SITETREE**

**Site tree.** This attribute indicates whether or not the tree species can be classified as a site tree. Tree species that are applicable to have site data collected are marked with an 'X' in this column.

**6.48.20 SFTWD\_HRDWD**

**Softwood or hardwood.** A code indicating whether the tree species has been classified as a softwood or a hardwood.

**Codes: SFTWD\_HRDWD**

<b>Code</b>	<b>Description</b>
S	Softwood classification.
H	Hardwood classification.

**6.48.21 WOODLAND**

**Woodland species indicator.** A yes/no (Y/N) value indicating whether or not the tree species is classified by FIA as a woodland species. The diameter for a woodland species is measured at root collar (d.r.c.). Woodland species are marked with a 'Y' in this column.

**Codes: WOODLAND**

<b>Code</b>	<b>Description</b>
Y	Yes, this tree species is classified by FIA as a woodland species.
N	No, this tree species is not classified by FIA as a woodland species.

**6.48.22 WOOD\_SPGR\_GREENVOL\_DRYWT**

**Green specific gravity of wood.** A value for the green specific gravity of wood (green volume and oven-dry weight).

**6.48.23 WOOD\_SPGR\_GREENVOL\_DRYWT\_CIT**

**Citation for WOOD\_SPGR\_GREENVOL\_DRYWT.** A unique number used to identify the citation for the WOOD\_SPGR\_GREENVOL\_DRYWT attribute. This number can be linked to the citation number ([CITATION\\_NBR](#)) in the REF\_CITATION table to obtain the associated citation information.

**Reference table:** [REF\\_CITATION](#)

**6.48.24 BARK\_SPGR\_GREENVOL\_DRYWT**

**Green specific gravity of bark.** A value for the green specific gravity of bark (green volume and oven-dry weight).

**6.48.25 BARK\_SPGR\_GREENVOL\_DRYWT\_CIT**

**Citation for BARK\_SPGR\_GREENVOL\_DRYWT.** A unique number used to identify the citation for the BARK\_SPGR\_GREENVOL\_DRYWT attribute. This number can be linked to the citation number ([CITATION\\_NBR](#)) in the REF\_CITATION table to obtain the associated citation information.

**Reference table:** [REF\\_CITATION](#)

**6.48.26 MC\_PCT\_GREEN\_WOOD**

**Moisture content of green wood as a percent of oven-dry weight.** Wood and bark are often sold based on green weight. The user is cautioned that green weights can be extremely variable geographically, seasonally, within species and across various portions of individual trees.

**6.48.27 MC\_PCT\_GREEN\_WOOD\_CIT**

**Citation for MC\_PCT\_GREEN\_WOOD.** A unique number used to identify the citation for the MC\_PCT\_GREEN\_WOOD attribute. This number can be linked to the citation number ([CITATION\\_NBR](#)) in the REF\_CITATION table to obtain the associated citation information.

**Reference table:** [REF\\_CITATION](#)

**6.48.28 MC\_PCT\_GREEN\_BARK**

**Moisture content of green bark as a percent of oven-dry weight.** Wood and bark are often sold based on green weight. The user is cautioned that green weights can be extremely variable geographically, seasonally, within species and across various portions of individual trees.

**6.48.29 MC\_PCT\_GREEN\_BARK\_CIT**

**Citation for MC\_PCT\_GREEN\_BARK.** A unique number identifying the citation for the MC\_PCT\_GREEN\_BARK attribute. This number can be linked to the citation number ([CITATION\\_NBR](#)) in the REF\_CITATION table to obtain the associated citation information.

**Reference table:** [REF\\_CITATION](#)

**6.48.30 BARK\_VOL\_PCT**

**Bark volume as a percent of wood volume.** Bark volume expressed as a percent of wood volume. The volume of bark does not include voids due to ridges and valleys in bark.

**6.48.31 BARK\_VOL\_PCT\_CIT**

**Citation for BARK\_VOL\_PCT.** A unique number identifying the citation for the BARK\_VOL\_PCT attribute. This number can be linked to the citation number ([CITATION\\_NBR](#)) in the REF\_CITATION table to obtain the associated citation information.

**Reference table:** [REF\\_CITATION](#)

**6.48.32 CWD\_DECAY\_RATIO1**

**Coarse woody debris decay ratio 1.** Ratio of decayed to sound wood weight of CWD indicated by decay class 1.

**6.48.33 CWD\_DECAY\_RATIO2**

**Coarse woody debris decay ratio 2.** Ratio of decayed to sound wood weight of CWD indicated by decay class 2.

**6.48.34 CWD\_DECAY\_RATIO3**

**Coarse woody debris decay ratio 3.** Ratio of decayed to sound wood weight of CWD indicated by decay class 3.

**6.48.35 CWD\_DECAY\_RATIO4**

**Coarse woody debris decay ratio 4.** Ratio of decayed to sound wood weight of CWD indicated by decay class 4.

**6.48.36 CWD\_DECAY\_RATIO5**

**Coarse woody debris decay ratio 5.** Ratio of decayed to sound wood weight of CWD indicated by decay class 5.

**6.48.37 DWM\_CARBON\_RATIO**

**Down woody debris carbon ratio.** Ratio of carbon to dry wood weight.

**6.48.38 CARBON\_RATIO\_LIVE**

**Wood carbon fraction.** The mass of carbon per unit dry mass of wood, expressed as a proportion (ranging from 0-1), obtained from elemental analyses of dry wood samples. Synonymous with "wood carbon concentrations" or related terms in scientific literature (Doraisami and others [2022]). This ratio is multiplied by live tree biomass estimates to obtain live tree carbon estimates.

**6.48.39 DRYWT\_TO\_GREENWT\_CONVERSION**

**Dry weight to green weight conversion.** A coefficient used to convert oven-dry weight to green weight. Dry weight is converted to green weight by multiplying the dry weight by

DRYWT\_TO\_GREENWT\_CONVERSION (e.g., for green weight of tree bole, multiply ID\_TREE.DRYBIO\_BOLE by DRYWT\_TO\_GREENWT\_CONVERSION).

```
DRYWT_TO_GREENWT_CONVERSION =
((1 - (bark_vol_pct / (100 + bark_vol_pct))) * wood_spgr_greenvol_drywt /
((1 - (bark_vol_pct / (100 + bark_vol_pct))) * wood_spgr_greenvol_drywt +
(bark_vol_pct / (100 + bark_vol_pct)) * bark_spgr_greenvol_drywt) *
(1.0 + mc_pct_green_wood * 0.01) + (bark_vol_pct / (100 + bark_vol_pct)) *
bark_spgr_greenvol_drywt / ((1 - (bark_vol_pct / (100 + bark_vol_pct))) *
wood_spgr_greenvol_drywt + (bark_vol_pct / (100 + bark_vol_pct)) *
bark_spgr_greenvol_drywt) * (1.0 + mc_pct_green_bark * 0.01))
```

#### **6.48.40 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

#### **6.48.41 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.



## 6.49 Reference Species Group Table

### Oracle table name: REF\_SPECIES\_GROUP

The **REF\_SPECIES\_GROUP** table stores reference data for species groups. These groups are used to aggregate individual species into logical groupings for summarization. As with the reference species ([REF\\_SPECIES](#)) table, this is a critical reference table for FIA inventories.

#### Referencing column(s):

- ID\_MOTHER\_TREE.[SPGRPCD](#)
- ID\_SEEDLING.[SPGRPCD](#)
- ID\_TREE.[SPGRPCD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.49.1	<a href="#">SPGRPCD</a>	Species group code	NUMBER(4)
6.49.2	<a href="#">NAME</a>	Species group name	VARCHAR2(40)
6.49.3	<a href="#">REGION</a>	Region	VARCHAR2(4000)
6.49.4	<a href="#">CLASS</a>	Class	VARCHAR2(4000)
6.49.5	<a href="#">CREATED_DATE</a>	Created date	DATE
6.49.6	<a href="#">MODIFIED_DATE</a>	Modified date	DATE

Key type	Alias	Constraint column(s)	Table joins
Unique	RSG_UK	<a href="#">SPGRPCD</a>	N/A

#### 6.49.1 [SPGRPCD](#)

**Species group code.** A code designating a general grouping of similar tree species for the purposes of organization and reporting. Refer to [appendix C \(Tree Species Group Codes\)](#) for codes.

#### 6.49.2 [NAME](#)

**Species group name.** A descriptive name for the species group (see [SPGRPCD](#)).

#### 6.49.3 [REGION](#)

**Region.** A descriptor for the section of the United States in which the species, and therefore species group, is commonly found.

##### Codes: REGION

Code	Description
All	All regions.
Eastern	Eastern region.

Code	Description
Western	Western region.
Tropical/Subtropical	Tropical/Subtropical regions.

#### 6.49.4 CLASS

**Class.** A classification type for the trees within the species group.

**Codes: CLASS**

Code	Description
Softwood	Softwood tree species.
Hardwood	Hardwood tree species.

#### 6.49.5 CREATED\_DATE

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

#### 6.49.6 MODIFIED\_DATE

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

## 6.50 Reference Stand-Size Class Table

### Oracle table name: REF\_STAND\_SIZE\_CLASS

The **REF\_STAND\_SIZE\_CLASS** table stores reference data for the FLDSZCD attribute. Code for this attribute indicates the size class for a stand of trees. These codes form an ordinal set of ascending tree size within the stand.

#### Referencing column(s):

- ID\_COND.[FLDSZCD](#)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.50.1	<a href="#">VALUE</a>	Code value	NUMBER(1)
6.50.2	<a href="#">ABBR</a>	Code abbreviation	VARCHAR2(18)
6.50.3	<a href="#">MEANING</a>	Code meaning	VARCHAR2(472)
6.50.4	<a href="#">RETIRED</a>	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSSC_PK	VALUE	N/A

#### 6.50.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (FLDSZCD)

Code	Description
0	Nonstocked - Meeting the definition of accessible land and one of the following applies: (1) <10 percent stocked by trees, seedlings, and saplings and not classified as cover trees, or 10 percent canopy cover if stocking standards are not available, or (2) for several woodland species where stocking standards are not available, <10 percent canopy cover of trees, seedlings, and saplings.
1	≤4.9 inches (seedlings/saplings) - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings, and at least 2/3 of the canopy cover is in trees <5.0 inches d.b.h./d.r.c.
2	5.0-8.9 inches (softwoods and woodland trees) / 5.0-10.9 inches (hardwoods) - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings; and at least 1/3 of the canopy cover is in trees >5.0 inches d.b.h./d.r.c. and the plurality of the canopy cover is in softwoods 5.0-8.9 inches diameter and/or hardwoods 5.0-10.9 inches d.b.h., and/or woodland trees 5.0-8.9 inches d.r.c.

<b>Code</b>	<b>Description</b>
3	9.0-19.9 inches (softwoods and woodland trees) / 11.0-19.9 inches (hardwoods) - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and sapling; and at least 1/3 of the canopy cover is in trees >5.0 inches d.b.h./d.r.c. and the plurality of the canopy cover is in softwoods 9.0-19.9 inches diameter and/or hardwoods between 11.0-19.9 inches d.b.h., and/or woodland trees 9.0-19.9 inches d.r.c.
4	20.0-39.9 inches - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings; and at least 1/3 of the canopy cover is in trees >5.0 inches d.b.h./d.r.c. and the plurality of the canopy cover is in trees 20.0-39.9 inches d.b.h.
5	40.0+ inches - At least 10 percent stocking (or 10 percent canopy cover if stocking standards are not available) in trees, seedlings, and saplings; and at least 1/3 of the canopy cover is in trees >5.0 inches d.b.h./d.r.c. and the plurality of the canopy cover is in trees >40.0 inches d.b.h.

**6.50.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.50.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.50.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.51 Reference Subplot Nonsampled Reason Table

**Oracle table name: REF\_SUBPLOT\_NONSAMPLE\_REASON**

The **REF\_SUBPLOT\_NONSAMPLE\_REASON** table stores reference data for the SUBP\_NONSAMPLE\_REASN\_CD attribute. Code for this attribute identifies the reason for a nonsampled subplot.

**Referencing column(s):**

- ID\_SUBPLOT.SUBP\_NONSAMPLE\_REASN\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.51.1	VALUE	Code value	NUMBER(2)
6.51.2	ABBR	Code abbreviation	VARCHAR2(22)
6.51.3	MEANING	Code meaning	VARCHAR2(519)
6.51.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSNR_PK	VALUE	N/A

### 6.51.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (SUBP\_NONSAMPLE\_REASN\_CD)**

Code	Description
1	<b>Outside U.S. boundary</b> - Condition classes beyond the U.S. border.
2	<b>Denied access area</b> - Any area within the sampled area of a plot to which access is denied by the legal owner, or to which an owner of the only reasonable route to the plot denies access.
3	<b>Hazardous situation</b> - Any area within the sampled area on plot that cannot be accessed because of a hazard or danger.
4	<b>Time limitation</b> - Subplot cannot be sampled due to time restriction.
5	<b>Lost data</b> - This code is for office use only.
6	<b>Lost plot</b> - Entire plot cannot be found.
7	<b>Wrong location</b> - Previous plot can be found, but its placement is beyond the tolerance limits for plot location. Special code to be used only when instructed by office.
8	<b>Skipped visit</b> - This code is for office use only.
9	<b>Dropped intensified plot</b> - This code is for office use only.
10	<b>Other</b> - Condition class is not sampled due to a reason other than one of the specific reasons listed.
11	<b>Ocean</b> - Condition class falls in ocean water below mean high tide line.

**6.51.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.51.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.51.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.52 Reference Subplot Status Table

### Oracle table name: REF\_SUBPLOT\_STATUS

The **REF\_SUBPLOT\_STATUS** table stores reference data for the SUBP\_STATUS\_CD attribute. Code for this attribute describes the sampling status of subplot. The sampling status indicates the result of an attempt to sample a given subplot.

#### Referencing column(s):

- ID\_SUBPLOT.SUBP\_STATUS\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.52.1	VALUE	Code value	NUMBER(1)
6.52.2	ABBR	Code abbreviation	VARCHAR2(18)
6.52.3	MEANING	Code meaning	VARCHAR2(153)
6.52.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSS_PK	VALUE	N/A

#### 6.52.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (SUBP\_STATUS\_CD)

Code	Description
1	Sampled: Forest - at least one accessible forest land condition present on subplot.
2	Sampled: Nonforest - no accessible forest but at least one accessible nonforest land condition present on subplot.
3	Sampled: Water - no accessible forest or accessible nonforest land condition present on subplot (i.e., subplot is either census and/or noncensus water).
4	Nonsampled.

#### 6.52.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.52.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.52.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.53 Reference Treatment Table

### Oracle table name: REF\_TREATMENT

The **REF\_TREATMENT** table stores reference data for the TREATMENT\_CD1, TREATMENT\_CD2, and TREATMENT\_CD3 attributes. Code for these attributes describe silvicultural treatments applied to a land condition.

#### Referencing column(s):

- ID\_COND.TREATMENT\_CD1
- ID\_COND.TREATMENT\_CD2
- ID\_COND.TREATMENT\_CD3

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.53.1	VALUE	Code value	NUMBER(2)
6.53.2	ABBR	Code abbreviation	VARCHAR2(23)
6.53.3	MEANING	Code meaning	VARCHAR2(315)
6.53.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RT_PK	VALUE	N/A

#### 6.53.1 VALUE

**Code value.** The value of the code.

**Codes:** VALUE (TREATMENT\_CD1, TREATMENT\_CD2, TREATMENT\_CD3)

Code	Description
0	<b>None</b> - No observable treatment.
10	<b>Cutting</b> - The removal of one or more trees from a stand.
20	<b>Site preparation</b> - Clearing, slash burning, chopping, disking, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration.
30	<b>Artificial regeneration</b> - Following a disturbance or treatment (usually cutting), a new stand where at least 50% of the live trees present resulted from planting or direct seeding.

Code	Description
40	<b>Natural regeneration</b> - Following a disturbance or treatment (usually cutting), a new stand where at least 50% of the live trees present (of any size) were established through the growth of existing trees and/or natural seeding or sprouting.
50	<b>Other silvicultural treatment</b> - The use of fertilizers, herbicides, girdling, pruning, invasive species removal or other activities (not covered by codes 10-40) designed to improve the commercial value of the residual stand, or chaining, which is a practice used on woodlands to encourage wildlife forage. Note: Prescribed fires are considered a disturbance and not a treatment (see REF_DISTURBANCE.VALUE, DISTURBANCE_CD1 code 30).

**6.53.2 ABBR**

**Code abbreviation.** The abbreviation for the code.

**6.53.3 MEANING**

**Code meaning.** A brief summary description of the meaning of the code.

**6.53.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.54 Reference Tree Carbon Ratio Dead Table

**Oracle table name: REF\_TREE\_CARBON\_RATIO\_DEAD**

The **REF\_TREE\_CARBON\_RATIO\_DEAD** table stores mean carbon ratios by decay class and softwood/hardwood classification. These carbon ratios are used by FIA for the "National Scale Volume and Biomass" (NSVB) system to estimate aboveground carbon in standing dead trees. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.54.1	CN	Tree carbon ratio dead sequence number	INTEGER
6.54.2	SFTWD_HRDWD	Softwood or hardwood	VARCHAR2(1)
6.54.3	DECAYCD	Decay class code	NUMBER(1)
6.54.4	CARBON_RATIO	Wood carbon fraction	NUMBER(6,5)

Key type	Alias	Constraint column(s)	Table joins
Primary	REFTCRD_PK	CN	N/A
Unique	REFTCRD_UK	SFTWD_HRDWD, DECAYCD	N/A

### 6.54.1 CN

**Tree carbon ratio dead sequence number.** A unique sequence number used to identify a reference tree carbon ratio dead record (in REF\_TREE\_CARBON\_RATIO\_DEAD).

### 6.54.2 SFTWD\_HRDWD

**Softwood or hardwood.** A code indicating whether the tree species has been classified as a softwood or a hardwood.

**Codes: SFTWD\_HRDWD**

Code	Description
S	Softwood classification.
H	Hardwood classification.

### 6.54.3 DECAYCD

**Decay class code.** A code indicating the stage of decay in a standing dead tree (ID\_TREE.STANDING\_DEAD\_CD = 1).

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

**Reference table:** [REF\\_DECAY\\_CLASS](#)

**Codes: DECAYCD**

<b>Code</b>	<b>Description</b>
1	<b>All limbs and branches are present</b> - The tree top is pointed and 100 percent bark remains. For Douglas-fir species, sapwood presence and condition is intact, sound, incipient decay, hard, original color, and heartwood condition is sound, hard, with original color - used as a guide for other species.
2	<b>Few limbs and no fine branches</b> - The tree top may be broken and variable bark remaining. For Douglas-fir species, sapwood presence and condition is sloughing, advance decay, fibrous, firm to soft, light brown, and the heartwood condition is sound at base, incipient decay in outer edge of upper bole, hard, light to reddish brown - used as a guide for other species.
3	<b>Limbs stubs only</b> - Tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, fibrous, soft, light to reddish brown and heartwood condition is incipient decay at base, advanced decay throughout upper bole, fibrous, hard to firm, reddish brown - used as a guide for other species.
4	<b>Few or no limb stubs present</b> - The tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, cubical, soft, reddish to dark brown, and the heartwood condition is advanced decay at base, sloughing from upper bole, fibrous to cubical, soft dark reddish brown - used as a guide for other species.
5	<b>No limbs or branches</b> - The top is broken and less than 20 percent of the bark remains. For Douglas-fir species sapwood presence and condition is none and heartwood condition is sloughing, cubical, soft, dark brown, or fibrous, very soft, dark reddish brown, encased in hardened shell - used as a guide for other species.

**6.54.4****CARBON\_RATIO**

**Wood carbon fraction.** The mass of carbon per unit dry mass of wood, expressed as a proportion (ranging from 0-1), obtained from elemental analyses of dry wood samples. Synonymous with "wood carbon concentrations" or related terms in scientific literature (Doraisami and others [2022]). The ratio is applied by softwood/hardwood classification ([SFTWD\\_HRDWD](#)) and decay class ([DECAYCD](#)) and multiplied by dead tree biomass estimates to obtain dead tree carbon estimates.

## 6.55 Reference Tree Class Table

### Oracle table name: REF\_TREE\_CLASS

The **REF\_TREE\_CLASS** table stores reference data for the TREECLCD attribute. Code for this attribute indicates the general quality of a tree.

#### Referencing column(s):

- ID\_TREE.TREECLCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.55.1	VALUE	Code value	NUMBER(1)
6.55.2	ABBR	Code abbreviation	VARCHAR2(13)
6.55.3	MEANING	Code meaning	VARCHAR2(386)
6.55.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTC_PK	VALUE	N/A

#### 6.55.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (TREECLCD)

Code	Description
2	<b>Growing stock</b> - Trees with 1/3 or more of the gross board-foot volume in the entire sawlog section with commercial logs meeting grade, soundness, and size requirements or the potential to do so for poletimber-sized trees. A tree class 2 tree must have one 12-foot log or two 8-foot logs, now or prospectively, for live poletimber-sized trees to qualify as growing stock.
3	<b>Rough cull</b> - Trees that do not contain at least one 12-foot sawlog or two 8-foot logs now or prospectively, primarily because of roughness or poor form. Less than 1/3 of its gross board-foot volume meets size, soundness, and grade requirements and less than 1/2 of the cubic-foot cull is rotten or unsound.
4	<b>Rotten cull</b> - Trees that do not contain at least one 12-foot sawlog or two 8-foot logs now or prospectively and/or do not meet grade specifications for percent sound primarily because of rot. All species not having 1/3 or more of its gross board-foot volume meeting size, soundness, and grade requirements, and over 1/2 of the cubic-foot cull is rotten or unsound.

#### 6.55.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.55.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.55.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.56 Reference Tree Decay Proportion Table

**Oracle table name: REF\_TREE\_DECAY\_PROP**

The **REF\_TREE\_DECAY\_PROP** table stores density reduction factors by decay class and softwood/hardwood classification. These values are used by FIA for the "National Scale Volume and Biomass" (NSVB) system to estimate loss of mass for a decayed standing dead tree (compared to a live tree) and applied to stem wood, stem bark, and branch biomass. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.56.1	CN	Tree decay proportion sequence number	INTEGER
6.56.2	DECAYCD	Decay class code	NUMBER(1)
6.56.3	SFTWD_HRDWD	Softwood or hardwood	VARCHAR2(1)
6.56.4	DENSITY_PROP	Density proportion	NUMBER(3,2)
6.56.5	BARK_LOSS_PROP	Bark loss proportion	NUMBER(3,2)
6.56.6	BRANCH_LOSS_PROP	Branch loss proportion	NUMBER(3,2)

Key type	Alias	Constraint column(s)	Table joins
Primary	REFTDP_PK	CN	N/A
Unique	REFTDP_UK	DECAYCD, SFTWD_HRDWD	N/A

### 6.56.1 CN

**Tree decay proportion sequence number.** A unique sequence number used to identify a reference tree decay proportion record (in REF\_TREE\_DECAY\_PROP).

### 6.56.2 DECAYCD

**Decay class code.** A code indicating the stage of decay in a standing dead tree (ID\_TREE.STANDING\_DEAD\_CD = 1).

**Note:** Not populated for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

**Reference table:** [REF\\_DECAY\\_CLASS](#)

**Codes: DECYCD**

<b>Code</b>	<b>Description</b>
1	<b>All limbs and branches are present</b> - The tree top is pointed and 100 percent bark remains. For Douglas-fir species, sapwood presence and condition is intact, sound, incipient decay, hard, original color, and heartwood condition is sound, hard, with original color - used as a guide for other species.
2	<b>Few limbs and no fine branches</b> - The tree top may be broken and variable bark remaining. For Douglas-fir species, sapwood presence and condition is sloughing, advance decay, fibrous, firm to soft, light brown, and the heartwood condition is sound at base, incipient decay in outer edge of upper bole, hard, light to reddish brown - used as a guide for other species.
3	<b>Limbs stubs only</b> - Tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, fibrous, soft, light to reddish brown and heartwood condition is incipient decay at base, advanced decay throughout upper bole, fibrous, hard to firm, reddish brown - used as a guide for other species.
4	<b>Few or no limb stubs present</b> - The tree top is broken and variable percent bark remains. For Douglas-fir species, sapwood presence and condition is sloughing, cubical, soft, reddish to dark brown, and the heartwood condition is advanced decay at base, sloughing from upper bole, fibrous to cubical, soft dark reddish brown - used as a guide for other species.
5	<b>No limbs or branches</b> - The top is broken and less than 20 percent of the bark remains. For Douglas-fir species sapwood presence and condition is none and heartwood condition is sloughing, cubical, soft, dark brown, or fibrous, very soft, dark reddish brown, encased in hardened shell - used as a guide for other species.

**6.56.3 SFTWD\_HRDWD**

**Softwood or hardwood.** A code indicating whether the tree species has been classified as a softwood or a hardwood.

**Codes: SFTWD\_HRDWD**

<b>Code</b>	<b>Description</b>
S	Softwood classification.
H	Hardwood classification.

**6.56.4 DENSITY\_PROP**

**Density proportion.** The proportion of the tree remaining after deductions for decay.

**6.56.5 BARK\_LOSS\_PROP**

**Bark loss proportion.** The proportion of the bark component remaining after deductions for decay.

**6.56.6 BRANCH\_LOSS\_PROP**

**Branch loss proportion.** The proportion of the branch component remaining after deductions for decay.

## 6.57 Reference Tree Density Table

### Oracle table name: REF\_TREE\_DENSITY

The **REF\_TREE\_DENSITY** table stores reference data for the MAPDEN attribute. Code for this attribute indicates the relative density of tree stocking between two land conditions. These codes are primarily used to distinguish between two land conditions when the only difference is the relative density of trees populating the land.

#### Referencing column(s):

- ID\_COND.MAPDEN

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.57.1	VALUE	Code value	NUMBER(1)
6.57.2	ABBR	Code abbreviation	VARCHAR2(21)
6.57.3	MEANING	Code meaning	VARCHAR2(58)
6.57.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTD_PK	VALUE	N/A

#### 6.57.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (MAPDEN)

Code	Description
1	Initial density class.
2	Density class 2 - density different than 1.
3	Density class 3 - density different than 1 and 2.

#### 6.57.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.57.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.57.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.58 Reference Tree Planted Table

### Oracle table name: REF\_TREE\_PLANTED

The **REF\_TREE\_PLANTED** table stores reference data for the IS\_PLANTED attribute in the ID\_MOTHER\_TREE and ID\_TREE tables. Code for this attribute indicates whether or not a tree was planted.

**Note:** Not populated for ID\_COND.COND\_STATUS\_CD = 1 (accessible forest land) or for standing dead saplings (1.0-4.9 inches d.b.h./d.r.c.) when ID\_PLOT.MANUAL\_NATIONAL <7.0.

#### Referencing column(s):

- ID\_MOTHER\_TREE.IS\_PLANTED

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.58.1	VALUE	Code value	NUMBER(1)
6.58.2	ABBR	Code abbreviation	VARCHAR2(8)
6.58.3	MEANING	Code meaning	VARCHAR2(72)
6.58.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTP_PK	VALUE	N/A

#### 6.58.1 VALUE

**Code value.** The value of the code.

**Codes: VALUE (IS\_PLANTED)**

Code	Description
1	<b>Planted</b> - Tree appears to have been planted at some point in the past.
2	<b>Natural</b> - Tree appears to be of a natural origin.
3	<b>Not sure</b> - Unable to confidently determine if the tree was planted or not.

#### 6.58.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.58.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.58.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.59 Reference Tree Status Table

### Oracle table name: REF\_TREE\_STATUS

The **REF\_TREE\_STATUS** table stores reference data for the STATUSCD attribute in the ID\_MOTHER\_TREE and ID\_TREE tables. Code for this attribute indicates the status of a tree at the time of measurement.

#### Referencing column(s):

- ID\_MOTHER\_TREE.STATUSCD
- ID\_TREE.STATUSCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.59.1	VALUE	Code value	NUMBER(1)
6.59.2	ABBR	Code abbreviation	VARCHAR2(14)
6.59.3	MEANING	Code meaning	VARCHAR2(444)
6.59.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTS_PK	VALUE	N/A

#### 6.59.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (STATUSCD)

Code	Description
0	<b>No status</b> - Tree is not presently in the sample (remeasurement plots only). Tree was incorrectly tallied at the previous inventory, currently not tallied due to definition or procedural change, or is not tallied because it is located on a nonsampled condition (e.g., hazardous or denied). Requires a reconcile code (ID_TREE.RECONCILECD) = 5-9.
1	<b>Live tree</b> - Any live tree (new, remeasured, or ingrowth).
2	<b>Dead tree</b> - Any dead tree (new, remeasured, or ingrowth) where the bole of the tree remains on the site, regardless of cause of death. Includes all previously standing dead trees that no longer qualify as standing dead. Does not include trees that are removed from the site.

#### 6.59.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.59.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.59.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

## 6.60 Reference Tree Standing Dead Crown Ratio Proportion Table

**Oracle table name: REF\_TREE\_STND\_DEAD\_CR\_PROP**

The **REF\_TREE\_STND\_DEAD\_CR\_PROP** table stores mean crown ratio values by ecoregion province and softwood/hardwood classification. These values are used by FIA for the "National Scale Volume and Biomass" (NSVB) system when accounting for volume and biomass loss due to broken tops for standing dead trees. Refer to [appendix G](#) for information on FIA volume, biomass, and carbon estimation.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.60.1	CN	Tree standing dead crown ratio proportion sequence number	INTEGER
6.60.2	ECOPROV	Ecoregion province	VARCHAR2(10)
6.60.3	SFTWD_HRDWD	Softwood or hardwood	VARCHAR2(1)
6.60.4	CR_MEAN	Crown ratio mean	NUMBER(4,3)

Key type	Alias	Constraint column(s)	Table joins
Primary	REFTSDCP_PK	CN	N/A
Unique	REFTSDCP_UK	ECOPROV, SFTWD_HRDWD	N/A

### 6.60.1 CN

**Tree standing dead crown ratio proportion sequence number.** A unique sequence number used to identify a reference tree standing dead crown ratio proportion record (in REF\_TREE\_STND\_DEAD\_CR\_PROP).

### 6.60.2 ECOPROV

**Ecoregion province.** A code indicating the ecoregion province. A province is a zone at the ecoregion level that contains nested sections that are delineated by similarities in surficial geology, lithology, geomorphic process, soil groups, subregional climate, and potential natural communities.

For detailed descriptions on provinces and sections in the conterminous United States, see McNab and others (2007). For further information for Alaska ecoregions, see Nowacki and others (2002).

**Codes: ECOPROV**

Code	Description
132	Intermontane Boreal.
133	Alaska Range Transition.
211	Northeastern Mixed Forest Province.
212	Laurentian Mixed Forest Province.

<b>Code</b>	<b>Description</b>
221	Eastern Broadleaf Forest Province.
222	Midwest Broadleaf Forest Province.
223	Central Interior Broadleaf Forest Province.
231	Southeastern Mixed Forest Province.
232	Outer Coastal Plain Mixed Forest Province.
234	Lower Mississippi Riverine Forest Province.
242	Pacific Lowland Mixed Forest Province.
251	Prairie Parkland (Temperate) Province.
255	Prairie Parkland (Subtropical) Province.
261	California Coastal Chaparral Forest and Shrub Province.
262	California Dry Steppe Province.
263	California Coastal Steppe, Mixed Forest, and Redwood Forest Province.
313	Colorado Plateau Semidesert Province.
315	Southwest Plateau and Plains Dry Steppe and Shrub Province.
321	Chihuahuan Semidesert Province.
322	American Semidesert and Desert Province.
331	Great Plains-Palouse Dry Steppe Province.
332	Great Plains Steppe Province.
341	Intermountain Semidesert and Desert Province.
342	Intermountain Semidesert Province.
411	Everglades Province.
M132	Intermontane Boreal Province - Mountains.
M133	Alaska Range Transition Province - Mountains.
M134	Coastal Mountains Transition Province - Mountains.
M211	Adirondack-New England Mixed Forest - Coniferous Forest - Alpine Meadow Province.
M221	Central Appalachian Broadleaf Forest - Coniferous Forest - Meadow Province.
M223	Ozark Broadleaf Forest - Meadow Province.
M231	Ouachita Mixed Forest - Meadow Province.
M241	Coastal Rainforest Province - Mountains.
M242	Cascade Mixed Forest - Coniferous Forest - Alpine Meadow Province.
M261	Sierran Steppe - Mixed Forest - Coniferous Forest - Alpine Meadow Province.
M262	California Coastal Range Open Woodland - Shrub - Coniferous Forest - Meadow Province.
M313	Arizona-New Mexico Mountains Semidesert - Open Woodland - Coniferous Forest - Alpine Meadow Province.
M331	Southern Rocky Mountain Steppe - Open Woodland - Coniferous Forest - Alpine Meadow Province.
M332	Middle Rocky Mountain Steppe - Coniferous Forest - Alpine Meadow Province.
M333	Northern Rocky Mountain Forest-Steppe - Coniferous Forest - Alpine Meadow Province.
M334	Black Hills Coniferous Forest Province.

Code	Description
M341	Nevada-Utah Mountains Semidesert - Coniferous Forest - Alpine Meadow Province.
UNDEFINED	Undefined.

### 6.60.3 SFTWD\_HRDWD

**Softwood or hardwood.** A code indicating whether the tree species has been classified as a softwood or a hardwood.

Codes: [SFTWD\\_HRDWD](#)

Code	Description
S	Softwood classification.
H	Hardwood classification.

### 6.60.4 CR\_MEAN

**Crown ratio mean.** The mean crown ratio for the ecoregion province ([ECOPROV](#)) and softwood/hardwood classification ([SFTWD\\_HRDWD](#)).



## 6.61 Reference Unit Table

### Oracle table name: REF\_UNIT

The **REF\_UNIT** table stores the code set for FIA survey unit codes (UNITCD). It also stores associated attributes, such as corresponding State codes (STATECD) and survey unit names (UNITNM). UNITCD is one of the attributes used on the inventory data tables to describe the location of the sampling point. FIA survey units are contiguous groups of counties within States. FIA survey units, in combination with States and counties, form a geographic hierarchy such that States are divided into one or more units and units are divided into one or more counties. Each level of the hierarchy is nested within the previous. They were developed and are used for both reporting as well as organizing field logistics. Most units divide the State into logical subdivisions that follow rough ecological divisions. However, some units developed during older periodic FIA inventories may be based on lands of a particular ownership. The codes were developed by FIA for its own purposes and are not part of a larger governmental data standard. The data in this table are useful for translating codes into labels for use in reporting.

#### Referencing column(s):

- ID\_BUILDING\_INTERACTION.UNITCD
- ID\_COND.UNITCD
- ID\_ENERGY\_EFFECT.UNITCD
- ID\_INVASIVE\_SUBP\_COND.UNITCD
- ID\_MOTHER\_TREE.UNITCD
- ID\_PLOT.UNITCD
- ID\_SEEDLING.UNITCD
- ID\_SITETREE.UNITCD
- ID\_SUBPLOT.UNITCD
- ID\_SUBP\_COND.UNITCD
- ID\_TREE.UNITCD
- ID\_WOODLAND\_STEM.UNITCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.61.1	STATECD	State code	NUMBER(4)
6.61.2	VALUE	Code value	NUMBER(2)
6.61.3	MEANING	Code meaning	VARCHAR2(80)
6.61.4	CREATED_BY	Created by	VARCHAR2(30)
6.61.5	CREATED_DATE	Created date	DATE
6.61.6	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.61.7	MODIFIED_BY	Modified by	VARCHAR2(30)
6.61.8	MODIFIED_DATE	Modified date	DATE
6.61.9	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RUNT_PK	STATECD, VALUE	N/A

**6.61.1 STATECD**

**State code.** A numeric code indicating the State. This code is taken from the Federal Information Processing Standards (FIPS) code set maintained by the Bureau of the Census. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**6.61.2 VALUE**

**Code value.** The Forest Inventory and Analysis survey unit identification number. Survey units are groups of counties within States used to organize the population into logical groups for field logistics as well as for estimation purposes. Refer to [appendix B \(State, Survey Unit, and County Codes\)](#) for codes.

**Reference table:** [REF\\_UNIT](#)

**6.61.3 MEANING**

**Code meaning.** The name of the survey unit within a given State.

**6.61.4 CREATED\_BY**

**Created by.** The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

**6.61.5 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**6.61.6 CREATED\_IN\_INSTANCE**

**Created in instance.** The database instance in which the record was created. Each computer system has a unique database instance code and this attribute stores that information to determine on which computer the record was created.

**6.61.7 MODIFIED\_BY**

**Modified by.** The employee (or user profile) who modified the record. This field will be blank (null) if the data have not been modified since initial creation. This attribute is intentionally left blank in download files.

**6.61.8 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

**6.61.9 MODIFIED\_IN\_INSTANCE**

**Modified in instance.** The database instance in which the record was modified. This field will be blank (null) if the data have not been modified since initial creation.

## 6.62 Reference Utilization Class

### Oracle table name: REF\_UTILIZATION\_CLASS

The **REF\_UTILIZATION\_CLASS** table stores reference data for the UTILCLCD attribute. Code for this attribute indicates the utilization class of trees that are dead (ID\_TREE.STATUSCD = 2) and no longer standing (ID\_TREE.STANDING\_DEAD\_CD = 0).

#### Referencing column(s):

- ID\_TREEUTILCLCD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.62.1	VALUE	Code value	NUMBER(1)
6.62.2	ABBR	Code abbreviation	VARCHAR2(1)
6.62.3	MEANING	Code meaning	VARCHAR2(100)
6.62.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RUC_PK	VALUE	N/A

#### 6.62.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (UTILCLCD)

Code	Description
0	Not utilized - tree bole is presumed to not have been utilized for any purpose (e.g., piled and burned trees, piles of trees that have been cut or knocked over).
1	Commercial utilization - some portion of the tree removed for commercial purposes. Commercial uses include sawlogs, pulpwood, veneer logs, poles, and other products such as firewood cut by commercial firewood operations.
2	Noncommercial utilization - some portion of the tree removed for noncommercial purposes. Noncommercial uses may include private landowner domestic firewood use, barn poles, fence posts, domestic landscaping, rough slabs, etc.
3	Unknown (urban only) - utilization status is unknown.

#### 6.62.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.62.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

#### 6.62.4 RETIRED

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.



## 6.63 Reference Water on Plot Table

### Oracle table name: REF\_WATER\_ON\_PLOT

The **REF\_WATER\_ON\_PLOT** table stores reference data for the WATER\_CD attribute. Code for this attribute is used to describe the presence and type of water encountered at a plot location.

#### Referencing column(s):

- ID\_PLOT.WATER\_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.63.1	VALUE	Code value	NUMBER(1)
6.63.2	ABBR	Code abbreviation	VARCHAR2(15)
6.63.3	MEANING	Code meaning	VARCHAR2(221)
6.63.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RWOP_PK	VALUE	N/A

#### 6.63.1 VALUE

**Code value.** The value of the code.

##### Codes: VALUE (WATER\_CD)

Code	Description
0	None - no water sources within the accessible forest/nonforest land.
1	Permanent streams or ponds too small to qualify as noncensus water.
2	Permanent water in the form of deep swamps, bogs, marshes without standing trees present and less than 1.0 acre in size, or forested swamps, bogs, or marshes classified as accessible forest land with standing trees.
3	Ditch/canal - human-made channels used as a means of moving water, such as irrigation or drainage, which are too small to qualify as noncensus water.
4	Temporary streams.
5	Flood zones - evidence of flooding when bodies of water exceed their natural banks.
9	Other temporary water - specify in plot notes (includes springs).

#### 6.63.2 ABBR

**Code abbreviation.** The abbreviation for the code.

#### 6.63.3 MEANING

**Code meaning.** A brief summary description of the meaning of the code.

**6.63.4 RETIRED**

**Code retired.** A yes/no (Y/N) value indicating whether or not the code is retired.

Section revision: 11.01.2024

# Chapter 7: Table Group - Administration

This chapter provides a detailed description of each table in the **Administration** table group.

## Chapter Contents:

Section	Database table	Oracle table name
7.1	<a href="#">Database Version History Table</a>	ADMIN_DB_VERSION
7.2	<a href="#">Entity Short Name Table</a>	ADMIN_ENTITY_SHORTNAME
7.3	<a href="#">Publication Data Standard Table</a>	ADMIN_PUB_DATA_STANDARD
7.4	<a href="#">Publication Summary Report Table</a>	ADMIN_PUB_SUMMARY_RPT

## Overview: Table Group - Administration

### Prefix: ADMIN\_

The **Administration** table group contains tables that support the functioning and maintenance of the database itself.



## 7.1 Database Version History Table

### Oracle table name: ADMIN\_DB\_VERSION

The **ADMIN\_DB\_VERSION** table contains a record of the version history of the database, such as the version number and start date for each release.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
7.1.1	DB_VERSION	Database version number	VARCHAR2(10)
7.1.2	DESCRIPTION	Database version description	VARCHAR2(2000)
7.1.3	START_DATE	Start date	DATE
7.1.4	RETIRED_DATE	Retired date	DATE
7.1.5	IS_ACTIVE	Is version active	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	ADBVER_PK	DB_VERSION	N/A

#### 7.1.1 DB\_VERSION

**Database version number.** A unique number used to identify a database version. The number has the following format: DD.DD.DD (<Major>.<Minor>.<Patch>). The DB\_VERSION number that is associated with **IS\_ACTIVE** = 'Y' (yes) identifies the currently available version.

#### 7.1.2 DESCRIPTION

**Database version description.** A description of the database version.

#### 7.1.3 START\_DATE

**Start date.** The release date when the database version was first installed.

#### 7.1.4 RETIRED\_DATE

**Retired date.** The date when the database version was retired, if it is no longer active.

#### 7.1.5 IS\_ACTIVE

**Is version active.** A code indicating the status for the database version.

**Codes: IS\_ACTIVE**

Code	Description
Y	Yes - The database version is active.
N	No - The database version is not active.



## 7.2 Entity Short Name Table

### Oracle table name: ADMIN\_ENTITY\_SHORTNAME

The **ADMIN\_ENTITY\_SHORTNAME** table stores a list of database entities and their associated short names (aliases). Short names are used in the naming of database components, such as primary keys. They are also useful in providing a table aliasing standard for writing complex SQL statements.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
7.2.1	ENTITY_NAME	Entity name	VARCHAR2(30)
7.2.2	ENTITY_SHORTNAME	Entity short name	VARCHAR2(10)

Key type	Alias	Constraint column(s)	Table joins
Primary	AES_PK	ENTITY_NAME	N/A
Unique	AES_UK	ENTITY_SHORTNAME	N/A

#### 7.2.1 ENTITY\_NAME

**Entity name.** The name of the database entity.

#### 7.2.2 ENTITY\_SHORTNAME

**Entity short name.** The standard short name (alias) assigned to the database entity. For example, the alias "PLT" has been assigned to the [ID\\_PLOT](#) table, and the alias "PRJ" has been assigned to the [SO\\_PROJECT](#) table.

**Note:** The following list of entities includes a combination of Oracle tables, views, and synonyms. However, for this user guide, all of these entities are simply referred to as database "tables."

**Table 7-1:** Entity short names (aliases).

ENTITY_NAME	ENTITY_SHORTNAME
ADMIN_DB_VERSION	ADBVER
ADMIN_ENTITY_SHORTNAME	AES
ADMIN_PUB_DATA_STANDARD	PDS
ADMIN_PUB_SUMMARY_RPT	APSR
ID_BUILDING_INTERACTION	BINTA
ID_COND	CND
ID_ENERGY_EFFECT	EE
ID_INVASIVE_SUBP_COND	ISPCND
ID_MOTHER_TREE	MTRE
ID_PLOT	PLT

ENTITY_NAME	ENTITY_SHORTNAME
ID_PLOT_INV_ASSGN	PINVA
ID_PLOT_STAT_SAMP_ASSGN	PSSA
ID_PLOT_STRAT_CALC_ASSGN	PSCA
ID_SEEDLING	SDL
ID_SITETREE	SIT
ID_SUBPLOT	SBP
ID_SUBP_COND	SPCND
ID_TREE	TRE
ID_WOODLAND_STEM	WDS
MOD_POLLUTION_HEALTH_FCTR	MPHF
MOD_POLLUTION_REMOVAL	MPR
MOD_RAINFALL	MR
MOD_VOC_EMISSION	MVOCE
POP_ATTRIBUTE	PATTR
POP_CALCULATION	PCALC
POP_DOMAIN	PDOM
POP_SAMPLE_CONSTRAINT	PSCON
POP_SAMPLE_CONSTRAINT_ASSGN	PSCONA
POP_SAMPLE_CONSTRAINT_GROUP	PSCG
POP_STAT_SAMP	PSS
POP_STAT_SAMP_ATTRIBUTE_ASSGN	PSSAA
POP_STAT_SAMP_DOMAIN_ASSGN	PSSDA
POP_STRATUM_CALC	PSC
REF_ABNORMAL_TERMINATION	RAT
REF_ABSENT_PRESENT	RAP
REF_BOLE_STUMP_REMOVED	RBSR
REF_CANOPY_COVER_SAMPLE_METHOD	RCCSM
REF_CAUSE_OF_DEATH	RCOD
REF_CITATION	RCIT
REF_CONDITION_NONSAMPLE_REASON	RCNR
REF_CONDITION_SAMPLING_STATUS	RCSS
REF_COUNTY	RCTY
REF_COVER_CLASS	RCC
REF_CROWN_CLASS	RCC2
REF_CROWN_LIGHT_EXPOSURE	RCLE
REF_DAMAGE_AGENT	RDA
REF_DAMAGE_AGENT_GROUP	RDAG

ENTITY_NAME	ENTITY_SHORTNAME
REF_DECAY_CLASS	RDC
REF_DIA_CHECK	RDC2
REF_DISTURBANCE	RD
REF_FIA_LANDUSE	RFL
REF_FIA_LANDUSE_DETAILED	RFLD
REF_FOREST_LAND_COND_STAT_CHG	RFLCSC
REF_FOREST_TYPE	RFT
REF_FOREST_TYPE_GROUP	RFTG
REF_HORIZ_DIST_IMPRVD_ROAD	RHDIR
REF_INVASIVE_SAMPLING_STATUS	RISS
REF_INVASIVE_SPECIES	RIS
REF_INVS_COND_SAMPLING_STATUS	RICSS
REF_ITREE_LANDUSE	RIL
REF_ITREE_LANDUSE_DETAILED	RILD
REF_LAND_COVER_CLASS	RLCC
REF_LENGTH_METHOD	RLM
REF_NO_YES	RNY
REF_OWNER_CLASS	ROC
REF_OWNER_GROUP	ROG
REF_PERCENT_CLASS_CODE	RPCC
REF_PHYSIOGRAPHIC_CLASS	RPC
REF_PLANT_DICTIONARY	RPD
REF_PLOT_NONSAMPLE_REASON	RPNR
REF_PLOT_STATUS	RPS
REF_PREV_TREE_STATUS	RPTS
REF_PRODUCTIVITY_STATUS	RPS2
REF_RECONCILE	RR
REF_REGENERATION_STATUS	RRS
REF_RESERVED_STATUS	RRS2
REF_SAMPLE_KIND	RSK
REF_SAMPLE_METHOD_CD	RSMC
REF_SEEDLING_MAINTAINED_AREA	RSMA
REF_SEEDLING_PLANTED	RSP
REF_SITE_CLASS_CODE	RSCC
REF_SPECIES	RS
REF_SPECIES_GROUP	RSG
REF_STAND_SIZE_CLASS	RSSC

ENTITY_NAME	ENTITY_SHORTNAME
REF_SUBPLOT_NONSAMPLE_REASON	RSNR
REF_SUBPLOT_STATUS	RSS
REF_TREATMENT	RT
REF_TREE_CARBON_RATIO_DEAD	REFTCRD
REF_TREE_CLASS	RTC
REF_TREE_DECAY_PROP	REFTDP
REF_TREE_DENSITY	RTD
REF_TREE_PLANTED	RTP
REF_TREE_STATUS	RTS
REF_TREE_STND_DEAD_CR_PROP	REFTSDCP
REF_UNIT	RUNT
REF_UTILIZATION_CLASS	RUC
REF_WATER_ON_PLOT	RWOP
SO_INVENTORY	INV
SO_POP_STRUCT_ELMT	PSTREL
SO_PROJECT	PRJ
SO_RESEARCH_ORGANIZATION	RESORG

## 7.3 Publication Data Standard Table

### Oracle table name: ADMIN\_PUB\_DATA\_STANDARD

The purpose of the **ADMIN\_PUB\_DATA\_STANDARD** table is to provide a version history for compiled data standards (CDS). A CDS identifies a defined standard to which published data conform (i.e., the standard that was active when data were processed and compiled).

**Note:** All data are processed to conform to the active standard.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
7.3.1	NAME	Compiled data standard name	VARCHAR2(50)
7.3.2	VERSION	Compiled data standard version number	VARCHAR2(10)
7.3.3	DESCRIPTION	Compiled data standard description	VARCHAR2(2000)
7.3.4	START_DATE	Start date	DATE
7.3.5	RETIRED_DATE	Retired date	DATE
7.3.6	IS_ACTIVE	Is standard active	CHAR(1)
7.3.7	CREATED_DATE	Created date	DATE
7.3.8	MODIFIED_DATE	Modified date	DATE

Key type	Alias	Constraint column(s)	Table joins
Primary	PDS_PK	CN	N/A
Unique	PDS_UK	NAME, VERSION	N/A
Unique	PDS_UK2	IS_ACTIVE	N/A

#### 7.3.1 NAME

**Compiled data standard name.** A descriptive name for the compiled data standard (CDS).

#### 7.3.2 VERSION

**Compiled data standard version number.** The version number assigned to the compiled data standard.

#### 7.3.3 DESCRIPTION

**Compiled data standard description.** A brief summary description of the compiled data standard.

#### 7.3.4 START\_DATE

**Start date.** The date that the compiled data standard was activated.

**7.3.5 RETIRED\_DATE**

**Retired date.** The date when the compiled data standard was retired, if it is no longer active.

**7.3.6 IS\_ACTIVE**

**Is standard active.** A code indicating the status for the compiled data standard.

**Codes: IS\_ACTIVE**

Code	Description
Y	Yes - The compiled data standard is active.
N	No - The compiled data standard is not active.

**7.3.7 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

**7.3.8 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

## 7.4 Publication Summary Report Table

### Oracle table name: ADMIN\_PUB\_SUMMARY\_RPT

The purpose of the **ADMIN\_PUB\_SUMMARY\_RPT** table is to provide a quick summary for published data, such as the data standard used for compilation, and the date when data were last uploaded to the database.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
7.4.1	PROJECT_NAME	Project name	VARCHAR2(50)
7.4.2	LOAD_TYPE	Load type	VARCHAR2(12)
7.4.3	BEGIN_INVYR_LOADED	Begin inventory year loaded	NUMBER(4)
7.4.4	END_INVYR_LOADED	End inventory year loaded	NUMBER(4)
7.4.5	LATEST_LOAD_DATE	Latest load date	DATE
7.4.6	CURRENT_CDS	Current compiled data standard	VARCHAR2(10)
7.4.7	RECORDS_LOADED	Records loaded	INTEGER
7.4.8	CREATED_DATE	Created date	DATE
7.4.9	MODIFIED_DATE	Modified date	DATE

Key type	Alias	Constraint column(s)	Table joins
Unique	APSR_UK	PROJECT_NAME, LOAD_TYPE	N/A

#### 7.4.1 PROJECT\_NAME

**Project name.** A descriptive name for the project (e.g., FIA-Urban Inventory of Houston, TX; FIA-Urban Inventory of San Diego, CA).

#### 7.4.2 LOAD\_TYPE

**Load type.** An identifier for the inventory component that was loaded (e.g., PROJECT, INVENTORY, STAT\_SAMP, MODELED).

#### 7.4.3 BEGIN\_INVYR\_LOADED

**Begin inventory year loaded.** The earliest inventory year published for the project.

#### 7.4.4 END\_INVYR\_LOADED

**End inventory year loaded.** The latest inventory year published for the project.

#### 7.4.5 LATEST\_LOAD\_DATE

**Latest load date.** The date when data were last uploaded to the database.

#### 7.4.6 CURRENT\_CDS

**Current compiled data standard.** An identifier for the compiled data standard (CDS) that was active when the data were published. The value in this column is a concatenation of

the CDS name (see ADMIN\_PUB\_DATA\_STANDARD.[NAME](#)) and the CDS version number (see ADMIN\_PUB\_DATA\_STANDARD.[VERSION](#)) (e.g., FIA Urban-7).

#### **7.4.7 RECORDS\_LOADED**

**Records loaded.** The number of records loaded for the project and load type.

#### **7.4.8 CREATED\_DATE**

**Created date.** The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

#### **7.4.9 MODIFIED\_DATE**

**Modified date.** The date the record was last modified, which is typically in the format of MM/DD/YYYY for download files. This field will be blank (null) if the data have not been modified since initial creation.

Section revision: 11.01.2024

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Section revision: 11.01.2024

# Index of Tables

This index contains a list and brief descriptions of the tables included within this user guide. The list is alphabetized by table group prefixes and Oracle table names.

## Appendix Contents:

Table group prefix	Table group name	Purpose
ADMIN_	Administration	This table group contains tables that support the functioning and maintenance of the database itself.
ID_	Inventory Data	This table group stores data collected during the sampling phase of an inventory as well as all calculated or derived values. This can include measurements taken during on-the-ground field work as well as measurements taken remotely in the office.
MOD_	Population Model	This table group stores output from various computer models that estimate properties of the urban forest at the population level. These models make use of inputs from various sources including, but not limited to, climate/meteorological data, pollution flux data, economic data, and population estimates derived from inventory data.
POP_	Population Estimation	This table group stores critical information required to produce population-level estimates using the FIA stratified estimator. The two main components required for this are a <i>statistical sample</i> and a <i>stratification</i> of the target population. FIA uses the term 'evaluation' to refer to this combination.
REF_	Reference Data	This table group provides code descriptions and related information for various attributes in the database. Reference data are static or semi-static data that define codes used in other table groups of the database.
SO_	Sample Organization	This table group provides information describing the contexts in which inventory data can be summarized. These data identify inventory projects and how a project is implemented over time. Each project is further described identifying its target population and the structure of that population.

Section	Oracle table name	Table name	Description	
	<b>ADMIN_</b>			
7.1	ADMIN_DB_VERSION	Database Version History Table	This table contains a record of the version history of the database, such as the version number and start date for each release.	
7.2	ADMIN_ENTITY_SHORTNAME	Entity Short Name Table	This table stores a list of database entities and their associated short names (abbreviations/aliases).	
7.3	ADMIN_PUB_DATA_STANDARD	Publication Data Standard Table	This table stores a version history for compiled data standards (CDS). A CDS identifies a defined standard to which published data conform (i.e., the standard that was active when data were processed and compiled).	
7.4	ADMIN_PUB_SUMMARY_RPT	Publication Summary Report Table	This table provides a quick summary for published data, such as the data standard used for compilation, and the date when data were last uploaded to the database.	
	<b>ID_</b>			
3.1	ID_BUILDING_INTERACTION	Building Interaction Table	<p>This table stores data for one or more interactions between a tree and a building within a short distance of the tree.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_BUILDING_INTERACTION.PLT_CN = ID_PLOT.CN links the building interaction record to the plot visit record.</li> <li>• ID_BUILDING_INTERACTION.SBP_CN = ID_SUBPLOT.CN links the building interaction record to the subplot record.</li> <li>• ID_BUILDING_INTERACTION.CND_CN = ID_COND.CN links the building interaction record to the condition record.</li> <li>• ID_BUILDING_INTERACTION.MTRE_CN = ID_MOTHER_TREE.CN links the building interaction record to the mother tree record.</li> <li>• ID_BUILDING_INTERACTION.PREV_PLT_CN = ID_PLOT.CN links the building interaction record to the previous plot visit record.</li> </ul>	
3.2	ID_COND	Condition Table	<p>This table stores information describing each of the land conditions that intersect the plot footprint. A land condition is an area on the ground that is homogeneous with respect to certain parameters. Each plot is assumed to intersect at least one land condition. Multiple land conditions can intersect the plot footprint.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_COND.PLT_CN = ID_PLOT.CN links the condition record to the plot visit record.</li> <li>• ID_COND.PREV_PLT_CN = ID_PLOT.CN links the condition record to the previous plot visit record.</li> </ul>	

Section	Oracle table name	Table name	Description
3.3	ID_ENERGY_EFFECT	<a href="#">Energy Effect Table</a>	<p>This table stores output from the i-Tree Energy Effects model. This model estimates the effects urban trees have on energy consumption and carbon emissions of residential buildings (McPherson and Simpson 1999). Estimates quantify the amount of energy use avoided as well as an estimated dollar value of energy consumption avoided. These estimates are broken down by energy use and energy influence type in this table.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_ENERGY_EFFECT.BINTA_CN = ID_BUILDING_INTERACTION.CN links the energy effect record to the building interaction record.</li> <li>• ID_ENERGY_EFFECT.PLT_CN = ID_PLOT.CN links the energy effect record to the plot visit record.</li> <li>• ID_ENERGY_EFFECT.SBP_CN = ID_SUBPLOT.CN links the energy effect record to the subplot record.</li> <li>• ID_ENERGY_EFFECT.CND_CN = ID_COND.CN links the energy effect record to the condition record.</li> <li>• ID_ENERGY_EFFECT.MTRE_CN = ID_MOTHER_TREE.CN links the energy effect record to the mother tree record.</li> <li>• ID_ENERGY_EFFECT.PREV_PLT_CN = ID_PLOT.CN links the energy effect record to the previous plot visit record.</li> </ul>
3.4	ID_INVASIVE_SUBP_COND	<a href="#">Invasive Species Subplot Condition Table</a>	<p>This table stores information for invasive species sampled on a subplot for all accessible conditions. Every record represents the unique intersection of an invasive species, a subplot, and a condition.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_INVASIVE_SUBP_COND.PLT_CN = ID_PLOT.CN links the invasive species subplot condition record to the plot visit record.</li> <li>• ID_INVASIVE_SUBP_COND.SBP_CN = ID_SUBPLOT.CN links the invasive species subplot condition record to the subplot record.</li> <li>• ID_INVASIVE_SUBP_COND.CND_CN = ID_COND.CN links the invasive species subplot condition record to the condition record.</li> <li>• ID_INVASIVE_SUBP_COND.PREV_PLT_CN = ID_PLOT.CN links the invasive species subplot condition record to the previous plot visit record.</li> </ul>

Section	Oracle table name	Table name	Description
3.5	ID_MOTHER_TREE	<a href="#">Mother Tree Table</a>	<p>This table stores information for trees, live and standing dead <math>\geq 1.0</math> inch in diameter, at the mother-tree level. A "mother tree" is a term FIA has defined to identify a single organism originating from the same stump, regardless of the number of stems (pitfalls enter the ground as one). This table is populated for timber- and woodland-classified species.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_MOTHER_TREE.PLT_CN = ID_PLOT.CN links the mother tree record to the plot visit record.</li> <li>• ID_MOTHER_TREE.SBP_CN = ID_SUBPLOT.CN links the mother tree record to the subplot record.</li> <li>• ID_MOTHER_TREE.CND_CN = ID_COND.CN links the mother tree record to the condition record.</li> <li>• ID_MOTHER_TREE.PREV_PLOT_CN = ID_PLOT.CN links the mother tree record to the previous plot visit record.</li> <li>• ID_MOTHER_TREE.PREV_MTRE_CN = ID_MOTHER_TREE.CN links the mother tree record to the previous mother tree record.</li> </ul>
3.6	ID_PLOT	<a href="#">Plot Table</a>	<p>This table stores information about the primary sampling point: a plot. Specifically, each record represents a plot visit. A plot is a dimensionless point that exists at a specific location on the surface of the population. A plot visit is the execution of a sampling protocol on a given sampling point at a given point in time.</p> <p><b>Table joins:</b></p> <p>This table links to most other tables, and the linkage is made using ID_PLOT.CN = TABLE_NAME.PLT_CN (<i>TABLE_NAME</i> is the name of any table containing the column name PLT_CN). Below are some examples linking the ID_PLOT table to other tables.</p> <p><b>Examples:</b></p> <ul style="list-style-type: none"> <li>• ID_PLOT.CN = ID_MOTHER_TREE.PLT_CN links the plot visit record to the mother tree record.</li> <li>• ID_PLOT.CN = ID_TREE.PLT_CN links the plot visit record to the tree record.</li> <li>• ID_PLOT.CN = ID_SUBPLOT.PLT_CN links the plot visit record to the subplot record.</li> <li>• ID_PLOT.CN = ID_COND.PLT_CN links the plot visit record to the condition record.</li> </ul> <p><b>Previous plot visit link:</b></p> <ul style="list-style-type: none"> <li>• ID_PLOT.PREV_PLT_CN = ID_PLOT.CN links the plot visit record to the previous plot visit record.</li> </ul>

Section	Oracle table name	Table name	Description
3.7	ID_PLOT_INV_ASSGN	<a href="#">Plot Inventory Assignment Table</a>	<p>This table stores the linkage between plots (see <a href="#">ID_PLOT</a> table) and inventories (see <a href="#">SO_INVENTORY</a> table). This relationship is modeled as many-to-many. This means a given inventory can be associated with many plots and a given plot can be associated with many inventories. As a result, a single plot visit can participate in multiple inventories.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_PLOT_INV_ASSGN.PLT_CN = ID_PLOT.CN links the plot inventory assignment record to the plot visit record.</li> <li>• ID_PLOT_INV_ASSGN.INV_CN = SO_INVENTORY.INV_CN links the plot inventory assignment record to the inventory record.</li> </ul>
3.8	ID_PLOT_STAT_SAMP_ASSGN	<a href="#">Plot Statistical Sample Assignment Table</a>	<p>This table stores the linkage between plots (see <a href="#">ID_PLOT</a> table) and statistical samples (see <a href="#">POP_STAT_SAMP</a> table). This relationship is modeled as many-to-many. This means a given statistical sample can be composed of many plots and a given plot can be assigned to many statistical samples.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_PLOT_STAT_SAMP_ASSGN.PLT_CN = ID_PLOT.CN links the plot statistical sample assignment record to the plot visit record.</li> <li>• ID_PLOT_STAT_SAMP_ASSGN.PSS_CN = POP_STAT_SAMP.CN links the plot statistical sample assignment record to the population statistical sample record.</li> </ul>
3.9	ID_PLOT_STRAT_CALC_ASSGN	<a href="#">Plot Stratum Calculation Assignment Table</a>	<p>This table stores the linkage between plots (see <a href="#">ID_PLOT</a> table) and strata (see <a href="#">POP_STRATUM_CALC</a> table). This relationship is modeled as many-to-many. This means a given stratum can be associated with many plots and a given plot can be assigned to many strata.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_PLOT_STRAT_CALC_ASSGN.PLT_CN = ID_PLOT.CN links the plot stratum calculation assignment record to the plot visit record.</li> <li>• ID_PLOT_STRAT_CALC_ASSGN.PSC_CN = POP_STRATUM_CALC.CN links the plot stratum calculation assignment record to the population stratum calculation record.</li> </ul>

Section	Oracle table name	Table name	Description
3.10	ID_SEEDLING	<a href="#">Seedling Table</a>	<p>This table stores the count of seedlings measured during a field visit. Descriptive characteristics of the sampled seedlings are also stored in this table in accordance with the field protocol used. <b>Note:</b> Seedlings are sampled and stored as counts. A single record within the <a href="#">ID_SEEDLING</a> table denotes a count of 1 or many individuals of the same species.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_SEEDLING.PLT_CN = ID_PLOT.CN links the seedling record to the plot visit record.</li> <li>• ID_SEEDLING.SBP_CN = ID_SUBPLOT.CN links the seedling record to the subplot record.</li> <li>• ID_SEEDLING.CND_CN = ID_COND.CN links the seedling record to the condition record.</li> <li>• ID_SEEDLING.PREV_PLT_CN = ID_PLOT.CN links the seedling record to the previous plot visit record.</li> </ul>
3.11	ID_SITETREE	<a href="#">Site Tree Table</a>	<p>This table stores information describing site trees measured in the field. Site trees are selected to be representative of the site productivity of one or more conditions encountered on the plot.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_SITETREE.PLT_CN = ID_PLOT.CN links the site tree record to the plot visit record.</li> <li>• ID_SITETREE.SBP_CN = ID_SUBPLOT.CN links the site tree record to the subplot record.</li> <li>• ID_SITETREE.CND_CN = ID_COND.CN links the site tree record to the condition record.</li> <li>• ID_SITETREE.PREV_PLT_CN = ID_PLOT.CN links the site tree record to the previous plot visit record.</li> </ul>
3.13	ID_SUBP_COND	<a href="#">Subplot Condition Table</a>	<p>This table stores information describing the intersection of the plot footprint elements (such as subplots and microplots) and conditions. This table also stores the condition proportion for each plot footprint element as estimated from boundary data. These proportions can be expanded to the population level and expressed in areal units (e.g., acres or hectares).</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_SUBP_COND.PLT_CN = ID_PLOT.CN links the subplot condition record to the plot visit record.</li> <li>• ID_SUBP_COND.SBP_CN = ID_SUBPLOT.CN links the subplot condition record to the subplot record.</li> <li>• ID_SUBP_COND.CND_CN = ID_COND.CN links the subplot condition record to the condition record.</li> <li>• ID_SUBP_COND.PREV_PLT_CN = ID_PLOT.CN links the subplot condition record to the previous plot visit record.</li> </ul>

Section	Oracle table name	Table name	Description
3.12	ID_SUBPLOT	<a href="#">Subplot Table</a>	<p>This table stores information describing the various subplot footprint components of the plot. Each plot can be thought of as a dimensionless point on the landscape on which one or more footprints are installed. The annualized urban inventory installs a footprint composed of a single 48-foot subplot with four nested microplots.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_SUBPLOT.PLT_CN = ID_PLOT.CN links the subplot record to the plot visit record.</li> <li>• ID_SUBPLOT.CENTER_CND_CN = ID_COND.CN links the subplot record to the center condition record.</li> <li>• ID_SUBPLOT.REMAINING_CND_CN = ID_COND.CN links the subplot record to the remaining condition record.</li> <li>• ID_SUBPLOT.PREV_PLT_CN = ID_PLOT.CN links the subplot record to the previous plot visit record.</li> </ul>
3.14	ID_TREE	<a href="#">Tree Table</a>	<p>This table stores information describing live and standing dead trees <math>\geq 1.0</math> inch in diameter. It is populated for timber- and woodland-classified species, and it stores data under FIA's traditional approach to identifying trees.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_TREE.PLT_CN = ID_PLOT.CN links the tree record to the plot visit record.</li> <li>• ID_TREE.SBP_CN = ID_SUBPLOT.CN links the tree record to the subplot record.</li> <li>• ID_TREE.CND_CN = ID_COND.CN links the tree record to the condition record.</li> <li>• ID_TREE.MTRE_CN = ID_MOTHER_TREE.CN links the tree record to the mother tree record.</li> <li>• ID_TREE.PREV_PLT_CN = ID_PLOT.CN links the tree record to the previous plot visit record.</li> <li>• ID_TREE.PREV_TRE_CN = ID_TREE.CN links the tree record to the previous tree record.</li> </ul>

Section	Oracle table name	Table name	Description	
3.15	ID_WOODLAND_STEM	<a href="#">Woodland Stem Table</a>	<p>This table stores data for the individual stems of a woodland-classified species. Individual woodland stem diameter measurements contribute to the value of the diameter stored on the parent <a href="#">ID_TREE</a> record.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• ID_WOODLAND_STEM.PLT_CN = ID_PLOT.CN links the woodland stem record to the plot visit record.</li> <li>• ID_WOODLAND_STEM.SBP_CN = ID_SUBPLOT.CN links the woodland stem record to the subplot record.</li> <li>• ID_WOODLAND_STEM.CND_CN = ID_COND.CN links the woodland stem record to the condition record.</li> <li>• ID_WOODLAND_STEM.MTRE_CN = ID_MOTHER_TREE.CN links the woodland stem record to the mother tree record.</li> <li>• ID_WOODLAND_STEM.TRE_CN = ID_TREE.CN links the woodland stem record to the tree record.</li> <li>• ID_WOODLAND_STEM.PREV_PLT_CN = ID_PLOT.CN links the woodland stem record to the previous plot visit record.</li> </ul>	
<b>MOD_</b>				
5.1	MOD POLLUTION_HEALTH_FCTR	<a href="#">Model Pollution Health Factor Table</a>	<p>This table stores output from the i-Tree Health Effects model. This model estimates the number of incidents avoided and the associated dollar value of several health factors related to four major pollutants: nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), and particulate matter ≤2.5 micrometers (PM25).</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• MOD_POLLUTION_HEALTH_FCTR.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the pollution health factor record to the population structure element record.</li> </ul>	
5.2	MOD POLLUTION_REMOVAL	<a href="#">Model Pollution Removal Table</a>	<p>This table stores estimates from a computer model that indicates the quantity and associated value of pollution reduction by urban forests. The four pollutants evaluated by the model are nitrogen dioxide (NO<sub>2</sub>), sulfur dioxide (SO<sub>2</sub>), ozone (O<sub>3</sub>), and particulate matter ≤2.5 micrometers (PM25).</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• MOD_POLLUTION_REMOVAL.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the pollution removal record to the population structure element record.</li> </ul>	

Section	Oracle table name	Table name	Description	
5.3	MOD_RAINFALL	Model Rainfall Table	<p>This table stores output from a computer model that estimates the amount of rainfall intercepted by urban forest tree canopies as well as the volume of runoff avoided.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• MOD_RAINFALL.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the rainfall record to the population structure element record.</li> </ul>	
5.4	MOD_VOC_EMISSION	Model Volatile Organic Compound (VOC) Emissions Table	<p>This table stores estimates of Volatile Organic Compound (VOC) emissions. VOC emission is correlated with the amount of leaf biomass. Estimates are produced by a computer model by tree genus.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• MOD_VOC_EMISSION.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the VOC emissions record to the population structure element record.</li> </ul>	
<b>POP_</b>				
4.1	POP_ATTRIBUTE	Population Attribute Table	<p>This table contains a list of population attributes that can be estimated by inventory data. This list is not exhaustive and is not meant to limit analyses. Rather, this list represents common attributes of a population used in standard reporting. Each population attribute is supported by a calculation stored in the POP_CALCULATION table.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• POP_ATTRIBUTE.PCALC_CN = POP_CALCULATION.CN links the population attribute record to the population calculation record.</li> </ul>	
4.2	POP_CALCULATION	Population Calculation Table	This table contains a list of named calculations along with the expression required to perform the calculation and any constraints. The expression defines the value that should be summed for each plot within the domain of interest.	
4.3	POP_DOMAIN	Population Domain Table	This table contains a list of population domains. These are segments of the population for which a separate estimate may be desired. Population domains can be defined geographically (e.g., a particular county) or by properties of a particular population entity (e.g., live trees at least 5 inches in diameter).	
4.4	POP_SAMPLE_CONSTRAINT	Population Sample Constraint Table	This table contains a list of sample constraints that can be applied to any defined statistical sample. Sample constraints are the mechanism used to filter the list of plots when forming a sample.	

Section	Oracle table name	Table name	Description
4.5	POP_SAMPLE_CONSTRAINT_ASSGN	Population Sample Constraint Assignment Table	<p>This table stores the assignment of sample constraints to constraint groups.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• POP_SAMPLE_CONSTRAINT_ASSGN.PSCG_CN = POP_SAMPLE_CONSTRAINT_GROUP.CN links the population sample constraint assignment record to the population sample constraint group record.</li> <li>• POP_SAMPLE_CONSTRAINT_ASSGN.PSCON_CN = POP_SAMPLE_CONSTRAINT.CN links the population sample constraint assignment record to the population sample constraint record.</li> </ul>
4.6	POP_SAMPLE_CONSTRAINT_GROUP	Population Sample Constraint Group Table	<p>This table stores the identity of population sample constraint groups. Sample constraint groups define a specific set of constraints used to filter the set of available plot visits to form the statistical sample. For example, if a statistical sample is intended to support growth, removals, and mortality (GRM) estimation, the sample should be filtered to include only plot visits that are remeasurement visits.</p>
4.7	POP_STAT_SAMP	Population Statistical Sample Table	<p>This table stores the identity of statistical samples.</p>
4.8	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population Statistical Sample Attribute Assignment Table	<p>This table stores the assignment of population attributes available for estimation to statistical samples. The full list of population attributes can be found in the <a href="#">POP_ATTRIBUTE</a> table.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• POP_STAT_SAMP_ATTRIBUTE_ASSGN.PSS_CN = POP_STAT_SAMP.CN links the population statistical sample attribute assignment record to the population statistical sample record.</li> <li>• POP_STAT_SAMP_ATTRIBUTE_ASSGN.PATTR_CN = POP_ATTRIBUTE.CN links the population statistical sample attribute assignment record to the population attribute record.</li> </ul>
4.9	POP_STAT_SAMP_DOMAIN_ASSGN	Population Statistical Sample Domain Assignment Table	<p>This table stores the assignment of population domains to statistical samples. Population domains are subgroups within the population that are of interest or for which a separate estimate is desired. Population domains can be defined geographically (e.g., a particular county) or by properties of a particular population entity (e.g., live trees at least 5 inches in diameter). The full list of population domains can be found in the <a href="#">POP_DOMAIN</a> table.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• POP_STAT_SAMP_DOMAIN_ASSGN.PSS_CN = POP_STAT_SAMP.CN links the population statistical sample domain assignment record to the population statistical sample record.</li> <li>• POP_STAT_SAMP_DOMAIN_ASSGN.PDOM_CN = POP_DOMAIN.CN links the population statistical sample domain assignment record to the population domain record.</li> </ul>

Section	Oracle table name	Table name	Description	
4.10	POP_STRATUM_CALC	Population Stratum Calculation Table	<p>This table stores the information required to support an FIA evaluation. An evaluation is an FIA convention that is defined as the unique combination of a statistical sample and a stratification of the target population for the purpose of producing estimates of a specific set of population attributes at a given point in time. Information in this table is presented in a three-tier structure representing the population, estimation unit, and stratum levels.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• POP_STRATUM_CALC.PSS_CN = POP_STAT_SAMP.CN links the population stratum calculation record to the population statistical sample record.</li> <li>• POP_STRATUM_CALC.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the population stratum calculation record to the population structure element record.</li> </ul>	
<b>REF_</b>				
6.1	REF_ABNORMAL_TERMINATION	Reference Abnormal Termination Table	This table stores reference data for the ABNORMAL_STEM_TERMINATION attribute. Code for this attribute indicates whether or not a tree stem has an abnormal termination (broken top).	
6.2	REF_ABSENT_PRESENT	Reference Absent Present Table	This table stores reference data for attributes that use "generic" codes of Absent (value = 0) or Present (value = 1). These codes are used to indicate the absence or presence of entities or conditions during sampling.	
6.3	REF_BOLE_STUMP_REMOVED	Reference Bole/Stump Removed Table	This table stores reference data for the BOLE_STUMP_REMOVED attribute. Code for this attribute indicates if a tree bole and/or stump was removed since a previous measurement.	
6.4	REF_CANOPY_COVER_SAMPLE_METHOD	Reference Canopy Cover Sample Method Table	This table stores reference data for the CANOPY_CVR_SAMPLE_METHOD_CD attribute. Code for this attribute indicates the method employed to estimate the canopy cover on a given plot visit.	
6.5	REF_CAUSE_OF_DEATH	Reference Cause of Death Table	This table stores reference data for the CAUSE_OF_DEATH attribute. Code for this attribute indicates the cause of death for a sample tree that was alive at a previous inventory and observed to be dead or removed at a subsequent inventory.	
6.6	REF_CITATION	Reference Citation Table	This table stores reference data for attributes that identify publication citations, which support values or methods employed by FIA.	
6.7	REF_CONDITION_NONSAMPLE_REASON	Reference Condition Nonsampled Reason Table	This table stores reference data for the COND_NONSAMPLE_REASON_CD attribute. Code for this attribute identifies the reason a condition was not sampled.	
6.8	REF_CONDITION_SAMPLING_STATUS	Reference Condition Sampling Status Table	This table stores reference data for the COND_STATUS_CD attribute. Code for this attribute defines the sampling status of a condition.	

Section	Oracle table name	Table name	Description
6.9	REF_COUNTY	Reference County Table	This table stores the code set for county codes (COUNTYCD). COUNTYCD is one of the attributes used on the inventory data tables to describe the location of the sampling point.
6.10	REF_COVER_CLASS	Reference Cover Class Table	This table stores reference data for the COVER_CLASS attribute. Code for this attribute is used to classify land cover on sampled conditions.
6.11	REF_CROWN_CLASS	Reference Crown Class Table	This table stores reference data for the CROWN_CLASS_CD attribute. Code for this attribute indicates the relative crown position of a tree within a stand. This assessment is based on the position of the crown at the time of observation.
6.12	REF_CROWN_LIGHT_EXPOSURE	Reference Crown Light Exposure Table	This table stores reference data for the CROWN_LIGHT_EXPOSURE attribute. Code for this attribute indicates the amount of tree crown that is exposed to light.
6.13	REF_DAMAGE_AGENT	Reference Damage Agent Table	This table stores the code set for tree damage agents, their common and scientific names, and severity thresholds.
6.14	REF_DAMAGE_AGENT_GROUP	Reference Damage Agent Group Table	This table stores the code set for tree damage agent groups. These groups are used to aggregate individual tree damage agents into general groupings for summarization.
6.15	REF_DECAY_CLASS	Reference Decay Class Table	This table stores reference data for the DECAYCD attribute. Code for this attribute indicates the state of decay of dead wood.
6.16	REF_DIA_CHECK	Reference Diameter Check Table	This table stores reference data for the DIACHECK attribute. Code for this attribute indicates the quality of a diameter measurement.
6.17	REF_DISTURBANCE	Reference Disturbance Table	This table stores reference data for the DISTURBANCE_CD1, DISTURBANCE_CD2, and DISTURBANCE_CD3 attributes. Code for these attributes describe disturbance on sampled conditions.
6.18	REF_FIA_LANDUSE	Reference FIA Land Use Table	This table stores reference data for the FIA_LANDUSE attribute. Code for this attribute describes the land use for a condition. This code set was developed by the FIA program.
6.19	REF_FIA_LANDUSE_DETAILED	Reference FIA Land Use Detailed Table	This table stores descriptions for detailed land use codes used by the FIA program.
6.20	REF_FOREST_LAND_COND_STATUS_CHG	Reference Forest Land Condition Status Change Table	This table stores reference data for the FOREST_COND_STATUS_CHANGE_CD attribute. Code for this attribute indicates the reason why the forest land condition status changed since the last inventory. If the status did not change, FOREST_COND_STATUS_CHANGE_CD = 0 is recorded.
6.21	REF_FOREST_TYPE	Reference Forest Type Table	This table stores reference data for the FLDTYPED attribute. Code for this attribute identifies the forest type assigned by the field crew.

Section	Oracle table name	Table name	Description
6.22	REF_FOREST_TYPE_GROUP	Reference Forest Type Group Table	This table stores averages and ratios for down woody material attributes by forest type group. Forest type groups are collections of forest types that are used for reporting and analyses.
6.23	REF_HORIZ_DIST_IMPRVD_ROAD	Reference Horizontal Distance to Improved Road Table	This table stores reference data for the ROAD_DIST_CD attribute. Code for this attribute indicates the horizontal distance from a plot visit to an improved road.
6.24	REF_INVASIVE_SPECIES	Reference Invasive Species Table	This table stores the species symbol code and other information for invasive species that are sampled in the annualized urban inventory.
6.25	REF_INVS_COND_SAMPLING_STATUS	Reference Invasive Condition Sampling Status	This table stores reference data indicating the sampling status of invasive species for a condition.
6.26	REF_ITREE_LANDUSE	Reference i-Tree Land Use Table	This table stores reference data for the ITREE_LANDUSE attribute. Code for this attribute defines land uses based on a code set developed for the i-Tree urban inventory.
6.27	REF_ITREE_LANDUSE_DETAIL_ED	Reference i-Tree Land Use Detailed Table	This table stores descriptions for detailed land use codes used by the i-Tree urban inventory.
6.28	REF_LAND_COVER_CLASS <b>RETIRED</b>	Reference Land Cover Class Table	<p>This table stores reference data for the LAND_COVER_CLASS_CD attribute. Code for this attribute is used to classify land cover or use on sampled conditions.</p> <p><b>Note:</b> The LAND_COVER_CLASS_CD attribute is retired when ID_PLOT.MANUAL_NATIONAL <math>\geq</math> 8.0 and replaced by a newer cover class version (see REF_COVER_CLASS).</p>
6.29	REF_LENGTH_METHOD	Reference Length Method Table	This table stores reference data for the HTCD attribute. Code for this attribute indicates the method used to measure the length of a tree.
6.30	REF_NO_YES	Reference No/Yes Table	This table stores reference data for attributes that use "generic" codes of No/False (value = 0) or Yes/True (value = 1).
6.31	REF_OWNER_CLASS	Reference Owner Class Table	This table stores reference data for the OWNCD attribute. Code for this attribute is used to identify the ownership category of the land for the condition.
6.32	REF_OWNER_GROUP	Reference Owner Group Table	This table stores reference data for the OWNGRPCD attribute. Code for this attribute is used to group owner classes into more general categories for summarization.
6.33	REF_PERCENT_CLASS_CODE	Reference Percent Class Code Table	This table stores reference data for the CROWN_DIEBACK_CD attribute. Code for this attribute is used to describe a discretized range of percentages.
6.34	REF_PHYSIOGRAPHIC_CLASS	Reference Physiographic Class Table	This table stores reference data for the PHYSCLCD attribute. Code for this attribute indicates the physiographic classification of a land condition.

Section	Oracle table name	Table name	Description
6.35	REF_PLANT_DICTIONARY	Reference Plant Dictionary	<p>This table contains information about plant species as defined by the Natural Resources Conservation Service (NRCS) for the <a href="#">PLANTS database</a> (available at web address: <a href="https://plants.usda.gov">https://plants.usda.gov</a>). The species symbol, common name, scientific name, growth habit, and other identifying information are included in this table.</p> <p><b>Note:</b> FIA identifies species and other taxonomic ranks for plants using symbols (SYMBOL) as assigned by NRCS for the <a href="#">PLANTS database</a> (available at web address: <a href="https://plants.usda.gov">https://plants.usda.gov</a>) on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.</p>
6.36	REF_PLOT_NONSAMPLE_REASON	Reference Plot Nonsampled Reason Table	This table stores reference data for the PLOT_NONSAMPLE_REASON_CD attribute. Code for this attribute identifies the reason for a nonsampled plot visit.
6.37	REF_PLOT_STATUS	Reference Plot Status Table	This table stores reference data for the PLOT_STATUS_CD attribute. Code for this attribute describes the sampling status of a plot visit.
6.38	REF_PREV_TREE_STATUS	Reference Previous Tree Status Table	This table stores reference data for the FIELD_PREV_STATUS_CD attribute. Code for this attribute indicates the status of the tree that was recorded by the field crew at the previous plot visit.
6.39	REF_PRODUCTIVITY_STATUS	Reference Productivity Status Table	This table stores reference data for the PRODUCTIVITY_STATUS attribute. Code for this attribute is used to classify the productivity of a land condition.
6.40	REF_RECONCILE	Reference Reconcile Table	This table stores reference data for the RECONCILECD attribute. Code for this attribute describes the reconciliation of trees measured during a previous visit with trees measured during the current visit. These codes identify the reason why a given tree enters or leaves the inventory.
6.41	REF_REGENERATION_STATUS	Reference Regeneration Status Table	This table stores reference data for the STDORGCD attribute. Code for this attribute indicates the regeneration status of a stand of trees.
6.42	REF_RESERVED_STATUS	Reference Reserved Status Table	This table stores reference data for the RESERVCD attribute. Code for this attribute indicates the reserved status of a land condition. These codes are supported by an FIA definition of reserved land.
6.43	REF_SAMPLE_KIND	Reference Sample Kind Table	This table stores reference data for the KINCD attribute. Code for this attribute indicates the type of plot visit. The term "sample kind" is used to indicate the kind of measurements that will be taken during the visit within an on-going annualized inventory.
6.44	REF_SAMPLE_METHOD_CD	Reference Sample Method Code Table	This table stores reference data for the SAMPLE_METHOD_CD attribute. Code for this attribute indicates the sampling method used for a plot visit.

Section	Oracle table name	Table name	Description
6.45	REF_SEEDLING_MAINTAINED_AREA	Reference Seedling Maintained Area Table	This table stores reference data for the IS_MAINTAINED_AREA attribute in the ID_SEEDLING table. Code for this attribute indicates whether or not a group of seedlings is located within a maintained area.
6.46	REF_SEEDLING_PLANTED	Reference Seedling Planted Table	This table stores reference data for the IS_PLANTED attribute in the ID_SEEDLING table. Code for this attribute indicates if a group of seedlings has been planted or has been established by natural mechanisms.
6.47	REF_SITE_CLASS_CODE	Reference Site Class Code Table	This table stores reference data for the COND_SITECLASS_FLD and SITE_CLASS_CD attributes. Code for these attributes indicate the estimated site productivity of a land condition. These codes are ordinal and classify productivity in terms of cubic feet per acre per year.
6.48	REF_SPECIES	Reference Species Table	This table stores the species code, species group code, descriptive common name, scientific name, and many other attributes for tree species that are sampled in the annualized urban inventory. This is a critical reference table for FIA inventories.
6.49	REF_SPECIES_GROUP	Reference Species Group Table	This table stores reference data for species groups. These groups are used to aggregate individual species into logical groupings for summarization. As with the REF_SPECIES table, this is a critical reference table for FIA inventories.
6.50	REF_STAND_SIZE_CLASS	Reference Stand-Size Class Table	This table stores reference data for the FLDSZCD attribute. Code for this attribute indicates the size class for a stand of trees. These codes form an ordinal set of ascending tree size within the stand.
6.51	REF_SUBPLOT_NONSAMPLE_REASON	Reference Subplot Nonsampled Reason Table	This table stores reference data for the SUBP_NONSAMPLE_REASON_CD attribute. Code for this attribute identifies the reason for a nonsampled subplot.
6.52	REF_SUBPLOT_STATUS	Reference Subplot Status Table	This table stores reference data for the SUBP_STATUS_CD attribute. Code for this attribute describes the sampling status of subplot.
6.53	REF_TREATMENT	Reference Treatment Table	This table stores reference data for the TREATMENT_CD1, TREATMENT_CD2, and TREATMENT_CD3 attributes. Code for these attributes describe silvicultural treatments applied to a land condition.
6.54	REF_TREE_CARBON_RATIO_DEAD	Reference Tree Carbon Ratio Dead Table	This table stores mean carbon ratios by decay class and softwood/hardwood classification. These carbon ratios are used by FIA for the "National Scale Volume and Biomass" (NSVB) system to estimate aboveground carbon in standing dead trees.
6.55	REF_TREE_CLASS	Reference Tree Class Table	This table stores reference data for the TREECLCD attribute. Code for this attribute indicates the general quality of a tree.

Section	Oracle table name	Table name	Description
6.56	REF_TREE_DECAY_PROP	Reference Tree Decay Proportion Table	This table stores density reduction factors by decay class and softwood/hardwood classification. These values are used by FIA for the "National Scale Volume and Biomass" (NSVB) system to estimate loss of mass for a decayed standing dead tree (compared to a live tree) and applied to stem wood, stem bark, and branch biomass.
6.57	REF_TREE_DENSITY	Reference Tree Density Table	This table stores reference data for the MAPDEN attribute. Code for this attribute indicates the relative density of tree stocking between two land conditions. These codes are primarily used to distinguish between two land conditions when the only difference is the relative density of trees populating the land.
6.58	REF_TREE_PLANTED	Reference Tree Planted Table	This table stores reference data for the IS_PLANTED attribute in the ID_MOTHER_TREE table. Code for this attribute indicates whether or not a tree was planted.
6.59	REF_TREE_STATUS	Reference Tree Status Table	This table stores reference data for the STATUSCD attribute in the ID_MOTHER_TREE and ID_TREE tables. Code for this attribute indicates the status of a tree at the time of measurement.
6.60	REF_TREE_STND_DEAD_CR_PROP	Reference Tree Standing Dead Crown Ratio Proportion Table	This table stores mean crown ratio values by ecoregion province and softwood/hardwood classification. These values are used by FIA for the "National Scale Volume and Biomass" (NSVB) system when accounting for volume and biomass loss due to broken tops for standing dead trees.
6.61	REF_UNIT	Reference Unit Table	This table stores the code set for FIA survey unit codes (UNITCD). UNITCD is one of the attributes used on the inventory data tables to describe the location of the sampling point.
6.62	REF_UTILIZATION_CLASS	Reference Utilization Class	This table stores reference data for the UTILCLCD attribute. Code for this attribute indicates the utilization class of trees that are dead and no longer standing.
6.63	REF_WATER_ON_PLOT	Reference Water on Plot Table	This table stores reference data for the WATER_CD attribute. Code for this attribute is used to describe the presence and type of water encountered at a plot location.
<b>SO_</b>			
2.1	SO_INVENTORY	Inventory Table	<p>This table provides a time element to a project. Each project is composed of a finite set of ordered panels. A panel is a temporal address that is used to distribute the sample across time. The term "inventory" is defined by a set of one or many panels. Inventories are useful to group observations in time for analyses.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• SO_INVENTORY.PRJ_CN = SO_PROJECT.CN links the inventory record to the project record.</li> </ul>

Section	Oracle table name	Table name	Description
2.2	SO_POP_STRUCT_ELMT	Population Structure Element Table	This table provides information describing the structure of the target population of a project. This allows inventory planners to define the boundary used for the overall population as well as important subpopulations that might have special significance either during sample selection or estimation.
2.3	SO_PROJECT	Project Table	<p>This table stores a record of each project. A project is a coordinated sampling effort to deliver a specific information product designed to meet the needs of stakeholders. Each project targets one and only one population for study. A project is assigned to a research organization, which has stewardship over that project.</p> <p><b>Table joins:</b></p> <ul style="list-style-type: none"> <li>• SO_PROJECT.RESORG_CN = SO_RESEARCH_ORGANIZATION.CN links the project record to the research organization record.</li> </ul>
2.4	SO_RESEARCH_ORGANIZATION	Research Organization Table	This table stores information describing individual research organizations.



Section revision: 11.01.2024

# Index of Column Names

## Index - Quick Links

A	B	C	D	E	F	G	H	I	J	K	L	M
N	O	P	Q	R	S	T	U	V	W	X	Y	Z

The following table contains an alphabetized list of all of the column names (attributes) in the **Urban FIADB User Guides - Volume: Database Description**.

The "Section" column indicates the location (subsection number) for the attribute within this user guide.

Section	Column name (attribute)	Oracle table name	Descriptive name
<b>A</b>			
6.1.2	ABBR	REF_ABNORMAL_TERMINATION	Code abbreviation
6.2.2	ABBR	REF_ABSENT_PRESENT	Code abbreviation
6.3.2	ABBR	REF_BOLE_STUMP_REMOVED	Code abbreviation
6.4.2	ABBR	REF_CANOPY_COVER_SAMPLE_MET_HOD	Code abbreviation
6.5.2	ABBR	REF_CAUSE_OF_DEATH	Code abbreviation
6.7.2	ABBR	REF_CONDITION_NONSAMPLE_REASON	Code abbreviation
6.8.2	ABBR	REF_CONDITION_SAMPLING_STATUS	Code abbreviation
6.10.2	ABBR	REF_COVER_CLASS	Code abbreviation
6.11.2	ABBR	REF_CROWN_CLASS	Code abbreviation
6.12.2	ABBR	REF_CROWN_LIGHT_EXPOSURE	Code abbreviation
6.15.2	ABBR	REF_DECAY_CLASS	Code abbreviation
6.16.2	ABBR	REF_DIA_CHECK	Code abbreviation
6.17.2	ABBR	REF_DISTURBANCE	Code abbreviation
6.18.2	ABBR	REF_FIA_LANDUSE	Code abbreviation
6.19.2	ABBR	REF_FIA_LANDUSE_DETAILED	Code abbreviation
6.20.2	ABBR	REF_FOREST_LAND_COND_STAT_CHG	Code abbreviation
6.22.3	ABBR	REF_FOREST_TYPE_GROUP	Code abbreviation
6.23.2	ABBR	REF_HORIZ_DIST_IMPRVD_ROAD	Code abbreviation
6.25.2	ABBR	REF_INVS_COND_SAMPLING_STATUS	Code abbreviation

Section	Column name (attribute)	Oracle table name	Descriptive name
6.26.2	ABBR	REF_ITREE_LANDUSE	Code abbreviation
6.27.2	ABBR	REF_ITREE_LANDUSE_DETAILED	Code abbreviation
6.28.2	ABBR	REF_LAND_COVER_CLASS <b>RETIRED</b>	Code abbreviation
6.29.2	ABBR	REF_LENGTH_METHOD	Code abbreviation
6.30.2	ABBR	REF_NO_YES	Code abbreviation
6.31.2	ABBR	REF_OWNER_CLASS	Code abbreviation
6.32.2	ABBR	REF_OWNER_GROUP	Code abbreviation
6.33.2	ABBR	REF_PERCENT_CLASS_CODE	Code abbreviation
6.34.2	ABBR	REF_PHYSIOGRAPHIC_CLASS	Code abbreviation
6.36.2	ABBR	REF_PLOT_NONSAMPLE_REASON	Code abbreviation
6.37.2	ABBR	REF_PLOT_STATUS	Code abbreviation
6.38.2	ABBR	REF_PREV_TREE_STATUS	Code abbreviation
6.39.2	ABBR	REF_PRODUCTIVITY_STATUS	Code abbreviation
6.40.2	ABBR	REF_RECONCILE	Code abbreviation
6.41.2	ABBR	REF_REGENERATION_STATUS	Code abbreviation
6.42.2	ABBR	REF_RESERVED_STATUS	Code abbreviation
6.43.2	ABBR	REF_SAMPLE_KIND	Code abbreviation
6.44.2	ABBR	REF_SAMPLE_METHOD_CD	Code abbreviation
6.45.2	ABBR	REF_SEEDLING_MAINTAINED_AREA	Code abbreviation
6.46.2	ABBR	REF_SEEDLING_PLANTED	Code abbreviation
6.47.2	ABBR	REF_SITE_CLASS_CODE	Code abbreviation
6.50.2	ABBR	REF_STAND_SIZE_CLASS	Code abbreviation
6.51.2	ABBR	REF_SUBPLOT_NONSAMPLE_REASON	Code abbreviation
6.52.2	ABBR	REF_SUBPLOT_STATUS	Code abbreviation
6.53.2	ABBR	REF_TREATMENT	Code abbreviation
6.55.2	ABBR	REF_TREE_CLASS	Code abbreviation
6.57.2	ABBR	REF_TREE_DENSITY	Code abbreviation
6.58.2	ABBR	REF_TREE_PLANTED	Code abbreviation
6.59.2	ABBR	REF_TREE_STATUS	Code abbreviation
6.62.2	ABBR	REF_UTILIZATION_CLASS	Code abbreviation
6.63.2	ABBR	REF_WATER_ON_PLOT	Code abbreviation
3.14.29	ABNORMAL_STEM_TERMINATION	ID_TREE	Abnormal stem termination
5.1.4	ACRES	MOD POLLUTION_HEALTH_FCTR	Area in acres
5.2.4	ACRES	MOD POLLUTION_REMOVAL	Area in acres
5.3.4	ACRES	MOD_RAINFALL	Area in acres
5.4.4	ACRES	MOD_VOC_EMISSION	Area in acres
3.14.27	ACTUAL_LENGTH	ID_TREE	Actual length
4.1.4	ADJUSTMENT_EXPRESSION	POP_ATTRIBUTE	Adjustment expression

Section	Column name (attribute)	Oracle table name	Descriptive name
4.8.5	ADJUSTMENT_EXPRESSION	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Adjustment expression
3.2.26	AFFORESTATION_CD	ID_COND	Current afforestation code
3.11.14	AGEDIA	ID_SITETREE	Age at diameter
6.21.6	ALLOWED_IN_FIELD	REF_FOREST_TYPE	Allowed in field
3.12.13	ASPECT	ID_SUBPLOT	Subplot aspect
4.8.3	ATTRIBUTE_NAME	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population attribute name
3.5.23	AVG_CROWN_WIDTH	ID_MOTHER_TREE	Average crown width
3.5.104	AVOIDED_RUNOFF	ID_MOTHER_TREE	[Data in preparation] Avoided runoff (i-Tree Eco system)
3.1.12	AZIMUTH	ID_BUILDING_INTERACTION	Azimuth
3.11.16	AZIMUTH	ID_SITETREE	Azimuth
3.14.14	AZIMUTH	ID_TREE	Azimuth
<b>B</b>			
3.2.54	BALIVE	ID_COND	Basal area per acre of live trees
6.56.5	BARK_LOSS_PROP	REF_TREE_DECAY_PROP	Bark loss proportion
6.48.24	BARK_SPGR_GREENVOL_DRYWT	REF_SPECIES	Green specific gravity of bark
6.48.25	BARK_SPGR_GREENVOL_DRYWT_CIT	REF_SPECIES	Citation for BARK_SPGR_GREENVOL_DRYWT
6.48.30	BARK_VOL_PCT	REF_SPECIES	Bark volume as a percent of wood volume
6.48.31	BARK_VOL_PCT_CIT	REF_SPECIES	Citation for BARK_VOL_PCT
3.5.30	BASAL_AREA	ID_MOTHER_TREE	Basal area
3.14.59	BASAL_AREA	ID_TREE	Basal area
7.4.3	BEGIN_INVYR_LOADED	ADMIN_PUB_SUMMARY_RPT	Begin inventory year loaded
3.3.17	BINTA_CN	ID_ENERGY_EFFECT	Building interaction sequence number
3.1.10	BLDG_INTERACTION_ID	ID_BUILDING_INTERACTION	Building interaction identifier
3.3.10	BLDG_INTERACTION_ID	ID_ENERGY_EFFECT	Building interaction identifier
3.14.31	BOLE_STUMP_REMOVED	ID_TREE	Bole and stump removed
6.56.6	BRANCH_LOSS_PROP	REF_TREE_DECAY_PROP	Branch loss proportion
<b>C</b>			
6.48.12	C_SPGRPCD	REF_SPECIES	Caribbean Islands species group code
4.1.2	CALCULATION_NAME	POP_ATTRIBUTE	Calculation name
4.8.4	CALCULATION_NAME	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Calculation name
3.2.22	CANOPY_CVR_SAMPLE_METHOD_CD	ID_COND	Canopy cover sample method code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.14.61	CARBON_AG	ID_TREE	Aboveground carbon of wood and bark
3.1.18	CARBON_AVOID_SUM	ID_BUILDING_INTERACTION	Carbon emissions avoided quantity
3.1.17	CARBON_AVOID_VALUE_SUM	ID_BUILDING_INTERACTION	Carbon emissions avoided value
3.14.62	CARBON_BG	ID_TREE	Belowground carbon
6.54.4	CARBON_RATIO	REF_TREE_CARBON_RATIO_DEAD	Wood carbon fraction
6.48.38	CARBON_RATIO_LIVE	REF_SPECIES	Wood carbon fraction
3.5.34	CARBON_STORAGE_ITREE	ID_MOTHER_TREE	Whole-tree carbon storage (i-Tree Eco system)
6.35.8	CATEGORY	REF_PLANT_DICTIONARY	Category
3.14.50	CAUSE_OF_DEATH	ID_TREE	Cause of death
3.12.17	CENTER_CND_CN	ID_SUBPLOT	Center condition sequence number
3.12.8	CENTER_CONDID	ID_SUBPLOT	Condition class identifier for center condition
3.2.28	CHAINING_CD	ID_COND	Chaining code
6.6.2	CITATION	REF_CITATION	Citation
6.6.1	CITATION_NBR	REF_CITATION	Citation number
6.49.4	CLASS	REF_SPECIES_GROUP	Class
3.1.35	CN	ID_BUILDING_INTERACTION	Building interaction sequence number
3.2.45	CN	ID_COND	Condition sequence number
3.4.15	CN	ID_INVASIVE_SUBP_COND	Invasive species subplot condition sequence number
3.5.112	CN	ID_MOTHER_TREE	Mother tree sequence number
3.6.22	CN	ID_PLOT	Plot sequence number
3.7.1	CN	ID_PLOT_INV_ASSGN	Plot inventory assignment sequence number
3.8.1	CN	ID_PLOT_STAT_SAMP_ASSGN	Plot statistical sample assignment sequence number
3.9.1	CN	ID_PLOT_STRAT_CALC_ASSGN	Plot stratum calculation assignment sequence number
3.10.15	CN	ID_SEEDLING	Seedling sequence number
3.11.19	CN	ID_SITETREE	Site tree sequence number
3.13.17	CN	ID_SUBP_COND	Subplot condition sequence number
3.12.15	CN	ID_SUBPLOT	Subplot sequence number
3.14.103	CN	ID_TREE	Tree sequence number
3.15.13	CN	ID_WOODLAND_STEM	Woodland stem sequence number
5.1.10	CN	MOD POLLUTION HEALTH FCTR	Pollution health factor sequence number

Section	Column name (attribute)	Oracle table name	Descriptive name
5.2.13	CN	MOD POLLUTION REMOVAL	Pollution removal sequence number
5.3.9	CN	MOD RAINFALL	Rainfall sequence number
5.4.10	CN	MOD VOC EMISSION	VOC emissions sequence number
4.1.7	CN	POP ATTRIBUTE	Population attribute sequence number
4.2.6	CN	POP CALCULATION	Population calculation sequence number
4.3.6	CN	POP DOMAIN	Population domain sequence number
4.4.6	CN	POP SAMPLE CONSTRAINT	Population sample constraint sequence number
4.5.1	CN	POP SAMPLE CONSTRAINT ASSGN	Population sample constraint assignment sequence number
4.6.3	CN	POP SAMPLE CONSTRAINT GROUP	Population sample constraint group sequence number
4.7.6	CN	POP STAT SAMP	Population statistical sample sequence number
4.8.8	CN	POP STAT SAMP ATTRIBUTE ASSGN	Population statistical sample attribute assignment sequence number
4.9.6	CN	POP STAT SAMP DOMAIN ASSGN	Population statistical sample domain assignment sequence number
4.10.30	CN	POP STRATUM CALC	Population stratum calculation sequence number
6.9.5	CN	REF COUNTY	County sequence number
6.24.1	CN	REF INVASIVE SPECIES	Invasive species sequence number
6.35.1	CN	REF PLANT DICTIONARY	Plant dictionary sequence number
6.54.1	CN	REF TREE CARBON RATIO DEAD	Tree carbon ratio dead sequence number
6.56.1	CN	REF TREE DECAY PROP	Tree decay proportion sequence number
6.60.1	CN	REF TREE STND DEAD CR PROP	Tree standing dead crown ratio proportion sequence number
2.1.5	CN	SO INVENTORY	Inventory sequence number
2.2.7	CN	SO POP STRUCT ELMT	Population structure element sequence number
2.3.6	CN	SO PROJECT	Project sequence number
2.4.6	CN	SO RESEARCH ORGANIZATION	Research organization sequence number
3.1.38	CND CN	ID BUILDING INTERACTION	Condition sequence number
3.3.20	CND CN	ID ENERGY EFFECT	Condition sequence number

Section	Column name (attribute)	Oracle table name	Descriptive name
3.4.19	CND_CN	ID_INVASIVE_SUBP_COND	Condition sequence number
3.5.115	CND_CN	ID_MOTHER_TREE	Condition sequence number
3.10.18	CND_CN	ID_SEEDLING	Condition sequence number
3.13.20	CND_CN	ID_SUBP_COND	Condition sequence number
3.14.106	CND_CN	ID_TREE	Condition sequence number
3.15.16	CND_CN	ID_WOODLAND_STEM	Condition sequence number
3.5.98	CO_REMOVAL	ID_MOTHER_TREE	[Data in preparation] CO removal (i-Tree Eco system)
3.5.92	CO_VALUE	ID_MOTHER_TREE	[Data in preparation] CO value (i-Tree Eco system)
6.13.1	CODE	REF_DAMAGE_AGENT	Damage agent code
6.14.1	CODE	REF_DAMAGE_AGENT_GROUP	Damage agent group code
2.4.2	CODE	SO_RESEARCH_ORGANIZATION	Research organization code
6.13.2	COMMON_NAME	REF_DAMAGE_AGENT	Common name of damage agent
6.35.7	COMMON_NAME	REF_PLANT_DICTIONARY	Common name
6.48.2	COMMON_NAME	REF_SPECIES	Common name
3.14.36	COMP_CROWN_RATIO	ID_TREE	Compacted crown ratio
3.5.41	COMPENSATORY_VALUE_ITREE	ID_MOTHER_TREE	Compensatory value (i-Tree Eco system)
3.2.10	COND_NONSAMPLE_REASON_CD	ID_COND	Condition nonsampled reason code
3.2.32	COND_SITECLASS_FLD	ID_COND	Field site productivity class code
3.2.9	COND_STATUS_CD	ID_COND	Condition class status code
3.1.8	CONDID	ID_BUILDING_INTERACTION	Condition class identifier
3.2.7	CONDID	ID_COND	Condition class identifier
3.3.8	CONDID	ID_ENERGY_EFFECT	Condition class identifier
3.4.8	CONDID	ID_INVASIVE_SUBP_COND	Condition class identifier
3.5.8	CONDID	ID_MOTHER_TREE	Condition class identifier
3.10.8	CONDID	ID_SEEDLING	Condition class identifier
3.13.8	CONDID	ID_SUBP_COND	Condition class identifier
3.14.8	CONDID	ID_TREE	Condition class identifier
3.15.8	CONDID	ID_WOODLAND_STEM	Condition class identifier
3.11.9	CONDLIST	ID_SITETREE	Site tree condition list
3.13.9	CONDPROP_UNADJ	ID_SUBP_COND	Condition proportion unadjusted
3.1.19	COOLING_CLIMATE_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling climate electricity-based carbon emissions avoided quantity
3.1.20	COOLING_CLIMATE_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling climate electricity avoided quantity

Section	Column name (attribute)	Oracle table name	Descriptive name
3.1.21	COOLING_SHADING_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling shading electricity-based carbon emissions avoided quantity
3.1.22	COOLING_SHADING_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling shading electricity avoided quantity
3.1.5	COUNTYCD	ID_BUILDING_INTERACTION	County code
3.2.5	COUNTYCD	ID_COND	County code
3.3.5	COUNTYCD	ID_ENERGY_EFFECT	County code
3.4.5	COUNTYCD	ID_INVASIVE_SUBP_COND	County code
3.5.5	COUNTYCD	ID_MOTHER_TREE	County code
3.6.5	COUNTYCD	ID_PLOT	County code
3.10.5	COUNTYCD	ID_SEEDLING	County code
3.11.5	COUNTYCD	ID_SITETREE	County code
3.13.5	COUNTYCD	ID_SUBP_COND	County code
3.12.5	COUNTYCD	ID_SUBPLOT	County code
3.14.5	COUNTYCD	ID_TREE	County code
3.15.5	COUNTYCD	ID_WOODLAND_STEM	County code
6.9.3	COUNTYCD	REF_COUNTY	County code
6.9.4	COUNTYNM	REF_COUNTY	County name
3.2.55	COVER_CLASS	ID_COND	Cover class
3.4.13	COVER_PCT	ID_INVASIVE_SUBP_COND	Cover percent
6.60.4	CR_MEAN	REF_TREE_STND_DEAD_CR_PROP	Crown ratio mean
6.6.3	CREATED_BY	REF_CITATION	Created by
6.9.6	CREATED_BY	REF_COUNTY	Created by
6.13.5	CREATED_BY	REF_DAMAGE_AGENT	Created by
6.14.3	CREATED_BY	REF_DAMAGE_AGENT_GROUP	Created by
6.21.7	CREATED_BY	REF_FOREST_TYPE	Created by
6.22.17	CREATED_BY	REF_FOREST_TYPE_GROUP	Created by
6.24.11	CREATED_BY	REF_INVASIVE_SPECIES	Created by
6.35.34	CREATED_BY	REF_PLANT_DICTIONARY	Created by
6.61.4	CREATED_BY	REF_UNIT	Created by
7.3.7	CREATED_DATE	ADMIN_PUB_DATA_STANDARD	Created date
7.4.8	CREATED_DATE	ADMIN_PUB_SUMMARY_RPT	Created date
6.6.4	CREATED_DATE	REF_CITATION	Created date
6.9.7	CREATED_DATE	REF_COUNTY	Created date
6.13.6	CREATED_DATE	REF_DAMAGE_AGENT	Created date
6.14.4	CREATED_DATE	REF_DAMAGE_AGENT_GROUP	Created date
6.21.8	CREATED_DATE	REF_FOREST_TYPE	Created date
6.22.18	CREATED_DATE	REF_FOREST_TYPE_GROUP	Created date
6.24.12	CREATED_DATE	REF_INVASIVE_SPECIES	Created date
6.35.35	CREATED_DATE	REF_PLANT_DICTIONARY	Created date

Section	Column name (attribute)	Oracle table name	Descriptive name
6.48.40	CREATED_DATE	REF_SPECIES	Created date
6.49.5	CREATED_DATE	REF_SPECIES_GROUP	Created date
6.61.5	CREATED_DATE	REF_UNIT	Created date
6.6.5	CREATED_IN_INSTANCE	REF_CITATION	Created in instance
6.9.8	CREATED_IN_INSTANCE	REF_COUNTY	Created in instance
6.13.7	CREATED_IN_INSTANCE	REF_DAMAGE_AGENT	Created in instance
6.14.5	CREATED_IN_INSTANCE	REF_DAMAGE_AGENT_GROUP	Created in instance
6.21.9	CREATED_IN_INSTANCE	REF_FOREST_TYPE	Created in instance
6.22.19	CREATED_IN_INSTANCE	REF_FOREST_TYPE_GROUP	Created in instance
6.24.13	CREATED_IN_INSTANCE	REF_INVASIVE_SPECIES	Created in instance
6.35.36	CREATED_IN_INSTANCE	REF_PLANT_DICTIONARY	Created in instance
6.61.6	CREATED_IN_INSTANCE	REF_UNIT	Created in instance
3.14.35	CROWN_CLASS_CD	ID_TREE	Crown class code
3.5.22	CROWN_DIA_90	ID_MOTHER_TREE	Crown diameter at 90 degrees to widest point
3.5.21	CROWN_DIA_WIDE	ID_MOTHER_TREE	Crown diameter at widest point
3.5.18	CROWN_DIEBACK_CD	ID_MOTHER_TREE	Crown dieback code
3.5.38	CROWN_GROUND_AREA_ITREE	ID_MOTHER_TREE	Crown ground area (i-Tree Eco system)
3.5.19	CROWN_LIGHT_EXPOSURE	ID_MOTHER_TREE	Crown light exposure
3.14.48	CULL_FLD	ID_TREE	Rotten/missing cull, field recorded
7.4.6	CURRENT_CDS	ADMIN_PUB_SUMMARY_RPT	Current compiled data standard
6.48.32	CWD_DECAY_RATIO1	REF_SPECIES	Coarse woody debris decay ratio 1
6.48.33	CWD_DECAY_RATIO2	REF_SPECIES	Coarse woody debris decay ratio 2
6.48.34	CWD_DECAY_RATIO3	REF_SPECIES	Coarse woody debris decay ratio 3
6.48.35	CWD_DECAY_RATIO4	REF_SPECIES	Coarse woody debris decay ratio 4
6.48.36	CWD_DECAY_RATIO5	REF_SPECIES	Coarse woody debris decay ratio 5
2.1.3	CYCLE	SO_INVENTORY	Inventory cycle iterator
	D		
6.13.11	DAG_CODE	REF_DAMAGE_AGENT	Damage agent group code
3.14.44	DAMAGE_AGENT_1	ID_TREE	Damage agent 1
3.14.45	DAMAGE_AGENT_2	ID_TREE	Damage agent 2
3.14.46	DAMAGE_AGENT_3	ID_TREE	Damage agent 3
7.1.1	DB_VERSION	ADMIN_DB_VERSION	Database version number
3.14.51	DECAYCD	ID_TREE	Decay class code

Section	Column name (attribute)	Oracle table name	Descriptive name
6.54.3	DECAYCD	REF_TREE_CARBON_RATIO_DEAD	Decay class code
6.56.2	DECAYCD	REF_TREE_DECAY_PROP	Decay class code
6.56.4	DENSITY_PROP	REF_TREE_DECAY_PROP	Density proportion
7.1.2	DESCRIPTION	ADMIN_DB_VERSION	Database version description
7.3.3	DESCRIPTION	ADMIN_PUB_DATA_STANDARD	Compiled data standard description
4.1.3	DESCRIPTION	POP_ATTRIBUTE	Population attribute description
4.2.2	DESCRIPTION	POP_CALCULATION	Calculation description
4.3.2	DESCRIPTION	POP_DOMAIN	Population domain description
4.4.2	DESCRIPTION	POP_SAMPLE_CONSTRAINT	Sample constraint description
4.7.5	DESCRIPTION	POP_STAT_SAMP	Statistical sample description
6.14.2	DESCRIPTION	REF_DAMAGE_AGENT_GROUP	Damage agent group description
2.3.5	DESCRIPTION	SO_PROJECT	Project description
2.4.3	DESCRIPTION	SO_RESEARCH_ORGANIZATION	Research organization description
3.5.15	DIA	ID_MOTHER_TREE	Current diameter
3.11.12	DIA	ID_SITETREE	Diameter
3.14.22	DIA	ID_TREE	Current diameter
3.15.12	DIA	ID_WOODLAND_STEM	Woodland stem diameter
3.5.16	DIACHECK	ID_MOTHER_TREE	Diameter check code
3.14.23	DIACHECK	ID_TREE	Diameter check code
3.5.17	DIAHTCD	ID_MOTHER_TREE	Diameter height code
3.14.24	DIAHTCD	ID_TREE	Diameter height code
3.11.15	DIST	ID_SITETREE	Horizontal distance
3.14.13	DIST	ID_TREE	Horizontal distance
3.1.11	DISTANCE_CD	ID_BUILDING_INTERACTION	Distance code
3.2.33	DISTURBANCE_CD1	ID_COND	Disturbance code 1
3.2.34	DISTURBANCE_CD2	ID_COND	Disturbance code 2
3.2.35	DISTURBANCE_CD3	ID_COND	Disturbance code 3
3.2.36	DISTURBANCE_YEAR1	ID_COND	Disturbance year 1
3.2.37	DISTURBANCE_YEAR2	ID_COND	Disturbance year 2
3.2.38	DISTURBANCE_YEAR3	ID_COND	Disturbance year 3
3.14.40	DMG_EXCESS_MULCH	ID_TREE	Urban specific damage - excessive mulch
3.14.43	DMG_IMPROPER_PLANTING	ID_TREE	Urban specific damage - improper planting
3.14.42	DMG_OVERHEAD WIRES	ID_TREE	Urban specific damage - conflict with crowns and overhead wires
3.14.37	DMG_ROOT_STEM_GIRDLING	ID_TREE	Urban specific damage - stem girdling from roots

Section	Column name (attribute)	Oracle table name	Descriptive name
3.14.41	DMG_SIDEWALK_ROOT_CONFLICT	ID_TREE	Urban specific damage - conflict with roots and sidewalks
3.14.39	DMG_TOPPING_PRUNING	ID_TREE	Urban specific damage - severe topping or poor pruning
3.14.38	DMG_TRUNK_BARK_INCLUSION	ID_TREE	Urban specific damage - trunk-bark inclusion
4.9.3	DOMAIN_NAME	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain name
4.1.6	DOMAIN_TYPE	POP_ATTRIBUTE	Population domain type
4.2.5	DOMAIN_TYPE	POP_CALCULATION	Population domain type
4.3.3	DOMAIN_TYPE	POP_DOMAIN	Population domain type
4.8.7	DOMAIN_TYPE	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population domain type
4.9.4	DOMAIN_TYPE	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain type
3.5.33	DRY_TOTBIOMASS_ITREE	ID_MOTHER_TREE	Whole-tree dry biomass (i-Tree Eco system)
3.14.63	DRYBIO_AG	ID_TREE	Aboveground dry biomass of wood and bark
3.14.64	DRYBIO_BG	ID_TREE	Belowground dry biomass
3.14.65	DRYBIO_BOLE	ID_TREE	Dry biomass of wood in the merchantable bole
3.14.66	DRYBIO_BOLE_BARK	ID_TREE	Dry biomass of bark in the merchantable bole
3.14.67	DRYBIO_BRANCH	ID_TREE	Dry biomass of branches
3.14.68	DRYBIO_FOLIAGE	ID_TREE	Dry biomass of foliage
3.14.69	DRYBIO_SAWLOG	ID_TREE	Dry biomass of wood in the sawlog portion of a sawtimber tree
3.14.70	DRYBIO_SAWLOG_BARK	ID_TREE	Dry biomass of bark in the sawlog portion of a sawtimber tree
3.14.71	DRYBIO_STEM	ID_TREE	Dry biomass of wood in the total stem
3.14.72	DRYBIO_STEM_BARK	ID_TREE	Dry biomass of bark in the total stem
3.14.73	DRYBIO_STUMP	ID_TREE	Dry biomass of wood in the stump
3.14.74	DRYBIO_STUMP_BARK	ID_TREE	Dry biomass of bark in the stump
6.48.39	DRYWT_TO_GREENWT_CONVERSIO_N	REF_SPECIES	Dry weight to green weight conversion
6.22.5	DUFF_CARBON_RATIO	REF_FOREST_TYPE_GROUP	Duff carbon ratio
6.22.4	DUFF_DENSITY	REF_FOREST_TYPE_GROUP	Duff density
6.35.11	DURATION	REF_PLANT_DICTIONARY	Duration
6.48.37	DWM_CARBON_RATIO	REF_SPECIES	Down woody debris carbon ratio

Section	Column name (attribute)	Oracle table name	Descriptive name
	<b>E</b>		
6.48.10	E_SPGRPCD	REF_SPECIES	Eastern species group code
6.60.2	ECOPROV	REF_TREE_STND_DEAD_CR_PROP	Ecoregion province
3.1.14	ELEC_AVOID_SUM	ID_BUILDING_INTERACTION	Electricity avoided quantity
3.1.13	ELEC_AVOID_VALUE_SUM	ID_BUILDING_INTERACTION	Electricity avoided value
3.3.14	ELEC_AVOIDED	ID_ENERGY_EFFECT	Electricity avoided quantity
3.3.13	ELEC_C_AVOIDED	ID_ENERGY_EFFECT	Electricity-based carbon emissions avoided quantity
6.24.7	END_DATE	REF_INVASIVE_SPECIES	End date
7.4.4	END_INVYR_LOADED	ADMIN_PUB_SUMMARY_RPT	End inventory year loaded
3.3.12	ENERGY_INFLUENCE	ID_ENERGY_EFFECT	Energy influence
3.3.11	ENERGY_USE	ID_ENERGY_EFFECT	Energy use
7.2.1	ENTITY_NAME	ADMIN_ENTITY_SHORTNAME	Entity name
7.2.2	ENTITY_SHORTNAME	ADMIN_ENTITY_SHORTNAME	Entity short name
4.10.10	ESTN_UNIT_ACRES	POP_STRATUM_CALC	Estimation unit acres
4.10.9	ESTN_UNIT_NAME	POP_STRATUM_CALC	Estimation unit name
4.10.12	ESTN_UNIT_PLOT_COUNT	POP_STRATUM_CALC	Estimation unit plot count
4.10.11	ESTN_UNIT_POINT_COUNT	POP_STRATUM_CALC	Estimation unit point count
4.10.23	EVAL_DESCRIPTION	POP_STRATUM_CALC	Evaluation description
4.10.31	EVAL_GRP_ID	POP_STRATUM_CALC	Evaluation group identifier
4.10.33	EVAL_GRP_LABEL	POP_STRATUM_CALC	Evaluation group label
4.10.32	EVAL_GRP_NAME	POP_STRATUM_CALC	Evaluation group name
4.10.2	EVAL_NAME	POP_STRATUM_CALC	Evaluation name
4.10.1	EVALID	POP_STRATUM_CALC	Evaluation identifier
3.5.106	EVAPORATION	ID_MOTHER_TREE	[Data in preparation] Evaporation (i-Tree Eco system)
4.10.18	EXPNS	POP_STRATUM_CALC	Stratum expansion factor
4.2.3	EXPRESSION	POP_CALCULATION	Calculation expression
4.3.4	EXPRESSION	POP_DOMAIN	Population domain expression
4.4.4	EXPRESSION	POP_SAMPLE_CONSTRAINT	Sample constraint expression
4.9.5	EXPRESSION	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain expression
	<b>F</b>		
6.35.31	F	REF_PLANT_DICTIONARY	Forma indicator
6.35.9	FAMILY	REF_PLANT_DICTIONARY	Family
3.2.11	FIA_LANDUSE	ID_COND	FIA land use code
3.2.8	FIA_VOLUME_LOCATION_GROUP	ID_COND	FIA volume location group
3.14.32	FIELD_PREV_DIA	ID_TREE	Field previous tree diameter
3.14.34	FIELD_PREV_NBR_STEMS	ID_TREE	Field previous number of stems
3.14.33	FIELD_PREV_STATUS_CD	ID_TREE	Field previous tree status code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.2.20	FLDAGE	ID_COND	Field-recorded stand age
3.2.19	FLDSZCD	ID_COND	Field stand-size class code
3.2.18	FLDTYPCD	ID_COND	Field forest type code
3.5.24	FOLIAGE_ABSENT	ID_MOTHER_TREE	Percent foliage absent
3.2.56	FOREST_COND_STATUS_CHANGE_CD	ID_COND	Forest land condition status change code
6.48.16	FOREST_TYPE_SPGRPCD	REF_SPECIES	Forest type species group code
6.35.32	FORMA	REF_PLANT_DICTIONARY	Forma
3.1.16	FUEL_AVOID_SUM	ID_BUILDING_INTERACTION	Fuel avoided quantity
3.1.15	FUEL_AVOID_VALUE_SUM	ID_BUILDING_INTERACTION	Fuel avoided value
3.3.16	FUEL_AVOIDED	ID_ENERGY_EFFECT	Fuel avoided quantity
3.3.15	FUEL_C_AVOIDED	ID_ENERGY_EFFECT	Fuel-based carbon emissions avoided quantity
6.22.12	FWD_CARBON_RATIO	REF_FOREST_TYPE_GROUP	Fine woody debris carbon ratio
6.22.13	FWD_DECAY_RATIO	REF_FOREST_TYPE_GROUP	Fine woody debris decay ratio
6.22.11	FWD_DENSITY	REF_FOREST_TYPE_GROUP	Fine woody debris density
6.22.16	FWD_LARGE_QMD	REF_FOREST_TYPE_GROUP	Large fine woody debris quadratic mean diameter
6.22.15	FWD_MEDIUM_QMD	REF_FOREST_TYPE_GROUP	Medium fine woody debris quadratic mean diameter
6.22.14	FWD_SMALL_QMD	REF_FOREST_TYPE_GROUP	Small fine woody debris quadratic mean diameter
	<b>G</b>		
6.35.16	GENERA_BINOMIAL_AUTHOR	REF_PLANT_DICTIONARY	Genera binomial author
5.4.6	GENUS	MOD_VOC_EMISSION	Genus
6.35.20	GENUS	REF_PLANT_DICTIONARY	Genus
6.48.4	GENUS	REF_SPECIES	Genus
3.13.12	GR_COV_PCT_BLDG	ID_SUBP_COND	Percent ground surface cover - building
3.13.15	GR_COV_PCT_HERBACEOUS	ID_SUBP_COND	Percent ground surface cover - herbaceous
3.13.13	GR_COV_PCT_IMPERVIOUS	ID_SUBP_COND	Percent ground surface cover - impervious
3.13.14	GR_COV_PCT_PERMEABLE	ID_SUBP_COND	Percent ground surface cover - permeable
3.13.16	GR_COV_PCT_WATER	ID_SUBP_COND	Percent ground surface cover - water
3.5.35	GROSS_C_SEQUESTRATION_ITREE	ID_MOTHER_TREE	Whole-tree gross carbon sequestration (i-Tree Eco system)
3.5.31	GROSS_CARBON_SEQUESTRATION	ID_MOTHER_TREE	Whole-tree gross carbon sequestration
3.4.12	GROWTH_HABIT	ID_INVASIVE_SUBP_COND	Growth habit
6.35.10	GROWTH_HABIT	REF_PLANT_DICTIONARY	Growth habit

Section	Column name (attribute)	Oracle table name	Descriptive name
	<b>H</b>		
5.1.6	HEALTH_FACTOR	MOD POLLUTION_HEALTH_FCTR	Health factor
3.1.25	HEATING_CLIMATE_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating climate electricity-based carbon emissions avoided quantity
3.1.24	HEATING_CLIMATE_C_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating climate fuel-based carbon emissions avoided quantity
3.1.26	HEATING_CLIMATE_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating climate electricity avoided quantity
3.1.23	HEATING_CLIMATE_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating climate fuel avoided quantity
3.1.29	HEATING_SHADING_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating shading electricity-based carbon emissions avoided quantity
3.1.28	HEATING_SHADING_C_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating shading fuel-based carbon emissions avoided quantity
3.1.30	HEATING_SHADING_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating shading electricity avoided quantity
3.1.27	HEATING_SHADING_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating shading fuel avoided quantity
3.1.33	HEATING_WINDBREAK_C_ELEC_AVO ID	ID_BUILDING_INTERACTION	Heating windbreak electricity-based carbon emissions avoided quantity
3.1.32	HEATING_WINDBREAK_C_FUEL_AVO ID	ID_BUILDING_INTERACTION	Heating windbreak fuel-based carbon emissions avoided quantity
3.1.34	HEATING_WINDBREAK_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating windbreak electricity avoided quantity
3.1.31	HEATING_WINDBREAK_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating windbreak fuel avoided quantity
3.11.13	HT	ID_SITETREE	Total height
3.14.28	HTCD	ID_TREE	Height method code
	<b>I</b>		
5.1.8	INCIDENCE	MOD POLLUTION_HEALTH_FCTR	Incidence
3.6.7	INTENSITY	ID_PLOT	Intensity
3.7.3	INV_CN	ID_PLOT_INV_ASSGN	Inventory sequence number
6.24.4	INV_GROUP_CD	REF_INVASIVE_SPECIES	Invasive group code
3.2.49	INVASIVE_NONSAMPLE_REASON_CD	ID_COND	Invasive species nonsampled reason code
3.2.48	INVASIVE_STATUS_CD	ID_COND	Invasive species status code
2.3.3	INVENTORY_TYPE	SO_PROJECT	Inventory type
3.4.16	INVS_CN	ID_INVASIVE_SUBP_COND	Invasive species sequence number
2.1.2	INVYR	SO_INVENTORY	Inventory year

Section	Column name (attribute)	Oracle table name	Descriptive name
7.1.5	IS_ACTIVE	ADMIN_DB_VERSION	Is version active
7.3.6	IS_ACTIVE	ADMIN_PUB_DATA_STANDARD	Is standard active
3.4.14	IS_MAINTAINED_AREA	ID_INVASIVE_SUBP_COND	Is invasive in maintained area
3.5.25	IS_MAINTAINED_AREA	ID_MOTHER_TREE	Is tree in maintained area
3.10.13	IS_MAINTAINED_AREA	ID_SEEDLING	Is tree in maintained area
3.5.28	IS_PLANTED	ID_MOTHER_TREE	Is tree planted
3.10.14	IS_PLANTED	ID_SEEDLING	Is tree planted
3.5.26	IS_RIPARIAN	ID_MOTHER_TREE	Is tree a riparian tree
3.5.27	IS_STREET_TREE	ID_MOTHER_TREE	Is tree a street tree
3.5.110	ISOPRENE_EMITTED	ID_MOTHER_TREE	[Data in preparation] Isoprene emitted (i-Tree Eco system)
5.4.7	ISOPRENE_EMITTED	MOD_VOC_EMISSION	Isoprene emitted
3.5.32	ITREE_ECO_VERSION	ID_MOTHER_TREE	i-Tree Eco system version
3.2.29	ITREE_LANDUSE	ID_COND	i-Tree land use code
	J		
6.48.18	JENKINS_SAPLING_ADJUSTMENT	REF_SPECIES	Jenkins sapling adjustment factor
6.48.17	JENKINS_SPGRPCD	REF_SPECIES	Jenkins species group code
	K		
3.6.11	KINDCD	ID_PLOT	Sample kind code
	L		
4.4.1	LABEL	POP_SAMPLE_CONSTRAINT	Sample constraint label
4.6.1	LABEL	POP_SAMPLE_CONSTRAINT_GROUP	Sample constraint group label
3.2.30	LAND_COVER_CLASS_CD	ID_COND	Land cover class <b>RETIRE</b>
3.6.17	LAT	ID_PLOT	Latitude
7.4.5	LATEST_LOAD_DATE	ADMIN_PUB_SUMMARY_RPT	Latest load date
3.5.39	LEAF_AREA_INDEX_ITREE	ID_MOTHER_TREE	Leaf area index value (i-Tree Eco system)
3.5.36	LEAF_AREA_ITREE	ID_MOTHER_TREE	Leaf area (i-Tree Eco system)
3.5.40	LEAF_BIOMASS_INDEX_ITREE	ID_MOTHER_TREE	Leaf biomass index value (i-Tree Eco system)
3.5.37	LEAF_BIOMASS_ITREE	ID_MOTHER_TREE	Leaf biomass (i-Tree Eco system)
6.22.7	LITTER_CARBON_RATIO	REF_FOREST_TYPE_GROUP	Litter carbon ratio
6.22.6	LITTER_DENSITY	REF_FOREST_TYPE_GROUP	Litter density
3.2.23	LIVE_CANOPY_CVR_PCT	ID_COND	Live canopy cover percent
3.2.24	LIVE_MISSING_CANOPY_CVR_PCT	ID_COND	Live plus missing canopy cover percent
7.4.2	LOAD_TYPE	ADMIN_PUB_SUMMARY_RPT	Load type
5.1.3	LOCATION_NAME	MOD POLLUTION_HEALTH_FCTR	Location name

<b>Section</b>	<b>Column name (attribute)</b>	<b>Oracle table name</b>	<b>Descriptive name</b>
5.2.3	LOCATION_NAME	MOD POLLUTION REMOVAL	Location name
5.3.3	LOCATION_NAME	MOD RAINFALL	Location name
5.4.3	LOCATION_NAME	MOD VOC EMISSION	Location name
3.6.18	LON	ID_PLOT	Longitude
3.14.25	LTDMP	ID_TREE	Length to diameter measurement point
	<b>M</b>		
6.48.14	MAJOR_SPGRPCD	REF_SPECIES	Major species group code
6.21.5	MANUAL_END	REF FOREST_TYPE	Manual end
6.24.9	MANUAL_END	REF INVASIVE_SPECIES	Manual end
3.6.15	MANUAL_NATIONAL	ID_PLOT	National urban manual (field guide) version
3.6.16	MANUAL_REGIONAL	ID_PLOT	Regional urban manual (field guide) version
6.21.4	MANUAL_START	REF FOREST_TYPE	Manual start
6.24.8	MANUAL_START	REF INVASIVE_SPECIES	Manual start
3.2.21	MAPDEN	ID_COND	Mapping density code
5.2.12	MAX POLLUTION REMOVAL	MOD POLLUTION REMOVAL	Maximum pollutant removal
5.2.9	MAX REMOVAL VALUE	MOD POLLUTION REMOVAL	Maximum pollutant removal value
6.48.28	MC_PCT_GREEN_BARK	REF_SPECIES	Moisture content of green wood as a percent of oven-dry weight
6.48.29	MC_PCT_GREEN_BARK_CIT	REF_SPECIES	Citation for MC_PCT_GREEN_WOOD
6.48.26	MC_PCT_GREEN_WOOD	REF_SPECIES	Moisture content of green bark as a percent of oven-dry weight
6.48.27	MC_PCT_GREEN_WOOD_CIT	REF_SPECIES	Citation for MC_PCT_GREEN_BARK
6.1.3	MEANING	REF ABNORMAL_TERMINATION	Code meaning
6.2.3	MEANING	REF ABSENT_PRESENT	Code meaning
6.3.3	MEANING	REF BOLE_STUMP_REMOVED	Code meaning
6.4.3	MEANING	REF CANOPY_COVER_SAMPLE_MET HOD	Code meaning
6.5.3	MEANING	REF CAUSE_OF_DEATH	Code meaning
6.7.3	MEANING	REF CONDITION_NONSAMPLE_REASON	Code meaning
6.8.3	MEANING	REF CONDITION_SAMPLING_STATUS	Code meaning
6.10.3	MEANING	REF COVER_CLASS	Code meaning
6.11.3	MEANING	REF CROWN_CLASS	Code meaning
6.12.3	MEANING	REF CROWN_LIGHT_EXPOSURE	Code meaning
6.15.3	MEANING	REF DECAY_CLASS	Code meaning

Section	Column name (attribute)	Oracle table name	Descriptive name
6.16.3	MEANING	REF_DIA_CHECK	Code meaning
6.17.3	MEANING	REF_DISTURBANCE	Code meaning
6.18.3	MEANING	REF_FIA_LANDUSE	Code meaning
6.19.3	MEANING	REF_FIA_LANDUSE_DETAILED	Code meaning
6.20.3	MEANING	REF_FOREST_LAND_COND_STAT_CHG	Code meaning
6.21.2	MEANING	REF_FOREST_TYPE	Code meaning
6.22.2	MEANING	REF_FOREST_TYPE_GROUP	Code meaning
6.23.3	MEANING	REF_HORIZ_DIST_IMPRVD_ROAD	Code meaning
6.25.3	MEANING	REF_INVS_COND_SAMPLING_STATUS	Code meaning
6.26.3	MEANING	REF_ITREE_LANDUSE	Code meaning
6.27.3	MEANING	REF_ITREE_LANDUSE_DETAILED	Code meaning
6.28.3	MEANING	REF_LAND_COVER_CLASS <b>RETIRIED</b>	Code meaning
6.29.3	MEANING	REF_LENGTH_METHOD	Code meaning
6.30.3	MEANING	REF_NO_YES	Code meaning
6.31.3	MEANING	REF_OWNER_CLASS	Code meaning
6.32.3	MEANING	REF_OWNER_GROUP	Code meaning
6.33.3	MEANING	REF_PERCENT_CLASS_CODE	Code meaning
6.34.3	MEANING	REF_PHYSIOGRAPHIC_CLASS	Code meaning
6.36.3	MEANING	REF_PLOT_NONSAMPLE_REASON	Code meaning
6.37.3	MEANING	REF_PLOT_STATUS	Code meaning
6.38.3	MEANING	REF_PREV_TREE_STATUS	Code meaning
6.39.3	MEANING	REF_PRODUCTIVITY_STATUS	Code meaning
6.40.3	MEANING	REF_RECONCILE	Code meaning
6.41.3	MEANING	REF_REGENERATION_STATUS	Code meaning
6.42.3	MEANING	REF_RESERVED_STATUS	Code meaning
6.43.3	MEANING	REF_SAMPLE_KIND	Code meaning
6.44.3	MEANING	REF_SAMPLE_METHOD_CD	Code meaning
6.45.3	MEANING	REF_SEEDLING_MAINTAINED_AREA	Code meaning
6.46.3	MEANING	REF_SEEDLING_PLANTED	Code meaning
6.47.3	MEANING	REF_SITE_CLASS_CODE	Code meaning
6.50.3	MEANING	REF_STAND_SIZE_CLASS	Code meaning
6.51.3	MEANING	REF_SUBPLOT_NONSAMPLE_REASON	Code meaning
6.52.3	MEANING	REF_SUBPLOT_STATUS	Code meaning
6.53.3	MEANING	REF_TREATMENT	Code meaning
6.55.3	MEANING	REF_TREE_CLASS	Code meaning
6.57.3	MEANING	REF_TREE_DENSITY	Code meaning
6.58.3	MEANING	REF_TREE_PLANTED	Code meaning

Section	Column name (attribute)	Oracle table name	Descriptive name
6.59.3	MEANING	REF_TREE_STATUS	Code meaning
6.61.3	MEANING	REF_UNIT	Code meaning
6.62.3	MEANING	REF_UTILIZATION_CLASS	Code meaning
6.63.3	MEANING	REF_WATER_ON_PLOT	Code meaning
3.6.10	MEAS_DAY	ID_PLOT	Measurement day
3.6.9	MEAS_MONTH	ID_PLOT	Measurement month
3.6.8	MEAS_YEAR	ID_PLOT	Measurement year
5.2.11	MIN POLLUTION REMOVAL	MOD_POLLUTION_REMOVAL	Minimum pollutant removal
5.2.8	MIN_REMOVAL_VALUE	MOD_POLLUTION_REMOVAL	Minimum pollutant removal value
6.6.6	MODIFIED_BY	REF_CITATION	Modified by
6.9.9	MODIFIED_BY	REF_COUNTY	Modified by
6.13.8	MODIFIED_BY	REF_DAMAGE_AGENT	Modified by
6.14.6	MODIFIED_BY	REF_DAMAGE_AGENT_GROUP	Modified by
6.21.10	MODIFIED_BY	REF_FOREST_TYPE	Modified by
6.22.20	MODIFIED_BY	REF_FOREST_TYPE_GROUP	Modified by
6.24.14	MODIFIED_BY	REF_INVASIVE_SPECIES	Modified by
6.35.37	MODIFIED_BY	REF_PLANT_DICTIONARY	Modified by
6.61.7	MODIFIED_BY	REF_UNIT	Modified by
7.3.8	MODIFIED_DATE	ADMIN_PUB_DATA_STANDARD	Modified date
7.4.9	MODIFIED_DATE	ADMIN_PUB_SUMMARY_RPT	Modified date
6.6.7	MODIFIED_DATE	REF_CITATION	Modified date
6.9.10	MODIFIED_DATE	REF_COUNTY	Modified date
6.13.9	MODIFIED_DATE	REF_DAMAGE_AGENT	Modified date
6.14.7	MODIFIED_DATE	REF_DAMAGE_AGENT_GROUP	Modified date
6.21.11	MODIFIED_DATE	REF_FOREST_TYPE	Modified date
6.22.21	MODIFIED_DATE	REF_FOREST_TYPE_GROUP	Modified date
6.24.15	MODIFIED_DATE	REF_INVASIVE_SPECIES	Modified date
6.35.38	MODIFIED_DATE	REF_PLANT_DICTIONARY	Modified date
6.48.41	MODIFIED_DATE	REF_SPECIES	Modified date
6.49.6	MODIFIED_DATE	REF_SPECIES_GROUP	Modified date
6.61.8	MODIFIED_DATE	REF_UNIT	Modified date
6.6.8	MODIFIED_IN_INSTANCE	REF_CITATION	Modified in instance
6.9.11	MODIFIED_IN_INSTANCE	REF_COUNTY	Modified in instance
6.13.10	MODIFIED_IN_INSTANCE	REF_DAMAGE_AGENT	Modified in instance
6.14.8	MODIFIED_IN_INSTANCE	REF_DAMAGE_AGENT_GROUP	Modified in instance
6.21.12	MODIFIED_IN_INSTANCE	REF_FOREST_TYPE	Modified in instance
6.22.22	MODIFIED_IN_INSTANCE	REF_FOREST_TYPE_GROUP	Modified in instance
6.24.16	MODIFIED_IN_INSTANCE	REF_INVASIVE_SPECIES	Modified in instance
6.35.39	MODIFIED_IN_INSTANCE	REF_PLANT_DICTIONARY	Modified in instance

Section	Column name (attribute)	Oracle table name	Descriptive name
6.61.9	MODIFIED_IN_INSTANCE	REF_UNIT	Modified in instance
3.5.111	MONOTERPENE_EMITTED	ID_MOTHER_TREE	[Data in preparation] Monoterpene emitted (i-Tree Eco system)
5.4.8	MONOTERPENE_EMITTED	MOD_VOC_EMISSION	Monoterpene emitted
3.14.52	MORTALITY_CD	ID_TREE	Mortality code
3.14.21	MORTYR	ID_TREE	Mortality year
3.14.11	MOTHER_TREE	ID_TREE	Mother tree identifier
3.1.39	MTRE_CN	ID_BUILDING_INTERACTION	Mother tree sequence number
3.3.21	MTRE_CN	ID_ENERGY_EFFECT	Mother tree sequence number
3.14.107	MTRE_CN	ID_TREE	Mother tree sequence number
3.15.17	MTRE_CN	ID_WOODLAND_STEM	Mother tree sequence number
	N		
7.3.1	NAME	ADMIN_PUB_DATA_STANDARD	Compiled data standard name
4.1.1	NAME	POP_ATTRIBUTE	Population attribute name
4.2.1	NAME	POP_CALCULATION	Calculation name
4.3.1	NAME	POP_DOMAIN	Population domain name
6.49.2	NAME	REF_SPECIES_GROUP	Species group name
2.3.1	NAME	SO_PROJECT	Project name
2.4.1	NAME	SO_RESEARCH_ORGANIZATION	Research organization name
3.2.25	NBR_LIVE_STEMS	ID_COND	Number of live stems
3.5.29	NBR_STEMS	ID_MOTHER_TREE	Number of stems
3.14.47	NBR_STEMS	ID_TREE	Number of stems
6.35.6	NEW_SCIENTIFIC_NAME	REF_PLANT_DICTIONARY	New scientific name
6.35.5	NEW_SYMBOL	REF_PLANT_DICTIONARY	New symbol
3.5.42	NO2_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] NO2 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.46	NO2_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 acute respiratory symptoms value (i-Tree Eco system)
3.5.43	NO2_ASTHMA_EXACERBATION_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] NO2 asthma exacerbation incidence (i-Tree Eco system)
3.5.47	NO2_ASTHMA_EXACERBATION_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 asthma exacerbation value (i-Tree Eco system)
3.5.44	NO2_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] NO2 emergency room visits incidence (i-Tree Eco system)

Section	Column name (attribute)	Oracle table name	Descriptive name
3.5.48	NO2_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 emergency room visits value (i-Tree Eco system)
3.5.45	NO2_HOSPITAL_ADMISSIONS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] NO2 hospital admissions incidence (i-Tree Eco system)
3.5.49	NO2_HOSPITAL_ADMISSIONS_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 hospital admissions value (i-Tree Eco system)
3.5.101	NO2_REMOVAL	ID_MOTHER_TREE	[Data in preparation] NO2 removal (i-Tree Eco system)
3.5.95	NO2_VALUE	ID_MOTHER_TREE	[Data in preparation] NO2 value (i-Tree Eco system)
4.3.5	NONRESPONSE_PREDICATE	POP_DOMAIN	Population domain nonresponse predicate
6.24.10	NOTES	REF_INVASIVE_SPECIES	Invasive species notes
6.35.33	NOTES	REF_PLANT_DICTIONARY	Plant dictionary notes
	O		
3.5.58	O3_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.63	O3_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 acute respiratory symptoms value (i-Tree Eco system)
3.5.59	O3_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 emergency room visits incidence (i-Tree Eco system)
3.5.64	O3_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 emergency room visits value (i-Tree Eco system)
3.5.60	O3_HOSPITAL_ADMISSIONS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 hospital admissions incidence (i-Tree Eco system)
3.5.65	O3_HOSPITAL_ADMISSIONS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 hospital admissions value (i-Tree Eco system)
3.5.61	O3_MORTALITY_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 mortality incidence (i-Tree Eco system)
3.5.66	O3_MORTALITY_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 mortality value (i-Tree Eco system)
3.5.99	O3_REMOVAL	ID_MOTHER_TREE	[Data in preparation] O3 removal (i-Tree Eco system)
3.5.62	O3_SCHOOL_LOSS_DAYS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] O3 school loss days incidence (i-Tree Eco system)

Section	Column name (attribute)	Oracle table name	Descriptive name
3.5.67	O3_SCHOOL_LOSS_DAYS_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 school loss days value (i-Tree Eco system)
3.5.93	O3_VALUE	ID_MOTHER_TREE	[Data in preparation] O3 value (i-Tree Eco system)
3.11.18	OFFSET_AZIMUTH	ID_SITETREE	Azimuth from offset point
3.11.17	OFFSET_DIST	ID_SITETREE	Horizontal distance from offset point
3.11.8	OFFSET_POINT	ID_SITETREE	Offset point
3.14.12	OFFSET_POINT	ID_TREE	Offset point
5.4.9	OTHER_VOCS_EMITTED	MOD_VOC_EMISSION	Other VOCs emitted
3.2.14	OWNCD	ID_COND	Owner class code
3.2.13	OWNGRPCD	ID_COND	Owner group code
	P		
6.48.13	P_SPGRPCD	REF_SPECIES	Pacific Islands species group code
4.8.10	PATTR_CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population attribute sequence number
4.1.8	PCALC_CN	POP_ATTRIBUTE	Population calculation sequence number
3.13.11	PCT_SHRUB_SEED_COVER	ID_SUBP_COND	Percent vegetation cover - shrub/seeding
3.13.10	PCT_TREE_COVER	ID_SUBP_COND	Percent vegetation cover - tree
4.9.8	PDOM_CN	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain sequence number
4.10.25	PE_CN	POP_STRATUM_CALC	Population statistical evaluation sequence number
4.10.34	PEG_CN	POP_STRATUM_CALC	Evaluation group sequence number
4.10.27	PEU_CN	POP_STRATUM_CALC	Population estimation unit sequence number
3.2.15	PHYSCLCD	ID_COND	Physiographic class code
6.22.9	PILE_CARBON_RATIO	REF_FOREST_TYPE_GROUP	Pile carbon ratio
6.22.10	PILE_DECAY_RATIO	REF_FOREST_TYPE_GROUP	Pile decay ratio
6.22.8	PILE_DENSITY	REF_FOREST_TYPE_GROUP	Pile density
3.6.13	PLOT_NONSAMPLE_REASON_CD	ID_PLOT	Plot nonsampled reason code
3.6.12	PLOT_STATUS_CD	ID_PLOT	Plot status code
3.1.1	PLOTID	ID_BUILDING_INTERACTION	Plot identifier
3.2.1	PLOTID	ID_COND	Plot identifier
3.3.1	PLOTID	ID_ENERGY_EFFECT	Plot identifier
3.4.1	PLOTID	ID_INVASIVE_SUBP_COND	Plot identifier
3.5.1	PLOTID	ID_MOTHER_TREE	Plot identifier
3.6.1	PLOTID	ID_PLOT	Plot identifier

Section	Column name (attribute)	Oracle table name	Descriptive name
3.10.1	PLOTID	ID_SEEDLING	Plot identifier
3.11.1	PLOTID	ID_SITETREE	Plot identifier
3.13.1	PLOTID	ID_SUBP_COND	Plot identifier
3.12.1	PLOTID	ID_SUBPLOT	Plot identifier
3.14.1	PLOTID	ID_TREE	Plot identifier
3.15.1	PLOTID	ID_WOODLAND_STEM	Plot identifier
3.1.36	PLT_CN	ID_BUILDING_INTERACTION	Plot sequence number
3.2.46	PLT_CN	ID_COND	Plot sequence number
3.3.18	PLT_CN	ID_ENERGY_EFFECT	Plot sequence number
3.4.17	PLT_CN	ID_INVASIVE_SUBP_COND	Plot sequence number
3.5.113	PLT_CN	ID_MOTHER_TREE	Plot sequence number
3.7.2	PLT_CN	ID_PLOT_INV_ASSGN	Plot sequence number
3.8.2	PLT_CN	ID_PLOT_STAT_SAMP_ASSGN	Plot sequence number
3.9.2	PLT_CN	ID_PLOT_STRAT_CALC_ASSGN	Plot sequence number
3.10.16	PLT_CN	ID_SEEDLING	Plot sequence number
3.11.20	PLT_CN	ID_SITETREE	Plot sequence number
3.13.18	PLT_CN	ID_SUBP_COND	Plot sequence number
3.12.16	PLT_CN	ID_SUBPLOT	Plot sequence number
3.14.104	PLT_CN	ID_TREE	Plot sequence number
3.15.14	PLT_CN	ID_WOODLAND_STEM	Plot sequence number
3.5.100	PM10_REMOVAL	ID_MOTHER_TREE	[Data in preparation] PM10 removal (i-Tree Eco system)
3.5.94	PM10_VALUE	ID_MOTHER_TREE	[Data in preparation] PM10 value (i-Tree Eco system)
3.5.68	PM2_5_ACUTE_BRONCHITIS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute bronchitis incidence (i-Tree Eco system)
3.5.80	PM2_5_ACUTE_BRONCHITIS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute bronchitis value (i-Tree Eco system)
3.5.69	PM2_5_ACUTE_MYOCARDIAL_INFARCTION_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute myocardial infarction incidence (i-Tree Eco system)
3.5.81	PM2_5_ACUTE_MYOCARDIAL_INFARCTION_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute myocardial infarction value (i-Tree Eco system)
3.5.70	PM2_5_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute respiratory symptoms incidence (i-Tree Eco system)

Section	Column name (attribute)	Oracle table name	Descriptive name
3.5.82	PM2_5_ACUTE_RESPIRATORY_SYMP_TOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 acute respiratory symptoms value (i-Tree Eco system)
3.5.71	PM2_5_ASTHMA_EXACERBATION_IN_CIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 asthma exacerbation incidence (i-Tree Eco system)
3.5.83	PM2_5_ASTHMA_EXACERBATION_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 asthma exacerbation value (i-Tree Eco system)
3.5.72	PM2_5_CHRONIC_BRONCHITIS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 chronic bronchitis incidence (i-Tree Eco system)
3.5.84	PM2_5_CHRONIC_BRONCHITIS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 chronic bronchitis value (i-Tree Eco system)
3.5.73	PM2_5_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 emergency room visits incidence (i-Tree Eco system)
3.5.85	PM2_5_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 emergency room visits value (i-Tree Eco system)
3.5.74	PM2_5_HOSPITAL_ADMISSIONS_CARDIOVASCULAR_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions cardiovascular incidence (i-Tree Eco system)
3.5.86	PM2_5_HOSPITAL_ADMISSIONS_CARDIOVASCULAR_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions cardiovascular value (i-Tree Eco system)
3.5.75	PM2_5_HOSPITAL_ADMISSIONS_RESPIRATORY_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions respiratory incidence (i-Tree Eco system)
3.5.87	PM2_5_HOSPITAL_ADMISSIONS_RESPIRATORY_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 hospital admissions respiratory value (i-Tree Eco system)
3.5.76	PM2_5_LOWER_RESPIRATORY_SYMP_TOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 lower respiratory symptoms incidence (i-Tree Eco system)
3.5.88	PM2_5_LOWER_RESPIRATORY_SYMP_TOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 lower respiratory symptoms value (i-Tree Eco system)
3.5.77	PM2_5_MORTALITY_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 mortality incidence (i-Tree Eco system)

Section	Column name (attribute)	Oracle table name	Descriptive name
3.5.89	PM2_5_MORTALITY_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 mortality value (i-Tree Eco system)
3.5.102	PM2_5_REMOVAL	ID_MOTHER_TREE	[Data in preparation] PM2.5 removal (i-Tree Eco system)
3.5.78	PM2_5_UPPER_RESPIRATORY_SYMP_TOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 upper respiratory symptoms incidence (i-Tree Eco system)
3.5.90	PM2_5_UPPER_RESPIRATORY_SYMP_TOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 upper respiratory symptoms value (i-Tree Eco system)
3.5.96	PM2_5_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 value (i-Tree Eco system)
3.5.79	PM2_5_WORK_LOSS_DAYS_INCIENCE	ID_MOTHER_TREE	[Data in preparation] PM2.5 work loss days incidence (i-Tree Eco system)
3.5.91	PM2_5_WORK_LOSS_DAYS_VALUE	ID_MOTHER_TREE	[Data in preparation] PM2.5 work loss days value (i-Tree Eco system)
5.1.7	POLLUTANT	MOD POLLUTION HEALTH FCTR	Pollutant
5.2.6	POLLUTANT	MOD POLLUTION REMOVAL	Pollutant
5.2.10	POLLUTION_REMOVAL	MOD POLLUTION REMOVAL	Pollutant removal
4.10.6	POPULATION_ACRES	POP STRATUM CALC	Population acres
5.1.1	POPULATION_NAME	MOD POLLUTION HEALTH FCTR	Population name
5.2.1	POPULATION_NAME	MOD POLLUTION REMOVAL	Population name
5.3.1	POPULATION_NAME	MOD RAINFALL	Population name
5.4.1	POPULATION_NAME	MOD VOC EMISSION	Population name
4.7.3	POPULATION_NAME	POP STAT SAMP	Population name
4.10.4	POPULATION_NAME	POP STRATUM CALC	Population name
2.2.1	POPULATION_NAME	SO POP STRUCT ELMT	Population name
2.3.2	POPULATION_NAME	SO PROJECT	Population name
4.10.8	POPULATION_PLOT_COUNT	POP STRATUM CALC	Population plot count
4.10.7	POPULATION_POINT_COUNT	POP STRATUM CALC	Population point count
2.2.5	POPULATION_STRUCTURE_ELMT_ACRES	SO POP STRUCT ELMT	Population structure element acres
2.2.3	POPULATION_STRUCTURE_ELMT_NAME	SO POP STRUCT ELMT	Population structure element name
2.2.6	POPULATION_STRUCTURE_ELMT_NOTES	SO POP STRUCT ELMT	Population structure element notes
2.2.4	POPULATION_STRUCTURE_LEVEL	SO POP STRUCT ELMT	Population structure level
5.1.2	POPULATION_STRUCTURE_VERSION	MOD POLLUTION HEALTH FCTR	Population structure version
5.2.2	POPULATION_STRUCTURE_VERSION	MOD POLLUTION REMOVAL	Population structure version

Section	Column name (attribute)	Oracle table name	Descriptive name
5.3.2	POPULATION_STRUCTURE_VERSION	MOD_RAINFALL	Population structure version
5.4.2	POPULATION_STRUCTURE_VERSION	MOD_VOC_EMISSION	Population structure version
4.7.4	POPULATION_STRUCTURE_VERSION	POP_STAT_SAMP	Population structure version
4.10.5	POPULATION_STRUCTURE_VERSION	POP_STRATUM_CALC	Population structure version
2.2.2	POPULATION_STRUCTURE_VERSION	SO_POP_STRUCT_ELMT	Population structure version
3.5.108	POTENTIAL_EVAPORATION	ID_MOTHER_TREE	[Data in preparation] Potential evaporation (i-Tree Eco system)
3.5.109	POTENTIAL_EVAPOTRANSPIRATION	ID_MOTHER_TREE	[Data in preparation] Potential evapotranspiration (i-Tree Eco system)
5.1.11	PPN_CN	MOD POLLUTION_HEALTH_FCTR	Population sequence number
5.2.14	PPN_CN	MOD_POLLUTION_REMOVAL	Population sequence number
5.3.10	PPN_CN	MOD_RAINFALL	Population sequence number
5.4.11	PPN_CN	MOD_VOC_EMISSION	Population sequence number
2.1.7	PPN_CN	SO_INVENTORY	Population sequence number
2.2.8	PPN_CN	SO_POP_STRUCT_ELMT	Population sequence number
2.3.7	PPN_CN	SO_PROJECT	Population sequence number
3.2.27	PREV_AFFORESTATION_CD	ID_COND	Previous afforestation code
3.5.117	PREV_MTRE_CN	ID_MOTHER_TREE	Previous mother tree sequence number
3.1.40	PREV_PLT_CN	ID_BUILDING_INTERACTION	Previous plot sequence number
3.2.47	PREV_PLT_CN	ID_COND	Previous plot sequence number
3.3.22	PREV_PLT_CN	ID_ENERGY_EFFECT	Previous plot sequence number
3.4.20	PREV_PLT_CN	ID_INVASIVE_SUBP_COND	Previous plot sequence number
3.5.116	PREV_PLT_CN	ID_MOTHER_TREE	Previous plot sequence number
3.6.23	PREV_PLT_CN	ID_PLOT	Previous plot sequence number
3.10.19	PREV_PLT_CN	ID_SEEDLING	Previous plot sequence number
3.11.22	PREV_PLT_CN	ID_SITETREE	Previous plot sequence number
3.13.21	PREV_PLT_CN	ID_SUBP_COND	Previous plot sequence number
3.12.19	PREV_PLT_CN	ID_SUBPLOT	Previous plot sequence number
3.14.108	PREV_PLT_CN	ID_TREE	Previous plot sequence number
3.15.19	PREV_PLT_CN	ID_WOODLAND_STEM	Previous plot sequence number
3.14.109	PREV_TRE_CN	ID_TREE	Previous tree sequence number
2.1.6	PRJ_CN	SO_INVENTORY	Project sequence number
3.2.31	PRODUCTIVITY_STATUS	ID_COND	Site productivity status code
7.4.1	PROJECT_NAME	ADMIN_PUB_SUMMARY_RPT	Project name
2.1.1	PROJECT_NAME	SO_INVENTORY	Project name
4.10.29	PS_CN	POP_STRATUM_CALC	Population stratum sequence number
3.9.3	PSC_CN	ID_PLOT_STRAT_CALC_ASSGN	Population stratum calculation sequence number

Section	Column name (attribute)	Oracle table name	Descriptive name
4.5.2	PSCG_CN	POP_SAMPLE_CONSTRAINT_ASSGN	Population sample constraint group sequence number
4.7.8	PSCG_CN	POP_STAT_SAMP	Population sample constraint group sequence number
4.5.3	PSCON_CN	POP_SAMPLE_CONSTRAINT_ASSGN	Population sample constraint sequence number
3.8.3	PSS_CN	ID_PLOT_STAT_SAMP_ASSGN	Population statistical sample sequence number
4.8.9	PSS_CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population statistical sample sequence number
4.9.7	PSS_CN	POP_STAT_SAMP_DOMAIN_ASSGN	Population statistical sample sequence number
4.10.26	PSS_CN	POP_STRATUM_CALC	Population statistical sample sequence number
5.1.12	PSTR_CN	MOD POLLUTION HEALTH FCTR	Population structure sequence number
5.2.15	PSTR_CN	MOD POLLUTION REMOVAL	Population structure sequence number
5.3.11	PSTR_CN	MOD RAINFALL	Population structure sequence number
5.4.12	PSTR_CN	MOD VOC EMISSION	Population structure sequence number
4.7.7	PSTR_CN	POP_STAT_SAMP	Population structure sequence number
2.1.8	PSTR_CN	SO_INVENTORY	Population structure sequence number
2.2.9	PSTR_CN	SO_POP_STRUCT_ELMT	Population structure sequence number
5.1.13	PSTREL_CN	MOD POLLUTION HEALTH FCTR	Population structure element sequence number
5.2.16	PSTREL_CN	MOD POLLUTION REMOVAL	Population structure element sequence number
5.3.12	PSTREL_CN	MOD RAINFALL	Population structure element sequence number
5.4.13	PSTREL_CN	MOD VOC EMISSION	Population structure element sequence number
4.10.28	PSTREL_CN	POP_STRATUM_CALC	Population structure element sequence number
	<b>Q</b>		
6.35.18	QUADRINOMIAL_AUTHOR	REF_PLANT_DICTIONARY	Quadrinomial author
	<b>R</b>		
5.3.6	RAINFALL	MOD_RAINFALL	Rainfall
3.5.105	RAINFALL_INTERCEPTION	ID_MOTHER_TREE	[Data in preparation] Rainfall interception (i-Tree Eco system)
4.4.3	RANK	POP_SAMPLE_CONSTRAINT	Sample constraint rank

Section	Column name (attribute)	Oracle table name	Descriptive name
3.14.30	RECONCILECD	ID_TREE	Reconcile code
7.4.7	RECORDS_LOADED	ADMIN_PUB_SUMMARY_RPT	Records loaded
6.49.3	REGION	REF_SPECIES_GROUP	Region
2.4.5	REGION	SO_RESEARCH_ORGANIZATION	Research organization region
3.12.18	REMAINING_CND_CN	ID_SUBPLOT	Remaining condition sequence number
3.12.9	REMAINING_CONDID	ID_SUBPLOT	Condition class identifier for remaining condition
5.2.7	REMOVAL_VALUE	MOD POLLUTION REMOVAL	Pollutant removal value
5.1.5	REPORT_YEAR	MOD POLLUTION HEALTH FCTR	Reporting year
5.2.5	REPORT_YEAR	MOD POLLUTION REMOVAL	Reporting year
5.3.5	REPORT_YEAR	MOD RAINFALL	Reporting year
5.4.5	REPORT_YEAR	MOD VOC EMISSION	Reporting year
4.7.2	REPORT_YEAR	POP_STAT_SAMP	Reporting year
4.8.2	REPORT_YEAR	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Reporting year
4.9.2	REPORT_YEAR	POP_STAT_SAMP_DOMAIN_ASSGN	Reporting year
4.10.3	REPORT_YEAR	POP_STRATUM_CALC	Reporting year
4.4.5	REQ_NONRESPONSE_COMPENSATION	POP_SAMPLE_CONSTRAINT	Requires nonresponse compensation
4.6.2	REQ_NONRESPONSE_COMPENSATION	POP_SAMPLE_CONSTRAINT_GROUP	Requires nonresponse compensation
4.1.5	REQUIRED_SAMPLE_CONSTRAINT	POP_ATTRIBUTE	Required sample constraint
4.8.6	REQUIRED_SAMPLE_CONSTRAINT	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Required sample constraint
3.2.12	RESERVCD	ID_COND	Reserved status code
2.3.8	RESORG_CN	SO_PROJECT	Research organization sequence number
2.3.4	RESORG_NAME	SO_PROJECT	Research organization name
6.1.4	RETIRED	REF ABNORMAL TERMINATION	Code retired
6.2.4	RETIRED	REF ABSENT_PRESENT	Code retired
6.3.4	RETIRED	REF BOLE_STUMP_REMOVED	Code retired
6.4.4	RETIRED	REF CANOPY_COVER_SAMPLE_MET HOD	Code retired
6.5.4	RETIRED	REF CAUSE_OF_DEATH	Code retired
6.7.4	RETIRED	REF CONDITION_NONSAMPLE_REASON	Code retired
6.8.4	RETIRED	REF CONDITION_SAMPLING_STATUS	Code retired
6.10.4	RETIRED	REF COVER_CLASS	Code retired
6.11.4	RETIRED	REF CROWN_CLASS	Code retired
6.12.4	RETIRED	REF CROWN_LIGHT_EXPOSURE	Code retired
6.15.4	RETIRED	REF DECAY_CLASS	Code retired

Section	Column name (attribute)	Oracle table name	Descriptive name
6.16.4	RETIRED	REF_DIA_CHECK	Code retired
6.17.4	RETIRED	REF_DISTURBANCE	Code retired
6.18.4	RETIRED	REF_FIA_LANDUSE	Code retired
6.19.4	RETIRED	REF_FIA_LANDUSE_DETAILED	Code retired
6.20.4	RETIRED	REF_FOREST_LAND_COND_STAT_CHG	Code retired
6.23.4	RETIRED	REF_HORIZ_DIST_IMPRVD_ROAD	Code retired
6.25.4	RETIRED	REF_INVS_COND_SAMPLING_STATUS	Code retired
6.26.4	RETIRED	REF_ITREE_LANDUSE	Code retired
6.27.4	RETIRED	REF_ITREE_LANDUSE_DETAILED	Code retired
6.28.4	RETIRED	REF_LAND_COVER_CLASS <b>RETIRED</b>	Code retired
6.29.4	RETIRED	REF_LENGTH_METHOD	Code retired
6.30.4	RETIRED	REF_NO_YES	Code retired
6.31.4	RETIRED	REF_OWNER_CLASS	Code retired
6.32.4	RETIRED	REF_OWNER_GROUP	Code retired
6.33.4	RETIRED	REF_PERCENT_CLASS_CODE	Code retired
6.34.4	RETIRED	REF_PHYSIOGRAPHIC_CLASS	Code retired
6.36.4	RETIRED	REF_PLOT_NONSAMPLE_REASON	Code retired
6.37.4	RETIRED	REF_PLOT_STATUS	Code retired
6.38.4	RETIRED	REF_PREV_TREE_STATUS	Code retired
6.39.4	RETIRED	REF_PRODUCTIVITY_STATUS	Code retired
6.40.4	RETIRED	REF_RECONCILE	Code retired
6.41.4	RETIRED	REF_REGENERATION_STATUS	Code retired
6.42.4	RETIRED	REF_RESERVED_STATUS	Code retired
6.43.4	RETIRED	REF_SAMPLE_KIND	Code retired
6.44.4	RETIRED	REF_SAMPLE_METHOD_CD	Code retired
6.45.4	RETIRED	REF_SEEDLING_MAINTAINED_AREA	Code retired
6.46.4	RETIRED	REF_SEEDLING_PLANTED	Code retired
6.47.4	RETIRED	REF_SITE_CLASS_CODE	Code retired
6.50.4	RETIRED	REF_STAND_SIZE_CLASS	Code retired
6.51.4	RETIRED	REF_SUBPLOT_NONSAMPLE_REASON	Code retired
6.52.4	RETIRED	REF_SUBPLOT_STATUS	Code retired
6.53.4	RETIRED	REF_TREATMENT	Code retired
6.55.4	RETIRED	REF_TREE_CLASS	Code retired
6.57.4	RETIRED	REF_TREE_DENSITY	Code retired
6.58.4	RETIRED	REF_TREE_PLANTED	Code retired
6.59.4	RETIRED	REF_TREE_STATUS	Code retired
6.62.4	RETIRED	REF_UTILIZATION_CLASS	Code retired

Section	Column name (attribute)	Oracle table name	Descriptive name
6.63.4	RETIRED	REF_WATER_ON_PLOT	Code retired
7.1.4	RETIRED_DATE	ADMIN_DB_VERSION	Retired date
7.3.5	RETIRED_DATE	ADMIN_PUB_DATA_STANDARD	Retired date
3.1.6	RETIRED_PLOT	ID_BUILDING_INTERACTION	Retired plot number
3.2.6	RETIRED_PLOT	ID_COND	Retired plot number
3.3.6	RETIRED_PLOT	ID_ENERGY_EFFECT	Retired plot number
3.4.6	RETIRED_PLOT	ID_INVASIVE_SUBP_COND	Retired plot number
3.5.6	RETIRED_PLOT	ID_MOTHER_TREE	Retired plot number
3.6.6	RETIRED_PLOT	ID_PLOT	Retired plot number
3.10.6	RETIRED_PLOT	ID_SEEDLING	Retired plot number
3.11.6	RETIRED_PLOT	ID_SITETREE	Retired plot number
3.13.6	RETIRED_PLOT	ID_SUBP_COND	Retired plot number
3.12.6	RETIRED_PLOT	ID_SUBPLOT	Retired plot number
3.14.6	RETIRED_PLOT	ID_TREE	Retired plot number
3.15.6	RETIRED_PLOT	ID_WOODLAND_STEM	Retired plot number
3.6.19	ROAD_DIST_CD	ID_PLOT	Horizontal distance to improved road code
3.14.49	ROUGHCULL	ID_TREE	[Data in preparation] Rough cull
5.3.8	RUNOFF_AVOIDED	MOD_RAINFALL	Runoff avoided
	<b>S</b>		
3.6.14	SAMPLE_METHOD_CD	ID_PLOT	Plot sample method code
4.7.1	SAMPLE_NAME	POP_STAT_SAMP	Statistical sample name
4.8.1	SAMPLE_NAME	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Statistical sample name
4.9.1	SAMPLE_NAME	POP_STAT_SAMP_DOMAIN_ASSGN	Statistical sample name
3.1.37	SBP_CN	ID_BUILDING_INTERACTION	Subplot sequence number
3.3.19	SBP_CN	ID_ENERGY_EFFECT	Subplot sequence number
3.4.18	SBP_CN	ID_INVASIVE_SUBP_COND	Subplot sequence number
3.5.114	SBP_CN	ID_MOTHER_TREE	Subplot sequence number
3.10.17	SBP_CN	ID_SEEDLING	Subplot sequence number
3.11.21	SBP_CN	ID_SITETREE	Subplot sequence number
3.13.19	SBP_CN	ID_SUBP_COND	Subplot sequence number
3.14.105	SBP_CN	ID_TREE	Subplot sequence number
3.15.15	SBP_CN	ID_WOODLAND_STEM	Subplot sequence number
6.13.3	SCIENTIFIC_NAME	REF_DAMAGE_AGENT	Scientific name of damage agent
6.35.4	SCIENTIFIC_NAME	REF_PLANT_DICTIONARY	Scientific name
6.48.8	SCIENTIFIC_NAME	REF_SPECIES	Scientific name
6.35.15	SCIENTIFIC_NAME_W_AUTHOR	REF_PLANT_DICTIONARY	Scientific name with author
3.10.11	SEEDLING_COUNT	ID_SEEDLING	Seedling count

Section	Column name (attribute)	Oracle table name	Descriptive name
6.48.20	SFTWD_HRDWD	REF_SPECIES	Softwood or hardwood
6.54.2	SFTWD_HRDWD	REF_TREE_CARBON_RATIO_DEAD	Softwood or hardwood
6.56.3	SFTWD_HRDWD	REF_TREE_DECAY_PROP	Softwood or hardwood
6.60.3	SFTWD_HRDWD	REF_TREE_STND_DEAD_CR_PROP	Softwood or hardwood
6.48.3	SHARED_COMMON_NAME_IND	REF_SPECIES	Shared common name indicator
3.2.50	SITE_CLASS_CD	ID_COND	Site productivity class code
3.2.51	SITE_CLASS_METHOD	ID_COND	Site productivity class method code
3.2.52	SITE_CLASS_SIT_CN	ID_COND	Site productivity class site tree sequence number
3.2.53	SITE_INDEX	ID_COND	Site index for the condition
3.11.23	SITE_INDEX	ID_SITETREE	Site index for the site tree
3.11.24	SITE_INDEX_METHOD_CD	ID_SITETREE	Site index method code
6.48.19	SITETREE	REF_SPECIES	Site tree
3.12.12	SLOPE	ID_SUBPLOT	Subplot percent slope
3.5.50	SO2_ACUTE_RESPIRATORY_SYMPTOMS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 acute respiratory symptoms incidence (i-Tree Eco system)
3.5.54	SO2_ACUTE_RESPIRATORY_SYMPTOMS_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 acute respiratory symptoms value (i-Tree Eco system)
3.5.51	SO2_ASTHMA_EXACERBATION_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 asthma exacerbation incidence (i-Tree Eco system)
3.5.55	SO2_ASTHMA_EXACERBATION_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 asthma exacerbation value (i-Tree Eco system)
3.5.52	SO2_EMERGENCY_ROOM_VISITS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 emergency room visits incidence (i-Tree Eco system)
3.5.56	SO2_EMERGENCY_ROOM_VISITS_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 emergency room visits value (i-Tree Eco system)
3.5.53	SO2_HOSPITAL_ADMISSEIONS_INCIDENCE	ID_MOTHER_TREE	[Data in preparation] SO2 hospital admissions incidence (i-Tree Eco system)
3.5.57	SO2_HOSPITAL_ADMISSEIONS_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 hospital admissions value (i-Tree Eco system)
3.5.103	SO2_REMOVAL	ID_MOTHER_TREE	[Data in preparation] SO2 removal (i-Tree Eco system)
3.5.97	SO2_VALUE	ID_MOTHER_TREE	[Data in preparation] SO2 value (i-Tree Eco system)

Section	Column name (attribute)	Oracle table name	Descriptive name
3.5.13	SPCD	ID_MOTHER_TREE	Species code
3.10.9	SPCD	ID_SEEDLING	Species code
3.11.11	SPCD	ID_SITETREE	Species code
3.14.17	SPCD	ID_TREE	Species code
6.48.1	SPCD	REF_SPECIES	Species code
6.35.22	SPECIES	REF_PLANT_DICTIONARY	Species
6.48.5	SPECIES	REF_SPECIES	Species
3.4.11	SPECIES_SYMBOL	ID_INVASIVE_SUBP_COND	Species symbol
6.48.9	SPECIES_SYMBOL	REF_SPECIES	Species symbol
3.4.9	SPECIES_SYMBOL_FLD	ID_INVASIVE_SUBP_COND	Field species symbol
3.5.14	SPGRPCD	ID_MOTHER_TREE	Species group code
3.10.10	SPGRPCD	ID_SEEDLING	Species group code
3.14.18	SPGRPCD	ID_TREE	Species group code
6.49.1	SPGRPCD	REF_SPECIES_GROUP	Species group code
6.35.23	SSP	REF_PLANT_DICTIONARY	Subspecies indicator
3.5.11	STANDING_DEAD_CD	ID_MOTHER_TREE	Standing dead code
3.14.19	STANDING_DEAD_CD	ID_TREE	Standing dead code
7.1.3	START_DATE	ADMIN_DB_VERSION	Start date
7.3.4	START_DATE	ADMIN_PUB_DATA_STANDARD	Start date
6.24.6	START_DATE	REF_INVASIVE_SPECIES	Start date
6.35.14	STATE_AND_PROVINCE	REF_PLANT_DICTIONARY	State and province
6.35.13	STATE_DISTRIBUTION	REF_PLANT_DICTIONARY	State distribution
3.1.3	STATECD	ID_BUILDING_INTERACTION	State code
3.2.3	STATECD	ID_COND	State code
3.3.3	STATECD	ID_ENERGY_EFFECT	State code
3.4.3	STATECD	ID_INVASIVE_SUBP_COND	State code
3.5.3	STATECD	ID_MOTHER_TREE	State code
3.6.3	STATECD	ID_PLOT	State code
3.10.3	STATECD	ID_SEEDLING	State code
3.11.3	STATECD	ID_SITETREE	State code
3.13.3	STATECD	ID_SUBP_COND	State code
3.12.3	STATECD	ID_SUBPLOT	State code
3.14.3	STATECD	ID_TREE	State code
3.15.3	STATECD	ID_WOODLAND_STEM	State code
6.9.1	STATECD	REF_COUNTY	State code
6.24.2	STATECD	REF_INVASIVE_SPECIES	State code
6.61.1	STATECD	REF_UNIT	State code
3.5.10	STATUSCD	ID_MOTHER_TREE	Mother tree status code
3.14.15	STATUSCD	ID_TREE	Tree status code
3.15.11	STATUSCD	ID_WOODLAND_STEM	Woodland stem status code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.2.16	STDORGCD	ID_COND	Stand origin code
3.2.17	STDORGSP	ID_COND	Stand origin species code
3.14.10	STEM	ID_TREE	Stem identifier
3.15.10	STEM_NBR	ID_WOODLAND_STEM	Woodland stem number
6.48.15	STOCKING_SPGRPCD	REF_SPECIES	Stocking species group code
4.10.15	STRATUM_ACRES	POP_STRATUM_CALC	Stratum acres
4.10.24	STRATUM_DESCRIPTION	POP_STRATUM_CALC	Stratum description
4.10.14	STRATUM_LABEL	POP_STRATUM_CALC	Stratum label
4.10.22	STRATUM_MICROPLOT_ADJ_FACTOR	POP_STRATUM_CALC	Stratum microplot adjustment factor
4.10.13	STRATUM_NAME	POP_STRATUM_CALC	Stratum name
4.10.17	STRATUM_PLOT_COUNT	POP_STRATUM_CALC	Stratum plot count
4.10.16	STRATUM_POINT_COUNT	POP_STRATUM_CALC	Stratum point count
4.10.20	STRATUM_SOURCE	POP_STRATUM_CALC	Stratum source
4.10.21	STRATUM_SUBPLOT_ADJ_FACTOR	POP_STRATUM_CALC	Stratum subplot adjustment factor
4.10.19	STRATUM_WEIGHT	POP_STRATUM_CALC	Stratum weight
2.1.4	SUBCYCLE	SO_INVENTORY	Inventory subcycle iterator
3.1.7	SUBP	ID_BUILDING_INTERACTION	Subplot/microplot identifier
3.3.7	SUBP	ID_ENERGY_EFFECT	Subplot/microplot identifier
3.4.7	SUBP	ID_INVASIVE_SUBP_COND	Subplot identifier
3.5.7	SUBP	ID_MOTHER_TREE	Subplot/microplot identifier
3.10.7	SUBP	ID_SEEDLING	Subplot/microplot identifier
3.11.7	SUBP	ID_SITETREE	Subplot identifier
3.13.7	SUBP	ID_SUBP_COND	Subplot/microplot identifier
3.12.7	SUBP	ID_SUBPLOT	Subplot/microplot identifier
3.14.7	SUBP	ID_TREE	Subplot/microplot identifier
3.15.7	SUBP	ID_WOODLAND_STEM	Subplot/microplot identifier
3.6.21	SUBP_EXAMINE_CD	ID_PLOT	Subplots examined code
3.12.11	SUBP_NONSAMPLE_REASN_CD	ID_SUBPLOT	Subplot nonsampled reason code
3.12.10	SUBP_STATUS_CD	ID_SUBPLOT	Subplot status code
6.35.25	SUBSPECIES	REF_PLANT_DICTIONARY	Subspecies
6.48.7	SUBSPECIES	REF_SPECIES	Subspecies
6.35.29	SUBVAR	REF_PLANT_DICTIONARY	Subvariety indicator
6.35.30	SUBVARIETY	REF_PLANT_DICTIONARY	Subvariety
6.24.3	SYMBOL	REF_INVASIVE_SPECIES	Symbol
6.35.3	SYMBOL	REF_PLANT_DICTIONARY	Symbol
6.35.2	SYMBOL_TYPE	REF_PLANT_DICTIONARY	Symbol type
	T		

Section	Column name (attribute)	Oracle table name	Descriptive name
6.13.4	THRESHOLD	REF_DAMAGE_AGENT	Threshold for damage agent
3.14.26	TOTAL_LENGTH	ID_TREE	Total length
3.5.12	TPA_UNADJ	ID_MOTHER_TREE	Mother trees per acre unadjusted
3.10.12	TPA_UNADJ	ID_SEEDLING	Trees per acre unadjusted
3.14.60	TPA_UNADJ	ID_TREE	Trees per acre unadjusted
3.5.107	TRANSPIRATION	ID_MOTHER_TREE	[Data in preparation] Transpiration (i-Tree Eco system)
3.15.18	TRE_CN	ID_WOODLAND_STEM	Tree sequence number
3.2.39	TREATMENT_CD1	ID_COND	Treatment code 1
3.2.40	TREATMENT_CD2	ID_COND	Treatment code 2
3.2.41	TREATMENT_CD3	ID_COND	Treatment code 3
3.2.42	TREATMENT_YEAR1	ID_COND	Treatment year 1
3.2.43	TREATMENT_YEAR2	ID_COND	Treatment year 2
3.2.44	TREATMENT_YEAR3	ID_COND	Treatment year 3
3.1.9	TREE	ID_BUILDING_INTERACTION	Tree identifier
3.3.9	TREE	ID_ENERGY_EFFECT	Tree identifier
3.5.9	TREE	ID_MOTHER_TREE	Tree identifier
3.11.10	TREE	ID_SITETREE	Site tree identifier
3.14.9	TREE	ID_TREE	Tree identifier
3.15.9	TREE	ID_WOODLAND_STEM	Woodland tree identifier
3.14.57	TREE_GRADE	ID_TREE	Tree grade
5.3.7	TREE_INTERCEPTION	MOD_RAINFALL	Tree interception
3.14.58	TREE_SITE_INDEX	ID_TREE	Site index for the tree
3.14.16	TREECLCD	ID_TREE	Tree class code
3.14.53	TREECLCD_NRS	ID_TREE	Tree class code, Northern Research Station
3.14.55	TREECLCD_PNWRS	ID_TREE	Tree class code, Pacific Northwest Research Station
3.14.56	TREECLCD_RMRS	ID_TREE	Tree class code, Rocky Mountain Research Station
3.14.54	TREECLCD_SRS	ID_TREE	Tree class code, Southern Research Station
6.35.17	TRINOMIAL_AUTHOR	REF_PLANT_DICTIONARY	Trinomial author
2.4.4	TYPE	SO_RESEARCH_ORGANIZATION	Research organization type
6.21.3	TYPGRPCD	REF_FOREST_TYPE	Forest type group code
	<b>U</b>		
3.5.20	UNCOMP_CROWN_RATIO	ID_MOTHER_TREE	Uncompacted live crown ratio
3.4.10	UNIQUE_SP_NBR	ID_INVASIVE_SUBP_COND	Unique species number
3.1.4	UNITCD	ID_BUILDING_INTERACTION	Survey unit code
3.2.4	UNITCD	ID_COND	Survey unit code

<b>Section</b>	<b>Column name (attribute)</b>	<b>Oracle table name</b>	<b>Descriptive name</b>
3.3.4	UNITCD	ID_ENERGY_EFFECT	Survey unit code
3.4.4	UNITCD	ID_INVASIVE_SUBP_COND	Survey unit code
3.5.4	UNITCD	ID_MOTHER_TREE	Survey unit code
3.6.4	UNITCD	ID_PLOT	Survey unit code
3.10.4	UNITCD	ID_SEEDLING	Survey unit code
3.11.4	UNITCD	ID_SITETREE	Survey unit code
3.13.4	UNITCD	ID_SUBP_COND	Survey unit code
3.12.4	UNITCD	ID_SUBPLOT	Survey unit code
3.14.4	UNITCD	ID_TREE	Survey unit code
3.15.4	UNITCD	ID_WOODLAND_STEM	Survey unit code
6.9.2	UNITCD	REF_COUNTY	Survey unit code
6.24.5	UNITCD_LIST	REF_INVASIVE_SPECIES	Unit code list
6.35.12	US_NATIVITY	REF_PLANT_DICTIONARY	United States nativity
3.14.20	UTILCLCD	ID_TREE	Utilization class code
	V		
5.1.9	VALUE	MOD POLLUTION HEALTH FCTR	Pollutant health factor value
6.1.1	VALUE	REF_ABNORMAL_TERMINATION	Code value
6.2.1	VALUE	REF_ABSENT_PRESENT	Code value
6.3.1	VALUE	REF_BOLE_STUMP_REMOVED	Code value
6.4.1	VALUE	REF_CANOPY_COVER_SAMPLE_MET HOD	Code value
6.5.1	VALUE	REF_CAUSE_OF_DEATH	Code value
6.7.1	VALUE	REF_CONDITION_NONSAMPLE_REASON	Code value
6.8.1	VALUE	REF_CONDITION_SAMPLING_STATUS	Code value
6.10.1	VALUE	REF_COVER_CLASS	Code value
6.11.1	VALUE	REF_CROWN_CLASS	Code value
6.12.1	VALUE	REF_CROWN_LIGHT_EXPOSURE	Code value
6.15.1	VALUE	REF_DECAY_CLASS	Code value
6.16.1	VALUE	REF_DIA_CHECK	Code value
6.17.1	VALUE	REF_DISTURBANCE	Code value
6.18.1	VALUE	REF_FIA_LANDUSE	Code value
6.19.1	VALUE	REF_FIA_LANDUSE_DETAILED	Code value
6.20.1	VALUE	REF_FOREST_LAND_COND_STAT_CHG	Code value
6.21.1	VALUE	REF_FOREST_TYPE	Code value
6.22.1	VALUE	REF_FOREST_TYPE_GROUP	Code value
6.23.1	VALUE	REF_HORIZ_DIST_IMPRVD_ROAD	Code value
6.25.1	VALUE	REF_INVS_COND_SAMPLING_STATUS	Code value

Section	Column name (attribute)	Oracle table name	Descriptive name
6.26.1	VALUE	REF_ITREE_LANDUSE	Code value
6.27.1	VALUE	REF_ITREE_LANDUSE_DETAILED	Code value
6.28.1	VALUE	REF_LAND_COVER_CLASS <b>RETIRED</b>	Code value
6.29.1	VALUE	REF_LENGTH_METHOD	Code value
6.30.1	VALUE	REF_NO_YES	Code value
6.31.1	VALUE	REF_OWNER_CLASS	Code value
6.32.1	VALUE	REF_OWNER_GROUP	Code value
6.33.1	VALUE	REF_PERCENT_CLASS_CODE	Code value
6.34.1	VALUE	REF_PHYSIOGRAPHIC_CLASS	Code value
6.36.1	VALUE	REF_PLOT_NONSAMPLE_REASON	Code value
6.37.1	VALUE	REF_PLOT_STATUS	Code value
6.38.1	VALUE	REF_PREV_TREE_STATUS	Code value
6.39.1	VALUE	REF_PRODUCTIVITY_STATUS	Code value
6.40.1	VALUE	REF_RECONCILE	Code value
6.41.1	VALUE	REF_REGENERATION_STATUS	Code value
6.42.1	VALUE	REF_RESERVED_STATUS	Code value
6.43.1	VALUE	REF_SAMPLE_KIND	Code value
6.44.1	VALUE	REF_SAMPLE_METHOD_CD	Code value
6.45.1	VALUE	REF_SEEDLING_MAINTAINED_AREA	Code value
6.46.1	VALUE	REF_SEEDLING_PLANTED	Code value
6.47.1	VALUE	REF_SITE_CLASS_CODE	Code value
6.50.1	VALUE	REF_STAND_SIZE_CLASS	Code value
6.51.1	VALUE	REF_SUBPLOT_NONSAMPLE_REASON	Code value
6.52.1	VALUE	REF_SUBPLOT_STATUS	Code value
6.53.1	VALUE	REF_TREATMENT	Code value
6.55.1	VALUE	REF_TREE_CLASS	Code value
6.57.1	VALUE	REF_TREE_DENSITY	Code value
6.58.1	VALUE	REF_TREE_PLANTED	Code value
6.59.1	VALUE	REF_TREE_STATUS	Code value
6.61.2	VALUE	REF_UNIT	Code value
6.62.1	VALUE	REF_UTILIZATION_CLASS	Code value
6.63.1	VALUE	REF_WATER_ON_PLOT	Code value
6.35.26	VAR	REF_PLANT_DICTIONARY	Variety indicator
6.35.28	VARIETY	REF_PLANT_DICTIONARY	Variety
6.48.6	VARIETY	REF_SPECIES	Variety
7.3.2	VERSION	ADMIN_PUB_DATA_STANDARD	Compiled data standard version number
3.1.2	VISIT_NBR	ID_BUILDING_INTERACTION	Visit number
3.2.2	VISIT_NBR	ID_COND	Visit number

<b>Section</b>	<b>Column name (attribute)</b>	<b>Oracle table name</b>	<b>Descriptive name</b>
3.3.2	VISIT_NBR	ID_ENERGY_EFFECT	Visit number
3.4.2	VISIT_NBR	ID_INVASIVE_SUBP_COND	Visit number
3.5.2	VISIT_NBR	ID_MOTHER_TREE	Visit number
3.6.2	VISIT_NBR	ID_PLOT	Visit number
3.10.2	VISIT_NBR	ID_SEEDLING	Visit number
3.11.2	VISIT_NBR	ID_SITETREE	Visit number
3.13.2	VISIT_NBR	ID_SUBP_COND	Visit number
3.12.2	VISIT_NBR	ID_SUBPLOT	Visit number
3.14.2	VISIT_NBR	ID_TREE	Visit number
3.15.2	VISIT_NBR	ID_WOODLAND_STEM	Visit number
3.14.75	VOLBFGRS	ID_TREE	Gross board-foot wood volume in the sawlog portion of a sawtimber tree
3.14.76	VOLBFNET	ID_TREE	Net board-foot wood volume in the sawlog portion of a sawtimber tree
3.14.77	VOLBSGRS	ID_TREE	Gross board-foot wood volume in the sawlog portion of a sawtimber tree (Scribner Rule)
3.14.78	VOLBSNET	ID_TREE	Net board-foot wood volume in the sawlog portion of a sawtimber tree (Scribner Rule)
3.14.79	VOLCFGRS	ID_TREE	Gross cubic-foot stem wood volume
3.14.80	VOLCFGRS_BARK	ID_TREE	Gross cubic-foot stem bark volume
3.14.81	VOLCFGRS_STUMP	ID_TREE	Gross cubic-foot stump wood volume
3.14.82	VOLCFGRS_STUMP_BARK	ID_TREE	Gross cubic-foot stump bark volume
3.14.83	VOLCFGRS_TOP	ID_TREE	Gross cubic-foot stem-top wood volume
3.14.84	VOLCFGRS_TOP_BARK	ID_TREE	Gross cubic-foot stem-top bark volume
3.14.85	VOLCFNET	ID_TREE	Net cubic-foot stem wood volume
3.14.86	VOLCFNET_BARK	ID_TREE	Net cubic-foot stem bark volume
3.14.87	VOLCFSND	ID_TREE	Sound cubic-foot stem wood volume
3.14.88	VOLCFSND_BARK	ID_TREE	Sound cubic-foot stem bark volume
3.14.89	VOLCFSND_STUMP	ID_TREE	Sound cubic-foot stump wood volume
3.14.90	VOLCFSND_STUMP_BARK	ID_TREE	Sound cubic-foot stump bark volume

Section	Column name (attribute)	Oracle table name	Descriptive name
3.14.91	VOLCFSND_TOP	ID_TREE	Sound cubic-foot stem-top wood volume
3.14.92	VOLCFSND_TOP_BARK	ID_TREE	Sound cubic-foot stem-top bark volume
3.14.93	VOLCSGRS	ID_TREE	Gross cubic-foot wood volume in the sawlog portion of a sawtimber tree
3.14.94	VOLCSGRS_BARK	ID_TREE	Gross cubic-foot bark volume in the sawlog portion of a sawtimber tree
3.14.95	VOLCSNET	ID_TREE	Net cubic-foot wood volume in the sawlog portion of a sawtimber tree
3.14.96	VOLCSNET_BARK	ID_TREE	Net cubic-foot bark volume in the sawlog portion of a sawtimber tree
3.14.97	VOLCSSND	ID_TREE	Sound cubic-foot wood volume in the sawlog portion of a sawtimber tree
3.14.98	VOLCSSND_BARK	ID_TREE	Sound cubic-foot bark volume in the sawlog portion of a sawtimber tree
3.14.99	VOLTSGRS	ID_TREE	Gross cubic-foot total-stem wood volume
3.14.100	VOLTSGRS_BARK	ID_TREE	Gross cubic-foot total-stem bark volume
3.14.101	VOLTSSND	ID_TREE	Sound cubic-foot total-stem wood volume
3.14.102	VOLTSSND_BARK	ID_TREE	Sound cubic-foot total-stem bark volume
	<b>W</b>		
6.48.11	W_SPGRPCD	REF_SPECIES	Western species group code
3.6.20	WATER_CD	ID_PLOT	Water on plot code
3.12.14	WATER_DEPTH	ID_SUBPLOT	Water/snow depth
4.2.4	WHERE_CLAUSE	POP_CALCULATION	Where clause
6.48.22	WOOD_SPGR_GREENVOL_DRYWT	REF_SPECIES	Green specific gravity of wood
6.48.23	WOOD_SPGR_GREENVOL_DRYWT_CIT	REF_SPECIES	Citation for WOOD_SPGR_GREENVOL_DRYWT
6.48.21	WOODLAND	REF_SPECIES	Woodland species indicator
	<b>X</b>		
6.35.19	XGENUS	REF_PLANT_DICTIONARY	Cross genus
6.35.21	XSPECIES	REF_PLANT_DICTIONARY	Cross species
6.35.24	XSUBSPECIES	REF_PLANT_DICTIONARY	Cross subspecies
6.35.27	XVARIETY	REF_PLANT_DICTIONARY	Cross variety

Section	Column name (attribute)	Oracle table name	Descriptive name
	Y		
	Z		



Section revision: 09.02.2024

# Appendix A: Quick Links

## Appendix Contents:

Quick Links
<a href="#">Urban: Forest Inventory and Analysis (FIA)</a>
<a href="#">Urban: i-Tree Software Suite</a>
<a href="#">Urban: Other</a>
<a href="#">National: Forest Inventory and Analysis (FIA)</a>
<a href="#">USDA Forest Service</a>
<a href="#">Other</a>

## Urban: Forest Inventory and Analysis (FIA)

Description	Website (URL address)
<a href="#">Urban FIA - Program</a>	<a href="https://research.fs.usda.gov/programs/urbanfia">https://research.fs.usda.gov/programs/urbanfia</a>
<a href="#">Urban FIA - Urban DataMart</a>	<a href="https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart">https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart</a>
<a href="#">Urban FIADB User Guides: Database Description</a>	<a href="https://research.fs.usda.gov/understory/urban-forest-inventory-and-analysis-database-user-guide">https://research.fs.usda.gov/understory/urban-forest-inventory-and-analysis-database-user-guide</a>
<a href="#">Urban FIA Field Guides (National)</a>	<a href="https://usfs-public.box.com/v/FIA-Urban-FieldGuides">https://usfs-public.box.com/v/FIA-Urban-FieldGuides</a>

## Urban: i-Tree Software Suite

Description	Website (URL address)
<a href="#">i-Tree Program (home page)</a>	<a href="https://www.itreetools.org/">https://www.itreetools.org/</a>
<a href="#">i-Tree - Tools</a>	<a href="https://www.itreetools.org/tools">https://www.itreetools.org/tools</a>

## Urban: Other

Description	Website (URL address)
<a href="#">My City's Trees</a>	<a href="https://mct.tfs.tamu.edu/">https://mct.tfs.tamu.edu/</a>

## National: Forest Inventory and Analysis (FIA)

Description	Website (URL address)
FIA - National Program	<a href="https://research.fs.usda.gov/programs/fia">https://research.fs.usda.gov/programs/fia</a>
FIA - Nationwide Forest Inventory (NFI)	<a href="https://research.fs.usda.gov/programs/nfi">https://research.fs.usda.gov/programs/nfi</a>
FIA - Data and Tools	<a href="https://research.fs.usda.gov/programs/fia#data-and-tools">https://research.fs.usda.gov/programs/fia#data-and-tools</a>
FIA - Spatial Data Services (SDS)	<a href="https://research.fs.usda.gov/programs/fia/sds">https://research.fs.usda.gov/programs/fia/sds</a>
FIADB User Guides: Database Description (NFI)	<a href="https://research.fs.usda.gov/understory/forest-inventory-and-analysis-database-user-guide-nfi">https://research.fs.usda.gov/understory/forest-inventory-and-analysis-database-user-guide-nfi</a>

## USDA Forest Service

Description	Website (URL address)
USDA Forest Service	<a href="https://www.fs.usda.gov/">https://www.fs.usda.gov/</a>
USDA Forest Service - Contact Us	<a href="https://www.fs.usda.gov/about-agency/contact-us">https://www.fs.usda.gov/about-agency/contact-us</a>
USDA Forest Service - FSGeodata Clearinghouse	<a href="https://data.fs.usda.gov/geodata/">https://data.fs.usda.gov/geodata/</a>
USDA Forest Service - National Programs and Offices	<a href="https://www.fs.usda.gov/about-agency/national-programs-offices">https://www.fs.usda.gov/about-agency/national-programs-offices</a>
USDA Forest Service - National Headquarters	<a href="https://www.fs.usda.gov/organization">https://www.fs.usda.gov/organization</a>
USDA Forest Service - Research & Development	<a href="https://www.fs.usda.gov/research/">https://www.fs.usda.gov/research/</a>
USDA Forest Service - State, Private, and Tribal Forestry	<a href="https://www.fs.usda.gov/about-agency/state-private-forestry">https://www.fs.usda.gov/about-agency/state-private-forestry</a>
USDA Forest Service - Urban and Community Forestry Program	<a href="https://www.fs.usda.gov/managing-land/urban-forests/ucf">https://www.fs.usda.gov/managing-land/urban-forests/ucf</a>
USDA Forest Service - Understory (publications)	<a href="https://www.fs.usda.gov/research/understory">https://www.fs.usda.gov/research/understory</a>

## Other

Description	Website (URL address)
USDA Natural Resource Conservation Service (NRCS) - PLANTS database	<a href="https://plants.usda.gov">https://plants.usda.gov</a>
U.S. Geological Survey - Mission Areas, Water Resources	<a href="https://www.usgs.gov/mission-areas/water-resources">https://www.usgs.gov/mission-areas/water-resources</a>
U.S. Geological Survey - National Water Information System (NWIS)	<a href="https://waterdata.usgs.gov/nwis">https://waterdata.usgs.gov/nwis</a>

Section revision: 09.02.2024

# Appendix B: State, Survey Unit, and County Codes

## Appendix Contents:

Description
<a href="#">Ordered by state code</a>
<a href="#">Pacific Islands</a>
<a href="#">Caribbean Islands</a>

## Ordered by state code

State	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
<a href="#">Alabama</a>	1	AL	SRS	33
<a href="#">Alaska</a>	2	AK	PNWRS-AK	27
<a href="#">Arizona</a>	4	AZ	RMRS	22
<a href="#">Arkansas</a>	5	AR	SRS	33
<a href="#">California</a>	6	CA	PNWRS	26
<a href="#">Colorado</a>	8	CO	RMRS	22
<a href="#">Connecticut</a>	9	CT	NRS	24
<a href="#">Delaware</a>	10	DE	NRS	24
<a href="#">District of Columbia</a>	11	DC	NRS	24
<a href="#">Florida</a>	12	FL	SRS	33
<a href="#">Georgia</a>	13	GA	SRS	33
<a href="#">Hawaii</a>	15	HI	PNWRS	26
<a href="#">Idaho</a>	16	ID	RMRS	22
<a href="#">Illinois</a>	17	IL	NRS	24
<a href="#">Indiana</a>	18	IN	NRS	24
<a href="#">Iowa</a>	19	IA	NRS	24
<a href="#">Kansas</a>	20	KS	NRS	24
<a href="#">Kentucky</a>	21	KY	SRS	33
<a href="#">Louisiana</a>	22	LA	SRS	33
<a href="#">Maine</a>	23	ME	NRS	24
<a href="#">Maryland</a>	24	MD	NRS	24
<a href="#">Massachusetts</a>	25	MA	NRS	24
<a href="#">Michigan</a>	26	MI	NRS	24
<a href="#">Minnesota</a>	27	MN	NRS	24

<b>State</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
Mississippi	28	MS	SRS	33
Missouri	29	MO	NRS	24
Montana	30	MT	RMRS	22
Nebraska	31	NE	NRS	24
Nevada	32	NV	RMRS	22
New Hampshire	33	NH	NRS	24
New Jersey	34	NJ	NRS	24
New Mexico	35	NM	RMRS	22
New York	36	NY	NRS	24
North Carolina	37	NC	SRS	33
North Dakota	38	ND	NRS	24
Ohio	39	OH	NRS	24
Oklahoma	40	OK	SRS	33
Oregon	41	OR	PNWRS	26
Pennsylvania	42	PA	NRS	24
Rhode Island	44	RI	NRS	24
South Carolina	45	SC	SRS	33
South Dakota	46	SD	NRS	24
Tennessee	47	TN	SRS	33
Texas	48	TX	SRS	33
Utah	49	UT	RMRS	22
Vermont	50	VT	NRS	24
Virginia	51	VA	SRS	33
Washington	53	WA	PNWRS	26
West Virginia	54	WV	NRS	24
Wisconsin	55	WI	NRS	24
Wyoming	56	WY	RMRS	22
American Samoa	60	AS	PNWRS	26
Federated States of Micronesia	64	FM	PNWRS	26
Guam	66	GU	PNWRS	26
Marshall Islands	68	MH	PNWRS	26
Northern Mariana Islands	69	MP	PNWRS	26
Palau	70	PW	PNWRS	26
Puerto Rico	72	PR	SRS	33
U.S. Virgin Islands	78	VI	SRS	33

## Pacific Islands

The Pacific Islands group is defined based on the protocols and procedures used for data collection and compilation.

<b>State</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
Hawaii	15	HI	PNWRS	26
American Samoa	60	AS	PNWRS	26
Federated States of Micronesia	64	FM	PNWRS	26
Guam	66	GU	PNWRS	26
Marshall Islands	68	MH	PNWRS	26
Northern Mariana Islands	69	MP	PNWRS	26
Palau	70	PW	PNWRS	26

## Caribbean Islands

The Caribbean Islands group is defined based on the protocols and procedures used for data collection and compilation.

<b>State</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
Puerto Rico	72	PR	SRS	33
U.S. Virgin Islands	78	VI	SRS	33

## Alabama

### Alabama: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Alabama	1	AL	SRS	33

### Alabama: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
1	1	Southwest-South	3	Baldwin
1	1	Southwest-South	39	Covington
1	1	Southwest-South	53	Escambia
1	1	Southwest-South	97	Mobile
1	1	Southwest-South	129	Washington
1	2	Southwest-North	23	Choctaw
1	2	Southwest-North	25	Clarke
1	2	Southwest-North	35	Conecuh
1	2	Southwest-North	91	Marengo
1	2	Southwest-North	99	Monroe
1	2	Southwest-North	119	Sumter
1	2	Southwest-North	131	Wilcox
1	3	Southeast	1	Autauga
1	3	Southeast	5	Barbour
1	3	Southeast	11	Bullock
1	3	Southeast	13	Butler
1	3	Southeast	17	Chambers
1	3	Southeast	21	Chilton
1	3	Southeast	31	Coffee
1	3	Southeast	41	Crenshaw
1	3	Southeast	45	Dale
1	3	Southeast	47	Dallas
1	3	Southeast	51	Elmore
1	3	Southeast	61	Geneva
1	3	Southeast	67	Henry
1	3	Southeast	69	Houston
1	3	Southeast	81	Lee
1	3	Southeast	85	Lowndes
1	3	Southeast	87	Macon
1	3	Southeast	101	Montgomery
1	3	Southeast	109	Pike
1	3	Southeast	113	Russell

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
1	3	Southeast	123	Tallapoosa
1	4	West Central	7	Bibb
1	4	West Central	57	Fayette
1	4	West Central	63	Greene
1	4	West Central	65	Hale
1	4	West Central	75	Lamar
1	4	West Central	93	Marion
1	4	West Central	105	Perry
1	4	West Central	107	Pickens
1	4	West Central	125	Tuscaloosa
1	5	North Central	9	Blount
1	5	North Central	15	Calhoun
1	5	North Central	19	Cherokee
1	5	North Central	27	Clay
1	5	North Central	29	Cleburne
1	5	North Central	37	Coosa
1	5	North Central	43	Cullman
1	5	North Central	55	Etowah
1	5	North Central	73	Jefferson
1	5	North Central	111	Randolph
1	5	North Central	115	St. Clair
1	5	North Central	117	Shelby
1	5	North Central	121	Talladega
1	5	North Central	127	Walker
1	5	North Central	133	Winston
1	6	North	33	Colbert
1	6	North	49	DeKalb
1	6	North	59	Franklin
1	6	North	71	Jackson
1	6	North	77	Lauderdale
1	6	North	79	Lawrence
1	6	North	83	Limestone
1	6	North	89	Madison
1	6	North	95	Marshall
1	6	North	103	Morgan

## Alaska

### Alaska: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Alaska	2	AK	PNWRS-AK	27

### Alaska: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
2	1	Alaska	13	Aleutians East Borough
2	1	Alaska	16	Aleutians West Census Area
2	1	Alaska	20	Anchorage Borough
2	1	Alaska	50	Bethel Census Area
2	1	Alaska	60	Bristol Bay Borough
2	1	Alaska	68	Denali Borough
2	1	Alaska	70	Dillingham Census Area
2	1	Alaska	90	Fairbanks North Star Borough
2	1	Alaska	100	Haines Borough
2	1	Alaska	110	Juneau Borough
2	1	Alaska	122	Kenai Peninsula Borough
2	1	Alaska	130	Ketchikan Gateway Borough
2	1	Alaska	150	Kodiak Island Borough
2	1	Alaska	164	Lake and Peninsula Borough
2	1	Alaska	170	Matanuska-Susitna Borough
2	1	Alaska	180	Nome Census Area
2	1	Alaska	185	North Slope Borough
2	1	Alaska	188	Northwest Arctic Borough
2	1	Alaska	201	Prince of Wales-Outer Ketchikan Census Area
2	1	Alaska	220	Sitka Borough
2	1	Alaska	232	Skagway-Hoonah-Angoon Census Area
2	1	Alaska	240	Southeast Fairbanks Census Area
2	1	Alaska	261	Valdez-Cordova Census Area
2	1	Alaska	270	Wade Hampton Census Area
2	1	Alaska	280	Wrangell-Petersburg Census Area
2	1	Alaska	282	Yukon-Koyukuk Census Area

## Arizona

### Arizona: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Arizona	4	AZ	RMRS	22

### Arizona: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
4	1	Southern	3	Cochise
4	1	Southern	9	Graham
4	1	Southern	11	Greenlee
4	1	Southern	12	La Paz
4	1	Southern	13	Maricopa
4	1	Southern	19	Pima
4	1	Southern	21	Pinal
4	1	Southern	23	Santa Cruz
4	1	Southern	27	Yuma
4	2	Northern	1	Apache
4	2	Northern	5	Coconino
4	2	Northern	7	Gila
4	2	Northern	15	Mohave
4	2	Northern	17	Navajo
4	2	Northern	25	Yavapai

## Arkansas

### Arkansas: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Arkansas	5	AR	SRS	33

### Arkansas: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
5	1	South Delta	1	Arkansas
5	1	South Delta	17	Chicot
5	1	South Delta	41	Deshaw
5	1	South Delta	69	Jefferson
5	1	South Delta	77	Lee
5	1	South Delta	79	Lincoln
5	1	South Delta	85	Lonoke
5	1	South Delta	95	Monroe
5	1	South Delta	107	Phillips
5	1	South Delta	117	Prairie
5	2	North Delta	21	Clay
5	2	North Delta	31	Craighead
5	2	North Delta	35	Crittenden
5	2	North Delta	37	Cross
5	2	North Delta	55	Greene
5	2	North Delta	67	Jackson
5	2	North Delta	75	Lawrence
5	2	North Delta	93	Mississippi
5	2	North Delta	111	Poinsett
5	2	North Delta	123	St. Francis
5	2	North Delta	147	Woodruff
5	3	Southwest	3	Ashley
5	3	Southwest	11	Bradley
5	3	Southwest	13	Calhoun
5	3	Southwest	19	Clark
5	3	Southwest	25	Cleveland
5	3	Southwest	27	Columbia
5	3	Southwest	39	Dallas
5	3	Southwest	43	Drew
5	3	Southwest	53	Grant
5	3	Southwest	57	Hempstead
5	3	Southwest	59	Hot Spring

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
5	3	Southwest	61	Howard
5	3	Southwest	73	Lafayette
5	3	Southwest	81	Little River
5	3	Southwest	91	Miller
5	3	Southwest	99	Nevada
5	3	Southwest	103	Ouachita
5	3	Southwest	109	Pike
5	3	Southwest	133	Sevier
5	3	Southwest	139	Union
5	4	Ouachita	51	Garland
5	4	Ouachita	83	Logan
5	4	Ouachita	97	Montgomery
5	4	Ouachita	105	Perry
5	4	Ouachita	113	Polk
5	4	Ouachita	119	Pulaski
5	4	Ouachita	125	Saline
5	4	Ouachita	127	Scott
5	4	Ouachita	131	Sebastian
5	4	Ouachita	149	Yell
5	5	Ozark	5	Baxter
5	5	Ozark	7	Benton
5	5	Ozark	9	Boone
5	5	Ozark	15	Carroll
5	5	Ozark	23	Cleburne
5	5	Ozark	29	Conway
5	5	Ozark	33	Crawford
5	5	Ozark	45	Faulkner
5	5	Ozark	47	Franklin
5	5	Ozark	49	Fulton
5	5	Ozark	63	Independence
5	5	Ozark	65	Izard
5	5	Ozark	71	Johnson
5	5	Ozark	87	Madison
5	5	Ozark	89	Marion
5	5	Ozark	101	Newton
5	5	Ozark	115	Pope
5	5	Ozark	121	Randolph
5	5	Ozark	129	Searcy
5	5	Ozark	135	Sharp

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
5	5	Ozark	137	Stone
5	5	Ozark	141	Van Buren
5	5	Ozark	143	Washington
5	5	Ozark	145	White

## California

### California: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
California	6	CA	PNWRS	26

### California: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
6	1	North Coast	15	Del Norte
6	1	North Coast	23	Humboldt
6	1	North Coast	45	Mendocino
6	1	North Coast	97	Sonoma
6	2	North Interior	35	Lassen
6	2	North Interior	49	Modoc
6	2	North Interior	89	Shasta
6	2	North Interior	93	Siskiyou
6	2	North Interior	105	Trinity
6	3	Sacramento	7	Butte
6	3	Sacramento	11	Colusa
6	3	Sacramento	17	El Dorado
6	3	Sacramento	21	Glenn
6	3	Sacramento	33	Lake
6	3	Sacramento	55	Napa
6	3	Sacramento	57	Nevada
6	3	Sacramento	61	Placer
6	3	Sacramento	63	Plumas
6	3	Sacramento	67	Sacramento
6	3	Sacramento	91	Sierra
6	3	Sacramento	101	Sutter
6	3	Sacramento	103	Tehama
6	3	Sacramento	113	Yolo
6	3	Sacramento	115	Yuba
6	4	Central Coast	1	Alameda
6	4	Central Coast	13	Contra Costa
6	4	Central Coast	41	Marin
6	4	Central Coast	53	Monterey
6	4	Central Coast	69	San Benito
6	4	Central Coast	75	San Francisco
6	4	Central Coast	79	San Luis Obispo
6	4	Central Coast	81	San Mateo

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
6	4	Central Coast	83	Santa Barbara
6	4	Central Coast	85	Santa Clara
6	4	Central Coast	87	Santa Cruz
6	4	Central Coast	95	Solano
6	4	Central Coast	111	Ventura
6	5	San Joaquin	3	Alpine
6	5	San Joaquin	5	Amador
6	5	San Joaquin	9	Calaveras
6	5	San Joaquin	19	Fresno
6	5	San Joaquin	29	Kern
6	5	San Joaquin	31	Kings
6	5	San Joaquin	39	Madera
6	5	San Joaquin	43	Mariposa
6	5	San Joaquin	47	Merced
6	5	San Joaquin	51	Mono
6	5	San Joaquin	77	San Joaquin
6	5	San Joaquin	99	Stanislaus
6	5	San Joaquin	107	Tulare
6	5	San Joaquin	109	Tuolumne
6	6	Southern	25	Imperial
6	6	Southern	27	Inyo
6	6	Southern	37	Los Angeles
6	6	Southern	59	Orange
6	6	Southern	65	Riverside
6	6	Southern	71	San Bernardino
6	6	Southern	73	San Diego

## Colorado

### Colorado: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Colorado	8	CO	RMRS	22

### Colorado: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
8	1	Northern Front Range	13	Boulder
8	1	Northern Front Range	14	Broomfield <sup>a</sup>
8	1	Northern Front Range	19	Clear Creek
8	1	Northern Front Range	35	Douglas
8	1	Northern Front Range	39	Elbert
8	1	Northern Front Range	41	El Paso
8	1	Northern Front Range	47	Gilpin
8	1	Northern Front Range	59	Jefferson
8	1	Northern Front Range	65	Lake
8	1	Northern Front Range	69	Larimer
8	1	Northern Front Range	93	Park
8	1	Northern Front Range	119	Teller
8	2	Southern Front Range	15	Chaffee
8	2	Southern Front Range	23	Costilla
8	2	Southern Front Range	27	Custer
8	2	Southern Front Range	43	Fremont
8	2	Southern Front Range	55	Huerfano
8	2	Southern Front Range	71	Las Animas
8	2	Southern Front Range	101	Pueblo
8	3	West Central	3	Alamosa
8	3	West Central	21	Conejos
8	3	West Central	37	Eagle
8	3	West Central	49	Grand
8	3	West Central	51	Gunnison
8	3	West Central	53	Hinsdale
8	3	West Central	57	Jackson
8	3	West Central	79	Mineral
8	3	West Central	97	Pitkin
8	3	West Central	105	Rio Grande
8	3	West Central	107	Routt
8	3	West Central	109	Saguache
8	3	West Central	111	San Juan

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
8	3	West Central	117	Summit
8	4	Western	7	Archuleta
8	4	Western	29	Delta
8	4	Western	33	Dolores
8	4	Western	45	Garfield
8	4	Western	67	La Plata
8	4	Western	77	Mesa
8	4	Western	81	Moffat
8	4	Western	83	Montezuma
8	4	Western	85	Montrose
8	4	Western	91	Ouray
8	4	Western	103	Rio Blanco
8	4	Western	113	San Miguel
8	5	Eastern	1	Adams
8	5	Eastern	5	Arapahoe
8	5	Eastern	9	Baca
8	5	Eastern	11	Bent
8	5	Eastern	17	Cheyenne
8	5	Eastern	25	Crowley
8	5	Eastern	31	Denver
8	5	Eastern	61	Kiowa
8	5	Eastern	63	Kit Carson
8	5	Eastern	73	Lincoln
8	5	Eastern	75	Logan
8	5	Eastern	87	Morgan
8	5	Eastern	89	Otero
8	5	Eastern	95	Phillips
8	5	Eastern	99	Prowers
8	5	Eastern	115	Sedgwick
8	5	Eastern	121	Washington
8	5	Eastern	123	Weld
8	5	Eastern	125	Yuma

<sup>a</sup> Broomfield county is a new county in the 2010 census, but is not currently added to the REF\_COUNTY table.

## Connecticut

### Connecticut: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Connecticut	9	CT	NRS	24

### Connecticut: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
9	1	Connecticut	1	Fairfield
9	1	Connecticut	3	Hartford
9	1	Connecticut	5	Litchfield
9	1	Connecticut	7	Middlesex
9	1	Connecticut	9	New Haven
9	1	Connecticut	11	New London
9	1	Connecticut	13	Tolland
9	1	Connecticut	15	Windham

## Delaware

### Delaware: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Delaware	10	DE	NRS	24

### Delaware: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
10	1	Delaware	1	Kent
10	1	Delaware	3	New Castle
10	1	Delaware	5	Sussex

## District of Columbia

### District of Columbia: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
District of Columbia	11	DC	NRS	24

### District of Columbia: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
11	1	District of Columbia	1	District of Columbia

## Florida

### Florida: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Florida	12	FL	SRS	33

### Florida: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
12	1	Northeast	1	Alachua
12	1	Northeast	3	Baker
12	1	Northeast	7	Bradford
12	1	Northeast	19	Clay
12	1	Northeast	23	Columbia
12	1	Northeast	29	Dixie
12	1	Northeast	31	Duval
12	1	Northeast	35	Flagler
12	1	Northeast	41	Gilchrist
12	1	Northeast	47	Hamilton
12	1	Northeast	67	Lafayette
12	1	Northeast	75	Levy
12	1	Northeast	79	Madison
12	1	Northeast	83	Marion
12	1	Northeast	89	Nassau
12	1	Northeast	107	Putnam
12	1	Northeast	109	St. Johns
12	1	Northeast	121	Suwannee
12	1	Northeast	123	Taylor
12	1	Northeast	125	Union
12	1	Northeast	127	Volusia
12	2	Northwest	5	Bay
12	2	Northwest	13	Calhoun
12	2	Northwest	33	Escambia
12	2	Northwest	37	Franklin
12	2	Northwest	39	Gadsden
12	2	Northwest	45	Gulf
12	2	Northwest	59	Holmes
12	2	Northwest	63	Jackson
12	2	Northwest	65	Jefferson
12	2	Northwest	73	Leon
12	2	Northwest	77	Liberty

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
12	2	Northwest	91	Okaloosa
12	2	Northwest	113	Santa Rosa
12	2	Northwest	129	Wakulla
12	2	Northwest	131	Walton
12	2	Northwest	133	Washington
12	3	Central	9	Brevard
12	3	Central	17	Citrus
12	3	Central	27	DeSoto
12	3	Central	49	Hardee
12	3	Central	53	Hernando
12	3	Central	55	Highlands
12	3	Central	57	Hillsborough
12	3	Central	61	Indian River
12	3	Central	69	Lake
12	3	Central	81	Manatee
12	3	Central	93	Okeechobee
12	3	Central	95	Orange
12	3	Central	97	Osceola
12	3	Central	101	Pasco
12	3	Central	103	Pinellas
12	3	Central	105	Polk
12	3	Central	111	St. Lucie
12	3	Central	115	Sarasota
12	3	Central	117	Seminole
12	3	Central	119	Sumter
12	4	South	11	Broward
12	4	South	15	Charlotte
12	4	South	21	Collier
12	4	South	25	Dade
12	4	South	43	Glades
12	4	South	51	Hendry
12	4	South	71	Lee
12	4	South	85	Martin
12	4	South	87	Monroe
12	4	South	99	Palm Beach

## Georgia

### Georgia: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Georgia	13	GA	SRS	33

### Georgia: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
13	1	Southeast	1	Appling
13	1	Southeast	3	Atkinson
13	1	Southeast	5	Bacon
13	1	Southeast	25	Brantley
13	1	Southeast	29	Bryan
13	1	Southeast	31	Bulloch
13	1	Southeast	39	Camden
13	1	Southeast	43	Candler
13	1	Southeast	49	Charlton
13	1	Southeast	51	Chatham
13	1	Southeast	65	Clinch
13	1	Southeast	69	Coffee
13	1	Southeast	91	Dodge
13	1	Southeast	101	Echols
13	1	Southeast	103	Effingham
13	1	Southeast	107	Emanuel
13	1	Southeast	109	Evans
13	1	Southeast	127	Glynn
13	1	Southeast	161	Jeff Davis
13	1	Southeast	165	Jenkins
13	1	Southeast	167	Johnson
13	1	Southeast	175	Laurens
13	1	Southeast	179	Liberty
13	1	Southeast	183	Long
13	1	Southeast	191	McIntosh
13	1	Southeast	209	Montgomery
13	1	Southeast	229	Pierce
13	1	Southeast	251	Screven
13	1	Southeast	267	Tattnall
13	1	Southeast	271	Telfair
13	1	Southeast	279	Toombs
13	1	Southeast	283	Treutlen

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
13	1	Southeast	299	Ware
13	1	Southeast	305	Wayne
13	1	Southeast	309	Wheeler
13	2	Southwest	7	Baker
13	2	Southwest	17	Ben Hill
13	2	Southwest	19	Berrien
13	2	Southwest	27	Brooks
13	2	Southwest	71	Colquitt
13	2	Southwest	75	Cook
13	2	Southwest	81	Crisp
13	2	Southwest	87	Decatur
13	2	Southwest	93	Dooly
13	2	Southwest	99	Early
13	2	Southwest	131	Grady
13	2	Southwest	155	Irwin
13	2	Southwest	173	Lanier
13	2	Southwest	185	Lowndes
13	2	Southwest	201	Miller
13	2	Southwest	205	Mitchell
13	2	Southwest	253	Seminole
13	2	Southwest	275	Thomas
13	2	Southwest	277	Tift
13	2	Southwest	287	Turner
13	2	Southwest	315	Wilcox
13	2	Southwest	321	Worth
13	3	Central	9	Baldwin
13	3	Central	21	Bibb
13	3	Central	23	Bleckley
13	3	Central	33	Burke
13	3	Central	35	Butts
13	3	Central	37	Calhoun
13	3	Central	53	Chattahoochee
13	3	Central	61	Clay
13	3	Central	73	Columbia
13	3	Central	79	Crawford
13	3	Central	95	Dougherty
13	3	Central	125	Glascock
13	3	Central	133	Greene
13	3	Central	141	Hancock

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
13	3	Central	145	Harris
13	3	Central	153	Houston
13	3	Central	159	Jasper
13	3	Central	163	Jefferson
13	3	Central	169	Jones
13	3	Central	171	Lamar
13	3	Central	177	Lee
13	3	Central	181	Lincoln
13	3	Central	189	McDuffie
13	3	Central	193	Macon
13	3	Central	197	Marion
13	3	Central	207	Monroe
13	3	Central	211	Morgan
13	3	Central	215	Muscogee
13	3	Central	225	Peach
13	3	Central	231	Pike
13	3	Central	235	Pulaski
13	3	Central	237	Putnam
13	3	Central	239	Quitman
13	3	Central	243	Randolph
13	3	Central	245	Richmond
13	3	Central	249	Schley
13	3	Central	259	Stewart
13	3	Central	261	Sumter
13	3	Central	263	Talbot
13	3	Central	265	Taliaferro
13	3	Central	269	Taylor
13	3	Central	273	Terrell
13	3	Central	289	Twiggs
13	3	Central	293	Upson
13	3	Central	301	Warren
13	3	Central	303	Washington
13	3	Central	307	Webster
13	3	Central	317	Wilkes
13	3	Central	319	Wilkinson
13	4	North Central	11	Banks
13	4	North Central	13	Barrow
13	4	North Central	45	Carroll
13	4	North Central	59	Clarke

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
13	4	North Central	63	Clayton
13	4	North Central	67	Cobb
13	4	North Central	77	Coweta
13	4	North Central	89	DeKalb
13	4	North Central	97	Douglas
13	4	North Central	105	Elbert
13	4	North Central	113	Fayette
13	4	North Central	117	Forsyth
13	4	North Central	119	Franklin
13	4	North Central	121	Fulton
13	4	North Central	135	Gwinnett
13	4	North Central	139	Hall
13	4	North Central	143	Haralson
13	4	North Central	147	Hart
13	4	North Central	149	Heard
13	4	North Central	151	Henry
13	4	North Central	157	Jackson
13	4	North Central	195	Madison
13	4	North Central	199	Meriwether
13	4	North Central	217	Newton
13	4	North Central	219	Oconee
13	4	North Central	221	Oglethorpe
13	4	North Central	223	Paulding
13	4	North Central	233	Polk
13	4	North Central	247	Rockdale
13	4	North Central	255	Spalding
13	4	North Central	285	Troup
13	4	North Central	297	Walton
13	5	North	15	Bartow
13	5	North	47	Catoosa
13	5	North	55	Chattooga
13	5	North	57	Cherokee
13	5	North	83	Dade
13	5	North	85	Dawson
13	5	North	111	Fannin
13	5	North	115	Floyd
13	5	North	123	Gilmer
13	5	North	129	Gordon
13	5	North	137	Habersham

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
13	5	North	187	Lumpkin
13	5	North	213	Murray
13	5	North	227	Pickens
13	5	North	241	Rabun
13	5	North	257	Stephens
13	5	North	281	Towns
13	5	North	291	Union
13	5	North	295	Walker
13	5	North	311	White
13	5	North	313	Whitfield

## Hawaii

### Hawaii: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Hawaii	15	HI	PNWRS	26

### Hawaii: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
15	1	Hawaii	1	Hawaii
15	1	Hawaii	3	Honolulu
15	1	Hawaii	5	Kalawao
15	1	Hawaii	7	Kauai
15	1	Hawaii	9	Maui

## Idaho

### Idaho: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Idaho	16	ID	RMRS	22

### Idaho: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
16	1	Northern	9	Benewah
16	1	Northern	17	Bonner
16	1	Northern	21	Boundary
16	1	Northern	35	Clearwater
16	1	Northern	49	Idaho
16	1	Northern	55	Kootenai
16	1	Northern	57	Latah
16	1	Northern	61	Lewis
16	1	Northern	69	Nez Perce
16	1	Northern	79	Shoshone
16	2	Southwestern	1	Ada
16	2	Southwestern	3	Adams
16	2	Southwestern	15	Boise
16	2	Southwestern	27	Canyon
16	2	Southwestern	39	Elmore
16	2	Southwestern	45	Gem
16	2	Southwestern	73	Owyhee
16	2	Southwestern	75	Payette
16	2	Southwestern	85	Valley
16	2	Southwestern	87	Washington
16	3	Southeastern	5	Bannock
16	3	Southeastern	7	Bear Lake
16	3	Southeastern	11	Bingham
16	3	Southeastern	13	Blaine
16	3	Southeastern	19	Bonneville
16	3	Southeastern	23	Butte
16	3	Southeastern	25	Camas
16	3	Southeastern	29	Caribou
16	3	Southeastern	31	Cassia
16	3	Southeastern	33	Clark
16	3	Southeastern	37	Custer
16	3	Southeastern	41	Franklin

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
16	3	Southeastern	43	Fremont
16	3	Southeastern	47	Gooding
16	3	Southeastern	51	Jefferson
16	3	Southeastern	53	Jerome
16	3	Southeastern	59	Lemhi
16	3	Southeastern	63	Lincoln
16	3	Southeastern	65	Madison
16	3	Southeastern	67	Minidoka
16	3	Southeastern	71	Oneida
16	3	Southeastern	77	Power
16	3	Southeastern	81	Teton
16	3	Southeastern	83	Twin Falls

## Illinois

### Illinois: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Illinois	17	IL	NRS	24

### Illinois: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
17	1	Southern	3	Alexander
17	1	Southern	55	Franklin
17	1	Southern	59	Gallatin
17	1	Southern	65	Hamilton
17	1	Southern	69	Hardin
17	1	Southern	77	Jackson
17	1	Southern	87	Johnson
17	1	Southern	127	Massac
17	1	Southern	145	Perry
17	1	Southern	151	Pope
17	1	Southern	153	Pulaski
17	1	Southern	157	Randolph
17	1	Southern	165	Saline
17	1	Southern	181	Union
17	1	Southern	193	White
17	1	Southern	199	Williamson
17	2	Claypan	5	Bond
17	2	Claypan	13	Calhoun
17	2	Claypan	23	Clark
17	2	Claypan	25	Clay
17	2	Claypan	27	Clinton
17	2	Claypan	33	Crawford
17	2	Claypan	35	Cumberland
17	2	Claypan	47	Edwards
17	2	Claypan	49	Effingham
17	2	Claypan	51	Fayette
17	2	Claypan	61	Greene
17	2	Claypan	79	Jasper
17	2	Claypan	81	Jefferson
17	2	Claypan	83	Jersey
17	2	Claypan	101	Lawrence
17	2	Claypan	117	Macoupin

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
17	2	Claypan	119	Madison
17	2	Claypan	121	Marion
17	2	Claypan	133	Monroe
17	2	Claypan	135	Montgomery
17	2	Claypan	159	Richland
17	2	Claypan	163	St. Clair
17	2	Claypan	173	Shelby
17	2	Claypan	185	Wabash
17	2	Claypan	189	Washington
17	2	Claypan	191	Wayne
17	3	Prairie	1	Adams
17	3	Prairie	7	Boone
17	3	Prairie	9	Brown
17	3	Prairie	11	Bureau
17	3	Prairie	15	Carroll
17	3	Prairie	17	Cass
17	3	Prairie	19	Champaign
17	3	Prairie	21	Christian
17	3	Prairie	29	Coles
17	3	Prairie	31	Cook
17	3	Prairie	37	DeKalb
17	3	Prairie	39	De Witt
17	3	Prairie	41	Douglas
17	3	Prairie	43	DuPage
17	3	Prairie	45	Edgar
17	3	Prairie	53	Ford
17	3	Prairie	57	Fulton
17	3	Prairie	63	Grundy
17	3	Prairie	67	Hancock
17	3	Prairie	71	Henderson
17	3	Prairie	73	Henry
17	3	Prairie	75	Iroquois
17	3	Prairie	85	Jo Daviess
17	3	Prairie	89	Kane
17	3	Prairie	91	Kankakee
17	3	Prairie	93	Kendall
17	3	Prairie	95	Knox
17	3	Prairie	97	Lake
17	3	Prairie	99	La Salle

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
17	3	Prairie	103	Lee
17	3	Prairie	105	Livingston
17	3	Prairie	107	Logan
17	3	Prairie	109	McDonough
17	3	Prairie	111	McHenry
17	3	Prairie	113	McLean
17	3	Prairie	115	Macon
17	3	Prairie	123	Marshall
17	3	Prairie	125	Mason
17	3	Prairie	129	Menard
17	3	Prairie	131	Mercer
17	3	Prairie	137	Morgan
17	3	Prairie	139	Moultrie
17	3	Prairie	141	Ogle
17	3	Prairie	143	Peoria
17	3	Prairie	147	Piatt
17	3	Prairie	149	Pike
17	3	Prairie	155	Putnam
17	3	Prairie	161	Rock Island
17	3	Prairie	167	Sangamon
17	3	Prairie	169	Schuyler
17	3	Prairie	171	Scott
17	3	Prairie	175	Stark
17	3	Prairie	177	Stephenson
17	3	Prairie	179	Tazewell
17	3	Prairie	183	Vermilion
17	3	Prairie	187	Warren
17	3	Prairie	195	Whiteside
17	3	Prairie	197	Will
17	3	Prairie	201	Winnebago
17	3	Prairie	203	Woodford

## Indiana

### Indiana: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Indiana	18	IN	NRS	24

### Indiana: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
18	1	Lower Wabash	21	Clay
18	1	Lower Wabash	27	Daviess
18	1	Lower Wabash	51	Gibson
18	1	Lower Wabash	55	Greene
18	1	Lower Wabash	83	Knox
18	1	Lower Wabash	101	Martin
18	1	Lower Wabash	121	Parke
18	1	Lower Wabash	125	Pike
18	1	Lower Wabash	129	Posey
18	1	Lower Wabash	133	Putnam
18	1	Lower Wabash	153	Sullivan
18	1	Lower Wabash	163	Vanderburgh
18	1	Lower Wabash	165	Vermillion
18	1	Lower Wabash	167	Vigo
18	2	Knobs	13	Brown
18	2	Knobs	19	Clark
18	2	Knobs	25	Crawford
18	2	Knobs	37	Dubois
18	2	Knobs	43	Floyd
18	2	Knobs	61	Harrison
18	2	Knobs	71	Jackson
18	2	Knobs	93	Lawrence
18	2	Knobs	105	Monroe
18	2	Knobs	109	Morgan
18	2	Knobs	117	Orange
18	2	Knobs	119	Owen
18	2	Knobs	123	Perry
18	2	Knobs	143	Scott
18	2	Knobs	147	Spencer
18	2	Knobs	173	Warrick
18	2	Knobs	175	Washington
18	3	Upland Flats	29	Dearborn

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
18	3	Upland Flats	41	Fayette
18	3	Upland Flats	47	Franklin
18	3	Upland Flats	77	Jefferson
18	3	Upland Flats	79	Jennings
18	3	Upland Flats	115	Ohio
18	3	Upland Flats	137	Ripley
18	3	Upland Flats	155	Switzerland
18	3	Upland Flats	161	Union
18	4	Northern	1	Adams
18	4	Northern	3	Allen
18	4	Northern	5	Bartholomew
18	4	Northern	7	Benton
18	4	Northern	9	Blackford
18	4	Northern	11	Boone
18	4	Northern	15	Carroll
18	4	Northern	17	Cass
18	4	Northern	23	Clinton
18	4	Northern	31	Decatur
18	4	Northern	33	De Kalb
18	4	Northern	35	Delaware
18	4	Northern	39	Elkhart
18	4	Northern	45	Fountain
18	4	Northern	49	Fulton
18	4	Northern	53	Grant
18	4	Northern	57	Hamilton
18	4	Northern	59	Hancock
18	4	Northern	63	Hendricks
18	4	Northern	65	Henry
18	4	Northern	67	Howard
18	4	Northern	69	Huntington
18	4	Northern	73	Jasper
18	4	Northern	75	Jay
18	4	Northern	81	Johnson
18	4	Northern	85	Kosciusko
18	4	Northern	87	Lagrange
18	4	Northern	89	Lake
18	4	Northern	91	La Porte
18	4	Northern	95	Madison
18	4	Northern	97	Marion

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
18	4	Northern	99	Marshall
18	4	Northern	103	Miami
18	4	Northern	107	Montgomery
18	4	Northern	111	Newton
18	4	Northern	113	Noble
18	4	Northern	127	Porter
18	4	Northern	131	Pulaski
18	4	Northern	135	Randolph
18	4	Northern	139	Rush
18	4	Northern	141	St. Joseph
18	4	Northern	145	Shelby
18	4	Northern	149	Starke
18	4	Northern	151	Steuben
18	4	Northern	157	Tippecanoe
18	4	Northern	159	Tipton
18	4	Northern	169	Wabash
18	4	Northern	171	Warren
18	4	Northern	177	Wayne
18	4	Northern	179	Wells
18	4	Northern	181	White
18	4	Northern	183	Whitley

## Iowa

### Iowa: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Iowa	19	IA	NRS	24

### Iowa: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
19	1	Northeastern	5	Allamakee
19	1	Northeastern	11	Benton
19	1	Northeastern	13	Black Hawk
19	1	Northeastern	17	Bremer
19	1	Northeastern	19	Buchanan
19	1	Northeastern	23	Butler
19	1	Northeastern	31	Cedar
19	1	Northeastern	37	Chickasaw
19	1	Northeastern	43	Clayton
19	1	Northeastern	45	Clinton
19	1	Northeastern	55	Delaware
19	1	Northeastern	61	Dubuque
19	1	Northeastern	65	Fayette
19	1	Northeastern	67	Floyd
19	1	Northeastern	75	Grundy
19	1	Northeastern	89	Howard
19	1	Northeastern	97	Jackson
19	1	Northeastern	103	Johnson
19	1	Northeastern	105	Jones
19	1	Northeastern	113	Linn
19	1	Northeastern	131	Mitchell
19	1	Northeastern	163	Scott
19	1	Northeastern	171	Tama
19	1	Northeastern	191	Winneshiek
19	2	Southeastern	7	Appanoose
19	2	Southeastern	15	Boone
19	2	Southeastern	39	Clarke
19	2	Southeastern	49	Dallas
19	2	Southeastern	51	Davis
19	2	Southeastern	53	Decatur
19	2	Southeastern	57	Des Moines
19	2	Southeastern	77	Guthrie

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
19	2	Southeastern	79	Hamilton
19	2	Southeastern	83	Hardin
19	2	Southeastern	87	Henry
19	2	Southeastern	95	Iowa
19	2	Southeastern	99	Jasper
19	2	Southeastern	101	Jefferson
19	2	Southeastern	107	Keokuk
19	2	Southeastern	111	Lee
19	2	Southeastern	115	Louisa
19	2	Southeastern	117	Lucas
19	2	Southeastern	121	Madison
19	2	Southeastern	123	Mahaska
19	2	Southeastern	125	Marion
19	2	Southeastern	127	Marshall
19	2	Southeastern	135	Monroe
19	2	Southeastern	139	Muscatine
19	2	Southeastern	153	Polk
19	2	Southeastern	157	Poweshiek
19	2	Southeastern	169	Story
19	2	Southeastern	177	Van Buren
19	2	Southeastern	179	Wapello
19	2	Southeastern	181	Warren
19	2	Southeastern	183	Washington
19	2	Southeastern	185	Wayne
19	2	Southeastern	187	Webster
19	3	Southwestern	1	Adair
19	3	Southwestern	3	Adams
19	3	Southwestern	9	Audubon
19	3	Southwestern	27	Carroll
19	3	Southwestern	29	Cass
19	3	Southwestern	47	Crawford
19	3	Southwestern	71	Fremont
19	3	Southwestern	73	Greene
19	3	Southwestern	85	Harrison
19	3	Southwestern	129	Mills
19	3	Southwestern	133	Monona
19	3	Southwestern	137	Montgomery
19	3	Southwestern	145	Page
19	3	Southwestern	155	Pottawattamie

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
19	3	Southwestern	159	Ringgold
19	3	Southwestern	165	Shelby
19	3	Southwestern	173	Taylor
19	3	Southwestern	175	Union
19	3	Southwestern	193	Woodbury
19	4	Northwestern	21	Buena Vista
19	4	Northwestern	25	Calhoun
19	4	Northwestern	33	Cerro Gordo
19	4	Northwestern	35	Cherokee
19	4	Northwestern	41	Clay
19	4	Northwestern	59	Dickinson
19	4	Northwestern	63	Emmet
19	4	Northwestern	69	Franklin
19	4	Northwestern	81	Hancock
19	4	Northwestern	91	Humboldt
19	4	Northwestern	93	Ida
19	4	Northwestern	109	Kossuth
19	4	Northwestern	119	Lyon
19	4	Northwestern	141	O'Brien
19	4	Northwestern	143	Osceola
19	4	Northwestern	147	Palo Alto
19	4	Northwestern	149	Plymouth
19	4	Northwestern	151	Pocahontas
19	4	Northwestern	161	Sac
19	4	Northwestern	167	Sioux
19	4	Northwestern	189	Winnebago
19	4	Northwestern	195	Worth
19	4	Northwestern	197	Wright

## Kansas

### Kansas: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Kansas	20	KS	NRS	24

### Kansas: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
20	1	Northeastern	5	Atchison
20	1	Northeastern	13	Brown
20	1	Northeastern	27	Clay
20	1	Northeastern	41	Dickinson
20	1	Northeastern	43	Doniphan
20	1	Northeastern	45	Douglas
20	1	Northeastern	59	Franklin
20	1	Northeastern	61	Geary
20	1	Northeastern	85	Jackson
20	1	Northeastern	87	Jefferson
20	1	Northeastern	91	Johnson
20	1	Northeastern	103	Leavenworth
20	1	Northeastern	117	Marshall
20	1	Northeastern	121	Miami
20	1	Northeastern	131	Nemaha
20	1	Northeastern	139	Osage
20	1	Northeastern	149	Pottawatomie
20	1	Northeastern	161	Riley
20	1	Northeastern	177	Shawnee
20	1	Northeastern	197	Wabaunsee
20	1	Northeastern	201	Washington
20	1	Northeastern	209	Wyandotte
20	2	Southeastern	1	Allen
20	2	Southeastern	3	Anderson
20	2	Southeastern	11	Bourbon
20	2	Southeastern	15	Butler
20	2	Southeastern	17	Chase
20	2	Southeastern	19	Chautauqua
20	2	Southeastern	21	Cherokee
20	2	Southeastern	31	Coffey
20	2	Southeastern	35	Cowley
20	2	Southeastern	37	Crawford

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
20	2	Southeastern	49	Elk
20	2	Southeastern	73	Greenwood
20	2	Southeastern	99	Labette
20	2	Southeastern	107	Linn
20	2	Southeastern	111	Lyon
20	2	Southeastern	115	Marion
20	2	Southeastern	125	Montgomery
20	2	Southeastern	127	Morris
20	2	Southeastern	133	Neosho
20	2	Southeastern	205	Wilson
20	2	Southeastern	207	Woodson
20	3	Western	7	Barber
20	3	Western	9	Barton
20	3	Western	23	Cheyenne
20	3	Western	25	Clark
20	3	Western	29	Cloud
20	3	Western	33	Comanche
20	3	Western	39	Decatur
20	3	Western	47	Edwards
20	3	Western	51	Ellis
20	3	Western	53	Ellsworth
20	3	Western	55	Finney
20	3	Western	57	Ford
20	3	Western	63	Gove
20	3	Western	65	Graham
20	3	Western	67	Grant
20	3	Western	69	Gray
20	3	Western	71	Greeley
20	3	Western	75	Hamilton
20	3	Western	77	Harper
20	3	Western	79	Harvey
20	3	Western	81	Haskell
20	3	Western	83	Hodgeman
20	3	Western	89	Jewell
20	3	Western	93	Kearny
20	3	Western	95	Kingman
20	3	Western	97	Kiowa
20	3	Western	101	Lane
20	3	Western	105	Lincoln

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
20	3	Western	109	Logan
20	3	Western	113	McPherson
20	3	Western	119	Meade
20	3	Western	123	Mitchell
20	3	Western	129	Morton
20	3	Western	135	Ness
20	3	Western	137	Norton
20	3	Western	141	Osborne
20	3	Western	143	Ottawa
20	3	Western	145	Pawnee
20	3	Western	147	Phillips
20	3	Western	151	Pratt
20	3	Western	153	Rawlins
20	3	Western	155	Reno
20	3	Western	157	Republic
20	3	Western	159	Rice
20	3	Western	163	Rooks
20	3	Western	165	Rush
20	3	Western	167	Russell
20	3	Western	169	Saline
20	3	Western	171	Scott
20	3	Western	173	Sedgwick
20	3	Western	175	Seward
20	3	Western	179	Sheridan
20	3	Western	181	Sherman
20	3	Western	183	Smith
20	3	Western	185	Stafford
20	3	Western	187	Stanton
20	3	Western	189	Stevens
20	3	Western	191	Sumner
20	3	Western	193	Thomas
20	3	Western	195	Trego
20	3	Western	199	Wallace
20	3	Western	203	Wichita

## Kentucky

### Kentucky: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Kentucky	21	KY	SRS	33

### Kentucky: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
21	1	Eastern	71	Floyd
21	1	Eastern	95	Harlan
21	1	Eastern	119	Knott
21	1	Eastern	131	Leslie
21	1	Eastern	133	Letcher
21	1	Eastern	159	Martin
21	1	Eastern	193	Perry
21	1	Eastern	195	Pike
21	2	Northern Cumberland	19	Boyd
21	2	Northern Cumberland	43	Carter
21	2	Northern Cumberland	63	Elliott
21	2	Northern Cumberland	89	Greenup
21	2	Northern Cumberland	115	Johnson
21	2	Northern Cumberland	127	Lawrence
21	2	Northern Cumberland	135	Lewis
21	2	Northern Cumberland	153	Magoffin
21	2	Northern Cumberland	165	Menifee
21	2	Northern Cumberland	175	Morgan
21	2	Northern Cumberland	197	Powell
21	2	Northern Cumberland	205	Rowan
21	2	Northern Cumberland	237	Wolfe
21	3	Southern Cumberland	13	Bell
21	3	Southern Cumberland	25	Breathitt
21	3	Southern Cumberland	51	Clay
21	3	Southern Cumberland	65	Estill
21	3	Southern Cumberland	109	Jackson
21	3	Southern Cumberland	121	Knox
21	3	Southern Cumberland	125	Laurel
21	3	Southern Cumberland	129	Lee
21	3	Southern Cumberland	147	McCreary
21	3	Southern Cumberland	189	Owsley
21	3	Southern Cumberland	203	Rockcastle

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
21	3	Southern Cumberland	235	Whitley
21	4	Bluegrass	5	Anderson
21	4	Bluegrass	11	Bath
21	4	Bluegrass	15	Boone
21	4	Bluegrass	17	Bourbon
21	4	Bluegrass	21	Boyle
21	4	Bluegrass	23	Bracken
21	4	Bluegrass	37	Campbell
21	4	Bluegrass	41	Carroll
21	4	Bluegrass	49	Clark
21	4	Bluegrass	67	Fayette
21	4	Bluegrass	69	Fleming
21	4	Bluegrass	73	Franklin
21	4	Bluegrass	77	Gallatin
21	4	Bluegrass	79	Garrard
21	4	Bluegrass	81	Grant
21	4	Bluegrass	97	Harrison
21	4	Bluegrass	103	Henry
21	4	Bluegrass	111	Jefferson
21	4	Bluegrass	113	Jessamine
21	4	Bluegrass	117	Kenton
21	4	Bluegrass	137	Lincoln
21	4	Bluegrass	151	Madison
21	4	Bluegrass	161	Mason
21	4	Bluegrass	167	Mercer
21	4	Bluegrass	173	Montgomery
21	4	Bluegrass	181	Nicholas
21	4	Bluegrass	185	Oldham
21	4	Bluegrass	187	Owen
21	4	Bluegrass	191	Pendleton
21	4	Bluegrass	201	Robertson
21	4	Bluegrass	209	Scott
21	4	Bluegrass	211	Shelby
21	4	Bluegrass	215	Spencer
21	4	Bluegrass	223	Trimble
21	4	Bluegrass	229	Washington
21	4	Bluegrass	239	Woodford
21	5	Pennyroyal	1	Adair
21	5	Pennyroyal	27	Breckinridge

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
21	5	Pennyroyal	29	Bullitt
21	5	Pennyroyal	45	Casey
21	5	Pennyroyal	53	Clinton
21	5	Pennyroyal	57	Cumberland
21	5	Pennyroyal	85	Grayson
21	5	Pennyroyal	87	Green
21	5	Pennyroyal	91	Hancock
21	5	Pennyroyal	93	Hardin
21	5	Pennyroyal	99	Hart
21	5	Pennyroyal	123	Larue
21	5	Pennyroyal	155	Marion
21	5	Pennyroyal	163	Meade
21	5	Pennyroyal	169	Metcalfe
21	5	Pennyroyal	179	Nelson
21	5	Pennyroyal	199	Pulaski
21	5	Pennyroyal	207	Russell
21	5	Pennyroyal	217	Taylor
21	5	Pennyroyal	231	Wayne
21	6	Western Coalfield	3	Allen
21	6	Western Coalfield	9	Barren
21	6	Western Coalfield	31	Butler
21	6	Western Coalfield	33	Caldwell
21	6	Western Coalfield	47	Christian
21	6	Western Coalfield	55	Crittenden
21	6	Western Coalfield	59	Daviess
21	6	Western Coalfield	61	Edmonson
21	6	Western Coalfield	101	Henderson
21	6	Western Coalfield	107	Hopkins
21	6	Western Coalfield	141	Logan
21	6	Western Coalfield	149	McLean
21	6	Western Coalfield	171	Monroe
21	6	Western Coalfield	177	Muhlenberg
21	6	Western Coalfield	183	Ohio
21	6	Western Coalfield	213	Simpson
21	6	Western Coalfield	219	Todd
21	6	Western Coalfield	225	Union
21	6	Western Coalfield	227	Warren
21	6	Western Coalfield	233	Webster
21	7	Western	7	Ballard

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
21	7	Western	35	Calloway
21	7	Western	39	Carlisle
21	7	Western	75	Fulton
21	7	Western	83	Graves
21	7	Western	105	Hickman
21	7	Western	139	Livingston
21	7	Western	143	Lyon
21	7	Western	145	McCracken
21	7	Western	157	Marshall
21	7	Western	221	Trigg

## Louisiana

### Louisiana: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Louisiana	22	LA	SRS	33

### Louisiana: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
22	1	North Delta	25	Catahoula
22	1	North Delta	29	Concordia
22	1	North Delta	35	East Carroll
22	1	North Delta	41	Franklin
22	1	North Delta	65	Madison
22	1	North Delta	67	Morehouse
22	1	North Delta	83	Richland
22	1	North Delta	107	Tensas
22	1	North Delta	123	West Carroll
22	2	South Delta	1	Acadia
22	2	South Delta	5	Ascension
22	2	South Delta	7	Assumption
22	2	South Delta	9	Avoyelles
22	2	South Delta	23	Cameron
22	2	South Delta	45	Iberia
22	2	South Delta	47	Iberville
22	2	South Delta	51	Jefferson
22	2	South Delta	55	Lafayette
22	2	South Delta	57	Lafourche
22	2	South Delta	71	Orleans
22	2	South Delta	75	Plaquemines
22	2	South Delta	77	Pointe Coupee
22	2	South Delta	87	St. Bernard
22	2	South Delta	89	St. Charles
22	2	South Delta	93	St. James
22	2	South Delta	95	St. John the Baptist
22	2	South Delta	97	St. Landry
22	2	South Delta	99	St. Martin
22	2	South Delta	101	St. Mary
22	2	South Delta	109	Terrebonne
22	2	South Delta	113	Vermilion
22	2	South Delta	121	West Baton Rouge

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
22	2	South Delta	125	West Feliciana
22	3	Southwest	3	Allen
22	3	Southwest	11	Beauregard
22	3	Southwest	19	Calcasieu
22	3	Southwest	39	Evangeline
22	3	Southwest	43	Grant
22	3	Southwest	53	Jefferson Davis
22	3	Southwest	59	La Salle
22	3	Southwest	69	Natchitoches
22	3	Southwest	79	Rapides
22	3	Southwest	85	Sabine
22	3	Southwest	115	Vernon
22	4	Southeast	33	East Baton Rouge
22	4	Southeast	37	East Feliciana
22	4	Southeast	63	Livingston
22	4	Southeast	91	St. Helena
22	4	Southeast	103	St. Tammany
22	4	Southeast	105	Tangipahoa
22	4	Southeast	117	Washington
22	5	Northwest	13	Bienville
22	5	Northwest	15	Bossier
22	5	Northwest	17	Caddo
22	5	Northwest	21	Caldwell
22	5	Northwest	27	Claiborne
22	5	Northwest	31	De Soto
22	5	Northwest	49	Jackson
22	5	Northwest	61	Lincoln
22	5	Northwest	73	Ouachita
22	5	Northwest	81	Red River
22	5	Northwest	111	Union
22	5	Northwest	119	Webster
22	5	Northwest	127	Winn

## Maine

### Maine: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Maine	23	ME	NRS	24

### Maine: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
23	1	Washington	29	Washington
23	2	Aroostook	3	Aroostook
23	3	Penobscot	19	Penobscot
23	4	Hancock	9	Hancock
23	5	Piscataquis	21	Piscataquis
23	6	Capitol Region	11	Kennebec
23	6	Capitol Region	13	Knox
23	6	Capitol Region	15	Lincoln
23	6	Capitol Region	27	Waldo
23	7	Somerset	25	Somerset
23	8	Casco Bay	1	Androscoggin
23	8	Casco Bay	5	Cumberland
23	8	Casco Bay	23	Sagadahoc
23	8	Casco Bay	31	York
23	9	Western Maine	7	Franklin
23	9	Western Maine	17	Oxford

## Maryland

### Maryland: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Maryland	24	MD	NRS	24

### Maryland: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
24	2	North Central	3	Anne Arundel
24	2	North Central	5	Baltimore
24	2	North Central	11	Caroline
24	2	North Central	13	Carroll
24	2	North Central	15	Cecil
24	2	North Central	21	Frederick
24	2	North Central	25	Harford
24	2	North Central	27	Howard
24	2	North Central	29	Kent
24	2	North Central	31	Montgomery
24	2	North Central	33	Prince George's
24	2	North Central	35	Queen Anne's
24	2	North Central	41	Talbot
24	2	North Central	43	Washington
24	2	North Central	510	Baltimore city
24	3	Southern	9	Calvert
24	3	Southern	17	Charles
24	3	Southern	37	St. Mary's
24	4	Lower Eastern Shore	19	Dorchester
24	4	Lower Eastern Shore	39	Somerset
24	4	Lower Eastern Shore	45	Wicomico
24	4	Lower Eastern Shore	47	Worcester
24	5	Western	1	Allegany
24	5	Western	23	Garrett

## Massachusetts

### Massachusetts: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Massachusetts	25	MA	NRS	24

### Massachusetts: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
25	1	Massachusetts	1	Barnstable
25	1	Massachusetts	3	Berkshire
25	1	Massachusetts	5	Bristol
25	1	Massachusetts	7	Dukes
25	1	Massachusetts	9	Essex
25	1	Massachusetts	11	Franklin
25	1	Massachusetts	13	Hampden
25	1	Massachusetts	15	Hampshire
25	1	Massachusetts	17	Middlesex
25	1	Massachusetts	19	Nantucket
25	1	Massachusetts	21	Norfolk
25	1	Massachusetts	23	Plymouth
25	1	Massachusetts	25	Suffolk
25	1	Massachusetts	27	Worcester

## Michigan

### Michigan: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Michigan	26	MI	NRS	24

### Michigan: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
26	1	Eastern Upper Peninsula	3	Alger
26	1	Eastern Upper Peninsula	33	Chippewa
26	1	Eastern Upper Peninsula	41	Delta
26	1	Eastern Upper Peninsula	95	Luce
26	1	Eastern Upper Peninsula	97	Mackinac
26	1	Eastern Upper Peninsula	109	Menominee
26	1	Eastern Upper Peninsula	153	Schoolcraft
26	2	Western Upper Peninsula	13	Baraga
26	2	Western Upper Peninsula	43	Dickinson
26	2	Western Upper Peninsula	53	Gogebic
26	2	Western Upper Peninsula	61	Houghton
26	2	Western Upper Peninsula	71	Iron
26	2	Western Upper Peninsula	83	Keweenaw
26	2	Western Upper Peninsula	103	Marquette
26	2	Western Upper Peninsula	131	Ontonagon
26	3	Northern Lower Peninsula	1	Alcona
26	3	Northern Lower Peninsula	7	Alpena
26	3	Northern Lower Peninsula	9	Antrim
26	3	Northern Lower Peninsula	11	Arenac
26	3	Northern Lower Peninsula	17	Bay
26	3	Northern Lower Peninsula	19	Benzie
26	3	Northern Lower Peninsula	29	Charlevoix
26	3	Northern Lower Peninsula	31	Cheboygan
26	3	Northern Lower Peninsula	35	Clare
26	3	Northern Lower Peninsula	39	Crawford
26	3	Northern Lower Peninsula	47	Emmet
26	3	Northern Lower Peninsula	51	Gladwin
26	3	Northern Lower Peninsula	55	Grand Traverse
26	3	Northern Lower Peninsula	69	Iosco
26	3	Northern Lower Peninsula	73	Isabella
26	3	Northern Lower Peninsula	79	Kalkaska
26	3	Northern Lower Peninsula	85	Lake

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
26	3	Northern Lower Peninsula	89	Leelanau
26	3	Northern Lower Peninsula	101	Manistee
26	3	Northern Lower Peninsula	105	Mason
26	3	Northern Lower Peninsula	107	Mecosta
26	3	Northern Lower Peninsula	111	Midland
26	3	Northern Lower Peninsula	113	Missaukee
26	3	Northern Lower Peninsula	119	Montmorency
26	3	Northern Lower Peninsula	123	Newaygo
26	3	Northern Lower Peninsula	127	Oceana
26	3	Northern Lower Peninsula	129	Ogemaw
26	3	Northern Lower Peninsula	133	Osceola
26	3	Northern Lower Peninsula	135	Oscoda
26	3	Northern Lower Peninsula	137	Otsego
26	3	Northern Lower Peninsula	141	Presque Isle
26	3	Northern Lower Peninsula	143	Roscommon
26	3	Northern Lower Peninsula	165	Wexford
26	4	Southern Lower Peninsula	5	Allegan
26	4	Southern Lower Peninsula	15	Barry
26	4	Southern Lower Peninsula	21	Berrien
26	4	Southern Lower Peninsula	23	Branch
26	4	Southern Lower Peninsula	25	Calhoun
26	4	Southern Lower Peninsula	27	Cass
26	4	Southern Lower Peninsula	37	Clinton
26	4	Southern Lower Peninsula	45	Eaton
26	4	Southern Lower Peninsula	49	Genesee
26	4	Southern Lower Peninsula	57	Gratiot
26	4	Southern Lower Peninsula	59	Hillsdale
26	4	Southern Lower Peninsula	63	Huron
26	4	Southern Lower Peninsula	65	Ingham
26	4	Southern Lower Peninsula	67	Ionia
26	4	Southern Lower Peninsula	75	Jackson
26	4	Southern Lower Peninsula	77	Kalamazoo
26	4	Southern Lower Peninsula	81	Kent
26	4	Southern Lower Peninsula	87	Lapeer
26	4	Southern Lower Peninsula	91	Lenawee
26	4	Southern Lower Peninsula	93	Livingston
26	4	Southern Lower Peninsula	99	Macomb
26	4	Southern Lower Peninsula	115	Monroe
26	4	Southern Lower Peninsula	117	Montcalm

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
26	4	Southern Lower Peninsula	121	Muskegon
26	4	Southern Lower Peninsula	125	Oakland
26	4	Southern Lower Peninsula	139	Ottawa
26	4	Southern Lower Peninsula	145	Saginaw
26	4	Southern Lower Peninsula	147	St. Clair
26	4	Southern Lower Peninsula	149	St. Joseph
26	4	Southern Lower Peninsula	151	Sanilac
26	4	Southern Lower Peninsula	155	Shiawassee
26	4	Southern Lower Peninsula	157	Tuscola
26	4	Southern Lower Peninsula	159	Van Buren
26	4	Southern Lower Peninsula	161	Washtenaw
26	4	Southern Lower Peninsula	163	Wayne

## Minnesota

### Minnesota: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Minnesota	27	MN	NRS	24

### Minnesota: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
27	1	Aspen-Birch	17	Carlton
27	1	Aspen-Birch	31	Cook
27	1	Aspen-Birch	71	Koochiching
27	1	Aspen-Birch	75	Lake
27	1	Aspen-Birch	137	St. Louis
27	2	Northern Pine	1	Aitkin
27	2	Northern Pine	5	Becker
27	2	Northern Pine	7	Beltrami
27	2	Northern Pine	21	Cass
27	2	Northern Pine	29	Clearwater
27	2	Northern Pine	35	Crow Wing
27	2	Northern Pine	57	Hubbard
27	2	Northern Pine	61	Itasca
27	2	Northern Pine	77	Lake of the Woods
27	2	Northern Pine	87	Mahnomen
27	2	Northern Pine	135	Roseau
27	2	Northern Pine	159	Wadena
27	3	Central Hardwood	3	Anoka
27	3	Central Hardwood	9	Benton
27	3	Central Hardwood	19	Carver
27	3	Central Hardwood	25	Chisago
27	3	Central Hardwood	37	Dakota
27	3	Central Hardwood	41	Douglas
27	3	Central Hardwood	45	Fillmore
27	3	Central Hardwood	49	Goodhue
27	3	Central Hardwood	53	Hennepin
27	3	Central Hardwood	55	Houston
27	3	Central Hardwood	59	Isanti
27	3	Central Hardwood	65	Kanabec
27	3	Central Hardwood	79	Le Sueur
27	3	Central Hardwood	95	Mille Lacs
27	3	Central Hardwood	97	Morrison

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
27	3	Central Hardwood	109	Olmsted
27	3	Central Hardwood	111	Otter Tail
27	3	Central Hardwood	115	Pine
27	3	Central Hardwood	123	Ramsey
27	3	Central Hardwood	131	Rice
27	3	Central Hardwood	139	Scott
27	3	Central Hardwood	141	Sherburne
27	3	Central Hardwood	145	Stearns
27	3	Central Hardwood	153	Todd
27	3	Central Hardwood	157	Wabasha
27	3	Central Hardwood	163	Washington
27	3	Central Hardwood	169	Winona
27	3	Central Hardwood	171	Wright
27	4	Prairie	11	Big Stone
27	4	Prairie	13	Blue Earth
27	4	Prairie	15	Brown
27	4	Prairie	23	Chippewa
27	4	Prairie	27	Clay
27	4	Prairie	33	Cottonwood
27	4	Prairie	39	Dodge
27	4	Prairie	43	Faribault
27	4	Prairie	47	Freeborn
27	4	Prairie	51	Grant
27	4	Prairie	63	Jackson
27	4	Prairie	67	Kandiyohi
27	4	Prairie	69	Kittson
27	4	Prairie	73	Lac qui Parle
27	4	Prairie	81	Lincoln
27	4	Prairie	83	Lyon
27	4	Prairie	85	McLeod
27	4	Prairie	89	Marshall
27	4	Prairie	91	Martin
27	4	Prairie	93	Meeker
27	4	Prairie	99	Mower
27	4	Prairie	101	Murray
27	4	Prairie	103	Nicollet
27	4	Prairie	105	Nobles
27	4	Prairie	107	Norman
27	4	Prairie	113	Pennington

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
27	4	Prairie	117	Pipestone
27	4	Prairie	119	Polk
27	4	Prairie	121	Pope
27	4	Prairie	125	Red Lake
27	4	Prairie	127	Redwood
27	4	Prairie	129	Renville
27	4	Prairie	133	Rock
27	4	Prairie	143	Sibley
27	4	Prairie	147	Steele
27	4	Prairie	149	Stevens
27	4	Prairie	151	Swift
27	4	Prairie	155	Traverse
27	4	Prairie	161	Waseca
27	4	Prairie	165	Watonwan
27	4	Prairie	167	Wilkin
27	4	Prairie	173	Yellow Medicine

## Mississippi

### Mississippi: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Mississippi	28	MS	SRS	33

### Mississippi: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
28	1	Delta	11	Bolivar
28	1	Delta	27	Coahoma
28	1	Delta	51	Holmes
28	1	Delta	53	Humphreys
28	1	Delta	55	Issaquena
28	1	Delta	83	Leflore
28	1	Delta	119	Quitman
28	1	Delta	125	Sharkey
28	1	Delta	133	Sunflower
28	1	Delta	135	Tallahatchie
28	1	Delta	143	Tunica
28	1	Delta	149	Warren
28	1	Delta	151	Washington
28	1	Delta	163	Yazoo
28	2	North	3	Alcorn
28	2	North	9	Benton
28	2	North	13	Calhoun
28	2	North	15	Carroll
28	2	North	17	Chickasaw
28	2	North	19	Choctaw
28	2	North	25	Clay
28	2	North	33	DeSoto
28	2	North	43	Grenada
28	2	North	57	Itawamba
28	2	North	71	Lafayette
28	2	North	81	Lee
28	2	North	87	Lowndes
28	2	North	93	Marshall
28	2	North	95	Monroe
28	2	North	97	Montgomery
28	2	North	105	Oktibbeha
28	2	North	107	Panola

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
28	2	North	115	Pontotoc
28	2	North	117	Prentiss
28	2	North	137	Tate
28	2	North	139	Tippah
28	2	North	141	Tishomingo
28	2	North	145	Union
28	2	North	155	Webster
28	2	North	161	Yalobusha
28	3	Central	7	Attala
28	3	Central	23	Clarke
28	3	Central	61	Jasper
28	3	Central	69	Kemper
28	3	Central	75	Lauderdale
28	3	Central	79	Leake
28	3	Central	99	Neshoba
28	3	Central	101	Newton
28	3	Central	103	Noxubee
28	3	Central	121	Rankin
28	3	Central	123	Scott
28	3	Central	127	Simpson
28	3	Central	129	Smith
28	3	Central	159	Winston
28	4	South	31	Covington
28	4	South	35	Forrest
28	4	South	39	George
28	4	South	41	Greene
28	4	South	45	Hancock
28	4	South	47	Harrison
28	4	South	59	Jackson
28	4	South	65	Jefferson Davis
28	4	South	67	Jones
28	4	South	73	Lamar
28	4	South	77	Lawrence
28	4	South	91	Marion
28	4	South	109	Pearl River
28	4	South	111	Perry
28	4	South	131	Stone
28	4	South	147	Walthall
28	4	South	153	Wayne

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
28	5	Southwest	1	Adams
28	5	Southwest	5	Amite
28	5	Southwest	21	Claiborne
28	5	Southwest	29	Copiah
28	5	Southwest	37	Franklin
28	5	Southwest	49	Hinds
28	5	Southwest	63	Jefferson
28	5	Southwest	85	Lincoln
28	5	Southwest	89	Madison
28	5	Southwest	113	Pike
28	5	Southwest	157	Wilkinson

## Missouri

### Missouri: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Missouri	29	MO	NRS	24

### Missouri: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
29	1	Eastern Ozarks	17	Bollinger
29	1	Eastern Ozarks	23	Butler
29	1	Eastern Ozarks	35	Carter
29	1	Eastern Ozarks	55	Crawford
29	1	Eastern Ozarks	65	Dent
29	1	Eastern Ozarks	93	Iron
29	1	Eastern Ozarks	123	Madison
29	1	Eastern Ozarks	149	Oregon
29	1	Eastern Ozarks	179	Reynolds
29	1	Eastern Ozarks	181	Ripley
29	1	Eastern Ozarks	187	St. Francois
29	1	Eastern Ozarks	203	Shannon
29	1	Eastern Ozarks	221	Washington
29	1	Eastern Ozarks	223	Wayne
29	2	Southwestern Ozarks	9	Barry
29	2	Southwestern Ozarks	43	Christian
29	2	Southwestern Ozarks	67	Douglas
29	2	Southwestern Ozarks	91	Howell
29	2	Southwestern Ozarks	119	McDonald
29	2	Southwestern Ozarks	145	Newton
29	2	Southwestern Ozarks	153	Ozark
29	2	Southwestern Ozarks	209	Stone
29	2	Southwestern Ozarks	213	Taney
29	2	Southwestern Ozarks	215	Texas
29	2	Southwestern Ozarks	225	Webster
29	2	Southwestern Ozarks	229	Wright
29	3	Northwestern Ozarks	15	Benton
29	3	Northwestern Ozarks	29	Camden
29	3	Northwestern Ozarks	39	Cedar
29	3	Northwestern Ozarks	59	Dallas
29	3	Northwestern Ozarks	85	Hickory
29	3	Northwestern Ozarks	105	Laclede

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
29	3	Northwestern Ozarks	125	Maries
29	3	Northwestern Ozarks	131	Miller
29	3	Northwestern Ozarks	141	Morgan
29	3	Northwestern Ozarks	161	Phelps
29	3	Northwestern Ozarks	167	Polk
29	3	Northwestern Ozarks	169	Pulaski
29	3	Northwestern Ozarks	185	St. Clair
29	4	Prairie	1	Adair
29	4	Prairie	3	Andrew
29	4	Prairie	5	Atchison
29	4	Prairie	7	Audrain
29	4	Prairie	11	Barton
29	4	Prairie	13	Bates
29	4	Prairie	21	Buchanan
29	4	Prairie	25	Caldwell
29	4	Prairie	33	Carroll
29	4	Prairie	37	Cass
29	4	Prairie	41	Chariton
29	4	Prairie	45	Clark
29	4	Prairie	47	Clay
29	4	Prairie	49	Clinton
29	4	Prairie	53	Cooper
29	4	Prairie	57	Dade
29	4	Prairie	61	Daviess
29	4	Prairie	63	DeKalb
29	4	Prairie	75	Gentry
29	4	Prairie	77	Greene
29	4	Prairie	79	Grundy
29	4	Prairie	81	Harrison
29	4	Prairie	83	Henry
29	4	Prairie	87	Holt
29	4	Prairie	95	Jackson
29	4	Prairie	97	Jasper
29	4	Prairie	101	Johnson
29	4	Prairie	103	Knox
29	4	Prairie	107	Lafayette
29	4	Prairie	109	Lawrence
29	4	Prairie	111	Lewis
29	4	Prairie	113	Lincoln

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
29	4	Prairie	115	Linn
29	4	Prairie	117	Livingston
29	4	Prairie	121	Macon
29	4	Prairie	127	Marion
29	4	Prairie	129	Mercer
29	4	Prairie	137	Monroe
29	4	Prairie	147	Nodaway
29	4	Prairie	159	Pettis
29	4	Prairie	163	Pike
29	4	Prairie	165	Platte
29	4	Prairie	171	Putnam
29	4	Prairie	173	Ralls
29	4	Prairie	175	Randolph
29	4	Prairie	177	Ray
29	4	Prairie	195	Saline
29	4	Prairie	197	Schuylerville
29	4	Prairie	199	Scotland
29	4	Prairie	205	Shelby
29	4	Prairie	211	Sullivan
29	4	Prairie	217	Vernon
29	4	Prairie	227	Worth
29	5	Riverborder	19	Boone
29	5	Riverborder	27	Callaway
29	5	Riverborder	31	Cape Girardeau
29	5	Riverborder	51	Cole
29	5	Riverborder	69	Dunklin
29	5	Riverborder	71	Franklin
29	5	Riverborder	73	Gasconade
29	5	Riverborder	89	Howard
29	5	Riverborder	99	Jefferson
29	5	Riverborder	133	Mississippi
29	5	Riverborder	135	Moniteau
29	5	Riverborder	139	Montgomery
29	5	Riverborder	143	New Madrid
29	5	Riverborder	151	Osage
29	5	Riverborder	155	Pemiscot
29	5	Riverborder	157	Perry
29	5	Riverborder	183	St. Charles
29	5	Riverborder	186	Ste. Genevieve

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
29	5	Riverborder	189	St. Louis
29	5	Riverborder	201	Scott
29	5	Riverborder	207	Stoddard
29	5	Riverborder	219	Warren
29	5	Riverborder	510	St. Louis city

## Montana

### Montana: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Montana	30	MT	RMRS	22

### Montana: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
30	1	Northwestern	29	Flathead
30	1	Northwestern	47	Lake
30	1	Northwestern	53	Lincoln
30	1	Northwestern	89	Sanders
30	2	Eastern	3	Big Horn
30	2	Eastern	5	Blaine
30	2	Eastern	9	Carbon
30	2	Eastern	11	Carter
30	2	Eastern	15	Chouteau
30	2	Eastern	17	Custer
30	2	Eastern	19	Daniels
30	2	Eastern	21	Dawson
30	2	Eastern	25	Fallon
30	2	Eastern	27	Fergus
30	2	Eastern	33	Garfield
30	2	Eastern	35	Glacier
30	2	Eastern	37	Golden Valley
30	2	Eastern	41	Hill
30	2	Eastern	51	Liberty
30	2	Eastern	55	McCone
30	2	Eastern	65	Musselshell
30	2	Eastern	69	Petroleum
30	2	Eastern	71	Phillips
30	2	Eastern	73	Pondera
30	2	Eastern	75	Powder River
30	2	Eastern	79	Prairie
30	2	Eastern	83	Richland
30	2	Eastern	85	Roosevelt
30	2	Eastern	87	Rosebud
30	2	Eastern	91	Sheridan
30	2	Eastern	95	Stillwater
30	2	Eastern	97	Sweet Grass

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
30	2	Eastern	99	Teton
30	2	Eastern	101	Toole
30	2	Eastern	103	Treasure
30	2	Eastern	105	Valley
30	2	Eastern	109	Wibaux
30	2	Eastern	111	Yellowstone
30	2	Eastern	113	Yellowstone National Park
30	3	Western	39	Granite
30	3	Western	61	Mineral
30	3	Western	63	Missoula
30	3	Western	81	Ravalli
30	4	West Central	7	Broadwater
30	4	West Central	13	Cascade
30	4	West Central	43	Jefferson
30	4	West Central	45	Judith Basin
30	4	West Central	49	Lewis and Clark
30	4	West Central	59	Meagher
30	4	West Central	77	Powell
30	4	West Central	107	Wheatland
30	5	Southwestern	1	Beaverhead
30	5	Southwestern	23	Deer Lodge
30	5	Southwestern	31	Gallatin
30	5	Southwestern	57	Madison
30	5	Southwestern	67	Park
30	5	Southwestern	93	Silver Bow

## Nebraska

### Nebraska: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Nebraska	31	NE	NRS	24

### Nebraska: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
31	1	Eastern	1	Adams
31	1	Eastern	11	Boone
31	1	Eastern	19	Buffalo
31	1	Eastern	21	Burt
31	1	Eastern	23	Butler
31	1	Eastern	25	Cass
31	1	Eastern	27	Cedar
31	1	Eastern	35	Clay
31	1	Eastern	37	Colfax
31	1	Eastern	39	Cuming
31	1	Eastern	41	Custer
31	1	Eastern	43	Dakota
31	1	Eastern	47	Dawson
31	1	Eastern	51	Dixon
31	1	Eastern	53	Dodge
31	1	Eastern	55	Douglas
31	1	Eastern	59	Fillmore
31	1	Eastern	61	Franklin
31	1	Eastern	63	Frontier
31	1	Eastern	65	Furnas
31	1	Eastern	67	Gage
31	1	Eastern	73	Gosper
31	1	Eastern	77	Greeley
31	1	Eastern	79	Hall
31	1	Eastern	81	Hamilton
31	1	Eastern	83	Harlan
31	1	Eastern	87	Hitchcock
31	1	Eastern	93	Howard
31	1	Eastern	95	Jefferson
31	1	Eastern	97	Johnson
31	1	Eastern	99	Kearney
31	1	Eastern	109	Lancaster

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
31	1	Eastern	119	Madison
31	1	Eastern	121	Merrick
31	1	Eastern	125	Nance
31	1	Eastern	127	Nemaha
31	1	Eastern	129	Nuckolls
31	1	Eastern	131	Otoe
31	1	Eastern	133	Pawnee
31	1	Eastern	137	Phelps
31	1	Eastern	139	Pierce
31	1	Eastern	141	Platte
31	1	Eastern	143	Polk
31	1	Eastern	145	Red Willow
31	1	Eastern	147	Richardson
31	1	Eastern	151	Saline
31	1	Eastern	153	Sarpy
31	1	Eastern	155	Saunders
31	1	Eastern	159	Seward
31	1	Eastern	163	Sherman
31	1	Eastern	167	Stanton
31	1	Eastern	169	Thayer
31	1	Eastern	173	Thurston
31	1	Eastern	175	Valley
31	1	Eastern	177	Washington
31	1	Eastern	179	Wayne
31	1	Eastern	181	Webster
31	1	Eastern	185	York
31	2	Western	3	Antelope
31	2	Western	5	Arthur
31	2	Western	7	Banner
31	2	Western	9	Blaine
31	2	Western	13	Box Butte
31	2	Western	15	Boyd
31	2	Western	17	Brown
31	2	Western	29	Chase
31	2	Western	31	Cherry
31	2	Western	33	Cheyenne
31	2	Western	45	Dawes
31	2	Western	49	Deuel
31	2	Western	57	Dundy

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
31	2	Western	69	Garden
31	2	Western	71	Garfield
31	2	Western	75	Grant
31	2	Western	85	Hayes
31	2	Western	89	Holt
31	2	Western	91	Hooker
31	2	Western	101	Keith
31	2	Western	103	Keya Paha
31	2	Western	105	Kimball
31	2	Western	107	Knox
31	2	Western	111	Lincoln
31	2	Western	113	Logan
31	2	Western	115	Loup
31	2	Western	117	McPherson
31	2	Western	123	Morrill
31	2	Western	135	Perkins
31	2	Western	149	Rock
31	2	Western	157	Scotts Bluff
31	2	Western	161	Sheridan
31	2	Western	165	Sioux
31	2	Western	171	Thomas
31	2	Western	183	Wheeler

## Nevada

### Nevada: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Nevada	32	NV	RMRS	22

### Nevada: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
32	1	Nevada	1	Churchill
32	1	Nevada	3	Clark
32	1	Nevada	5	Douglas
32	1	Nevada	7	Elko
32	1	Nevada	9	Esmeralda
32	1	Nevada	11	Eureka
32	1	Nevada	13	Humboldt
32	1	Nevada	15	Lander
32	1	Nevada	17	Lincoln
32	1	Nevada	19	Lyon
32	1	Nevada	21	Mineral
32	1	Nevada	23	Nye
32	1	Nevada	27	Pershing
32	1	Nevada	29	Storey
32	1	Nevada	31	Washoe
32	1	Nevada	33	White Pine
32	1	Nevada	510	Carson City

## New Hampshire

### New Hampshire: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
New Hampshire	33	NH	NRS	24

### New Hampshire: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
33	2	Northern	3	Carroll
33	2	Northern	7	Coos
33	2	Northern	9	Grafton
33	3	Southern	1	Belknap
33	3	Southern	5	Cheshire
33	3	Southern	11	Hillsborough
33	3	Southern	13	Merrimack
33	3	Southern	15	Rockingham
33	3	Southern	17	Strafford
33	3	Southern	19	Sullivan

## New Jersey

### New Jersey: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
New Jersey	34	NJ	NRS	24

### New Jersey: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
34	1	New Jersey	1	Atlantic
34	1	New Jersey	3	Bergen
34	1	New Jersey	5	Burlington
34	1	New Jersey	7	Camden
34	1	New Jersey	9	Cape May
34	1	New Jersey	11	Cumberland
34	1	New Jersey	13	Essex
34	1	New Jersey	15	Gloucester
34	1	New Jersey	17	Hudson
34	1	New Jersey	19	Hunterdon
34	1	New Jersey	21	Mercer
34	1	New Jersey	23	Middlesex
34	1	New Jersey	25	Monmouth
34	1	New Jersey	27	Morris
34	1	New Jersey	29	Ocean
34	1	New Jersey	31	Passaic
34	1	New Jersey	33	Salem
34	1	New Jersey	35	Somerset
34	1	New Jersey	37	Sussex
34	1	New Jersey	39	Union
34	1	New Jersey	41	Warren

## New Mexico

### New Mexico: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
New Mexico	35	NM	RMRS	22

### New Mexico: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
35	1	Northwestern	1	Bernalillo
35	1	Northwestern	6	Cibola
35	1	Northwestern	28	Los Alamos
35	1	Northwestern	31	McKinley
35	1	Northwestern	39	Rio Arriba
35	1	Northwestern	43	Sandoval
35	1	Northwestern	45	San Juan
35	1	Northwestern	49	Santa Fe
35	1	Northwestern	55	Taos
35	1	Northwestern	61	Valencia
35	2	Northeastern	7	Colfax
35	2	Northeastern	19	Guadalupe
35	2	Northeastern	21	Harding
35	2	Northeastern	33	Mora
35	2	Northeastern	37	Quay
35	2	Northeastern	47	San Miguel
35	2	Northeastern	57	Torrance
35	2	Northeastern	59	Union
35	3	Southwestern	3	Catron
35	3	Southwestern	13	Dona Ana
35	3	Southwestern	17	Grant
35	3	Southwestern	23	Hidalgo
35	3	Southwestern	29	Luna
35	3	Southwestern	51	Sierra
35	3	Southwestern	53	Socorro
35	4	Southeastern	5	Chaves
35	4	Southeastern	9	Curry
35	4	Southeastern	11	DeBaca
35	4	Southeastern	15	Eddy
35	4	Southeastern	25	Lea
35	4	Southeastern	27	Lincoln

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
35	4	Southeastern	35	Otero
35	4	Southeastern	41	Roosevelt

## New York

### New York: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
New York	36	NY	NRS	24

### New York: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
36	1	Adirondack	19	Clinton
36	1	Adirondack	33	Franklin
36	1	Adirondack	45	Jefferson
36	1	Adirondack	89	St. Lawrence
36	2	Lake Plain	11	Cayuga
36	2	Lake Plain	29	Erie
36	2	Lake Plain	37	Genesee
36	2	Lake Plain	51	Livingston
36	2	Lake Plain	53	Madison
36	2	Lake Plain	55	Monroe
36	2	Lake Plain	63	Niagara
36	2	Lake Plain	67	Onondaga
36	2	Lake Plain	69	Ontario
36	2	Lake Plain	73	Orleans
36	2	Lake Plain	75	Oswego
36	2	Lake Plain	99	Seneca
36	2	Lake Plain	117	Wayne
36	2	Lake Plain	121	Wyoming
36	2	Lake Plain	123	Yates
36	3	Western Adirondack	35	Fulton
36	3	Western Adirondack	43	Herkimer
36	3	Western Adirondack	49	Lewis
36	3	Western Adirondack	65	Oneida
36	4	Eastern Adirondack	31	Essex
36	4	Eastern Adirondack	41	Hamilton
36	4	Eastern Adirondack	113	Warren
36	5	Southwest Highlands	3	Allegany
36	5	Southwest Highlands	9	Cattaraugus
36	5	Southwest Highlands	13	Chautauqua
36	5	Southwest Highlands	101	Steuben
36	6	South-Central Highlands	7	Broome
36	6	South-Central Highlands	15	Chemung

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
36	6	South-Central Highlands	17	Chenango
36	6	South-Central Highlands	23	Cortland
36	6	South-Central Highlands	25	Delaware
36	6	South-Central Highlands	77	Otsego
36	6	South-Central Highlands	97	Schuyler
36	6	South-Central Highlands	107	Tioga
36	6	South-Central Highlands	109	Tompkins
36	7	Capitol District	1	Albany
36	7	Capitol District	21	Columbia
36	7	Capitol District	57	Montgomery
36	7	Capitol District	83	Rensselaer
36	7	Capitol District	91	Saratoga
36	7	Capitol District	93	Schenectady
36	7	Capitol District	115	Washington
36	8	Catskill-Lower Hudson	5	Bronx
36	8	Catskill-Lower Hudson	27	Dutchess
36	8	Catskill-Lower Hudson	39	Greene
36	8	Catskill-Lower Hudson	47	Kings
36	8	Catskill-Lower Hudson	59	Nassau
36	8	Catskill-Lower Hudson	61	New York
36	8	Catskill-Lower Hudson	71	Orange
36	8	Catskill-Lower Hudson	79	Putnam
36	8	Catskill-Lower Hudson	81	Queens
36	8	Catskill-Lower Hudson	85	Richmond
36	8	Catskill-Lower Hudson	87	Rockland
36	8	Catskill-Lower Hudson	95	Schoharie
36	8	Catskill-Lower Hudson	103	Suffolk
36	8	Catskill-Lower Hudson	105	Sullivan
36	8	Catskill-Lower Hudson	111	Ulster
36	8	Catskill-Lower Hudson	119	Westchester

## North Carolina

### North Carolina: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
North Carolina	37	NC	SRS	33

### North Carolina: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
37	1	Southern Coastal Plain	17	Bladen
37	1	Southern Coastal Plain	19	Brunswick
37	1	Southern Coastal Plain	47	Columbus
37	1	Southern Coastal Plain	51	Cumberland
37	1	Southern Coastal Plain	61	Duplin
37	1	Southern Coastal Plain	79	Greene
37	1	Southern Coastal Plain	85	Harnett
37	1	Southern Coastal Plain	93	Hoke
37	1	Southern Coastal Plain	101	Johnston
37	1	Southern Coastal Plain	103	Jones
37	1	Southern Coastal Plain	105	Lee
37	1	Southern Coastal Plain	107	Lenoir
37	1	Southern Coastal Plain	125	Moore
37	1	Southern Coastal Plain	129	New Hanover
37	1	Southern Coastal Plain	133	Onslow
37	1	Southern Coastal Plain	141	Pender
37	1	Southern Coastal Plain	153	Richmond
37	1	Southern Coastal Plain	155	Robeson
37	1	Southern Coastal Plain	163	Sampson
37	1	Southern Coastal Plain	165	Scotland
37	1	Southern Coastal Plain	191	Wayne
37	2	Northern Coastal Plain	13	Beaufort
37	2	Northern Coastal Plain	15	Bertie
37	2	Northern Coastal Plain	29	Camden
37	2	Northern Coastal Plain	31	Carteret
37	2	Northern Coastal Plain	41	Chowan
37	2	Northern Coastal Plain	49	Craven
37	2	Northern Coastal Plain	53	Currituck
37	2	Northern Coastal Plain	55	Dare
37	2	Northern Coastal Plain	65	Edgecombe
37	2	Northern Coastal Plain	73	Gates
37	2	Northern Coastal Plain	83	Halifax

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
37	2	Northern Coastal Plain	91	Hertford
37	2	Northern Coastal Plain	95	Hyde
37	2	Northern Coastal Plain	117	Martin
37	2	Northern Coastal Plain	127	Nash
37	2	Northern Coastal Plain	131	Northampton
37	2	Northern Coastal Plain	137	Pamlico
37	2	Northern Coastal Plain	139	Pasquotank
37	2	Northern Coastal Plain	143	Perquimans
37	2	Northern Coastal Plain	147	Pitt
37	2	Northern Coastal Plain	177	Tyrrell
37	2	Northern Coastal Plain	187	Washington
37	2	Northern Coastal Plain	195	Wilson
37	3	Piedmont	1	Alamance
37	3	Piedmont	3	Alexander
37	3	Piedmont	7	Anson
37	3	Piedmont	25	Cabarrus
37	3	Piedmont	33	Caswell
37	3	Piedmont	35	Catawba
37	3	Piedmont	37	Chatham
37	3	Piedmont	45	Cleveland
37	3	Piedmont	57	Davidson
37	3	Piedmont	59	Davie
37	3	Piedmont	63	Durham
37	3	Piedmont	67	Forsyth
37	3	Piedmont	69	Franklin
37	3	Piedmont	71	Gaston
37	3	Piedmont	77	Granville
37	3	Piedmont	81	Guilford
37	3	Piedmont	97	Iredell
37	3	Piedmont	109	Lincoln
37	3	Piedmont	119	Mecklenburg
37	3	Piedmont	123	Montgomery
37	3	Piedmont	135	Orange
37	3	Piedmont	145	Person
37	3	Piedmont	149	Polk
37	3	Piedmont	151	Randolph
37	3	Piedmont	157	Rockingham
37	3	Piedmont	159	Rowan
37	3	Piedmont	161	Rutherford

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
37	3	Piedmont	167	Stanly
37	3	Piedmont	169	Stokes
37	3	Piedmont	171	Surry
37	3	Piedmont	179	Union
37	3	Piedmont	181	Vance
37	3	Piedmont	183	Wake
37	3	Piedmont	185	Warren
37	3	Piedmont	197	Yadkin
37	4	Mountains	5	Alleghany
37	4	Mountains	9	Ashe
37	4	Mountains	11	Avery
37	4	Mountains	21	Buncombe
37	4	Mountains	23	Burke
37	4	Mountains	27	Caldwell
37	4	Mountains	39	Cherokee
37	4	Mountains	43	Clay
37	4	Mountains	75	Graham
37	4	Mountains	87	Haywood
37	4	Mountains	89	Henderson
37	4	Mountains	99	Jackson
37	4	Mountains	111	McDowell
37	4	Mountains	113	Macon
37	4	Mountains	115	Madison
37	4	Mountains	121	Mitchell
37	4	Mountains	173	Swain
37	4	Mountains	175	Transylvania
37	4	Mountains	189	Watauga
37	4	Mountains	193	Wilkes
37	4	Mountains	199	Yancey

## North Dakota

### North Dakota: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
North Dakota	38	ND	NRS	24

### North Dakota: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
38	1	Eastern	1	Adams
38	1	Eastern	3	Barnes
38	1	Eastern	5	Benson
38	1	Eastern	7	Billings
38	1	Eastern	9	Bottineau
38	1	Eastern	11	Bowman
38	1	Eastern	13	Burke
38	1	Eastern	15	Burleigh
38	1	Eastern	17	Cass
38	1	Eastern	19	Cavalier
38	1	Eastern	21	Dickey
38	1	Eastern	23	Divide
38	1	Eastern	25	Dunn
38	1	Eastern	27	Eddy
38	1	Eastern	29	Emmons
38	1	Eastern	31	Foster
38	1	Eastern	33	Golden Valley
38	1	Eastern	35	Grand Forks
38	1	Eastern	37	Grant
38	1	Eastern	39	Griggs
38	1	Eastern	41	Hettinger
38	1	Eastern	43	Kidder
38	1	Eastern	45	LaMoure
38	1	Eastern	47	Logan
38	1	Eastern	49	McHenry
38	1	Eastern	51	McIntosh
38	1	Eastern	53	McKenzie
38	1	Eastern	55	McLean
38	1	Eastern	57	Mercer
38	1	Eastern	59	Morton
38	1	Eastern	61	Mountrail
38	1	Eastern	63	Nelson

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
38	1	Eastern	65	Oliver
38	1	Eastern	67	Pembina
38	1	Eastern	69	Pierce
38	1	Eastern	71	Ramsey
38	1	Eastern	73	Ransom
38	1	Eastern	75	Renville
38	1	Eastern	77	Richland
38	1	Eastern	79	Rolette
38	1	Eastern	81	Sargent
38	1	Eastern	83	Sheridan
38	1	Eastern	85	Sioux
38	1	Eastern	87	Slope
38	1	Eastern	89	Stark
38	1	Eastern	91	Steele
38	1	Eastern	93	Stutsman
38	1	Eastern	95	Towner
38	1	Eastern	97	Traill
38	1	Eastern	99	Walsh
38	1	Eastern	101	Ward
38	1	Eastern	103	Wells
38	1	Eastern	105	Williams

## Ohio

### Ohio: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Ohio	39	OH	NRS	24

### Ohio: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
39	1	South-Central	1	Adams
39	1	South-Central	15	Brown
39	1	South-Central	25	Clermont
39	1	South-Central	53	Gallia
39	1	South-Central	71	Highland
39	1	South-Central	79	Jackson
39	1	South-Central	87	Lawrence
39	1	South-Central	131	Pike
39	1	South-Central	141	Ross
39	1	South-Central	145	Scioto
39	2	Southeastern	9	Athens
39	2	Southeastern	73	Hocking
39	2	Southeastern	105	Meigs
39	2	Southeastern	115	Morgan
39	2	Southeastern	127	Perry
39	2	Southeastern	163	Vinton
39	2	Southeastern	167	Washington
39	3	East-Central	13	Belmont
39	3	East-Central	19	Carroll
39	3	East-Central	31	Coshocton
39	3	East-Central	59	Guernsey
39	3	East-Central	67	Harrison
39	3	East-Central	75	Holmes
39	3	East-Central	81	Jefferson
39	3	East-Central	111	Monroe
39	3	East-Central	119	Muskingum
39	3	East-Central	121	Noble
39	3	East-Central	157	Tuscarawas
39	4	Northeastern	5	Ashland
39	4	Northeastern	7	Ashtabula
39	4	Northeastern	29	Columbiana
39	4	Northeastern	35	Cuyahoga

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
39	4	Northeastern	43	Erie
39	4	Northeastern	55	Geauga
39	4	Northeastern	77	Huron
39	4	Northeastern	85	Lake
39	4	Northeastern	93	Lorain
39	4	Northeastern	99	Mahoning
39	4	Northeastern	103	Medina
39	4	Northeastern	133	Portage
39	4	Northeastern	139	Richland
39	4	Northeastern	151	Stark
39	4	Northeastern	153	Summit
39	4	Northeastern	155	Trumbull
39	4	Northeastern	169	Wayne
39	5	Southwestern	17	Butler
39	5	Southwestern	23	Clark
39	5	Southwestern	27	Clinton
39	5	Southwestern	37	Darke
39	5	Southwestern	45	Fairfield
39	5	Southwestern	47	Fayette
39	5	Southwestern	49	Franklin
39	5	Southwestern	57	Greene
39	5	Southwestern	61	Hamilton
39	5	Southwestern	89	Licking
39	5	Southwestern	97	Madison
39	5	Southwestern	109	Miami
39	5	Southwestern	113	Montgomery
39	5	Southwestern	129	Pickaway
39	5	Southwestern	135	Preble
39	5	Southwestern	165	Warren
39	6	Northwestern	3	Allen
39	6	Northwestern	11	Auglaize
39	6	Northwestern	21	Champaign
39	6	Northwestern	33	Crawford
39	6	Northwestern	39	Defiance
39	6	Northwestern	41	Delaware
39	6	Northwestern	51	Fulton
39	6	Northwestern	63	Hancock
39	6	Northwestern	65	Hardin
39	6	Northwestern	69	Henry

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
39	6	Northwestern	83	Knox
39	6	Northwestern	91	Logan
39	6	Northwestern	95	Lucas
39	6	Northwestern	101	Marion
39	6	Northwestern	107	Mercer
39	6	Northwestern	117	Morrow
39	6	Northwestern	123	Ottawa
39	6	Northwestern	125	Paulding
39	6	Northwestern	137	Putnam
39	6	Northwestern	143	Sandusky
39	6	Northwestern	147	Seneca
39	6	Northwestern	149	Shelby
39	6	Northwestern	159	Union
39	6	Northwestern	161	Van Wert
39	6	Northwestern	171	Williams
39	6	Northwestern	173	Wood
39	6	Northwestern	175	Wyandot

## Oklahoma

### Oklahoma: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Oklahoma	40	OK	SRS	33

### Oklahoma: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
40	1	Southeast	5	Atoka
40	1	Southeast	13	Bryan
40	1	Southeast	23	Choctaw
40	1	Southeast	29	Coal
40	1	Southeast	61	Haskell
40	1	Southeast	77	Latimer
40	1	Southeast	79	Le Flore
40	1	Southeast	89	McCurtain
40	1	Southeast	121	Pittsburg
40	1	Southeast	127	Pushmataha
40	2	Northeast	1	Adair
40	2	Northeast	21	Cherokee
40	2	Northeast	41	Delaware
40	2	Northeast	91	McIntosh
40	2	Northeast	97	Mayes
40	2	Northeast	101	Muskogee
40	2	Northeast	115	Ottawa
40	2	Northeast	135	Sequoyah
40	3	North Central	35	Craig
40	3	North Central	37	Creek
40	3	North Central	105	Nowata
40	3	North Central	113	Osage
40	3	North Central	117	Pawnee
40	3	North Central	119	Payne
40	3	North Central	131	Rogers
40	3	North Central	143	Tulsa
40	3	North Central	145	Wagoner
40	3	North Central	147	Washington
40	4	South Central	19	Carter
40	4	South Central	27	Cleveland
40	4	South Central	49	Garvin
40	4	South Central	63	Hughes

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
40	4	South Central	69	Johnston
40	4	South Central	81	Lincoln
40	4	South Central	83	Logan
40	4	South Central	85	Love
40	4	South Central	87	McClain
40	4	South Central	95	Marshall
40	4	South Central	99	Murray
40	4	South Central	107	Oklfuskee
40	4	South Central	109	Oklahoma
40	4	South Central	111	Okmulgee
40	4	South Central	123	Pontotoc
40	4	South Central	125	Pottawatomie
40	4	South Central	133	Seminole
40	5	Southwest	9	Beckham
40	5	Southwest	11	Blaine
40	5	Southwest	15	Caddo
40	5	Southwest	17	Canadian
40	5	Southwest	31	Comanche
40	5	Southwest	33	Cotton
40	5	Southwest	39	Custer
40	5	Southwest	43	Dewey
40	5	Southwest	51	Grady
40	5	Southwest	55	Greer
40	5	Southwest	57	Harmon
40	5	Southwest	65	Jackson
40	5	Southwest	67	Jefferson
40	5	Southwest	73	Kingfisher
40	5	Southwest	75	Kiowa
40	5	Southwest	129	Roger Mills
40	5	Southwest	137	Stephens
40	5	Southwest	141	Tillman
40	5	Southwest	149	Washita
40	6	High Plains	7	Beaver
40	6	High Plains	25	Cimarron
40	6	High Plains	45	Ellis
40	6	High Plains	59	Harper
40	6	High Plains	139	Texas
40	7	Great Plains	3	Alfalfa
40	7	Great Plains	47	Garfield

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
40	7	Great Plains	53	Grant
40	7	Great Plains	71	Kay
40	7	Great Plains	93	Major
40	7	Great Plains	103	Noble
40	7	Great Plains	151	Woods
40	7	Great Plains	153	Woodward

## Oregon

### Oregon: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Oregon	41	OR	PNWRS	26

### Oregon: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
41	0	Northwest	5	Clackamas
41	0	Northwest	7	Clatsop
41	0	Northwest	9	Columbia
41	0	Northwest	27	Hood River
41	0	Northwest	47	Marion
41	0	Northwest	51	Multnomah
41	0	Northwest	53	Polk
41	0	Northwest	57	Tillamook
41	0	Northwest	67	Washington
41	0	Northwest	71	Yamhill
41	1	West Central	3	Benton
41	1	West Central	39	Lane
41	1	West Central	41	Lincoln
41	1	West Central	43	Linn
41	2	Southwest	11	Coos
41	2	Southwest	15	Curry
41	2	Southwest	19	Douglas
41	2	Southwest	29	Jackson
41	2	Southwest	33	Josephine
41	3	Central	13	Crook
41	3	Central	17	Deschutes
41	3	Central	21	Gilliam
41	3	Central	31	Jefferson
41	3	Central	35	Klamath
41	3	Central	37	Lake
41	3	Central	55	Sherman
41	3	Central	65	Wasco
41	3	Central	69	Wheeler
41	4	Blue Mountains	1	Baker
41	4	Blue Mountains	23	Grant
41	4	Blue Mountains	25	Harney
41	4	Blue Mountains	45	Malheur

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
41	4	Blue Mountains	49	Morrow
41	4	Blue Mountains	59	Umatilla
41	4	Blue Mountains	61	Union
41	4	Blue Mountains	63	Wallowa

## Pennsylvania

### Pennsylvania: State information

<b>State name</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
Pennsylvania	42	PA	NRS	24

### Pennsylvania: Survey unit and county information

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
42	0	South Central	43	Dauphin
42	0	South Central	55	Franklin
42	0	South Central	57	Fulton
42	0	South Central	61	Huntingdon
42	0	South Central	67	Juniata
42	0	South Central	87	Mifflin
42	0	South Central	99	Perry
42	0	South Central	109	Snyder
42	0	South Central	119	Union
42	5	Western	3	Allegheny
42	5	Western	5	Armstrong
42	5	Western	7	Beaver
42	5	Western	19	Butler
42	5	Western	39	Crawford
42	5	Western	49	Erie
42	5	Western	59	Greene
42	5	Western	63	Indiana
42	5	Western	73	Lawrence
42	5	Western	85	Mercer
42	5	Western	125	Washington
42	5	Western	129	Westmoreland
42	6	North Central/Allegheny	23	Cameron
42	6	North Central/Allegheny	27	Centre
42	6	North Central/Allegheny	31	Clarion
42	6	North Central/Allegheny	33	Clearfield
42	6	North Central/Allegheny	35	Clinton
42	6	North Central/Allegheny	47	Elk
42	6	North Central/Allegheny	53	Forest
42	6	North Central/Allegheny	65	Jefferson
42	6	North Central/Allegheny	81	Lycoming
42	6	North Central/Allegheny	83	McKean
42	6	North Central/Allegheny	105	Potter

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
42	6	North Central/Allegheny	113	Sullivan
42	6	North Central/Allegheny	117	Tioga
42	6	North Central/Allegheny	121	Venango
42	6	North Central/Allegheny	123	Warren
42	7	Southwestern	9	Bedford
42	7	Southwestern	13	Blair
42	7	Southwestern	21	Cambria
42	7	Southwestern	51	Fayette
42	7	Southwestern	111	Somerset
42	8	Northeastern/Pocono	15	Bradford
42	8	Northeastern/Pocono	25	Carbon
42	8	Northeastern/Pocono	37	Columbia
42	8	Northeastern/Pocono	69	Lackawanna
42	8	Northeastern/Pocono	79	Luzerne
42	8	Northeastern/Pocono	89	Monroe
42	8	Northeastern/Pocono	93	Montour
42	8	Northeastern/Pocono	97	Northumberland
42	8	Northeastern/Pocono	103	Pike
42	8	Northeastern/Pocono	107	Schuylkill
42	8	Northeastern/Pocono	115	Susquehanna
42	8	Northeastern/Pocono	127	Wayne
42	8	Northeastern/Pocono	131	Wyoming
42	9	Southeastern	1	Adams
42	9	Southeastern	11	Berks
42	9	Southeastern	17	Bucks
42	9	Southeastern	29	Chester
42	9	Southeastern	41	Cumberland
42	9	Southeastern	45	Delaware
42	9	Southeastern	71	Lancaster
42	9	Southeastern	75	Lebanon
42	9	Southeastern	77	Lehigh
42	9	Southeastern	91	Montgomery
42	9	Southeastern	95	Northampton
42	9	Southeastern	101	Philadelphia
42	9	Southeastern	133	York

## Rhode Island

### Rhode Island: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Rhode Island	44	RI	NRS	24

### Rhode Island: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
44	1	Rhode Island	1	Bristol
44	1	Rhode Island	3	Kent
44	1	Rhode Island	5	Newport
44	1	Rhode Island	7	Providence
44	1	Rhode Island	9	Washington

## South Carolina

### South Carolina: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
South Carolina	45	SC	SRS	33

### South Carolina: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
45	1	Southern Coastal Plain	3	Aiken
45	1	Southern Coastal Plain	5	Allendale
45	1	Southern Coastal Plain	9	Bamberg
45	1	Southern Coastal Plain	11	Barnwell
45	1	Southern Coastal Plain	13	Beaufort
45	1	Southern Coastal Plain	17	Calhoun
45	1	Southern Coastal Plain	29	Colleton
45	1	Southern Coastal Plain	35	Dorchester
45	1	Southern Coastal Plain	49	Hampton
45	1	Southern Coastal Plain	53	Jasper
45	1	Southern Coastal Plain	63	Lexington
45	1	Southern Coastal Plain	75	Orangeburg
45	2	Northern Coastal Plain	15	Berkeley
45	2	Northern Coastal Plain	19	Charleston
45	2	Northern Coastal Plain	25	Chesterfield
45	2	Northern Coastal Plain	27	Clarendon
45	2	Northern Coastal Plain	31	Darlington
45	2	Northern Coastal Plain	33	Dillon
45	2	Northern Coastal Plain	41	Florence
45	2	Northern Coastal Plain	43	Georgetown
45	2	Northern Coastal Plain	51	Horry
45	2	Northern Coastal Plain	55	Kershaw
45	2	Northern Coastal Plain	61	Lee
45	2	Northern Coastal Plain	67	Marion
45	2	Northern Coastal Plain	69	Marlboro
45	2	Northern Coastal Plain	79	Richland
45	2	Northern Coastal Plain	85	Sumter
45	2	Northern Coastal Plain	89	Williamsburg
45	3	Piedmont	1	Abbeville
45	3	Piedmont	7	Anderson
45	3	Piedmont	21	Cherokee
45	3	Piedmont	23	Chester

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
45	3	Piedmont	37	Edgefield
45	3	Piedmont	39	Fairfield
45	3	Piedmont	45	Greenville
45	3	Piedmont	47	Greenwood
45	3	Piedmont	57	Lancaster
45	3	Piedmont	59	Laurens
45	3	Piedmont	65	McCormick
45	3	Piedmont	71	Newberry
45	3	Piedmont	73	Oconee
45	3	Piedmont	77	Pickens
45	3	Piedmont	81	Saluda
45	3	Piedmont	83	Spartanburg
45	3	Piedmont	87	Union
45	3	Piedmont	91	York

## South Dakota

### South Dakota: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
South Dakota	46	SD	NRS	24

### South Dakota: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
46	1	Eastern	3	Aurora
46	1	Eastern	5	Beadle
46	1	Eastern	7	Bennett
46	1	Eastern	9	Bon Homme
46	1	Eastern	11	Brookings
46	1	Eastern	13	Brown
46	1	Eastern	15	Brule
46	1	Eastern	17	Buffalo
46	1	Eastern	21	Campbell
46	1	Eastern	23	Charles Mix
46	1	Eastern	25	Clark
46	1	Eastern	27	Clay
46	1	Eastern	29	Codington
46	1	Eastern	31	Corson
46	1	Eastern	35	Davison
46	1	Eastern	37	Day
46	1	Eastern	39	Deuel
46	1	Eastern	41	Dewey
46	1	Eastern	43	Douglas
46	1	Eastern	45	Edmunds
46	1	Eastern	49	Faulk
46	1	Eastern	51	Grant
46	1	Eastern	53	Gregory
46	1	Eastern	55	Haakon
46	1	Eastern	57	Hamlin
46	1	Eastern	59	Hand
46	1	Eastern	61	Hanson
46	1	Eastern	65	Hughes
46	1	Eastern	67	Hutchinson
46	1	Eastern	69	Hyde
46	1	Eastern	71	Jackson
46	1	Eastern	73	Jerauld

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
46	1	Eastern	75	Jones
46	1	Eastern	77	Kingsbury
46	1	Eastern	79	Lake
46	1	Eastern	83	Lincoln
46	1	Eastern	85	Lyman
46	1	Eastern	87	McCook
46	1	Eastern	89	McPherson
46	1	Eastern	91	Marshall
46	1	Eastern	95	Mellette
46	1	Eastern	97	Miner
46	1	Eastern	99	Minnehaha
46	1	Eastern	101	Moody
46	1	Eastern	105	Perkins
46	1	Eastern	107	Potter
46	1	Eastern	109	Roberts
46	1	Eastern	111	Sanborn
46	1	Eastern	115	Spink
46	1	Eastern	117	Stanley
46	1	Eastern	119	Sully
46	1	Eastern	121	Todd
46	1	Eastern	123	Tripp
46	1	Eastern	125	Turner
46	1	Eastern	127	Union
46	1	Eastern	129	Walworth
46	1	Eastern	135	Yankton
46	1	Eastern	137	Ziebach
46	2	Western	19	Butte
46	2	Western	33	Custer
46	2	Western	47	Fall River
46	2	Western	63	Harding
46	2	Western	81	Lawrence
46	2	Western	93	Meade
46	2	Western	102	Oglala Lakota <b>(Note:</b> COUNTYCD = 113 is the current code used by FIA for this county; COUNTYCD = 102 is a placeholder)

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
46	2	Western	103	Pennington
46	2	Western	113	Shannon <b>(Note:</b> The county name "Shannon" is an old name; the new name is "Oglala Lakota")

## Tennessee

### Tennessee: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Tennessee	47	TN	SRS	33

### Tennessee: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
47	1	West	17	Carroll
47	1	West	23	Chester
47	1	West	33	Crockett
47	1	West	45	Dyer
47	1	West	47	Fayette
47	1	West	53	Gibson
47	1	West	69	Hardeman
47	1	West	75	Haywood
47	1	West	77	Henderson
47	1	West	79	Henry
47	1	West	95	Lake
47	1	West	97	Lauderdale
47	1	West	109	McNairy
47	1	West	113	Madison
47	1	West	131	Obion
47	1	West	157	Shelby
47	1	West	167	Tipton
47	1	West	183	Weakley
47	2	West Central	5	Benton
47	2	West Central	39	Decatur
47	2	West Central	71	Hardin
47	2	West Central	81	Hickman
47	2	West Central	83	Houston
47	2	West Central	85	Humphreys
47	2	West Central	99	Lawrence
47	2	West Central	101	Lewis
47	2	West Central	135	Perry
47	2	West Central	161	Stewart
47	2	West Central	181	Wayne
47	3	Central	3	Bedford
47	3	Central	15	Cannon
47	3	Central	21	Cheatham

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
47	3	Central	27	Clay
47	3	Central	31	Coffee
47	3	Central	37	Davidson
47	3	Central	41	DeKalb
47	3	Central	43	Dickson
47	3	Central	55	Giles
47	3	Central	87	Jackson
47	3	Central	103	Lincoln
47	3	Central	111	Macon
47	3	Central	117	Marshall
47	3	Central	119	Maury
47	3	Central	125	Montgomery
47	3	Central	127	Moore
47	3	Central	147	Robertson
47	3	Central	149	Rutherford
47	3	Central	159	Smith
47	3	Central	165	Sumner
47	3	Central	169	Trousdale
47	3	Central	187	Williamson
47	3	Central	189	Wilson
47	4	Plateau	7	Bledsoe
47	4	Plateau	13	Campbell
47	4	Plateau	35	Cumberland
47	4	Plateau	49	Fentress
47	4	Plateau	51	Franklin
47	4	Plateau	61	Grundy
47	4	Plateau	115	Marion
47	4	Plateau	129	Morgan
47	4	Plateau	133	Overton
47	4	Plateau	137	Pickett
47	4	Plateau	141	Putnam
47	4	Plateau	151	Scott
47	4	Plateau	153	Squatchie
47	4	Plateau	175	Van Buren
47	4	Plateau	177	Warren
47	4	Plateau	185	White
47	5	East	1	Anderson
47	5	East	9	Blount
47	5	East	11	Bradley

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
47	5	East	19	Carter
47	5	East	25	Claiborne
47	5	East	29	Cocke
47	5	East	57	Grainger
47	5	East	59	Greene
47	5	East	63	Hamblen
47	5	East	65	Hamilton
47	5	East	67	Hancock
47	5	East	73	Hawkins
47	5	East	89	Jefferson
47	5	East	91	Johnson
47	5	East	93	Knox
47	5	East	105	Loudon
47	5	East	107	McMinn
47	5	East	121	Meigs
47	5	East	123	Monroe
47	5	East	139	Polk
47	5	East	143	Rhea
47	5	East	145	Roane
47	5	East	155	Sevier
47	5	East	163	Sullivan
47	5	East	171	Unicoi
47	5	East	173	Union
47	5	East	179	Washington

## Texas

### Texas: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Texas	48	TX	SRS	33

### Texas: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
48	1	Southeast	5	Angelina
48	1	Southeast	71	Chambers
48	1	Southeast	185	Grimes
48	1	Southeast	199	Hardin
48	1	Southeast	201	Harris
48	1	Southeast	225	Houston
48	1	Southeast	241	Jasper
48	1	Southeast	245	Jefferson
48	1	Southeast	289	Leon
48	1	Southeast	291	Liberty
48	1	Southeast	313	Madison
48	1	Southeast	339	Montgomery
48	1	Southeast	351	Newton
48	1	Southeast	361	Orange
48	1	Southeast	373	Polk
48	1	Southeast	403	Sabine
48	1	Southeast	405	San Augustine
48	1	Southeast	407	San Jacinto
48	1	Southeast	455	Trinity
48	1	Southeast	457	Tyler
48	1	Southeast	471	Walker
48	1	Southeast	473	Waller
48	2	Northeast	1	Anderson
48	2	Northeast	37	Bowie
48	2	Northeast	63	Camp
48	2	Northeast	67	Cass
48	2	Northeast	73	Cherokee
48	2	Northeast	159	Franklin
48	2	Northeast	183	Gregg
48	2	Northeast	203	Harrison
48	2	Northeast	213	Henderson
48	2	Northeast	315	Marion

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
48	2	Northeast	343	Morris
48	2	Northeast	347	Nacogdoches
48	2	Northeast	365	Panola
48	2	Northeast	387	Red River
48	2	Northeast	401	Rusk
48	2	Northeast	419	Shelby
48	2	Northeast	423	Smith
48	2	Northeast	449	Titus
48	2	Northeast	459	Upshur
48	2	Northeast	467	Van Zandt
48	2	Northeast	499	Wood
48	3	North Central	15	Austin
48	3	North Central	21	Bastrop
48	3	North Central	41	Brazos
48	3	North Central	51	Burleson
48	3	North Central	55	Caldwell
48	3	North Central	77	Clay
48	3	North Central	85	Collin
48	3	North Central	89	Colorado
48	3	North Central	97	Cooke
48	3	North Central	113	Dallas
48	3	North Central	119	Delta
48	3	North Central	121	Denton
48	3	North Central	123	De Witt
48	3	North Central	139	Ellis
48	3	North Central	145	Falls
48	3	North Central	147	Fannin
48	3	North Central	149	Fayette
48	3	North Central	161	Freestone
48	3	North Central	175	Goliad
48	3	North Central	177	Gonzales
48	3	North Central	181	Grayson
48	3	North Central	187	Guadalupe
48	3	North Central	217	Hill
48	3	North Central	223	Hopkins
48	3	North Central	231	Hunt
48	3	North Central	237	Jack
48	3	North Central	251	Johnson
48	3	North Central	257	Kaufman

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
48	3	North Central	277	Lamar
48	3	North Central	285	Lavaca
48	3	North Central	287	Lee
48	3	North Central	293	Limestone
48	3	North Central	331	Milam
48	3	North Central	337	Montague
48	3	North Central	349	Navarro
48	3	North Central	367	Parker
48	3	North Central	379	Rains
48	3	North Central	395	Robertson
48	3	North Central	397	Rockwall
48	3	North Central	439	Tarrant
48	3	North Central	477	Washington
48	3	North Central	497	Wise
48	3	North Central	503	Young
48	4	South	7	Aransas
48	4	South	13	Atascosa
48	4	South	25	Bee
48	4	South	39	Brazoria
48	4	South	47	Brooks
48	4	South	57	Calhoun
48	4	South	61	Cameron
48	4	South	127	Dimmit
48	4	South	131	Duval
48	4	South	157	Fort Bend
48	4	South	163	Frio
48	4	South	167	Galveston
48	4	South	215	Hidalgo
48	4	South	239	Jackson
48	4	South	247	Jim Hogg
48	4	South	249	Jim Wells
48	4	South	255	Karnes
48	4	South	261	Kenedy
48	4	South	273	Kleberg
48	4	South	283	La Salle
48	4	South	297	Live Oak
48	4	South	311	McMullen
48	4	South	321	Matagorda
48	4	South	323	Maverick

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
48	4	South	355	Nueces
48	4	South	391	Refugio
48	4	South	409	San Patricio
48	4	South	427	Starr
48	4	South	469	Victoria
48	4	South	479	Webb
48	4	South	481	Wharton
48	4	South	489	Willacy
48	4	South	493	Wilson
48	4	South	505	Zapata
48	4	South	507	Zavala
48	5	West Central	19	Bandera
48	5	West Central	27	Bell
48	5	West Central	29	Bexar
48	5	West Central	31	Blanco
48	5	West Central	35	Bosque
48	5	West Central	49	Brown
48	5	West Central	53	Burnet
48	5	West Central	59	Callahan
48	5	West Central	83	Coleman
48	5	West Central	91	Comal
48	5	West Central	93	Comanche
48	5	West Central	95	Concho
48	5	West Central	99	Coryell
48	5	West Central	105	Crockett
48	5	West Central	133	Eastland
48	5	West Central	137	Edwards
48	5	West Central	143	Erath
48	5	West Central	171	Gillespie
48	5	West Central	193	Hamilton
48	5	West Central	209	Hays
48	5	West Central	221	Hood
48	5	West Central	259	Kendall
48	5	West Central	265	Kerr
48	5	West Central	267	Kimble
48	5	West Central	271	Kinney
48	5	West Central	281	Lampasas
48	5	West Central	299	Llano
48	5	West Central	307	McCulloch

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
48	5	West Central	309	McLennan
48	5	West Central	319	Mason
48	5	West Central	325	Medina
48	5	West Central	327	Menard
48	5	West Central	333	Mills
48	5	West Central	363	Palo Pinto
48	5	West Central	385	Real
48	5	West Central	399	Runnels
48	5	West Central	411	San Saba
48	5	West Central	413	Schleicher
48	5	West Central	425	Somervell
48	5	West Central	429	Stephens
48	5	West Central	435	Sutton
48	5	West Central	453	Travis
48	5	West Central	463	Uvalde
48	5	West Central	465	Val Verde
48	5	West Central	491	Williamson
48	6	Northwest	3	Andrews
48	6	Northwest	9	Archer
48	6	Northwest	11	Armstrong
48	6	Northwest	17	Bailey
48	6	Northwest	23	Baylor
48	6	Northwest	33	Borden
48	6	Northwest	45	Briscoe
48	6	Northwest	65	Carson
48	6	Northwest	69	Castro
48	6	Northwest	75	Childress
48	6	Northwest	79	Cochran
48	6	Northwest	81	Coke
48	6	Northwest	87	Collingsworth
48	6	Northwest	101	Cottle
48	6	Northwest	107	Crosby
48	6	Northwest	111	Dallam
48	6	Northwest	115	Dawson
48	6	Northwest	117	Deaf Smith
48	6	Northwest	125	Dickens
48	6	Northwest	129	Donley
48	6	Northwest	151	Fisher
48	6	Northwest	153	Floyd

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
48	6	Northwest	155	Foard
48	6	Northwest	165	Gaines
48	6	Northwest	169	Garza
48	6	Northwest	173	Glasscock
48	6	Northwest	179	Gray
48	6	Northwest	189	Hale
48	6	Northwest	191	Hall
48	6	Northwest	195	Hansford
48	6	Northwest	197	Hardeman
48	6	Northwest	205	Hartley
48	6	Northwest	207	Haskell
48	6	Northwest	211	Hemphill
48	6	Northwest	219	Hockley
48	6	Northwest	227	Howard
48	6	Northwest	233	Hutchinson
48	6	Northwest	235	Irion
48	6	Northwest	253	Jones
48	6	Northwest	263	Kent
48	6	Northwest	269	King
48	6	Northwest	275	Knox
48	6	Northwest	279	Lamb
48	6	Northwest	295	Lipscomb
48	6	Northwest	303	Lubbock
48	6	Northwest	305	Lynn
48	6	Northwest	317	Martin
48	6	Northwest	329	Midland
48	6	Northwest	335	Mitchell
48	6	Northwest	341	Moore
48	6	Northwest	345	Motley
48	6	Northwest	353	Nolan
48	6	Northwest	357	Ochiltree
48	6	Northwest	359	Oldham
48	6	Northwest	369	Parmer
48	6	Northwest	375	Potter
48	6	Northwest	381	Randall
48	6	Northwest	383	Reagan
48	6	Northwest	393	Roberts
48	6	Northwest	415	Scurry
48	6	Northwest	417	Shackelford

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
48	6	Northwest	421	Sherman
48	6	Northwest	431	Sterling
48	6	Northwest	433	Stonewall
48	6	Northwest	437	Swisher
48	6	Northwest	441	Taylor
48	6	Northwest	445	Terry
48	6	Northwest	447	Throckmorton
48	6	Northwest	451	Tom Green
48	6	Northwest	483	Wheeler
48	6	Northwest	485	Wichita
48	6	Northwest	487	Wilbarger
48	6	Northwest	501	Yoakum
48	7	West	43	Brewster
48	7	West	103	Crane
48	7	West	109	Culberson
48	7	West	135	Ector
48	7	West	141	El Paso
48	7	West	229	Hudspeth
48	7	West	243	Jeff Davis
48	7	West	301	Loving
48	7	West	371	Pecos
48	7	West	377	Presidio
48	7	West	389	Reeves
48	7	West	443	Terrell
48	7	West	461	Upton
48	7	West	475	Ward
48	7	West	495	Winkler

## Utah

### Utah: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Utah	49	UT	RMRS	22

### Utah: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
49	1	Northern	3	Box Elder
49	1	Northern	5	Cache
49	1	Northern	11	Davis
49	1	Northern	29	Morgan
49	1	Northern	33	Rich
49	1	Northern	35	Salt Lake
49	1	Northern	43	Summit
49	1	Northern	45	Tooele
49	1	Northern	49	Utah
49	1	Northern	51	Wasatch
49	1	Northern	57	Weber
49	2	Uinta	9	Daggett
49	2	Uinta	13	Duchesne
49	2	Uinta	47	Uintah
49	3	Central	23	Juab
49	3	Central	27	Millard
49	3	Central	31	Piute
49	3	Central	39	Sanpete
49	3	Central	41	Sevier
49	3	Central	55	Wayne
49	4	Eastern	7	Carbon
49	4	Eastern	15	Emery
49	4	Eastern	19	Grand
49	4	Eastern	37	San Juan
49	5	Southwestern	1	Beaver
49	5	Southwestern	17	Garfield
49	5	Southwestern	21	Iron
49	5	Southwestern	25	Kane
49	5	Southwestern	53	Washington

## Vermont

### Vermont: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Vermont	50	VT	NRS	24

### Vermont: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
50	2	Northern	5	Caledonia
50	2	Northern	9	Essex
50	2	Northern	11	Franklin
50	2	Northern	13	Grand Isle
50	2	Northern	15	Lamoille
50	2	Northern	17	Orange
50	2	Northern	19	Orleans
50	2	Northern	23	Washington
50	3	Southern	1	Addison
50	3	Southern	3	Bennington
50	3	Southern	7	Chittenden
50	3	Southern	21	Rutland
50	3	Southern	25	Windham
50	3	Southern	27	Windsor

## Virginia

### Virginia: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Virginia	51	VA	SRS	33

### Virginia: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
51	1	Coastal Plain	1	Accomack
51	1	Coastal Plain	25	Brunswick
51	1	Coastal Plain	33	Caroline
51	1	Coastal Plain	36	Charles City
51	1	Coastal Plain	41	Chesterfield
51	1	Coastal Plain	53	Dinwiddie
51	1	Coastal Plain	57	Essex
51	1	Coastal Plain	73	Gloucester
51	1	Coastal Plain	81	Greenville
51	1	Coastal Plain	85	Hanover
51	1	Coastal Plain	87	Henrico
51	1	Coastal Plain	93	Isle Of Wight
51	1	Coastal Plain	95	James City
51	1	Coastal Plain	97	King And Queen
51	1	Coastal Plain	99	King George
51	1	Coastal Plain	101	King William
51	1	Coastal Plain	103	Lancaster
51	1	Coastal Plain	115	Mathews
51	1	Coastal Plain	119	Middlesex
51	1	Coastal Plain	127	New Kent
51	1	Coastal Plain	131	Northampton
51	1	Coastal Plain	133	Northumberland
51	1	Coastal Plain	149	Prince George
51	1	Coastal Plain	159	Richmond
51	1	Coastal Plain	175	Southampton
51	1	Coastal Plain	181	Surry
51	1	Coastal Plain	183	Sussex
51	1	Coastal Plain	193	Westmoreland
51	1	Coastal Plain	199	York
51	1	Coastal Plain	550	Chesapeake city
51	1	Coastal Plain	650	Hampton city
51	1	Coastal Plain	700	Newport News city

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
51	1	Coastal Plain	800	Suffolk city
51	1	Coastal Plain	810	Virginia Beach city
51	2	Southern Piedmont	7	Amelia
51	2	Southern Piedmont	11	Appomattox
51	2	Southern Piedmont	19	Bedford
51	2	Southern Piedmont	29	Buckingham
51	2	Southern Piedmont	31	Campbell
51	2	Southern Piedmont	37	Charlotte
51	2	Southern Piedmont	49	Cumberland
51	2	Southern Piedmont	67	Franklin
51	2	Southern Piedmont	83	Halifax
51	2	Southern Piedmont	89	Henry
51	2	Southern Piedmont	111	Lunenburg
51	2	Southern Piedmont	117	Mecklenburg
51	2	Southern Piedmont	135	Nottoway
51	2	Southern Piedmont	141	Patrick
51	2	Southern Piedmont	143	Pittsylvania
51	2	Southern Piedmont	145	Powhatan
51	2	Southern Piedmont	147	Prince Edward
51	3	Northern Piedmont	3	Albemarle
51	3	Northern Piedmont	9	Amherst
51	3	Northern Piedmont	13	Arlington
51	3	Northern Piedmont	47	Culpeper
51	3	Northern Piedmont	59	Fairfax
51	3	Northern Piedmont	61	Fauquier
51	3	Northern Piedmont	65	Fluvanna
51	3	Northern Piedmont	75	Goochland
51	3	Northern Piedmont	79	Greene
51	3	Northern Piedmont	107	Loudoun
51	3	Northern Piedmont	109	Louisa
51	3	Northern Piedmont	113	Madison
51	3	Northern Piedmont	125	Nelson
51	3	Northern Piedmont	137	Orange
51	3	Northern Piedmont	153	Prince William
51	3	Northern Piedmont	157	Rappahannock
51	3	Northern Piedmont	177	Spotsylvania
51	3	Northern Piedmont	179	Stafford
51	4	Northern Mountains	5	Alleghany
51	4	Northern Mountains	15	Augusta

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
51	4	Northern Mountains	17	Bath
51	4	Northern Mountains	23	Botetourt
51	4	Northern Mountains	43	Clarke
51	4	Northern Mountains	45	Craig
51	4	Northern Mountains	69	Frederick
51	4	Northern Mountains	91	Highland
51	4	Northern Mountains	139	Page
51	4	Northern Mountains	161	Roanoke
51	4	Northern Mountains	163	Rockbridge
51	4	Northern Mountains	165	Rockingham
51	4	Northern Mountains	171	Shenandoah
51	4	Northern Mountains	187	Warren
51	5	Southern Mountains	21	Bland
51	5	Southern Mountains	27	Buchanan
51	5	Southern Mountains	35	Carroll
51	5	Southern Mountains	51	Dickenson
51	5	Southern Mountains	63	Floyd
51	5	Southern Mountains	71	Giles
51	5	Southern Mountains	77	Grayson
51	5	Southern Mountains	105	Lee
51	5	Southern Mountains	121	Montgomery
51	5	Southern Mountains	155	Pulaski
51	5	Southern Mountains	167	Russell
51	5	Southern Mountains	169	Scott
51	5	Southern Mountains	173	Smyth
51	5	Southern Mountains	185	Tazewell
51	5	Southern Mountains	191	Washington
51	5	Southern Mountains	195	Wise
51	5	Southern Mountains	197	Wythe

**Virginia: Cities aggregated into other counties**

<b>State code (STATECD)</b>	<b>City code</b>	<b>City name</b>	<b>Associated county code (COUNTYCD)</b>	<b>Associated county name (COUNTYNM)</b>
51	510	Alexandria city	59	Fairfax
51	515	Bedford city	19	Bedford
51	520	Bristol city	191	Washington
51	530	Buena Vista city	163	Rockbridge
51	540	Charlottesville city	3	Albemarle
51	560	Clifton Forge city	5	Allegheny

<b>State code (STATECD)</b>	<b>City code</b>	<b>City name</b>	<b>Associated county code (COUNTYCD)</b>	<b>Associated county name (COUNTYNM)</b>
51	570	Colonial Heights city	41	Chesterfield
51	580	Covington city	5	Allegheny
51	590	Danville city	143	Pittsylvania
51	595	Emporia city	81	Greensville
51	600	Fairfax city	59	Fairfax
51	610	Falls Church city	59	Fairfax
51	620	Franklin city	175	Southampton
51	630	Fredericksburg city	177	Spotsylvania
51	640	Galax city	35	Carroll
51	640	Galax city	77	Grayson
51	660	Harrisonburg city	165	Rockingham
51	670	Hopewell city	149	Prince George
51	678	Lexington city	163	Rockbridge
51	680	Lynchburg city	31	Campbell
51	683	Manassas city	153	Prince William
51	685	Manassas Park city	153	Prince William
51	690	Martinsville city	89	Henry
51	710	Norfolk city	550	Chesapeake City
51	720	Norton city	195	Wise
51	730	Petersburg city	53	Dinwiddie
51	730	Petersburg city	149	Prince George
51	735	Poquoson city	199	York
51	740	Portsmouth city	550	Chesapeake City
51	750	Radford city	121	Montgomery
51	760	Richmond city	41	Chesterfield
51	760	Richmond city	87	Henrico
51	770	Roanoke city	161	Roanoke
51	775	Salem city	161	Roanoke
51	780	South Boston city	83	Halifax
51	790	Staunton city	15	Augusta
51	820	Waynesboro city	15	Augusta
51	830	Williamsburg city	95	County of James City
51	840	Winchester city	69	Frederick

## Washington

### Washington: State information

<b>State name</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
Washington	53	WA	PNWRS	26

### Washington: Survey unit and county information

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
53	5	Puget Sound	29	Island
53	5	Puget Sound	33	King
53	5	Puget Sound	35	Kitsap
53	5	Puget Sound	53	Pierce
53	5	Puget Sound	55	San Juan
53	5	Puget Sound	57	Skagit
53	5	Puget Sound	61	Snohomish
53	5	Puget Sound	73	Whatcom
53	6	Olympic Peninsula	9	Clallam
53	6	Olympic Peninsula	27	Grays Harbor
53	6	Olympic Peninsula	31	Jefferson
53	6	Olympic Peninsula	45	Mason
53	6	Olympic Peninsula	67	Thurston
53	7	Southwest	11	Clark
53	7	Southwest	15	Cowlitz
53	7	Southwest	41	Lewis
53	7	Southwest	49	Pacific
53	7	Southwest	59	Skamania
53	7	Southwest	69	Wahkiakum
53	8	Central	7	Chelan
53	8	Central	17	Douglas
53	8	Central	37	Kittitas
53	8	Central	39	Klickitat
53	8	Central	47	Okanogan
53	8	Central	77	Yakima
53	9	Inland Empire	1	Adams
53	9	Inland Empire	3	Asotin
53	9	Inland Empire	5	Benton
53	9	Inland Empire	13	Columbia
53	9	Inland Empire	19	Ferry
53	9	Inland Empire	21	Franklin
53	9	Inland Empire	23	Garfield

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
53	9	Inland Empire	25	Grant
53	9	Inland Empire	43	Lincoln
53	9	Inland Empire	51	Pend Oreille
53	9	Inland Empire	63	Spokane
53	9	Inland Empire	65	Stevens
53	9	Inland Empire	71	Walla Walla
53	9	Inland Empire	75	Whitman

## West Virginia

### West Virginia: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
West Virginia	54	WV	NRS	24

### West Virginia: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
54	2	Northeastern	1	Barbour
54	2	Northeastern	3	Berkeley
54	2	Northeastern	7	Braxton
54	2	Northeastern	23	Grant
54	2	Northeastern	27	Hampshire
54	2	Northeastern	31	Hardy
54	2	Northeastern	33	Harrison
54	2	Northeastern	37	Jefferson
54	2	Northeastern	41	Lewis
54	2	Northeastern	57	Mineral
54	2	Northeastern	65	Morgan
54	2	Northeastern	71	Pendleton
54	2	Northeastern	75	Pocahontas
54	2	Northeastern	77	Preston
54	2	Northeastern	83	Randolph
54	2	Northeastern	91	Taylor
54	2	Northeastern	93	Tucker
54	2	Northeastern	97	Upshur
54	2	Northeastern	101	Webster
54	3	Southern	5	Boone
54	3	Southern	15	Clay
54	3	Southern	19	Fayette
54	3	Southern	25	Greenbrier
54	3	Southern	39	Kanawha
54	3	Southern	45	Logan
54	3	Southern	47	McDowell
54	3	Southern	55	Mercer
54	3	Southern	59	Mingo
54	3	Southern	63	Monroe
54	3	Southern	67	Nicholas
54	3	Southern	81	Raleigh
54	3	Southern	89	Summers

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
54	3	Southern	109	Wyoming
54	4	Northwestern	9	Brooke
54	4	Northwestern	11	Cabell
54	4	Northwestern	13	Calhoun
54	4	Northwestern	17	Doddridge
54	4	Northwestern	21	Gilmer
54	4	Northwestern	29	Hancock
54	4	Northwestern	35	Jackson
54	4	Northwestern	43	Lincoln
54	4	Northwestern	49	Marion
54	4	Northwestern	51	Marshall
54	4	Northwestern	53	Mason
54	4	Northwestern	61	Monongalia
54	4	Northwestern	69	Ohio
54	4	Northwestern	73	Pleasants
54	4	Northwestern	79	Putnam
54	4	Northwestern	85	Ritchie
54	4	Northwestern	87	Roane
54	4	Northwestern	95	Tyler
54	4	Northwestern	99	Wayne
54	4	Northwestern	103	Wetzel
54	4	Northwestern	105	Wirt
54	4	Northwestern	107	Wood

## Wisconsin

### Wisconsin: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Wisconsin	55	WI	NRS	24

### Wisconsin: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
55	1	Northeastern	37	Florence
55	1	Northeastern	41	Forest
55	1	Northeastern	67	Langlade
55	1	Northeastern	69	Lincoln
55	1	Northeastern	75	Marinette
55	1	Northeastern	78	Menominee
55	1	Northeastern	83	Oconto
55	1	Northeastern	85	Oneida
55	1	Northeastern	115	Shawano
55	1	Northeastern	125	Vilas
55	2	Northwestern	3	Ashland
55	2	Northwestern	5	Barron
55	2	Northwestern	7	Bayfield
55	2	Northwestern	13	Burnett
55	2	Northwestern	31	Douglas
55	2	Northwestern	51	Iron
55	2	Northwestern	95	Polk
55	2	Northwestern	99	Price
55	2	Northwestern	107	Rusk
55	2	Northwestern	113	Sawyer
55	2	Northwestern	119	Taylor
55	2	Northwestern	129	Washburn
55	3	Central	1	Adams
55	3	Central	17	Chippewa
55	3	Central	19	Clark
55	3	Central	35	Eau Claire
55	3	Central	53	Jackson
55	3	Central	57	Juneau
55	3	Central	73	Marathon
55	3	Central	77	Marquette
55	3	Central	81	Monroe
55	3	Central	97	Portage

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
55	3	Central	135	Waupaca
55	3	Central	137	Waushara
55	3	Central	141	Wood
55	4	Southwestern	11	Buffalo
55	4	Southwestern	23	Crawford
55	4	Southwestern	33	Dunn
55	4	Southwestern	43	Grant
55	4	Southwestern	49	Iowa
55	4	Southwestern	63	La Crosse
55	4	Southwestern	65	Lafayette
55	4	Southwestern	91	Pepin
55	4	Southwestern	93	Pierce
55	4	Southwestern	103	Richland
55	4	Southwestern	109	St. Croix
55	4	Southwestern	111	Sauk
55	4	Southwestern	121	Trempealeau
55	4	Southwestern	123	Vernon
55	5	Southeastern	9	Brown
55	5	Southeastern	15	Calumet
55	5	Southeastern	21	Columbia
55	5	Southeastern	25	Dane
55	5	Southeastern	27	Dodge
55	5	Southeastern	29	Door
55	5	Southeastern	39	Fond du Lac
55	5	Southeastern	45	Green
55	5	Southeastern	47	Green Lake
55	5	Southeastern	55	Jefferson
55	5	Southeastern	59	Kenosha
55	5	Southeastern	61	Kewaunee
55	5	Southeastern	71	Manitowoc
55	5	Southeastern	79	Milwaukee
55	5	Southeastern	87	Outagamie
55	5	Southeastern	89	Ozaukee
55	5	Southeastern	101	Racine
55	5	Southeastern	105	Rock
55	5	Southeastern	117	Sheboygan
55	5	Southeastern	127	Walworth
55	5	Southeastern	131	Washington

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
55	5	Southeastern	133	Waukesha
55	5	Southeastern	139	Winnebago

## Wyoming

### Wyoming: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Wyoming	56	WY	RMRS	22

### Wyoming: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
56	1	Western	13	Fremont
56	1	Western	17	Hot Springs
56	1	Western	23	Lincoln
56	1	Western	29	Park
56	1	Western	35	Sublette
56	1	Western	37	Sweetwater
56	1	Western	39	Teton
56	1	Western	41	Uinta
56	2	Central and Southeastern	1	Albany
56	2	Central and Southeastern	3	Big Horn
56	2	Central and Southeastern	7	Carbon
56	2	Central and Southeastern	9	Converse
56	2	Central and Southeastern	15	Goshen
56	2	Central and Southeastern	19	Johnson
56	2	Central and Southeastern	21	Laramie
56	2	Central and Southeastern	25	Natrona
56	2	Central and Southeastern	27	Niobrara
56	2	Central and Southeastern	31	Platte
56	2	Central and Southeastern	33	Sheridan
56	2	Central and Southeastern	43	Washakie
56	3	Northeastern	5	Campbell
56	3	Northeastern	11	Crook
56	3	Northeastern	45	Weston

## American Samoa

### American Samoa: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
American Samoa	60	AS	PNWRS	26

### American Samoa: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
60	1	American Samoa	10	Tutuila East
60	1	American Samoa	20	Manu'a
60	1	American Samoa	30	Rose
60	1	American Samoa	40	Swains
60	1	American Samoa	50	Tutuila West

## Federated States of Micronesia

### Federated States of Micronesia: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Federated States of Micronesia	64	FM	PNWRS	26

### Federated States of Micronesia: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
64	1	Federated States of Micronesia	2	Chuuk
64	1	Federated States of Micronesia	5	Kosrae
64	1	Federated States of Micronesia	40	Pohnpei
64	1	Federated States of Micronesia	60	Yap

## Guam

### Guam: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Guam	66	GU	PNWRS	26

### Guam: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
66	1	Guam	10	Guam

## Marshall Islands

### Marshall Islands: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Marshall Islands	68	MH	PNWRS	26

### Marshall Islands: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
68	1	Marshall Islands	7	Ailinginae
68	1	Marshall Islands	10	Ailinglaplap
68	1	Marshall Islands	30	Ailuk
68	1	Marshall Islands	40	Arno
68	1	Marshall Islands	50	Aur
68	1	Marshall Islands	60	Bikar
68	1	Marshall Islands	70	Bikini
68	1	Marshall Islands	73	Bokak
68	1	Marshall Islands	80	Ebon
68	1	Marshall Islands	90	Enewetak
68	1	Marshall Islands	100	Erikub
68	1	Marshall Islands	110	Jabat
68	1	Marshall Islands	120	Jaluit
68	1	Marshall Islands	130	Jemo
68	1	Marshall Islands	140	Kili
68	1	Marshall Islands	150	Kwajalein
68	1	Marshall Islands	160	Lae
68	1	Marshall Islands	170	Lib
68	1	Marshall Islands	180	Likiep

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
68	1	Marshall Islands	190	Majuro
68	1	Marshall Islands	300	Maloelap
68	1	Marshall Islands	310	Mejit
68	1	Marshall Islands	320	Mili
68	1	Marshall Islands	330	Namorik
68	1	Marshall Islands	340	Namu
68	1	Marshall Islands	350	Rongelap
68	1	Marshall Islands	360	Rongrik
68	1	Marshall Islands	385	Toke
68	1	Marshall Islands	390	Ujae
68	1	Marshall Islands	400	Ujelang
68	1	Marshall Islands	410	Utrik
68	1	Marshall Islands	420	Wotho
68	1	Marshall Islands	430	Wotje

## Northern Mariana Islands

### Northern Mariana Islands: State information

<b>State name</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
Northern Mariana Islands	69	MP	PNWRS	26

### Northern Mariana Islands: Survey unit and county information

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
69	1	Northern Mariana Islands	85	Northern Islands
69	1	Northern Mariana Islands	100	Rota
69	1	Northern Mariana Islands	110	Saipan
69	1	Northern Mariana Islands	120	Tinian

## Palau

### Palau: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Palau	70	PW	PNWRS	26

### Palau: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
70	1	Palau	2	Aimeliik
70	1	Palau	4	Airai
70	1	Palau	10	Angaur
70	1	Palau	50	Hatoboheit
70	1	Palau	100	Kayangel
70	1	Palau	150	Koror
70	1	Palau	212	Melekeok
70	1	Palau	214	Ngaraard
70	1	Palau	218	Ngarchelong
70	1	Palau	222	Ngardmau
70	1	Palau	224	Ngatpang
70	1	Palau	226	Ngchesar
70	1	Palau	227	Ngernmlengui
70	1	Palau	228	Ngiwal
70	1	Palau	350	Peleliu
70	1	Palau	370	Sonsorol

## Puerto Rico

### Puerto Rico: State information

State name	State code	State abbreviation	FIA - Research organization region	FIA - Research organization code
Puerto Rico <sup>a</sup>	72	PR	SRS	33

<sup>a</sup> FIA estimates of Puerto Rico do not include the small outlying islands such as Desecheo, Caja de Muertos, etc.

### Puerto Rico: Survey unit and county information

State code (STATECD)	Survey unit code (UNITCD)	Survey unit name	County code (COUNTYCD)	County name (COUNTYNM)
72	1	Mainland Puerto Rico	1	Adjuntas
72	1	Mainland Puerto Rico	3	Aguada
72	1	Mainland Puerto Rico	5	Aguadilla
72	1	Mainland Puerto Rico	7	Aguas Buenas
72	1	Mainland Puerto Rico	9	Aibonito
72	1	Mainland Puerto Rico	11	Añasco
72	1	Mainland Puerto Rico	13	Arecibo
72	1	Mainland Puerto Rico	15	Arroyo
72	1	Mainland Puerto Rico	17	Barceloneta
72	1	Mainland Puerto Rico	19	Barranquitas
72	1	Mainland Puerto Rico	21	Bayamón
72	1	Mainland Puerto Rico	23	Cabo Rojo
72	1	Mainland Puerto Rico	25	Caguas
72	1	Mainland Puerto Rico	27	Camuy
72	1	Mainland Puerto Rico	29	Canóvanas
72	1	Mainland Puerto Rico	31	Carolina
72	1	Mainland Puerto Rico	33	Cataño
72	1	Mainland Puerto Rico	35	Cayey
72	1	Mainland Puerto Rico	37	Ceiba
72	1	Mainland Puerto Rico	39	Ciales
72	1	Mainland Puerto Rico	41	Cidra
72	1	Mainland Puerto Rico	43	Coamo
72	1	Mainland Puerto Rico	45	Comerío
72	1	Mainland Puerto Rico	47	Corozal
72	1	Mainland Puerto Rico	51	Dorado
72	1	Mainland Puerto Rico	53	Fajardo
72	1	Mainland Puerto Rico	54	Florida
72	1	Mainland Puerto Rico	55	Guánica
72	1	Mainland Puerto Rico	57	Guayama
72	1	Mainland Puerto Rico	59	Guayanilla
72	1	Mainland Puerto Rico	61	Guaynabo

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
72	1	Mainland Puerto Rico	63	Gurabo
72	1	Mainland Puerto Rico	65	Hatillo
72	1	Mainland Puerto Rico	67	Hormigueros
72	1	Mainland Puerto Rico	69	Humacao
72	1	Mainland Puerto Rico	71	Isabela Municipio
72	1	Mainland Puerto Rico	73	Jayuya
72	1	Mainland Puerto Rico	75	Juana Diaz
72	1	Mainland Puerto Rico	77	Juncos
72	1	Mainland Puerto Rico	79	Lajas
72	1	Mainland Puerto Rico	81	Lares
72	1	Mainland Puerto Rico	83	Las Marias
72	1	Mainland Puerto Rico	85	Las Piedras
72	1	Mainland Puerto Rico	87	Loiza
72	1	Mainland Puerto Rico	89	Luquillo
72	1	Mainland Puerto Rico	91	Manatí
72	1	Mainland Puerto Rico	93	Maricao
72	1	Mainland Puerto Rico	95	Maunabo
72	1	Mainland Puerto Rico	97	Mayagüez <sup>a</sup>
72	1	Mainland Puerto Rico	99	Moca
72	1	Mainland Puerto Rico	101	Morovis
72	1	Mainland Puerto Rico	103	Naguabo
72	1	Mainland Puerto Rico	105	Naranjito
72	1	Mainland Puerto Rico	107	Orocovis
72	1	Mainland Puerto Rico	109	Patillas
72	1	Mainland Puerto Rico	111	Peñuelas
72	1	Mainland Puerto Rico	113	Ponce
72	1	Mainland Puerto Rico	115	Quebradillas
72	1	Mainland Puerto Rico	117	Rincón
72	1	Mainland Puerto Rico	119	Río Grande
72	1	Mainland Puerto Rico	121	Sabana Grande
72	1	Mainland Puerto Rico	123	Salinas
72	1	Mainland Puerto Rico	125	San Germán
72	1	Mainland Puerto Rico	127	San Juan
72	1	Mainland Puerto Rico	129	San Lorenzo
72	1	Mainland Puerto Rico	131	San Sebastián
72	1	Mainland Puerto Rico	133	Santa Isabel
72	1	Mainland Puerto Rico	135	Toa Alta
72	1	Mainland Puerto Rico	137	Toa Baja
72	1	Mainland Puerto Rico	139	Trujillo Alto

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
72	1	Mainland Puerto Rico	141	Utuado
72	1	Mainland Puerto Rico	143	Vega Alta
72	1	Mainland Puerto Rico	145	Vega Baja
72	1	Mainland Puerto Rico	149	Villalba
72	1	Mainland Puerto Rico	151	Yabucoa
72	1	Mainland Puerto Rico	153	Yuaco
72	2	Vieques	147	Vieques
72	3	Culebra	49	Culebra

<sup>a</sup> Mona Island is split from Mayagüez County (97) as a separate estimation unit for stratification. However, Mona Island is not a separate FIA survey unit because it is not a separate county (municipio); it is part of Mayagüez County.

## U.S. Virgin Islands

### U.S. Virgin Islands: State information

<b>State name</b>	<b>State code</b>	<b>State abbreviation</b>	<b>FIA - Research organization region</b>	<b>FIA - Research organization code</b>
U.S. Virgin Islands	78	VI	SRS	33

### U.S. Virgin Islands: Survey unit and county information

<b>State code (STATECD)</b>	<b>Survey unit code (UNITCD)</b>	<b>Survey unit name</b>	<b>County code (COUNTYCD)</b>	<b>County name (COUNTYNM)</b>
78	1	St. Croix Island	10	St. Croix
78	2	St. John Island	20	St. John
78	3	St. Thomas Island	30	St. Thomas



Section revision: 01.20.2024

# Appendix C: Tree Species Group Codes

## Appendix Contents:

Description
<a href="#">Urban species groups</a>
<a href="#">Softwood species groups</a>
<a href="#">Hardwood species groups</a>
<a href="#">Tropical and subtropical species groups</a>

## Urban species groups

Code	Class	Region	Species group name
55	Hardwood	All	Urban-specific hardwoods
56	Softwood	All	Urban-specific softwoods

## Softwood species groups

Code	Class	Region	Species group name
1	Softwood	Eastern	Longleaf and slash pines
2	Softwood	Eastern	Loblolly and shortleaf pines
3	Softwood	Eastern	Other yellow pines
4	Softwood	Eastern	Eastern white and red pines
5	Softwood	Eastern	Jack pine
6	Softwood	Eastern	Spruce and balsam fir
7	Softwood	Eastern	Eastern hemlock
8	Softwood	Eastern	Cypress
9	Softwood	Eastern	Other eastern softwoods
10	Softwood	Western	Douglas-fir
11	Softwood	Western	Ponderosa and Jeffrey pines
12	Softwood	Western	True fir
13	Softwood	Western	Western hemlock
14	Softwood	Western	Sugar pine
15	Softwood	Western	Western white pine
16	Softwood	Western	Redwood
17	Softwood	Western	Sitka spruce
18	Softwood	Western	Engelmann and other spruces
19	Softwood	Western	Western larch

<b>Code</b>	<b>Class</b>	<b>Region</b>	<b>Species group name</b>
20	Softwood	Western	Incense-cedar
21	Softwood	Western	Lodgepole pine
22	Softwood	Western	Western redcedar
23	Softwood	All	Woodland softwoods
24	Softwood	Western	Other western softwoods

## Hardwood species groups

<b>Code</b>	<b>Class</b>	<b>Region</b>	<b>Species group name</b>
25	Hardwood	Eastern	Select white oaks
26	Hardwood	Eastern	Select red oaks
27	Hardwood	Eastern	Other white oaks
28	Hardwood	Eastern	Other red oaks
29	Hardwood	Eastern	Hickory
30	Hardwood	Eastern	Yellow birch
31	Hardwood	Eastern	Hard maple
32	Hardwood	Eastern	Soft maple
33	Hardwood	Eastern	Beech
34	Hardwood	Eastern	Sweetgum
35	Hardwood	Eastern	Tupelo and blackgum
36	Hardwood	Eastern	Ash
37	Hardwood	Eastern	Cottonwood and aspen
38	Hardwood	Eastern	Basswood
39	Hardwood	Eastern	Yellow-poplar
40	Hardwood	Eastern	Black walnut
41	Hardwood	Eastern	Other eastern soft hardwoods
42	Hardwood	Eastern	Other eastern hard hardwoods
43	Hardwood	Eastern	Eastern noncommercial hardwoods
44	Hardwood	Western	Cottonwood and aspen
45	Hardwood	Western	Red alder
46	Hardwood	Western	Oak
47	Hardwood	Western	Other western hardwoods
48	Hardwood	All	Woodland hardwoods

**Tropical and subtropical species groups**

<b>Code</b>	<b>Class</b>	<b>Region</b>	<b>Species group name</b>
51	Softwood	Tropical/Subtropical	Tropical and subtropical pines
52	Softwood	Tropical/Subtropical	Other tropical and subtropical softwoods
53	Hardwood	Tropical/Subtropical	Tropical and subtropical palms
54	Hardwood	Tropical/Subtropical	Tropical and subtropical hardwoods



Section revision: 09.02.2024

# Appendix D: Tree Species Codes, Names, and Occurrences

The FIA tree species code list and other information regarding names and occurrences are available at the following links:

## Supplemental documents:

- [FIA Master Tree Species List \(Excel format\)](https://usfs-public.box.com/v/FIA-TreeSpeciesList) (refer to Public Box folder available at web address: <https://usfs-public.box.com/v/FIA-TreeSpeciesList>) - This list contains all tree species tallied in the continental U.S. as well as both the Caribbean and Pacific Islands, including Hawaii. These are the species used to define FIA forest land. Species not listed are considered shrubs and do not factor into defining FIA forest land.
- [Changes to FIA Master Tree Species List](https://usfs-public.box.com/v/FIA-Urban-FieldGuides) (refer to Public Box folder available at web address: <https://usfs-public.box.com/v/FIA-Urban-FieldGuides>) - This list, located in the National Urban FIA Field Guide (appendix 14), contains changes (dropped, added, or modified) to the FIA Master Tree Species list. This list began in October 2019 with the National FIA Field Guide, version 9.0.

## Table downloads:

- [Urban DataMart](https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart) (available at web address: <https://research.fs.usda.gov/products/dataandtools/tools/urban-datamart>) - The **REF\_SPECIES** table, which is downloadable at the Urban DataMart, contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.



Section revision: 11.01.2024

# Appendix E: Damage Agent Codes and Thresholds

## Appendix Contents:

Code	Damage (common name)
00000	No Damage
10000	General Insects
11000	Bark Beetles
12000	Defoliators
13000	Chewing Insects
14000	Sucking Insects
15000	Boring Insects
16000	Seed/Cone/Flower/Fruit Insects
17000	Gallmaker Insects
18000	Insect Predators
19000	General Diseases
20000	Biotic Damage
21000	Root/Butt Diseases
22000	Cankers
22500	Stem Decay
23000	Parasitic/Epiphytic Plants
24000	Decline Complexes/Dieback/Wilts
25000	Foliage Diseases
26000	Stem Rusts
27000	Broom Rusts
30000	Fire
41000	Wild Animals
42000	Domestic Animals
50000	Abiotic Damage
60000	Competition
70000	Human Activities
71000	Harvest
80000	Multi-Damage (Insect/Disease)
85000	Invasive Plants
90000	Other Damages and Symptoms
99000	Unknown

## Damage Agent Codes and Thresholds

(Note: PNWRS = All of the Pacific Northwest Research Station region, including Alaska and the Pacific Islands. PNWRS-AK = Alaska only.

PNWRS-IS = Pacific Islands only.)

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
<b>00000</b>	—	—	<b>No Damage</b>	—	—	All
<b>10000</b>	<b>10</b>	<b>000</b>	<b>General Insects</b>	—	Any damage to the terminal leader; damage $\geq$ 20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage $\geq$ 20% of the foliage with $\geq$ 50% of the leaf/needle affected.	All
10001	10	001	thrips	—	—	—
10002	10	002	Pine tip moth	—	—	—
10003	10	003	wasp	—	—	—
10004	10	004	Chinese rose beetle	<i>Adoretus sinicus</i>	—	—
10005	10	005	rose beetle	<i>Adoretus versutus</i>	—	—
10006	10	006	coconut hispid beetle	<i>Brontispa longissima</i>	—	—
10007	10	007	clerid beetle	<i>Cleridae</i>	—	—
10008	10	008	weevil	<i>Curculionidae</i>	—	—
10009	10	009	green rose chafer	<i>Dichelonyx backi</i>	—	—
10010	10	010	Allegheny mound ant	<i>Formica exsectoides</i>	—	—
10011	10	011	ant	<i>Formicidae</i>	—	—
10012	10	012	stick insect	<i>Graeffea crovani</i>	—	—
10013	10	013	Hulodes cranea	<i>Hulodes cranea</i>	—	—
10014	10	014	conifer swift moth	<i>Korsheltellus gracilis</i>	—	—
10015	10	015	Caroline shortnosed weevil	<i>Lophothetes spp.</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
10016	10	016	coconut rhinoceros beetle	<i>Oryctes rhinoceros</i>	Any damage to the terminal leader; damage $\geq$ 20% of the roots or boles with $>$ 20% of the circumference affected; damage $>$ 20% of the multiple-stems (on multi-stemmed woodland species) with $>$ 20% of the circumference affected; $>$ 20% of the branches affected; damage $\geq$ 20% of the foliage with $\geq$ 50% of the leaf/needle affected.	<b>PNWRS</b>
10017	10	017	bagworm moth	<i>Psychidae</i>	Any damage to the terminal leader; damage $\geq$ 20% of the foliage with $\geq$ 50% of the leaf/needle affected.	<b>NRS</b>
10018	10	018	coconut palm weevil	<i>Rhobdoscelus asperipennis</i>	—	—
10019	10	019	scarab	<i>Scarabaeidae</i>	—	—
10020	10	020	ash white fly	<i>Siphoninus phillyreae</i>	—	—
10021	10	021	conifer seedling weevil	<i>Steremnius carinatus</i>	—	—
10022	10	022	pyralid moth	<i>Thliptoceras octoquattale</i>	—	—
10023	10	023	wood wasps	<i>Siricidae</i> spp.	—	—
<b>11000</b>	<b>11</b>	<b>000</b>	<b>Bark Beetles</b>	—	Any evidence of a successful attack (successful attacks generally exhibit boring dust, many pitch tubes and/or fading crowns).	<b>All</b>
11001	11	001	roundheaded pine beetle	<i>Dendroctonus adjunctus</i>	—	—
11002	11	002	western pine beetle	<i>Dendroctonus brevicomis</i>	—	—
11003	11	003	southern pine beetle	<i>Dendroctonus frontalis</i>	—	—
11004	11	004	Jeffrey pine beetle	<i>Dendroctonus jeffreyi</i>	—	—
11005	11	005	lodgepole pine beetle	<i>Dendroctonus murrayanae</i>	—	—
11006	11	006	mountain pine beetle	<i>Dendroctonus ponderosae</i>	Any evidence of a successful attack.	<b>NRS; RMRS</b>
11007	11	007	Douglas-fir beetle	<i>Dendroctonus pseudotsugae</i>	—	—
11008	11	008	Allegheny spruce beetle	<i>Dendroctonus punctatus</i>	—	—
11009	11	009	spruce beetle	<i>Dendroctonus rufipennis</i>	Any evidence of a successful attack.	<b>PNWRS; RMRS</b>

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
11010	11	010	eastern larch beetle	<i>Dendroctonus simplex</i>	—	—
11011	11	011	black turpentine beetle	<i>Dendroctonus terebrans</i>	—	—
11012	11	012	red turpentine beetle	<i>Dendroctonus valens</i>	Any evidence of a successful attack.	<b>NRS</b>
11013	11	013	Dryocoetes affaber	<i>Dryocoetes affaber</i>	—	—
11014	11	014	Dryocoetes autographus	<i>Dryocoetes autographus</i>	—	—
11015	11	015	western balsam bark beetle	<i>Dryocoetes confusus</i>	—	—
11016	11	016	Dryocoetes sechelti	<i>Dryocoetes sechelti</i>	—	—
11017	11	017	ash bark beetles	<i>Hylesinus spp.</i>	—	—
11018	11	018	native elm bark beetle	<i>Hylurgopinus rufipes</i>	—	—
11019	11	019	pinon ips	<i>Ips confusus</i>	—	—
11020	11	020	small southern pine engraver	<i>Ips avulsus</i>	—	—
11021	11	021	sixspined ips	<i>Ips calligraphus</i>	—	—
11022	11	022	emarginate ips	<i>Ips emarginatus</i>	—	—
11023	11	023	southern pine engraver beetle	<i>Ips grandicollis</i>	—	—
11024	11	024	Orthotomicus latidens	<i>Orthotomicus latidens</i>	—	—
11025	11	025	Arizona five-spined ips	<i>Ips lecontei</i>	—	—
11026	11	026	Monterey pine ips	<i>Ips mexicanus</i>	—	—
11027	11	027	California fivespined ips	<i>Ips paraconfusus</i>	—	—
11028	11	028	northern spruce engraver beetle	<i>Ips perturbatus</i>	—	—
11029	11	029	pine engraver	<i>Ips pini</i>	—	—
11030	11	030	Ips engraver beetles	<i>Ips spp.</i>	Any evidence of a successful attack.	<b>NRS; PNWRS-AK; RMRS</b>
11031	11	031	<i>Ips tridens</i>	<i>Ips tridens</i>	—	—
11032	11	032	western ash bark beetle	<i>Leperisinus californicus</i>	—	—
11033	11	033	Oregon ash bark beetle	<i>Leperisinus oregonus</i>	—	—
11034	11	034	Orthotomicus caelatus	<i>Orthotomicus caelatus</i>	—	—
11035	11	035	cedar bark beetles	<i>Phloeosinus spp.</i>	—	—
11036	11	036	western cedar bark beetle	<i>Phloeosinus punctatus</i>	—	—

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11037	11	037	tip beetles	<i>Pityogenes</i> spp.	—	—
11038	11	038	Douglas-fir twig beetle	<i>Pityophthorus pseudotsugae</i>	—	—
11039	11	039	twig beetles	<i>Pityophthorus</i> spp.	—	—
11040	11	040	foureyed spruce bark beetle	<i>Polygraphus rufipennis</i>	—	—
11041	11	041	fir root bark beetle	<i>Pseudohylesinus granulatus</i>	—	—
11042	11	042	<i>Pseudohylesinus</i> dispar	<i>Pseudohylesinus</i> dispar	—	—
11043	11	043	Douglas-fir pole beetle	<i>Pseudohylesinus nebulosus</i>	—	—
11044	11	044	silver fir beetle	<i>Pseudohylesinus sericeus</i>	—	—
11045	11	045	small European elm bark beetle	<i>Scolytus multistriatus</i>	—	—
11046	11	046	spruce engraver	<i>Scolytus piceae</i>	—	—
11047	11	047	hickory bark beetle	<i>Scolytus quadrispinosus</i>	—	—
11048	11	048	true fir bark beetles	<i>Scolytus</i> spp.	—	—
11049	11	049	Douglas-fir engraver	<i>Scolytus unispinosus</i>	—	—
11050	11	050	fir engraver	<i>Scolytus ventralis</i>	—	—
11051	11	051	striped ambrosia beetle	<i>Tryachykele lineatum</i>	—	—
11052	11	052	Sitka spruce engraver beetle	<i>Ips connicinnus</i>	—	—
11053	11	053	four-eyed bark beetle	<i>Polygraphus</i> spp.	—	—
11054	11	054	hemlock beetle	<i>Pseudohylesinus tsugae</i>	—	—
11055	11	055	spruce ips	<i>Ips pilifrons</i>	—	—
11056	11	056	(smaller) Mexican pine beetle	<i>Dendroctonus mexicanus</i>	—	—
11057	11	057	banded elm bark beetle	<i>Scolytus schevyrewi</i>	—	—
11058	11	058	redbay ambrosia beetle	<i>Xyleborus glabratus</i>	—	—
11059	11	059	southern cypress beetle	<i>Phloeosinus taxodii</i>	—	—
11060	11	060	Mediterranean pine engraver	<i>Orthotomicus erosus</i>	—	—
11800	11	800	other bark beetle (known)	other bark beetle (known)	—	—
11900	11	900	unknown bark beetle	unknown bark beetle	—	—
11999	11	999	western bark beetle complex	western bark beetle complex	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
<b>12000</b>	<b>12</b>	<b>000</b>	<b>Defoliators</b>	—	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
12001	12	001	casebearer	—	—	—
12002	12	002	leaftier	—	—	—
12003	12	003	loopers	—	—	—
12004	12	004	needleminers	—	—	—
12005	12	005	sawflies	—	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	NRS
12006	12	006	skeletonizer	—	—	—
12007	12	007	larger elm leaf beetle	<i>Monocesta coryli</i>	—	—
12008	12	008	spanworm	—	—	—
12009	12	009	webworm	—	—	—
12010	12	010	pine false webworm	<i>Acantholyda erythrocephala</i>	—	—
12011	12	011	western blackheaded budworm	<i>Acleris gloverana</i>	—	—
12012	12	012	eastern blackheaded budworm	<i>Acleris variana</i>	—	—
12013	12	013	whitefly	<i>Aleyrodidae</i>	—	—
12014	12	014	fall cankerworm	<i>Alsophila pometaria</i>	—	—
12015	12	015	alder flea beetle	<i>Altica ambiens</i>	—	—
12016	12	016	mountain mahogany looper	<i>Anacamptodes clivinaria profanata</i>	—	—
12017	12	017	birch leaffolder	<i>Ancylis disigerana</i>	—	—
12018	12	018	oak worms	<i>Anisota</i> spp.	—	—
12019	12	019	orange-striped oakworm	<i>Anisota senatoria</i>	—	—
12020	12	020	western larch sawfly	<i>Anoplonyx occidens</i>	—	—
12021	12	021	fruittree leafroller	<i>Archips argyrosbla</i>	—	—
12022	12	022	uglynest caterpillar	<i>Archips cerasivorana</i>	—	—
12023	12	023	boxelder defoliator	<i>Archips negundanus</i>	—	—
12024	12	024	oak leafroller	<i>Archips semiferana</i>	—	—
12025	12	025	birch sawfly	<i>Arge pectoralis</i>	—	—

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12026	12	026	arborvitae leafminer	<i>Argyresthia thuiella</i>	—	—
12027	12	027	coconut scale	<i>Aspidiotus destructor</i>	—	—
12028	12	028	texas leafcutting ant	<i>Atta texana</i>	—	—
12029	12	029	oak skeletonizer	<i>Bucculatrix ainsliella</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12030	12	030	pear sawfly	<i>Caliroa cerasi</i>	—	—
12031	12	031	scarlet oak sawfly	<i>Caliroa quercuscoccineae</i>	—	—
12032	12	032	elm calligrapha	<i>Calligrapha scalaris</i>	—	—
12033	12	033	boxelder leafroller	<i>Caloptilia negundella</i>	—	—
12034	12	034	maple petiole borer	<i>Caulocampus acericaulis</i>	—	—
12035	12	035	spruce webspinning sawfly	<i>Cephalcia fascipennis</i>	—	—
12036	12	036	two-year budworm	<i>Choristoneura biennnis</i>	—	—
12037	12	037	large aspen tortrix	<i>Choristoneura conflictana</i>	—	—
12038	12	038	spruce budworm	<i>Choristoneura fumiferana</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12039	12	039	western pine budworm	<i>Choristoneura lambertiana</i>	—	—
12040	12	040	western spruce budworm	<i>Choristoneura occidentalis</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS; RMRS</b>
12041	12	041	jack pine budworm	<i>Choristoneura pinus</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12042	12	042	Modoc budworm	<i>Choristoneura retiniana</i>	—	—
12043	12	043	aspen leaf beetle	<i>Chrysomela crotchi</i>	—	—
12044	12	044	cottonwood leaf beetle	<i>Chrysomela scripta</i>	—	—
12045	12	045	leafhopper	<i>Cicadellidae</i>	—	—
12046	12	046	poplar tentmaker	<i>Clostera inclusa</i>	—	—
12047	12	047	larch casebearer	<i>Coleophora laricella</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>

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12048	12	048	birch casebearer	<i>Coleophora serratella</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12049	12	049	lodgepole needleminer	<i>Coleotechnites milleri</i>	—	—
12050	12	050	Gelechiid moths / needleminers	<i>Coleotechnites</i> spp.	—	—
12051	12	051	Black Hills pandora moth	<i>Coloradia doris</i>	—	—
12052	12	052	pandora moth	<i>Coloradia pandora</i>	—	—
12053	12	053	sycamore lace bug	<i>Corythucha ciliata</i>	—	—
12054	12	054	lace bugs	<i>Corythucha</i> spp.	—	—
12055	12	055	oak leaffier	<i>Croesia semipurpurana</i>	—	—
12056	12	056	dusky birch sawfly	<i>Croesus latitarsus</i>	—	—
12057	12	057	walnut caterpillar	<i>Datana integerrima</i>	—	—
12058	12	058	yellownecked caterpillar	<i>Datana ministra</i>	—	—
12059	12	059	walkingstick	<i>Diapheromera femorata</i>	—	—
12060	12	060	spruce coneworm	<i>Dioryctria reniculelloides</i>	—	—
12061	12	061	introduced pine sawfly	<i>Diprion similis</i>	—	—
12062	12	062	greenstriped mapleworm	<i>Dryocampa rubicunda</i>	—	—
12063	12	063	spruce needleminer (east)	<i>Endothenia albolineana</i>	—	—
12064	12	064	elm spanworm	<i>Ennomos subsignaris</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12065	12	065	maple trumpet skeletonizer	<i>Epinotia aceriella</i>	—	—
12066	12	066	white fir needleminer	<i>Epinotia meritana</i>	—	—
12067	12	067	linden looper	<i>Erannis tiliaria</i>	—	—
12068	12	068	brown tail moth	<i>Euproctis chrysorrhoea</i>	Any occurrence.	<b>NRS</b>
12069	12	069	pine needleminer	<i>Exoteleia pinifoliella</i>	—	—
12070	12	070	birch leafminer	<i>Fenus a pusilla</i>	—	—
12071	12	071	elm leafminer	<i>Fenus a ulmi</i>	—	—
12072	12	072	geometrid moth	<i>Geometridae</i>	—	—
12073	12	073	leafblotch miner	<i>Gracillariidae</i>	—	—

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12074	12	074	spotted tussock moth	<i>Halisidota maculata</i>	—	—
12075	12	075	pale tussock moth	<i>Halysidota tessellaris</i>	—	—
12076	12	076	hesperiid moth	<i>Hasora choromus</i>	—	—
12077	12	077	brown day moth	<i>Hemileuca eglanterina</i>	—	—
12078	12	078	buck moth	<i>Hemileuca maia</i>	—	—
12079	12	079	saddled prominent	<i>Heterocampa guttivitta</i>	—	—
12080	12	080	variable oakleaf caterpillar	<i>Heterocampa manteo</i>	—	—
12081	12	081	cherry scallop shell moth	<i>Hydria prunivorata</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12082	12	082	fall webworm	<i>Hyphantria cunea</i>	—	—
12083	12	083	hemlock looper	<i>Lambdina fiscellaria</i>	—	—
12084	12	084	oak looper	<i>Lambdina punctat</i>	—	—
12085	12	085	tent caterpillar moth	<i>Lasiocampidae</i>	—	—
12086	12	086	satin moth	<i>Leucoma salicis</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12087	12	087	willow leafblotch miner	<i>Lithocolletis</i> spp.	—	—
12088	12	088	aspen blotchminer	<i>Lithocolletis tremuloidiella</i>	—	—
12089	12	089	gypsy moth	<i>Lymantria dispar</i>	Any occurrence.	<b>NRS</b>
12090	12	090	cottonwood leafminers	<i>Lyonetia</i> spp.	—	—
12091	12	091	dogwood sawfly	<i>Macremphytus tarsatus</i>	—	—
12092	12	092	rose chafer	<i>Macrodactylus subspinosus</i>	—	—
12093	12	093	eastern tent caterpillar	<i>Malacosoma americanum</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12094	12	094	western tent caterpillar	<i>Malacosoma californicum</i>	—	—
12095	12	095	Pacific tent caterpillar	<i>Malacosoma constrictum</i>	—	—
12096	12	096	forest tent caterpillar	<i>Malacosoma disstria</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>

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12097	12	097	southwestern tent caterpillar	<i>Malacosoma incurvum</i>	—	—
12098	12	098	leafcutting bees	<i>Megachilidae</i>	—	—
12099	12	099	blister beetle	<i>Meloidae</i>	—	—
12100	12	100	early birch leaf edgeminer	<i>Messa nana</i>	—	—
12101	12	101	juniper sawfly	<i>Monocetus fulvus</i>	—	—
12102	12	102	common sawflies	<i>Nematus spp.</i>	—	—
12103	12	103	balsam fir sawfly	<i>Neodiprion abietis</i>	—	—
12104	12	104	lodgepole sawfly	<i>Neodiprion burkei</i>	—	—
12105	12	105	blackheaded pine sawfly	<i>Neodiprion excitans</i>	—	—
12106	12	106	pine infesting sawflies	<i>Neodiprion fulviceps</i>	—	—
12107	12	107	redheaded pine sawfly	<i>Neodiprion lecontei</i>	—	—
12109	12	109	ponderosa pine sawfly	<i>Neodiprion mundus</i>	—	—
12110	12	110	white pine sawfly	<i>Neodiprion pinetum</i>	—	—
12111	12	111	jack pine sawfly	<i>Neodiprion pratti banksianae</i>	—	—
12112	12	112	Virginia pine sawfly	<i>Neodiprion pratti pratti</i>	—	—
12113	12	113	European pine sawfly	<i>Neodiprion sertifer</i>	—	—
12114	12	114	loblolly pine sawfly	<i>Neodiprion taedae linearis</i>	—	—
12115	12	115	hemlock sawfly	<i>Neodiprion tsugae</i>	—	—
12116	12	116	pine butterfly	<i>Neophasia menapia</i>	—	—
12117	12	117	false hemlock looper	<i>Nepytiacanosaria</i>	—	—
12118	12	118	California tortoiseshell	<i>Nymphalis californica</i>	—	—
12119	12	119	locust leafminer	<i>Odontota dorsalis</i>	—	—
12120	12	120	Bruce spanworm	<i>Operophtera bruceata</i>	—	—
12121	12	121	rusty tussock moth	<i>Orgyia antiqua</i>	—	—
12122	12	122	whitemarked tussock moth	<i>Orgyia leucostigma</i>	—	—
12123	12	123	Douglas-fir tussock moth	<i>Orgyia pseudotsugata</i>	—	—
12124	12	124	western tussock moth	<i>Orgyia vetusta</i>	—	—
12125	12	125	spring cankerworm	<i>Paleacrita vernata</i>	—	—

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12126	12	126	black citrus swallowtail butterfly	<i>Papilio polytes</i>	—	—
12127	12	127	maple leafcutter	<i>Paraclemensia acerifoliella</i>	—	—
12128	12	128	pine tussock moth	<i>Parorgyia grisefacta</i>	—	—
12129	12	129	poinciana looper	<i>Pericyma cruegeri</i>	—	—
12130	12	130	half-wing geometer	<i>Phigalia titea</i>	—	—
12131	12	131	Phoberia moth	<i>Phoberia atomaris</i>	—	—
12132	12	132	California oakworm	<i>Phryganidia californica</i>	—	—
12133	12	133	European snout beetle	<i>Phyllobius oblongus</i>	—	—
12134	12	134	citrus leafminer	<i>Phyllocnistis citrella</i>	—	—
12135	12	135	aspen leafminer	<i>Phyllocnistis populiella</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS-AK</b>
12136	12	136	yellowheaded spruce sawfly	<i>Pikonema alaskensis</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12137	12	137	tenlined June beetle	<i>Polyphylla decemlineata</i>	—	—
12138	12	138	Japanese beetle	<i>Popillia japonica</i>	—	—
12139	12	139	larch sawfly	<i>Pristiphora erichsonii</i>	—	—
12140	12	140	mountain-ash sawfly	<i>Pristiphora geniculata</i>	—	—
12141	12	141	elm leaf beetle	<i>Pyrrhalta luteola</i>	—	—
12142	12	142	spearmarked black moth	<i>Rheumaptera hastata</i>	—	—
12143	12	143	giant silkworm moth	<i>Saturniidae</i>	—	—
12144	12	144	redhumped caterpillar	<i>Schizura concinna</i>	—	—
12145	12	145	redbanded thrips	<i>Selenothrips rubrocinctus</i>	—	—
12146	12	146	green larch looper	<i>Semiothisa sexmaculata</i>	—	—
12147	12	147	maple leafroller	<i>Sparganothis acerivorana</i>	—	—
12148	12	148	redhumped oakworm	<i>Symmerista canicosta</i>	—	—
12149	12	149	orangehumped mapleworm	<i>Symmerista leucitys</i>	—	—
12150	12	150	spruce needleminer (west)	<i>Taniva albolineana</i>	—	—
12151	12	151	maple webworm	<i>Tetralopha asperatella</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
12152	12	152	pine webworm	<i>Tetralopha robustella</i>	—	—
12153	12	153	introduced basswood thrips	<i>Thrips calcaratus</i>	—	—
12154	12	154	bagworm	<i>Thyridopteryx ephemeraeformis</i>	—	—
12155	12	155	leafroller/seed moth	<i>Tortricidae</i>	—	—
12156	12	156	willow defoliation	<i>Tortricidae</i>	—	—
12157	12	157	euonymus caterpillar	<i>Yponomeuta</i> spp.	—	—
12158	12	158	spruce bud moth	<i>Zeiraphera canadensis</i>	—	—
12159	12	159	larch bud moth	<i>Zeiraphera improbana</i>	—	—
12160	12	160	pine needle sheathminer	<i>Zelleria haimbachi</i>	—	—
12161	12	161	cypress looper	<i>Anacamptodes pergracilis</i>	—	—
12162	12	162	Chrysomela leaf beetle	<i>Chrysomela</i> spp.	—	—
12163	12	163	pine colaspis	<i>Colaspis pini</i>	—	—
12164	12	164	saddleback looper	<i>Ectropis crepuscularia</i>	—	—
12165	12	165	birch leaf roller	<i>Epinotia solandriana</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS-AK</b>
12166	12	166	New Mexico fir looper	<i>Galenara consimilis</i>	—	—
12167	12	167	striped alder sawfly	<i>Hemicroa crocea</i>	—	—
12168	12	168	greenstriped looper	<i>Melanoplophia imitata</i>	—	—
12169	12	169	willow leaf blotchminer	<i>Micrurapteryx salicifoliella</i>	—	—
12170	12	170	pine sawfly	<i>Neodiprion autmnalis</i>	—	—
12171	12	171	pinon sawfly	<i>Neodiprion edulicolus</i>	—	—
12172	12	172	Neodiprion gilletti	<i>Neodiprion gilletti</i>	—	—
12173	12	173	Neodiprion ventralis	<i>Neodiprion ventralis</i>	—	—
12174	12	174	pine looper	<i>Phaeoura mexicanaria</i>	—	—
12175	12	175	Zadiprion rohweri	<i>Zadiprion rohweri</i>	—	—
12176	12	176	bull pine sawfly	<i>Zadiprion townsendi</i>	—	—
12177	12	177	Douglas-fir budmoth	<i>Zeiraphera hesperiana</i>	—	—
12178	12	178	western oak looper	<i>Lambdina fiscellaria somniaria</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
12179	12	179	phantom hemlock looper	<i>Nepytia phantasmaria</i>	—	—
12180	12	180	tent caterpillar	<i>Malacosoma</i> spp.	—	—
12181	12	181	Abbot's sawfly	<i>Neodiprion abbotii</i>	—	—
12182	12	182	slash pine sawfly	<i>Neodiprion merkeli</i>	—	—
12183	12	183	sand pine sawfly	<i>Neodiprion pratti</i>	—	—
12184	12	184	melalueca leaf weevil	<i>Oxyops vitiosa</i>	—	—
12185	12	185	cypress leaf beetle	<i>Systema marginalis</i>	—	—
12186	12	186	<i>Nepytia janetae</i>	<i>Nepytia janetae</i>	—	—
12187	12	187	agromyzid fly	<i>Agromyza viridula</i>	—	—
12188	12	188	elm sawfly	<i>Cimbex americana</i>	—	—
12189	12	189	june beetle	<i>Phyllophaga</i> spp.	—	—
12190	12	190	hickory tussock moth	<i>Halisidota caryae</i>	—	—
12191	12	191	pin oak sawfly	<i>Caliroa lineata</i>	—	—
12192	12	192	palmerworm	<i>Dichomeris ligulella</i>	—	—
12193	12	193	pitch pine looper	<i>Lambdina athasaria pellucidaria</i>	—	—
12194	12	194	red pine sawfly	<i>Neodiprion nanulus nanulus</i>	—	—
12195	12	195	pine tube moth	<i>Argyrotaenia pinatubana</i>	—	—
12196	12	196	baldcypress leafroller	<i>Archips goyerana</i>	—	—
12197	12	197	winter moth	<i>Operophtera brumata</i>	Any occurrence.	<b>NRS</b>
12198	12	198	basswood thrips	<i>Neohydatothrips tiliae</i>	—	—
12199	12	199	noctuid moth	<i>Xylomyges simplex</i> (Walker)	—	—
12200	12	200	pyralid moth	<i>Palpita magniferalis</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
12201	12	201	pacific silver fir budmoth	<i>Zeiraphera</i> spp.	—	—
12202	12	202	red pine needle midge	<i>Thecodiplosis piniresinosae</i>	—	—
12203	12	203	western hemlock looper	<i>Lambdina fiscellaria lugubrosa</i>	—	—
12204	12	204	lodgepole pine sawfly	<i>Neodiprion nanulus contortae</i>	—	—
12205	12	205	silverspotted tiger moth	<i>Lophocampa argentata</i>	—	—

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12206	12	206	green alder sawfly	<i>Monsoma pulveratum</i>	—	—
12207	12	207	conifer sawflies	conifer sawflies	—	—
12208	12	208	ambermarked birch leafminer	<i>Profenus thomsoni</i>	—	—
12209	12	209	cycad blue butterfly	<i>Chilades pandava</i>	—	—
12300	12	300	budworm	budworms	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
12800	12	800	other defloater (known)	other defloater (known)	—	—
12900	12	900	unknown defoliator	unknown defoliator	—	—
<b>13000</b>	<b>13</b>	<b>000</b>	<b>Cutting Insects</b>	—	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>RMRS; SRS</b>
13001	13	001	grasshopper	—	—	—
13002	13	002	shorthorn grasshoppers	<i>Acrididae</i>	—	—
13003	13	003	black cutworm	<i>Agrotis ipsilon</i>	—	—
13004	13	004	Palau coconut beetle	<i>Brontispa palauensis</i>	—	—
13005	13	005	clearwinged grasshopper	<i>Camnula pellucida</i>	—	—
13006	13	006	cicadas	<i>Cicadidae</i>	—	—
13007	13	007	eurytomids	<i>Eurytoma</i> spp.	—	—
13008	13	008	cutworms	<i>Euxoa excellens</i>	—	—
13009	13	009	whitefringed beetles	<i>Graphognathus</i> spp.	—	—
13010	13	010	pales weevil	<i>Hylobius pales</i>	—	—
13011	13	011	vegetable weevil	<i>Listroderes difficilis</i>	—	—
13012	13	012	periodical cicada	<i>Magicicada septendecim</i>	—	—
13013	13	013	migratory grasshopper	<i>Melanoplus sanguinipes</i>	—	—
13014	13	014	valley grasshopper	<i>Oedaleonotus enigma</i>	—	—
13015	13	015	strawberry root weevil	<i>Otiorhyynchus ovatus</i>	—	—
13016	13	016	black vine weevil	<i>Otiorhynchus sulcatus</i>	—	—
13017	13	017	pandanus beetle	<i>Oxycephala pandani</i>	—	—
13018	13	018	spaeth pandanus	<i>Oxycephala spaethi</i>	—	—

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13019	13	019	agamemnon butterfly	<i>Papilio agememnon</i>	—	—
13020	13	020	northern pitch twig moth	<i>Petrova albicapitana</i>	—	—
13021	13	021	ponderosa pine tip moth	<i>Rhyacionia zozana</i>	—	—
13022	13	022	pine needle weevil	<i>Scythropus</i> spp.	—	—
13023	13	023	coconut longhorned grasshopper	<i>Segestes unicolor</i>	—	—
13024	13	024	clover root curculio	<i>Sitona hispidulus</i>	—	—
13025	13	025	Madron thrips	<i>Thrips madronii</i>	—	—
13026	13	026	ash plant bug	<i>Tropidosteptes amoenus</i>	—	—
13027	13	027	shorthorned grasshopper	<i>Valanga nigricornis</i>	—	—
13028	13	028	pitch-eating weevil	<i>Pachylobius picivorus</i>	—	—
13029	13	029	eastern pine weevil	<i>Pissodes nemorensis</i>	—	—
13030	13	030	adana tip moth	<i>Rhyacionia adana</i>	—	—
13800	13	800	other chewing insect (known)	other chewing insect (known)	—	—
13900	13	900	unknown chewing insect	unknown chewing insect	—	—
<b>14000</b>	<b>14</b>	<b>000</b>	<b>Sucking Insects</b>	—	Any damage to the terminal leader; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	<b>All</b>
14001	14	001	scale insects	—	Any damage to the terminal leader; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	<b>NRS</b>
14002	14	002	western larch woolly aphid	<i>Adelges oregonensis</i>	—	—
14003	14	003	balsam woolly adelgid	<i>Adelges piceae</i>	Any occurrence.	<b>NRS; PNWRS; RMRS</b>
14004	14	004	hemlock woolly adelgid	<i>Adelges tsugae</i>	Any occurrence.	<b>NRS; RMRS</b>
14005	14	005	spiraling whitefly	<i>Aleurodicus dispersus</i>	—	—
14006	14	006	aphid	<i>Aphididae</i>	—	—
14007	14	007	pine spittlebug	<i>Aphrophora parallelia</i>	—	—
14008	14	008	western pine spittlebug	<i>Aphrophora permutata</i>	—	—
14009	14	009	Saratoga spittlebug	<i>Aphrophora saratogensis</i>	—	—

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14010	14	010	spittlebug	<i>Cercopidae</i>	—	—
14011	14	011	wax scale	<i>Ceroplastes</i> spp.	—	—
14012	14	012	pine needle scale	<i>Chionaspis pinifoliae</i>	—	—
14014	14	014	giant conifer aphids	<i>Cinara</i> spp.	—	—
14015	14	015	white pine aphid	<i>Cinara strobi</i>	—	—
14016	14	016	beech scale	<i>Cryptococcus fagisuga</i>	Any occurrence.	<b>NRS</b>
14017	14	017	spruce aphid	<i>Elatobium abietinum</i>	—	—
14018	14	018	woolly apple aphid	<i>Eriosoma lanigerum</i>	—	—
14019	14	019	striped mealybug	<i>Ferrisia vergata</i>	—	—
14020	14	020	elongate hemlock scale	<i>Fiorinia externa</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
14021	14	021	coconut red scale	<i>Furcaspis oceanica</i>	—	—
14022	14	022	pine thrips	<i>Gnaphothrips</i> spp.	—	—
14023	14	023	leucaena psyllid	<i>Heteropsylla cubana</i>	—	—
14024	14	024	honeysuckle aphids	<i>Hyadaphis tataricae</i>	—	—
14025	14	025	Egyptian fluted scale	<i>Icerya aegyptiaca</i>	—	—
14026	14	026	Lecanium scale	<i>Lecanium</i> spp.	—	—
14027	14	027	common falsepit scale	<i>Lecanodiaspis prosopidis</i>	—	—
14028	14	028	oystershell scale	<i>Lepidosaphes ulmi</i>	—	—
14029	14	029	pinyon needle scale	<i>Matsucoccus acalyptus</i>	—	—
14030	14	030	ponderosa pine twig scale	<i>Matsucoccus bisetosus</i>	—	—
14031	14	031	pine twig scale	<i>Matsucoccus californicus</i>	—	—
14032	14	032	ponderosa pine scale	<i>Matsucoccus degeneratus</i>	—	—
14033	14	033	red pine scale	<i>Matsucoccus resinosae</i>	Any occurrence.	<b>NRS</b>
14034	14	034	Prescott scale	<i>Matsucoccus vexillorum</i>	—	—
14035	14	035	treehoopers	<i>Membracidae</i>	—	—
14036	14	036	hibiscus psyllid	<i>Mesohomotoma hibisci</i>	—	—
14037	14	037	balsam twig aphid	<i>Mindarus abietinus</i>	—	—

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14038	14	038	hibiscus mealybug	<i>Nipseaecoccus vastator</i>	—	—
14039	14	039	black pineleaf scale	<i>Nuculaspis californica</i>	—	—
14040	14	040	spruce spider mite	<i>Oligonychus ununquis</i>	—	—
14041	14	041	twig girdler	<i>Oncideres cingulata</i>	—	—
14042	14	042	woolly alder aphid	<i>Paraproctiphilus tessellatus</i>	—	—
14043	14	043	maple aphids	<i>Periphyllus spp.</i>	—	—
14044	14	044	spruce bud scale	<i>Physokermes piceae</i>	—	—
14045	14	045	red pine adelgid	<i>Pineus borneri</i>	—	—
14046	14	046	pine leaf adelgid	<i>Pineus pinifoliae</i>	—	—
14047	14	047	white pine adelgid	<i>Pineus spp.</i>	—	—
14048	14	048	pine bark adelgid	<i>Pineus strobi</i>	—	—
14049	14	049	root aphid	<i>Prociphilus americanus</i>	—	—
14050	14	050	mealybug	<i>Pseudococcidae</i>	—	—
14051	14	051	cottony maple scale	<i>Pulvinaria innumerabilis</i>	—	—
14052	14	052	fir mealybug	<i>Puto cupressi</i>	—	—
14053	14	053	Douglas-fir mealybug	<i>Puto profusus</i>	—	—
14054	14	054	spruce mealybug	<i>Puto sandini</i>	—	—
14055	14	055	hemispherical scale	<i>Saissetia coffeae</i>	—	—
14056	14	056	woolly pine needle aphid	<i>Schizolachnus piniradiatae</i>	—	—
14057	14	057	steatococcus scale	<i>Steatococcus samaraius</i>	—	—
14058	14	058	pear thrips	<i>Taeniothrips inconsequens</i>	—	—
14059	14	059	mulberry whitefly	<i>Tetraleurodes mori</i>	—	—
14060	14	060	tuliptree scale	<i>Toumeyella liriodendri</i>	—	—
14061	14	061	pine tortoise scale	<i>Toumeyella parvicornis</i>	—	—
14062	14	062	citrus snow scale	<i>Unaspis citri</i>	—	—
14063	14	063	birch aphid	<i>Euceraphis betulae</i>	—	—
14064	14	064	Kermes scale	<i>Allokermes spp.</i>	—	—
14065	14	065	Casuarina spittlebug	<i>Clastoptera undulata</i>	—	—

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14066	14	066	giant bark aphid	<i>Longistigma caryae</i>	—	—
14067	14	067	woolly pine scale	<i>Pseudophilippia quaintancii</i>	—	—
14068	14	068	european elm scale	<i>Gossyparia spuria</i>	—	—
14069	14	069	elm scurfy scale	<i>Chionaspis americana</i>	—	—
14070	14	070	magnolia scale	<i>Neolecanium cornuparvum</i>	—	—
14071	14	071	beech blight aphid	<i>Glylloprociphilus imbricator</i>	—	—
14072	14	072	beech woolly aphid	<i>Phylloxaphis fagi</i>	—	—
14073	14	073	Asian cycad scale	<i>Aulacaspis yasumatsui</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
14074	14	074	European fruit lecanium scale	<i>Parthenolecanium corni</i>	—	—
14075	14	075	lobate lac scale	<i>Paratachardina lobata</i>	—	<b>PNWRS-IS</b>
14800	14	800	other sucking insect (known)	other sucking insect (known)	—	—
14900	14	900	unknown sucking insect	unknown sucking insect	—	—
<b>15000</b>	<b>15</b>	<b>000</b>	<b>Boring Insects</b>	—	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	<b>All</b>
15001	15	001	shoot borer	—	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	<b>NRS</b>
15002	15	002	termite	—	—	—
15003	15	003	ponderosa pine bark borer	<i>Acanthocinus princeps</i>	—	—
15004	15	004	bronze birch borer	<i>Agrilus anxius</i>	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	<b>NRS</b>
15005	15	005	twolined chestnut borers	<i>Agrilus bilineatus</i>	—	—
15006	15	006	bronze poplar borer	<i>Agrilus liragus</i>	—	—
15007	15	007	carpenter bees	<i>Apidae</i>	—	—
15008	15	008	flatheaded borer	<i>Buprestidae</i>	—	—
15009	15	009	golden buprestid	<i>Buprestis aurulenta</i>	—	—
15010	15	010	carpenter ants	<i>Camponotus</i> spp.	—	—

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15011	15	011	gouty pitch midge	<i>Cecidomyia piniinopis</i>	—	—
15012	15	012	shootboring sawflies	<i>Cephidae</i>	—	—
15013	15	013	roundheaded borer	<i>Cerambycidae</i>	—	—
15014	15	014	flatheaded apple tree borer	<i>Chrysobothris femorata</i>	—	—
15015	15	015	cranberry girdler	<i>Chrysoteuchia topiaria</i>	—	—
15016	15	016	Columbian timber beetle	<i>Corthylus columbianus</i>	—	—
15017	15	017	pitted ambrosia beetle	<i>Corthylus punctatissimus</i>	—	—
15018	15	018	carpenterworm moths	<i>Cossidae</i>	—	—
15019	15	019	poplar and willow borer	<i>Cryptorhynchus lapathi</i>	—	—
15020	15	020	pine reproduction weevil	<i>Cylindrocopturus eatoni</i>	—	—
15021	15	021	Douglas-fir twig weevil	<i>Cylindrocopturus furnissi</i>	—	—
15022	15	022	Zimmerman pine moth	<i>Dioryctria zimmermani</i>	—	—
15023	15	023	oak twig borers	<i>Elaphidionoides spp.</i>	—	—
15024	15	024	twig pruner	<i>Elaphidionoides villosus</i>	—	—
15025	15	025	lesser cornstalk borer	<i>Elasmopalpus lignosellus</i>	—	—
15026	15	026	red oak borer	<i>Enaphalodes rufulus</i>	Damage to ≥10% of the bole circumference.	<b>NRS</b>
15027	15	027	ponderous borer	<i>Ergates spiculatus</i>	—	—
15028	15	028	eastern pine shoot borer	<i>Eucosma gloriola</i>	—	—
15029	15	029	western pine shoot borer	<i>Eucosma sonomana</i>	—	—
15030	15	030	Eucosma shoot borers	<i>Eucosma spp.</i>	—	—
15031	15	031	sugar maple borer	<i>Glycobius speciosus</i>	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	<b>NRS</b>
15032	15	032	Goes borers	<i>Goes spp.</i>	—	—
15033	15	033	pine root collar weevil	<i>Hylobius radicis</i>	—	—
15034	15	034	Warren root collar weevil	<i>Hylobius warreni</i>	—	—
15035	15	035	powderpost beetle	<i>Lyctidae</i>	—	—
15036	15	036	tarnished plant bug	<i>Lygus lineolaris</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
15037	15	037	bark weevils	<i>Magdalis</i> spp.	—	—
15038	15	038	white pine barkminer moth	<i>Marmara fasciella</i>	—	—
15039	15	039	locust borer	<i>Megacyllene robiniae</i>	—	—
15040	15	040	California flathead borer	<i>Melanophila californica</i>	—	—
15041	15	041	flatheaded fir borer	<i>Melanophila drummondi</i>	—	—
15042	15	042	whitespotted sawyer	<i>Monochamus scutellatus</i>	—	—
15043	15	043	redheaded ash borer	<i>Neoclytus acuminatus</i>	—	—
15044	15	044	western ash borer	<i>Neoclytus conjunctus</i>	—	—
15045	15	045	oberea shoot borers	<i>Oberea</i> spp.	—	—
15046	15	046	eucalyptus longhorned borer	<i>Phoracantha semipunctata</i>	—	—
15047	15	047	northern pine weevil	<i>Pissodes approximatus</i>	—	—
15048	15	048	balsam bark weevil	<i>Pissodes dubius</i>	—	—
15049	15	049	Monterey pine weevil	<i>Pissodes radiatae</i>	—	—
15050	15	050	Engelmann spruce weevil	<i>Pissodes strobi</i>	—	—
15051	15	051	lodgepole terminal weevil	<i>Pissodes terminalis</i>	—	—
15052	15	052	ambrosia beetles	<i>Platypus</i> spp.	—	—
15053	15	053	cottonwood borer	<i>Plectrodera scalaris</i>	—	—
15054	15	054	balsam shootboring sawfly	<i>Pleroneura brunneicornis</i>	—	—
15055	15	055	pine gall weevil	<i>Podapion gallicola</i>	—	—
15056	15	056	ash borer	<i>Podesesia syringae fraxini</i>	—	—
15057	15	057	lilac borer	<i>Podesesia syringae</i>	—	—
15058	15	058	carpenterworm	<i>Prionoxystus robiniae</i>	—	—
15059	15	059	maple shoot borers	<i>Protereras</i> spp.	—	—
15060	15	060	western subterranean termite	<i>Reticulitermes hesperus</i>	—	—
15061	15	061	coconut trunk weevil	<i>Rhabdoscelus asperipennis</i>	—	—
15062	15	062	New Guinea sugarcane weevil	<i>Rhabdoscelus obscurus</i>	—	—
15063	15	063	European pine shoot moth	<i>Rhyacionia buoliana</i>	—	—
15064	15	064	western pine tip moth	<i>Rhyacionia bushnelli</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
15065	15	065	Nantucket pine tip moth	<i>Rhyacionia frustrana</i>	—	—
15066	15	066	lodgepole pine tip moth	<i>Rhyacionia montana</i>	—	—
15067	15	067	southwestern pine tip moth	<i>Rhyacionia neomexicana</i>	—	—
15068	15	068	poplar borer	<i>Saperda calcarata</i>	—	—
15069	15	069	roundheaded appletree borer	<i>Saperda candida</i>	—	—
15070	15	070	Saperda shoot borer	<i>Saperda</i> spp.	—	—
15071	15	071	clearwing moths	<i>Sesiidae</i>	—	—
15072	15	072	dogwood borer	<i>Synanthedon scitula</i>	—	—
15073	15	073	roundheaded fir borer	<i>Tetropium abietis</i>	—	—
15074	15	074	western larch borer	<i>Tetropium velutinum</i>	—	—
15075	15	075	western cedar borer	<i>Trachykele blondeli</i>	—	—
15076	15	076	Douglas-fir pitch moth	<i>Vesparimma novaroensis</i>	—	—
15077	15	077	sequoia pitch moth	<i>Vesparimma sequoia</i>	—	—
15078	15	078	black twig borer	<i>Xylosandrus compactus</i>	—	<b>PNWRS-IS</b>
15079	15	079	Pacific dampwood termite	<i>Zootermopsis angusticollis</i>	—	—
15080	15	080	subtropical pine tip moth	<i>Rhyacionia subtropica</i>	—	—
15081	15	081	Asian ambrosia beetle	<i>Xylosandrus crassiusculus</i>	—	—
15082	15	082	Asian longhorned beetle	<i>Anoplophora glabripennis</i>	—	—
15083	15	083	cottonwood twig borer	<i>Gypsonoma haimbachiana</i>	—	—
15084	15	084	southern pine sawyer	<i>Monochamus titillator</i>	—	—
15085	15	085	banded ash borer	<i>Neoclytus capraea</i>	—	—
15086	15	086	sitka spruce weevil	<i>Pissodes sitchensis</i>	—	—
15087	15	087	emerald ash borer	<i>Agrilus planipennis</i>	Any occurrence.	<b>NRS</b>
15088	15	088	hemlock borer	<i>Melanophila fulvoguttata</i>	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	<b>NRS</b>
15089	15	089	Formosan subterranean termite	<i>Coptotermes formosanus</i>	—	—
15090	15	090	sirex woodwasp	<i>Sirex noctilio</i>	—	—

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15091	15	091	Oregon fir sawyer	<i>Monochamus scutellatus oregonensis</i>	—	—
15092	15	092	cypress weevil	<i>Eudocimus mannerheimii</i>	—	—
15093	15	093	camphor shot borer	<i>Xylosandrus multilatus</i>	—	—
15094	15	094	goldenspotted oak borer	<i>Agrilus coxalis</i>	—	—
15095	15	095	European oak borer	<i>Agrilus sulcicollis</i>	—	—
15096	15	096	X. germanus ambrosia beetle	<i>Xylosandrus germanus</i>	—	—
15097	15	097	Icosium tomentosum	<i>Icosium tomentosum</i>	—	—
15800	15	800	other boring insect (known)	other boring insect (known)	—	—
15900	15	900	unknown boring insect	unknown boring insect	—	—
<b>16000</b>	<b>16</b>	<b>000</b>	<b>Seed/Cone/Flower/Fruit Insects</b>	—	—	—
16001	16	001	Douglas-fir cone moth	<i>Barbara colfaxiana</i>	—	—
16002	16	002	lodgepole cone beetle	<i>Conophthorus contortae</i>	—	—
16003	16	003	limber pine cone beetle	<i>Conophthorus flexilis</i>	—	—
16004	16	004	mountain pine cone beetle	<i>Conophthorus monticolae</i>	—	—
16005	16	005	ponderosa pine cone beetle	<i>Conophthorus ponderosae</i>	—	—
16006	16	006	Monterey pine cone beetle	<i>Conophthorus radiatae</i>	—	—
16007	16	007	red pine cone beetle	<i>Conophthorus resinosae</i>	—	—
16008	16	008	white pine cone beetle	<i>Conophthorus coniperda</i>	—	—
16009	16	009	black walnut curculio	<i>Conotrachelus retentus</i>	—	—
16010	16	010	Douglas-fir cone gall midge	<i>Contarinia oregonensis</i>	—	—
16011	16	011	Douglas-fir cone scale midge	<i>Contarinia washingtonensis</i>	—	—
16012	16	012	acorn/nut weevils	<i>Curculio spp.</i>	—	—
16013	16	013	Caroline fruitfly	<i>Dacus frauenfeldi</i>	—	—
16014	16	014	spruce bud midge	<i>Dasineura swainei</i>	—	—
16015	16	015	fir coneworm	<i>Dioryctria abietivorella</i>	—	—
16016	16	016	southern pine cone worm	<i>Dioryctria amatella</i>	—	—
16017	16	017	ponderosa pine coneworm	<i>Dioryctria auranticella</i>	—	—

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16018	16	018	loblolly pine cone worm	<i>Dioryctria merkeli</i>	—	—
16019	16	019	ponderosa twig moth	<i>Dioryctria ponderosae</i>	—	—
16020	16	020	Dioryctria pseudotsugella	<i>Dioryctria pseudotsugella</i>	—	—
16021	16	021	Dioryctria moths	<i>Dioryctria</i> spp.	—	—
16022	16	022	lodgepole cone moth	<i>Eucosma rescessoriana</i>	—	—
16023	16	023	seed chalcid	<i>Eurytomidae</i>	—	—
16024	16	024	slash pine flower thrips	<i>Gnaphothrips fuscus</i>	—	—
16025	16	025	spruce cone maggot	<i>Hylemya anthracina</i>	—	—
16026	16	026	longleaf pine seed worm or moth	<i>Laspeyresia ingens</i>	—	—
16027	16	027	ponderosa pine seed moth	<i>Laspeyresia piperana</i>	—	—
16028	16	028	spruce seed moth	<i>Laspeyresia youngana</i>	—	—
16029	16	029	boxelder bug	<i>Leptocoris trivittatus</i>	—	—
16030	16	030	leaffooted pine seed bug	<i>Leptoglossus corculus</i>	—	—
16031	16	031	western conifer seed bug	<i>Leptoglossus occidentalis</i>	—	—
16032	16	032	hollyhock thrips	<i>Liothrips varicornis</i>	—	—
16033	16	033	Magastigmus lasiocarpae	<i>Magastigmus lasiocarpae</i>	—	—
16034	16	034	spruce seed chalcid	<i>Magastigmus piceae</i>	—	—
16035	16	035	ponderosa pine seed chalcid	<i>Megastigmus albifrons</i>	—	—
16036	16	036	fir seed chalcid	<i>Megastigmus pinus</i>	—	—
16037	16	037	Douglas-fir seed chalcid	<i>Megastigmus spermotrophs</i>	—	—
16038	16	038	yellow poplar weevil	<i>Odontopus calceatus</i>	—	—
16039	16	039	fruitpiercing moth	<i>Othreis fullonia</i>	—	—
16040	16	040	roundheaded cone borer	<i>Paratimia conicola</i>	—	—
16041	16	041	mango shoot caterpillar	<i>Penicillaria jocosatrix</i>	—	—
16042	16	042	coneworm	<i>Phycitidae</i>	—	—
16043	16	043	harvester ants	<i>Pogonomyrmex</i> spp.	—	—
16044	16	044	citrus flower moth	<i>Prays citri</i>	—	—
16045	16	045	fir cone maggot	<i>Strobilomyia abietis</i>	—	—

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16046	16	046	spruce cone maggot	<i>Strobilomyia anthracina</i>	—	—
16047	16	047	shieldbacked pine seed bug	<i>Tetyra bipunctata</i>	—	—
16048	16	048	coneworm	<i>Hylemia</i> spp.	—	—
16049	16	049	prairie tent caterpillar	<i>Malacosoma lutescens</i>	—	—
16050	16	050	jack pine tip beetle	<i>Conophthorus banksianae</i>	—	—
16051	16	051	webbing coneworm	<i>Dioryctria disclusa</i>	—	—
16052	16	052	blister coneworm	<i>Dioryctria clarioralis</i>	—	—
16053	16	053	southern cone gall midge	<i>Cecidomyia bisetosa</i>	—	—
16054	16	054	seed bugs	<i>Lygaeidae</i> spp.	—	—
16800	16	800	other seed/cone/flower insect (known)	other seed/cone/flower insect (known)	—	—
16900	16	900	unknown seed/cone/flower insects	unknown seed/cone/flower insects	—	—
<b>17000</b>	<b>17</b>	<b>000</b>	<b>Gallmaker Insects</b>	—	—	—
17001	17	001	birch budgall mite	<i>Aceria rudis</i>	—	—
17002	17	002	eastern spruce gall adelgid	<i>Adelges abietis</i>	—	—
17003	17	003	Cooley spruce gall adelgid	<i>Adelges cooleyi</i>	—	—
17004	17	004	horned oak gall	<i>Callirhytis cornigera</i>	—	—
17005	17	005	oak gall wasp	<i>Callirhytis quercuspunctata</i>	—	—
17006	17	006	gall midge	<i>Cecidomyiidae</i>	—	—
17007	17	007	Douglas-fir needle gall midge	<i>Contarinia pseudotsugae</i>	—	—
17008	17	008	gall mite	<i>Eriophyidae</i>	—	<b>PNWRS-IS</b>
17009	17	009	spruce gall midge	<i>Mayetiola piceae</i>	—	—
17010	17	010	hackberry nipplegall maker	<i>Pachypsyllea celtidismamma</i>	—	—
17011	17	011	balsam gall midge	<i>Paradiplosis tumifex</i>	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
17012	17	012	hickory gall Phylloxera	<i>Phylloxera caryaecaulis</i>	—	—
17013	17	013	gall aphid	<i>Phylloxeridae</i>	—	—
17014	17	014	alder gall mite	<i>Phytoptus laevis</i>	—	—

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17015	17	015	psyllid	<i>Psyllidae</i>	—	—
17016	17	016	sugarberry psyllid	<i>Tetragonocephela flava</i>	—	—
17017	17	017	mountain apple psyllid	<i>Trioza vitiensis</i>	—	—
17018	17	018	gouty pitch midge	<i>Cedidomyia piniinopsis</i>	—	—
17019	17	019	spider mites	<i>Oligonychus</i> spp.	—	—
17020	17	020	cypress gall midges	<i>Taxodiomyia</i> spp.	—	—
17021	17	021	jumping oak gall wasp	<i>Neuroterus saltatorius</i>	—	—
17022	17	022	erythrina gall wasp	<i>Quadra stichus erythrinae</i>	—	<b>PNWRS-IS</b>
17800	17	800	other gallmaking insect (known)	other gallmaking insect (known)	—	—
17900	17	900	unknown gallmaking insect	unknown gallmaking insect	—	—
<b>18000</b>	<b>18</b>	<b>000</b>	<b>Insect Predators</b>	—	—	—
18001	18	001	lacewing	—	—	—
18002	18	002	blackbellied clerid	<i>Enoclerus lecontei</i>	—	—
18003	18	003	redbellied clerid	<i>Enoclerus sphegeus</i>	—	—
18004	18	004	red wood ant	<i>Formica rufa</i>	—	—
18005	18	005	western yellowjacket	<i>Vespula pennsylvanica</i>	—	—
<b>19000</b>	<b>19</b>	<b>000</b>	<b>General Diseases</b>	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
<b>20000</b>	<b>20</b>	<b>000</b>	<b>Biotic Damage</b>	—	—	—
20001	20	001	damping off	—	—	—
20002	20	002	gray mold	<i>Botrytis cinerea</i>	—	—
20003	20	003	Cassytha	<i>Cassytha filiformis</i>	—	—
20004	20	004	hemlock fluting	—	—	—

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<b>21000</b>	<b>21</b>	<b>000</b>	<b>Root/Butt Diseases</b>	—	Any occurrence.	All
21001	21	001	Armillaria root disease	<i>Armillaria</i> spp.	Any occurrence.	NRS; PNWRS
21002	21	002	yellow stringy rot	<i>Corticium galactinum</i>	—	—
21003	21	003	Cylindrocladium root disease	<i>Cylindrocladium</i> spp.	—	—
21004	21	004	brown crumbly rot	<i>Fomitopsis pinicola</i>	—	—
21005	21	005	black root rot of pine	<i>Fusarium oxysporum</i>	—	PNWRS-IS
21006	21	006	Fusarium root rot	<i>Fusarium</i> spp.	—	—
21007	21	007	white mottled rot	<i>Ganoderma applanatum</i>	Any visual evidence.	PNWRS-AK
21008	21	008	Ganoderma rot of hardwoods	<i>Ganoderma lucidum</i>	Any occurrence.	PNWRS
21009	21	009	Ganoderma rot of conifers	<i>Ganoderma tsugae</i>	Any visual evidence.	PNWRS-AK
21010	21	010	Heterobasidion root disease	<i>Heterobasidion annosum</i>	Any occurrence.	NRS; PNWRS
21011	21	011	circinatus root rot	<i>Inonotus circinatus</i>	—	—
21012	21	012	tomentosus root rot / false velvet top fungus	<i>Inonotus tomentosus</i>	—	—
21013	21	013	charcoal root rot	<i>Macrophomina phaseolina</i>	—	—
21014	21	014	black stain root disease	<i>Ophiostoma wageneri</i>	Any occurrence.	PNWRS
21015	21	015	Schweinitzii root and butt rot	<i>Phaeolus schweinitzii</i>	Any occurrence.	PNWRS
21016	21	016	flame tree root disease	<i>Phellinus noxious</i>	Any occurrence.	PNWRS
21017	21	017	laminated root rot	<i>Phellinus weiri</i>	Any occurrence.	PNWRS
21019	21	019	littleleaf disease / Phytophthora root rot	<i>Phytophthora cinnamomi</i>	—	—
21020	21	020	Port-Orford-Cedar root disease	<i>Phytophthora lateralis</i>	Any occurrence.	PNWRS
21022	21	022	Pythium root rot	<i>Pythium</i> spp.	—	—
21023	21	023	procera root disease of conifers	<i>Verticiladiella procera</i>	—	—
21024	21	024	crown gall	<i>Agrobacterium tumefaciens</i>	—	—
21025	21	025	borealis conk	<i>Climacocystis borealis</i>	—	—
21026	21	026	yellow pitted rot	<i>Hericium abietis</i>	—	—
21027	21	027	brown cubical rot	<i>Laetiporus sulphureus</i>	Any occurrence.	PNWRS

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21028	21	028	sudden oak death	<i>Phytophthora ramorum</i>	Any occurrence.	<b>PNWRS</b>
21029	21	029	Rhizina root disease	<i>Rhizina undulata</i>	—	—
21030	21	030	yellow root rot	<i>Perenniporia subacida</i>	—	—
21031	21	031	brown top rot	<i>Fomitopsis cajanderi</i>	—	—
21033	21	033	pocket dry rot	<i>Tyromyces amarus</i>	—	—
21700	21	700	root or butt decay (indicators present)	root or butt decay (indicators present)	—	—
21800	21	800	other root or butt disease (known)	other root or butt disease (known)	—	—
21900	21	900	unknown root or butt disease	unknown root or butt disease	—	—
<b>22000</b>	<b>22</b>	<b>000</b>	<b>Cankers</b>	—	Any occurrence.	<b>All</b>
22005	22	005	viruses	—	—	—
22006	22	006	black knot of cherry	<i>Apiosporina morbosa</i>	Any occurrence on the bole or on branches ≤1 foot from bole; damage to ≥50% of branches.	<b>NRS</b>
22007	22	007	Atropellis canker	<i>Atropellis piniphila</i>	—	—
22008	22	008	Siberian elm canker	<i>Botryodiplodia hypoderma</i>	—	—
22009	22	009	Botryosphaeria canker	<i>Botryosphaeria ribis</i>	—	—
22011	22	011	Caliciopsis canker	<i>Caliciopsis pinea</i>	Any occurrence.	<b>NRS</b>
22012	22	012	black canker of aspen	<i>Ceratocystis fimbriata</i>	—	—
22013	22	013	sycamore canker stain	<i>Ceratocystis fimbriata f.sp. platanini</i>	—	—
22023	22	023	chestnut blight	<i>Cryphonectria parasitica</i>	Any occurrence.	<b>NRS</b>
22025	22	025	Cryptosphaeria canker of aspen	<i>Cryptosphaeria populina</i>	—	—
22026	22	026	Cytospora canker of fir	<i>Cytospora abietis</i>	—	—
22029	22	029	sooty-bark canker	<i>Encoelia pruinosa</i>	—	—
22030	22	030	Eutypella canker	<i>Eutypella parasitica</i>	Any occurrence.	<b>NRS</b>
22032	22	032	pitch canker of pines	<i>Fusarium subglutinans</i>	Any occurrence.	<b>PNWRS</b>
22033	22	033	Fusicoccum canker	<i>Fusicoccum spp.</i>	—	—
22034	22	034	Scleroderris canker	<i>Gremmeniella abietina</i>	—	—
22035	22	035	amelanchier rust	<i>Gymnosporangium harknessianum</i>	—	—

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22036	22	036	cedar apple rust	<i>Gymnosporangium juniperi-virginianae</i>	—	—
22037	22	037	Hypoxylon canker of oak	<i>Hypoxylon atropunctatum</i>	—	—
22038	22	038	Hypoxylon canker of aspen	<i>Hypoxylon mammatum</i>	Any occurrence.	<b>NRS</b>
22041	22	041	European larch canker	<i>Lachnellula willkommii</i>	—	—
22042	22	042	beech bark disease	<i>Nectria coccinea</i>	Any occurrence.	<b>NRS</b>
22043	22	043	Nectria canker	<i>Nectria galligena</i>	Any occurrence.	<b>NRS</b>
22050	22	050	Phomopsis canker	<i>Phomopsis occulta</i>	—	—
22051	22	051	Phomopsis canker	<i>Phomopsis</i> spp.	—	—
22052	22	052	cypress canker	<i>Seiridium cardinale</i>	—	—
22053	22	053	butternut canker	<i>Sirococcus clavigignenti-jugl.</i>	Any occurrence.	<b>NRS</b>
22054	22	054	maple canker	<i>Steganosporium</i> spp.	—	—
22055	22	055	Thyronectria canker	<i>Thyronectria austro-americana</i>	—	—
22056	22	056	citrus canker	<i>Xanthomonas citri</i>	—	—
22057	22	057	Cytospora canker of aspen	<i>Cytospora chrysosperma</i>	—	—
22058	22	058	Dothichiza canker	<i>Dothichiza populae</i>	—	—
22060	22	060	Leucocystospora canker of spruce	<i>Leucocystospora kunzei</i>	—	—
22073	22	073	hemlock canker	<i>Xenomeris abietis</i>	—	—
22075	22	075	Lachnellula canker	<i>Lachnellula flavovirens</i>	Any occurrence.	<b>NRS</b>
22076	22	076	strumella canker	<i>Strumella coryneoidea</i>	Any occurrence.	<b>NRS</b>
22077	22	077	phomopsis blight	<i>Phomopsis juniperovora</i>	—	—
22078	22	078	fusarium canker of yellow poplar	<i>Fusarium solani</i>	—	—
22079	22	079	sterile conk of maple and beech	<i>Inonotus glomeratus</i>	—	—
22080	22	080	canker of spruce	<i>Aleurodiscus</i> spp.	—	—
22082	22	082	Discocainia canker	<i>Discocainia treleasei</i>	—	—
22083	22	083	red ring rot canker	<i>Phellinus pini</i> var. <i>cancriformans</i>	—	—
22084	22	084	Douglas-fir cankers	Douglas-fir cankers	—	—
22085	22	085	Scleroderris canker of western firs	<i>Grovesiella abieticola</i>	—	—
22086	22	086	Thousand cankers disease	<i>Geosmithia morbida</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
22087	22	087	nonrust canker	unknown	Damage ≥20% of bole circumference (in a running 3-foot section) at point of occurrence.	<b>PNWRS</b>
22099	22	099	aspen running canker	<i>Neodothiora populina</i>	Any occurrence.	<b>PNWRS-AK</b>
22300	22	300	other canker disease (known)	other canker disease (known)	—	—
22400	22	400	unknown canker disease	unknown canker disease	—	—
<b>22500</b>	<b>22</b>	<b>500</b>	<b>Stem Decay</b>	—	Any visual evidence (conks; fruiting bodies; rotten wood).	<b>All</b>
22001	22	001	heart rot	—	Any visual evidence.	<b>SRS</b>
22002	22	002	stem rot	—	—	—
22003	22	003	sap rot	—	—	—
22004	22	004	slime flux	—	—	—
22010	22	010	black rot fungus	<i>Botryosphaeria stevensii</i>	—	—
22024	22	024	gray-brown sap rot	<i>Cryptoporus volvatus</i>	—	—
22027	22	027	western red rot	<i>Dichomitus squalens</i>	—	—
22028	22	028	Indian paint fungus	<i>Echinodontium tinctorium</i>	Any occurrence.	<b>PNWRS</b>
22031	22	031	Fusarium cortical stem rot	<i>Fusarium avenaceum</i>	—	—
22039	22	039	canker rot of oak	<i>Inonotus hispidus</i>	—	—
22040	22	040	sterile conk trunk rot of birch, chaga	<i>Inonotus obliquus</i>	Any visual evidence.	<b>PNWRS-AK</b>
22044	22	044	ash heart rot	<i>Pereniporia fraxinophila</i>	—	—
22047	22	047	red heart rot	<i>Phellinus pini</i>	Any occurrence.	<b>PNWRS</b>
22048	22	048	aspen trunk rot	<i>Phellinus tremulae</i>	Any visual evidence.	<b>PNWRS-AK</b>
22049	22	049	stem decay of black walnut	<i>Phellinus weiri</i>	—	—
22059	22	059	red belt fungus / brown crumbly rot	<i>Fomitopsis pinicola</i>	Any visual evidence.	<b>PNWRS-AK</b>
22062	22	062	quinine fungus / brown trunk rot	<i>Fomitopsis officinalis</i>	Any visual evidence.	<b>PNWRS-AK</b>
22063	22	063	brown cubical decay	<i>Coniophora puteana</i>	—	—
22064	22	064	tinder fungus	<i>Fomes fomentarius</i>	Any visual evidence.	<b>PNWRS-AK</b>
22065	22	065	purple conk	<i>Hirschioporus abietinus</i>	—	—
22066	22	066	pinyon black stain	<i>Leptographium wagnerii</i>	—	—
22067	22	067	Phellinus hartigii	<i>Phellinus hartigii</i>	Any visual evidence.	<b>PNWRS-AK</b>

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22068	22	068	false tinder fungus	<i>Phellinus igniarius</i>	Any visual evidence.	<b>PNWRS-AK</b>
22069	22	069	robustus conk	<i>Phellinus robustus</i>	—	—
22070	22	070	yellow cap fungus	<i>Pholiota</i> spp.	Any visual evidence.	<b>PNWRS-AK</b>
22071	22	071	oyster mushroom	<i>Pleurotus ostreatus</i>	—	—
22072	22	072	white ring rot	<i>Poria albipellucida</i>	—	—
22074	22	074	cedar brown pocket rot	<i>Poria sericeomollis</i>	—	—
22081	22	081	birch conk	<i>Piptoporus betulinus</i>	Any visual evidence.	<b>PNWRS-AK</b>
22800	22	800	other stem decay (known)	other stem decay (known)	—	—
22900	22	900	unknown stem decay	unknown stem decay	—	—
<b>23000</b>	<b>23</b>	<b>000</b>	<b>Parasitic/ Epiphytic Plants</b>	—	Dwarf mistletoes with Hawksworth rating of ≥3; true mistletoes or vines covering ≥50% of crown.	<b>All</b>
23001	23	001	mistletoe	mistletoe	—	—
23002	23	002	parasitic plants	parasitic plants	—	—
23003	23	003	vine damage	vine damage	Vines covering ≥50% of crown.	<b>NRS;</b> <b>PNWRS</b>
23005	23	005	white fir dwarf mistletoe	<i>Arceuthobium abietinum</i> f. sp. <i>concoloris</i>	—	—
23006	23	006	lodgepole pine dwarf mistletoe	<i>Arceuthobium americanum</i>	—	—
23007	23	007	Apache dwarf mistletoe	<i>Arceuthobium apachecum</i>	—	—
23008	23	008	western dwarf mistletoe	<i>Arceuthobium campylopodium</i>	—	—
23009	23	009	limber pine dwarf mistletoe	<i>Arceuthobium cyanocarpum</i>	—	—
23010	23	010	pinyon dwarf mistletoe	<i>Arceuthobium divaricatum</i>	—	—
23011	23	011	Douglas-fir dwarf mistletoe	<i>Arceuthobium douglasii</i>	—	—
23012	23	012	Chihuahua pine dwarf mistletoe	<i>Arceuthobium gillii</i>	—	—
23013	23	013	larch dwarf mistletoe	<i>Arceuthobium laricis</i>	—	—
23014	23	014	western spruce dwarf mistletoe	<i>Arceuthobium microcarpum</i>	—	—
23015	23	015	eastern dwarf mistletoe	<i>Arceuthobium pusillum</i>	Any occurrence.	<b>NRS</b>
23016	23	016	hemlock dwarf mistletoe	<i>Arceuthobium tsugense</i>	Dwarf mistletoes with Hawksworth rating of ≥3; true mistletoes or vines covering ≥50% of crown.	<b>PNWRS-AK</b>

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23017	23	017	southwestern dwarf mistletoe	<i>Arceuthobium vaginatum</i> subsp. <i>crytopodium</i>	—	—
23018	23	018	dodder	<i>Cuscuta</i> spp.	—	—
23019	23	019	white fir mistletoe	<i>Phoradendron bolleanum</i> subsp. <i>pauciflorum</i>	—	—
23020	23	020	true mistletoe (other)	—	True mistletoe covering ≥50% of crown.	<b>PNWRS; RMRS</b>
23021	23	021	red fir dwarf mistletoe	<i>Arceuthobium abietinum</i> f. sp. <i>magnifica</i>	—	—
23022	23	022	juniper true mistletoe	<i>Phoradendron juniperum</i>	—	—
23023	23	023	dwarf mistletoe	<i>Arceuthobium</i> spp.	Haworth rating of ≥3.	<b>PNWRS; RMRS</b>
23024	23	024	Weins dwarf mistletoe	<i>Arceuthobium abietinum</i> f. sp <i>magnifica</i>	—	—
<b>24000</b>	<b>24</b>	<b>000</b>	<b>Decline Complexes/Dieback/Wilts</b>	—	Damage ≥20% dieback of crown area.	<b>All</b>
24001	24	001	Alaska-yellow cedar decline	Alaska-yellow cedar decline	—	—
24002	24	002	Norfolk Island pine decline	Norfolk Island pine decline	—	—
24003	24	003	Stillwell's syndrome	Stillwell's syndrome	—	—
24004	24	004	ash decline/yellows	ash decline/yellows	Damage ≥20% dieback of crown area.	<b>NRS</b>
24005	24	005	birch dieback	birch dieback	—	—
24006	24	006	coconut cadang-cadang viroid	<i>Cocadviroid coconut cadang-cadang</i> <i>viroid</i>	Damage ≥20% dieback of crown area.	<b>PNWRS</b>
24007	24	007	complex	complex	—	—
24008	24	008	decline	decline	—	—
24009	24	009	fall hardwood defoliator complex	fall hardwood defoliator complex	—	—
24010	24	010	joga decline	joga decline	Damage ≥20% dieback of crown area.	<b>PNWRS</b>
24011	24	011	larch decline	larch decline	—	—
24012	24	012	looper abiotic complex	looper abiotic complex	—	—
24013	24	013	maple decline	maple decline	—	—
24014	24	014	oak decline	<i>Hypoxyylon</i> spp.	—	—

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24015	24	015	pingelap disease	pingelap disease	—	—
24016	24	016	sprout dieback	sprout dieback	—	—
24017	24	017	true fir pest complex	true fir pest complex	—	—
24018	24	018	western X disease	western X disease	—	—
24019	24	019	pinewood nematode	<i>Bursaphelenchus xylophilus</i>	—	—
24020	24	020	sapstreak disease of sugar maple	<i>Ceratocystis coerulescens</i>	—	—
24021	24	021	oak wilt	<i>Ceratocystis fagacearum</i>	Damage ≥20% dieback of crown area.	<b>NRS</b>
24022	24	022	Dutch elm disease	<i>Ceratocystis ulmi</i>	Damage ≥20% dieback of crown area.	<b>NRS</b>
24023	24	023	bacterial wetwood	<i>Erwinia nimipressuralis</i>	—	—
24024	24	024	mimosa wilt	<i>Fusarium oxysporum f. sp. perniciosum</i>	—	—
24025	24	025	Verticillium wilt	<i>Verticillium albo-atrum</i>	—	—
24026	24	026	bacterial leaf scorch	<i>Xylella fastidiosa</i>	—	—
24027	24	027	wetwood	wetwood	—	—
24028	24	028	hemlock decline	hemlock decline	—	—
24029	24	029	Pacific madrone decline	Pacific madrone decline	—	—
24030	24	030	elm phloem necrosis	<i>Mycoplasma</i> spp.	—	—
24031	24	031	laurel wilt	<i>Raffaelea</i> spp.	—	—
24032	24	032	sudden aspen decline	sudden aspen decline	—	—
24800	24	800	other decline/complex/wilt (known)	other decline/complex/wilt (known)	—	—
24900	24	900	unknown decline/complex/wilt	unknown decline/complex/wilt	—	—
<b>25000</b>	<b>25</b>	<b>000</b>	<b>Foliage Diseases</b>	—	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>All</b>
25001	25	001	blight	blight	—	—
25003	25	003	juniper blights	juniper blights	—	—
25004	25	004	leaf spots	leaf spots	—	—
25005	25	005	needlecast	needlecast	—	—
25006	25	006	powdery mildew	powdery mildew	—	—
25007	25	007	tobacco mosaic virus	tobacco mosaic virus	—	—

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25008	25	008	tobacco ringspot virus of ash	<i>Nepovirus TRSV</i>	—	—
25009	25	009	true fir needlecast	true fir needlecast	—	—
25010	25	010	sycamore anthracnose	<i>Apiognomonia veneta</i>	—	—
25011	25	011	Cercospora blight of juniper	<i>Cercospora sequoiae</i>	—	—
25013	25	013	large-spored spruce-laborador tea rust	<i>Chrysomyxa ledicola</i>	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS-AK</b>
25014	25	014	ink spot of aspen	<i>Ciborinia whetzelii</i>	—	—
25015	25	015	pine needle rust	<i>Coleosporium</i> spp.	—	—
25016	25	016	anthracnose on Russian olive	<i>Colletotrichum</i> spp.	—	—
25017	25	017	Coronado limb rust	<i>Cronartium arizonicum</i>	—	—
25018	25	018	leaf shothole	<i>Cylindrosporium</i> spp.	—	—
25019	25	019	cedar leaf blight	<i>Didymascella thujina</i>	—	—
25020	25	020	dogwood anthracnose	<i>Discula</i> spp.	—	—
25021	25	021	mango scab	<i>Elsinoe magiferae</i>	—	—
25022	25	022	Elytroderma needle blight	<i>Elytroderma deformans</i>	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
25023	25	023	fire blight	<i>Erwinia amylovora</i>	—	—
25024	25	024	walnut anthracnose	<i>Gnomonia leptostyla</i>	—	—
25025	25	025	anthracnose	<i>Gnomonia</i> spp.	—	—
25027	25	027	brown felt blight	<i>Herpotrichia juniperi</i>	—	—
25028	25	028	larch needle blight	<i>Hypodermella laricis</i>	—	—
25029	25	029	hardwood anthracnose	<i>Kabatiella apocrypta</i>	—	—
25030	25	030	Lasiodiplodia cone damage	<i>Lasiodiplodia</i> spp.	—	—
25031	25	031	spruce needle cast	<i>Lirula macrospora</i>	—	—
25032	25	032	fir needle cast	<i>Lirula</i> spp.	—	—
25033	25	033	white pine needle cast	<i>Lophodermella arcuata</i>	—	—
25034	25	034	Lophodermella needle cast	<i>Lophodermella</i> spp.	—	—
25036	25	036	Marssonina blight	<i>Marssonina populi</i>	—	—
25037	25	037	Douglas-fir rust	<i>Melampsora medusae</i>	—	—

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25039	25	039	larch needle cast	<i>Meria laricis</i>	—	—
25040	25	040	Dothistroma needle blight	<i>Mycosphaerella pini</i>	—	—
25041	25	041	brown felt blight of pines	<i>Neopeckia coulteri</i>	—	—
25042	25	042	snow blight	<i>Phacidium abietis</i>	—	—
25043	25	043	Swiss needle cast	<i>Phaeocryptopus gaumannii</i>	—	—
25044	25	044	Phoma blight	<i>Phoma</i> spp.	—	—
25045	25	045	Phyllosticta leaf spot	<i>Phyllosticta</i> spp.	—	—
25046	25	046	bud rot	<i>Phytophthora palmivora</i>	—	—
25047	25	047	Ploioderma needle cast	<i>Ploioderma</i> spp.	—	—
25048	25	048	ash rust	<i>Puccinia sparganioides</i>	—	—
25049	25	049	fir and hemlock needle rusts	<i>Pucciniastrum</i> spp.	—	—
25050	25	050	Rhabdocline needle cast	<i>Rhabdocline</i> spp.	—	—
25051	25	051	Rhizoctonia needle blight	<i>Rhizoctonia</i> spp.	—	—
25052	25	052	Rhizophaeria needle cast	<i>Rhizophaeria</i> spp.	—	—
25053	25	053	Rhizopus rot	<i>Rhizopus artocarpi</i>	—	—
25054	25	054	brown spot needle blight	<i>Scirrhia acicola</i>	—	—
25055	25	055	Septoria leaf spot	<i>Septoria alnifolia</i>	—	—
25056	25	056	Septoria leaf spot and canker	<i>Septoria musiva</i>	—	—
25057	25	057	Sirococcus tip blight	<i>Sirococcus conigenus</i>	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
25058	25	058	Diplodia canker	<i>Sphaeropsis sapinea</i>	—	—
25059	25	059	leaf blister of oak	<i>Taphrina caerulescens</i>	—	—
25060	25	060	Venturia leaf blight of maple	<i>Venturia acerina</i>	—	—
25061	25	061	shepherd's crook	<i>Venturia tremulae</i>	—	—
25062	25	062	Dothistroma needle blight	<i>Dothistroma septospora</i>	—	—
25063	25	063	yellow-cedar shoot blight	<i>Apostrasseria</i> spp.	—	—
25065	25	065	spruce needle rust	<i>Chrysomyxa weiri</i>	—	—
25066	25	066	cedar leaf blight	<i>Gymnosporangium nootkatense</i>	—	—

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25067	25	067	spruce needle cast	<i>Lophodermium picea</i>	—	—
25068	25	068	hardwood leaf rusts	<i>Melampsora</i> spp.	—	—
25070	25	070	hemlock needle rust	<i>Pucciniastrum vaccinii</i>	Damage $\geq$ 20% of the foliage with $\geq$ 50% of the leaf/needle affected.	<b>PNWRS-AK</b>
25071	25	071	spruce needle cast	<i>Rhizosphaera pini</i>	—	—
25072	25	072	sirococcus shoot blight	<i>Sirococcus strobilinus</i>	Damage $\geq$ 20% of the foliage with $\geq$ 50% of the leaf/needle affected.	<b>NRS</b>
25073	25	073	shepherds crook	<i>Venturia populina</i>	—	—
25074	25	074	Delphinella shoot blight	<i>Delphinella abietis</i>	—	—
25075	25	075	tar spot	<i>Rhytisma acerinum</i>	—	—
25076	25	076	birch leaf fungus	<i>Septoria betulae</i>	—	—
25077	25	077	Septoria leaf spot of maple	<i>Septoria aceris</i>	—	—
25800	25	800	other/shoot disease (known)	other/shoot disease (known)	—	—
25900	25	900	unknown foliage/shoot disease	Unknown foliage/shoot disease	—	—
<b>26000</b>	<b>26</b>	<b>000</b>	<b>Stem Rusts</b>	—	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches $\leq$ 1 foot from boles or stems; damage to $\geq$ 20% of branches.	<b>All</b>
26001	26	001	white pine blister rust	<i>Cronartium ribicola</i>	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches $\leq$ 1 foot from boles or stems; damage to $\geq$ 20% of branches.	<b>PNWRS;</b> <b>SRS</b>
26002	26	002	western gall rust	<i>Peridermium harknessii</i>	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches $\leq$ 1 foot from boles or stems; damage to $\geq$ 20% of branches.	<b>PNWRS</b>
26003	26	003	stalactiform blister rust	<i>Cronartium coleosporioides</i>	—	—
26004	26	004	comandra blister rust	<i>Cronartium comandrae</i>	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches $\leq$ 1 foot from boles or stems; damage to $\geq$ 20% of branches.	<b>SRS</b>
26005	26	005	pinyon rust	<i>Cronartium occidentale</i>	—	—

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26006	26	006	eastern gall rust	<i>Cronartium quercuum</i>	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches ≤1 foot from boles or stems; damage to ≥20% of branches.	<b>SRS</b>
26007	26	007	gall rust of jack pine	<i>Cronartium quercuum f. sp. banksignae</i>	—	—
26008	26	008	gall rust of shortleaf pine	<i>Cronartium quercuum f. sp. echinatae</i>	—	—
26009	26	009	fusiform rust	<i>Cronartium quercuum f. sp. fusiforme</i>	Any occurrence on the bole or stems (on multi-stemmed woodland species), or on branches ≤1 foot from boles or stems; damage to ≥20% of branches.	<b>SRS</b>
26010	26	010	gall rust of virginia pine	<i>Cronartium quercuum f. sp. virginianae</i>	—	—
26011	26	011	Bethuli rust	<i>Peridermium bethuli</i>	—	—
26012	26	012	limb rust	<i>Peridermium filamentosum</i>	—	—
26013	26	013	southern cone rust	<i>Cronartium strobilinum</i>	—	—
26800	26	800	other stem rust (known)	other stem rust (known)	—	—
26900	26	900	unknown stem rust	unknown stem rust	—	—
<b>27000</b>	<b>27</b>	<b>000</b>	<b>Broom Rusts</b>	—	≥50% of crown area affected.	<b>All</b>
27001	27	001	spruce broom rust	<i>Chrysomyxa arctostaphyli</i>	≥50% of crown area affected.	<b>PNWRS-AK</b>
27002	27	002	Incense cedar broom rust	<i>Gymnosporangium libocedri</i>	—	—
27003	27	003	juniper broom rust	<i>Gymnosporangium nidus-avis</i>	—	—
27004	27	004	fir broom rust	<i>Melampsorella caryophyllacearum</i>	—	—
27800	27	800	other broom rust (known)	other broom rust (known)	—	—
27900	27	900	unknown broom rust	unknown broom rust	—	—
<b>30000</b>	<b>30</b>	<b>000</b>	<b>Fire</b>	—	Damage ≥20% of bole circumference; >20% of stems on multi-stemmed woodland species affected; ≥20% of crown affected.	<b>All</b>
30001	30	001	wild fire	—	—	—
30002	30	002	human caused fire	—	—	—
30003	30	003	crown fire damage	—	—	—

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
30004	30	004	ground fire damage	—	—	—
<b>41000</b>	<b>41</b>	<b>000</b>	<b>Wild Animals</b>	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
41001	41	001	bears	<i>Ursus</i> spp.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	PNWRS
41002	41	002	beavers	<i>Castor canadensis</i>	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	PNWRS; SRS
41003	41	003	big game	big game	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	PNWRS; RMRS

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
41004	41	004	mice or voles	mice or voles	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
41005	41	005	pocket gophers	<i>Geomysidae</i> spp.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS; RMRS</b>
41006	41	006	porcupines	<i>Erethizon dorsatum</i>	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS; RMRS</b>
41007	41	007	rabbits or hares	<i>Sylvilagus</i> spp.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
41008	41	008	sapsuckers	<i>Sphyrapicus</i> spp.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS-AK; RMRS; SRS</b>
41009	41	009	squirrels	<i>Sciuridae</i> spp.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
41010	41	010	woodpeckers	<i>Piciformes</i> spp.	—	—
41011	41	011	moose	<i>Alces alces</i>	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS-AK</b>
41012	41	012	elk	<i>Cervus elaphus</i>	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
41013	41	013	deer	<i>Odocoileus</i> spp.	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
41014	41	014	feral pigs	<i>Sus scrofa</i>	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
41015	41	015	mountain beaver	<i>Aplodontia rufa</i>	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>PNWRS</b>
41017	41	017	earthworms	<i>Lumbricidae</i>	—	—
41800	41	800	other wild animals (known)	other wild animals (known)	—	—
41900	41	900	unknown wild animals	unknown wild animals	—	—

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
<b>42000</b>	<b>42</b>	<b>000</b>	<b>Domestic Animals</b>	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
42001	42	001	cattle	<i>Bos taurus</i>	—	—
42002	42	002	goats	<i>Capra hircus</i>	—	—
42003	42	003	horses	<i>Equus caballus</i>	—	—
42004	42	004	sheep	<i>Ovis aries</i>	—	—
42800	42	800	other domestic animal (unknown)	other domestic animal (unknown)	—	—
42900	42	900	unknown domestic animals	unknown domestic animals	—	—
<b>50000</b>	<b>50</b>	<b>000</b>	<b>Abiotic Damage</b>	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
50001	50	001	air pollutants	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	PNWRS-IS; RMRS

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
50002	50	002	chemical	—	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS</b>
50003	50	003	drought	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS; RMRS</b>
50004	50	004	flooding / high water	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>NRS; PNWRS-AK; RMRS; SRS</b>
50005	50	005	frost	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>RMRS</b>
50006	50	006	hail	—	—	—
50007	50	007	heat	—	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
50008	50	008	lightning	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
50009	50	009	nutrient imbalances	—	—	—
50010	50	010	radiation	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	RMRS
50011	50	011	snow/ice	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
50013	50	013	wind	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
50014	50	014	winter injury	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	RMRS
50015	50	015	avalanche	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	PNWRS-AK; RMRS
50016	50	016	mud-land slide	—	—	—
50017	50	017	volcano	—	—	—
50018	50	018	other geologic event	—	—	—
50019	50	019	mechanical (non-human caused)	—	—	—
50020	50	020	saltwater injury - flooding/hurricane	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	PNWRS
50800	50	800	other abiotic damage (known)	other abiotic damage (known)	—	—
50900	50	900	unknown abiotic damage	unknown abiotic damage	—	—

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
<b>60000</b>	<b>60</b>	<b>000</b>	<b>Competition</b>	—	Overtopped shade-intolerant trees that are not expected to survive for 5 years or saplings not expected to reach tree size (5.0 inches d.b.h./d.r.c.).	All
60001	60	001	Suppression	—	Overtopped shade-intolerant trees that are not expected to survive for 5 years or saplings not expected to reach tree size (5.0 inches d.b.h./d.r.c.).	RMRS
<b>70000</b>	<b>70</b>	<b>000</b>	<b>Human Activities</b>	—	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	All
70001	70	001	herbicides	—	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	PNWRS-IS; SRS
70003	70	003	imbedded objects	—	Any occurrence on the bole.	NRS; SRS
70004	70	004	improper planting technique	—	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
70005	70	005	land clearing	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	SRS
70006	70	006	land use conversion	—	—	—
70007	70	007	logging damage	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	All
70008	70	008	mechanical	—	—	—
70009	70	009	pesticides	—	—	—
70010	70	010	roads	—	—	—
70011	70	011	soil compaction	—	—	—
70013	70	013	vehicle damage	—	—	—
70014	70	014	road salt	—	—	—
<b>71000</b>	<b>71</b>	<b>000</b>	<b>Harvest</b>	—	Removal of ≥10% cubic volume.	All
71001	71	001	Woodland cutting	—	Removal of ≥10% cubic volume.	RMRS
<b>80000</b>	<b>80</b>	<b>000</b>	<b>Multi-Damage (Insect/Disease)</b>	—	—	—
80001	80	001	aspen defoliation (caused by 12037, 12096, 25036, and 25037)	—	—	—
80002	80	002	subalpine fir mortality	—	—	—
80003	80	003	five-needle pine decline	—	—	—

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
80004	80	004	pinyon pine mortality	—	—	—
<b>85000</b>	<b>85</b>	<b>000</b>	<b>Invasive Plants</b>	—	—	—
<b>90000</b>	<b>90</b>	<b>000</b>	<b>Other Damages and Symptoms</b>	—	Any damage to the terminal leader; damage $\geq 20\%$ of the roots or boles with $>20\%$ of the circumference affected; damage $>20\%$ of the multiple-stems (on multi-stemmed woodland species) with $>20\%$ of the circumference affected; $>20\%$ of the branches affected; damage $\geq 20\%$ of the foliage with $\geq 50\%$ of the leaf/needle affected.	All
90001	90	001	broken top	Not recorded for multi-stemmed trees	When actual length is less than total length.	<b>NRS;</b> <b>PNWRS;</b> <b>RMRS</b>
90002	90	002	dead top	—	Any occurrence.	<b>NRS;</b> <b>PNWRS;</b> <b>RMRS</b>
90003	90	003	limby-wolf tree	Not recorded for non-sawlog trees	Damage when board-foot defect is $\geq 10\%$ .	<b>RMRS</b>
90004	90	004	forked top	Not recorded for non-sawlog trees	Any occurrence.	<b>PNWRS</b>
90005	90	005	forked below merch top	Not recorded for non-sawlog trees	Damage when board-foot defect is $\geq 10\%$ .	<b>PNWRS;</b> <b>RMRS</b>
90006	90	006	crook or sweep	Not recorded for non-sawlog trees	Damage when board-foot defect is $\geq 10\%$ .	<b>PNWRS;</b> <b>RMRS</b>
90007	90	007	checks, bole cracks	Not recorded for non-sawlog trees	Damage when board-foot defect is $\geq 10\%$ .	<b>PNWRS</b>
90008	90	008	foliage discoloration	—	Damage $\geq 20\%$ of crown affected.	<b>NRS;</b> <b>PNWRS;</b> <b>RMRS</b>
90010	90	010	dieback	—	Damage $\geq 20\%$ of crown affected.	<b>NRS;</b> <b>PNWRS;</b> <b>RMRS</b>
90011	90	011	open wound	—	Damage $\geq 20\%$ of bole circumference (in a running 3-foot section) at point of occurrence.	<b>PNWRS;</b> <b>RMRS</b>

<b>Code</b>	<b>Category</b>	<b>Agent</b>	<b>Common Name</b>	<b>Scientific Name</b>	<b>Threshold</b>	<b>Region</b>
90012	90	012	resinosis	—	Damage ≥20% of bole circumference (in a running 3-foot section) at point of origin; ≥20% of branches affected.	<b>PNWRS</b>
90013	90	013	broken branches	—	Damage ≥20% of branches affected.	<b>PNWRS</b>
<b>99000</b>	<b>99</b>	<b>000</b>	<b>Unknown</b>	—	Any damage to the terminal leader; damage ≥20% of the roots or boles with >20% of the circumference affected; damage >20% of the multiple-stems (on multi-stemmed woodland species) with >20% of the circumference affected; >20% of the branches affected; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	<b>All</b>

Section revision: 01.20.2024

# Appendix F: Forest Type Codes and Names

Forest types are named for the predominant species (or group of species) in the condition. The forest type codes stored in the Urban FIADB are based on field-assigned classifications (see ID\_TREE.FLDTYPCD).

**Note:** The forest type names used by FIA do not come from a single published reference. The current list of forest type names has been developed over time using sources such as historical FIA lists, lists from the Society of American Foresters, and FIA analysts who developed names to meet current analysis and reporting needs.

## Appendix Contents:

Description
<a href="#">Forest type groups</a>
<a href="#">Forest types</a>
<a href="#">Forest type descriptions</a>

## Forest type groups

Code	Forest type group
100	<a href="#">White / red / jack pine group</a>
120	<a href="#">Spruce / fir group</a>
140	<a href="#">Longleaf / slash pine group</a>
150	<a href="#">Tropical softwoods group</a>
160	<a href="#">Loblolly / shortleaf pine group</a>
170	<a href="#">Other eastern softwoods group</a>
180	<a href="#">Pinyon / juniper group</a>
200	<a href="#">Douglas-fir group</a>
220	<a href="#">Ponderosa pine group</a>
240	<a href="#">Western white pine group</a>
260	<a href="#">Fir / spruce / mountain hemlock group</a>
280	<a href="#">Lodgepole pine group</a>
300	<a href="#">Hemlock / Sitka spruce group</a>
320	<a href="#">Western larch group</a>
340	<a href="#">Redwood group</a>
360	<a href="#">Other western softwoods group</a>
370	<a href="#">California mixed conifer group</a>

<b>Code</b>	<b>Forest type group</b>
380	Exotic softwoods group
390	Other softwoods group
400	Oak / pine group
500	Oak / hickory group
600	Oak / gum / cypress group
700	Elm / ash / cottonwood group
800	Maple / beech / birch group
900	Aspen / birch group
910	Alder / maple group
920	Western oak group
940	Tanoak / laurel group
960	Other hardwoods group
970	Woodland hardwoods group
980	Tropical hardwoods group
990	Exotic hardwoods group
999	Nonstocked

## Forest types

The following list includes classifications for forest types in the Continental U.S. and Alaska. The types designated as East (E) or West (W) are commonly found in those regions; however, types designated for one region may occasionally be found in another.

<b>East</b>	<b>West</b>	<b>Code</b>	<b>Forest type / type group</b>
—	—	<b>100</b>	<b>White / red / jack pine group</b>
E	—	<b>101</b>	Jack pine
E	—	<b>102</b>	Red pine
E	—	<b>103</b>	Eastern white pine
E	—	<b>104</b>	Eastern white pine / eastern hemlock
E	—	<b>105</b>	Eastern hemlock
—	—	<b>120</b>	<b>Spruce / fir group</b>
E	—	<b>121</b>	Balsam fir
E	W	<b>122</b>	White spruce
E	—	<b>123</b>	Red spruce
E	—	<b>124</b>	Red spruce / balsam fir
E	W	<b>125</b>	Black spruce
E	—	<b>126</b>	Tamarack
E	—	<b>127</b>	Northern white-cedar

<b>East</b>	<b>West</b>	<b>Code</b>	<b>Forest type / type group</b>
E	—	128	Fraser fir
E	—	129	Red spruce / Fraser fir
—	—	<b>140</b>	<b>Longleaf / slash pine group</b>
E	—	141	Longleaf pine
E	—	142	Slash pine
—	—	<b>150</b>	<b>Tropical softwoods group</b>
E	—	151	Tropical pines
—	—	<b>160</b>	<b>Loblolly / shortleaf pine group</b>
E	—	161	Loblolly pine
E	—	162	Shortleaf pine
E	—	163	Virginia pine
E	—	164	Sand pine
E	—	165	Table mountain pine
E	—	166	Pond pine
E	—	167	Pitch pine
E	—	168	Spruce pine
—	—	<b>170</b>	<b>Other eastern softwoods group</b>
E	—	171	Eastern redcedar
E	—	172	Florida softwoods
—	—	<b>180</b>	<b>Pinyon / juniper group</b>
E	W	182	Rocky Mountain juniper
E	W	184	Juniper woodland
E	W	185	Pinyon / juniper woodland
—	—	<b>200</b>	<b>Douglas-fir group</b>
E	W	201	Douglas-fir
—	W	202	Port-Orford-cedar
—	W	203	Bigcone Douglas-fir
—	—	<b>220</b>	<b>Ponderosa pine group</b>
E	W	221	Ponderosa pine
—	W	222	Incense-cedar
—	W	224	Sugar pine
—	W	225	Jeffrey pine
—	W	226	Coulter pine
—	—	<b>240</b>	<b>Western white pine group</b>
—	W	241	Western white pine
—	—	<b>260</b>	<b>Fir / spruce / mountain hemlock group</b>
—	W	261	White fir

<b>East</b>	<b>West</b>	<b>Code</b>	<b>Forest type / type group</b>
—	W	262	Red fir
—	W	263	Noble fir
—	W	264	Pacific silver fir
—	W	265	Engelmann spruce
—	W	266	Engelmann spruce / subalpine fir
—	W	267	Grand fir
—	W	268	Subalpine fir
—	W	269	Blue spruce
—	W	270	Mountain hemlock
—	W	271	Alaska-yellow-cedar
—	—	280	<b>Lodgepole pine group</b>
—	W	281	Lodgepole pine
—	—	300	<b>Hemlock / Sitka spruce group</b>
—	W	301	Western hemlock
—	W	304	Western redcedar
—	W	305	Sitka spruce
—	—	320	<b>Western larch group</b>
—	W	321	Western larch
—	—	340	<b>Redwood group</b>
—	W	341	Redwood
—	W	342	Giant sequoia
—	—	360	<b>Other western softwoods group</b>
—	W	361	Knobcone pine
—	W	362	Southwestern white pine
—	W	363	Bishop pine
—	W	364	Monterey pine
—	W	365	Foxtail pine / bristlecone pine
—	W	366	Limber pine
—	W	367	Whitebark pine
—	W	368	Miscellaneous western softwoods
—	W	369	Western juniper
—	—	370	<b>California mixed conifer group</b>
—	W	371	California mixed conifer
—	—	380	<b>Exotic softwoods group</b>
E	—	381	Scotch pine
E	W	383	Other exotic softwoods
E	—	384	Norway spruce

<b>East</b>	<b>West</b>	<b>Code</b>	<b>Forest type / type group</b>
E	—	<a href="#">385</a>	Introduced larch
—	—	<b>390</b>	<b>Other softwoods group</b>
E	—	<a href="#">391</a>	Other softwoods
—	—	<b>400</b>	<b>Oak / pine group</b>
E	—	<a href="#">401</a>	Eastern white pine / northern red oak / white ash
E	—	<a href="#">402</a>	Eastern redcedar / hardwood
E	—	<a href="#">403</a>	Longleaf pine / oak
E	—	<a href="#">404</a>	Shortleaf pine / oak
E	—	<a href="#">405</a>	Virginia pine / southern red oak
E	—	<a href="#">406</a>	Loblolly pine / hardwood
E	—	<a href="#">407</a>	Slash pine / hardwood
E	—	<a href="#">409</a>	Other pine / hardwood
—	—	<b>500</b>	<b>Oak / hickory group</b>
E	—	<a href="#">501</a>	Post oak / blackjack oak
E	—	<a href="#">502</a>	Chestnut oak
E	—	<a href="#">503</a>	White oak / red oak / hickory
E	—	<a href="#">504</a>	White oak
E	—	<a href="#">505</a>	Northern red oak
E	—	<a href="#">506</a>	Yellow-poplar / white oak / northern red oak
E	—	<a href="#">507</a>	Sassafras / persimmon
E	—	<a href="#">508</a>	Sweetgum / yellow-poplar
E	—	<a href="#">509</a>	Bur oak
E	—	<a href="#">510</a>	Scarlet oak
E	—	<a href="#">511</a>	Yellow-poplar
E	—	<a href="#">512</a>	Black walnut
E	—	<a href="#">513</a>	Black locust
E	—	<a href="#">514</a>	Southern scrub oak
E	—	<a href="#">515</a>	Chestnut oak / black oak / scarlet oak
E	—	<a href="#">516</a>	Cherry / white ash / yellow-poplar
E	—	<a href="#">517</a>	Elm / ash / black locust
E	—	<a href="#">519</a>	Red maple / oak
E	—	<a href="#">520</a>	Mixed upland hardwoods
—	—	<b>600</b>	<b>Oak / gum / cypress group</b>
E	—	<a href="#">601</a>	Swamp chestnut oak / cherrybark oak
E	—	<a href="#">602</a>	Sweetgum / Nuttall oak / willow oak
E	—	<a href="#">605</a>	Overcup oak / water hickory
E	—	<a href="#">606</a>	Atlantic white-cedar

<b>East</b>	<b>West</b>	<b>Code</b>	<b>Forest type / type group</b>
E	—	<a href="#">607</a>	Baldcypress / water tupelo
E	—	<a href="#">608</a>	Sweetbay / swamp tupelo / red maple
E	—	<a href="#">609</a>	Baldcypress / pondcypress
—	—	<b>700</b>	<b>Elm / ash / cottonwood group</b>
E	—	<a href="#">701</a>	Black ash / American elm / red maple
E	—	<a href="#">702</a>	River birch / sycamore
E	W	<a href="#">703</a>	Cottonwood
E	W	<a href="#">704</a>	Willow
E	—	<a href="#">705</a>	Sycamore / pecan / American elm
E	—	<a href="#">706</a>	Sugarberry / hackberry / elm / green ash
E	—	<a href="#">707</a>	Silver maple / American elm
E	—	<a href="#">708</a>	Red maple / lowland
E	W	<a href="#">709</a>	Cottonwood / willow
—	W	<a href="#">722</a>	Oregon ash
—	—	<b>800</b>	<b>Maple / beech / birch group</b>
E	—	<a href="#">801</a>	Sugar maple / beech / yellow birch
E	—	<a href="#">802</a>	Black cherry
E	—	<a href="#">805</a>	Hard maple / basswood
E	—	<a href="#">809</a>	Red maple / upland
—	—	<b>900</b>	<b>Aspen / birch group</b>
E	W	<a href="#">901</a>	Aspen
E	W	<a href="#">902</a>	Paper birch
E	—	<a href="#">903</a>	Gray birch
E	W	<a href="#">904</a>	Balsam poplar
E	W	<a href="#">905</a>	Pin cherry
—	—	<b>910</b>	<b>Alder / maple group</b>
—	W	<a href="#">911</a>	Red alder
—	W	<a href="#">912</a>	Bigleaf maple
—	—	<b>920</b>	<b>Western oak group</b>
—	W	<a href="#">921</a>	Gray pine
—	W	<a href="#">922</a>	California black oak
—	W	<a href="#">923</a>	Oregon white oak
—	W	<a href="#">924</a>	Blue oak
—	W	<a href="#">931</a>	Coast live oak
—	W	<a href="#">933</a>	Canyon live oak
—	W	<a href="#">934</a>	Interior live oak
—	W	<a href="#">935</a>	California white oak (valley oak)

<b>East</b>	<b>West</b>	<b>Code</b>	<b>Forest type / type group</b>
—	—	<b>940</b>	<b>Tanoak / laurel group</b>
—	W	<b>941</b>	Tanoak
—	W	<b>942</b>	California laurel
—	W	<b>943</b>	Giant chinkapin
—	—	<b>960</b>	<b>Other hardwoods group</b>
—	W	<b>961</b>	Pacific madrone
—	W	<b>962</b>	Other hardwoods
—	—	<b>970</b>	<b>Woodland hardwoods group</b>
—	W	<b>971</b>	Deciduous oak woodland
—	W	<b>972</b>	Evergreen oak woodland
—	W	<b>973</b>	Mesquite woodland
—	W	<b>974</b>	Cercocarpus (mountain brush) woodland
—	W	<b>975</b>	Intermountain maple woodland
—	W	<b>976</b>	Miscellaneous woodland hardwoods
—	—	<b>980</b>	<b>Tropical hardwoods group</b>
E	—	<b>982</b>	Mangrove
E	W	<b>983</b>	Palms
—	W	<b>984</b>	Dry forest
—	W	<b>985</b>	Moist forest
—	W	<b>986</b>	Wet and rain forest
—	W	<b>987</b>	Lower montane wet and rain forest
—	W	<b>988</b>	Cloud forest
—	W	<b>989</b>	Other tropical hardwoods
—	—	<b>990</b>	<b>Exotic hardwoods group</b>
E	—	<b>991</b>	Paulownia
E	—	<b>992</b>	Melaleuca
E	W	<b>993</b>	Eucalyptus
E	W	<b>995</b>	Other exotic hardwoods
—	—	<b>999</b>	<b>Nonstocked</b>

## Forest type descriptions

Forest types are named for the predominant species (or group of species) in the condition. If softwoods predominate (50 percent or more of tree stocking), then the forest type will be one of the softwood types (codes 101 through 391) and vice versa for hardwoods (codes 401 through 995).

For the Eastern United States, there are mixed hardwood-pine forest types (codes 401 through 409) when the pine and/or redcedar (either eastern or southern) component is between 25 and 49 percent of the stocking. If the pine/redcedar component is less than 25 percent of the stocking, then one of the hardwood forest types is assigned.

### WHITE/RED/JACK PINE GROUP

In these pure pine forest types, stocking of the pine component needs to be at least 50 percent. Otherwise, forest types listed under the Oak/Pine Group are used (codes 401 through 409).

#### 101

**Jack pine:** Associates - northern pin oak, bur oak, red pine, bigtooth aspen, paper birch, northern red oak, eastern white pine, red maple, balsam fir, white spruce, black spruce, and tamarack. Sites - Dry to mesic sites.

#### 102

**Red pine:** Associates - eastern white pine, jack pine, red maple, northern red oak, white spruce, balsam fir, quaking aspen, bigtooth aspen, paper birch, and northern pin oak. Sites - common on sandy soils, but reaches best development on well-drained sandy loam to loam soils.

#### 103

**Eastern white pine:** Associates - pitch pine, gray birch, aspen, red maple, pin cherry, white oak, paper birch, sweet birch, yellow birch, black cherry, white ash, northern red oak, sugar maple, basswood, hemlock, northern white cedar, yellow poplar, white oak, chestnut oak, scarlet oak, and shortleaf pine. Sites - wide variety, but best development on well drained sands and sandy loams.

#### 104

**Eastern white pine/eastern hemlock (includes Carolina hemlock):** Associates - beech, sugar maple, basswood, red maple, yellow birch, gray birch, red spruce, balsam fir, black cherry, white ash, paper birch, sweet birch, northern red oak, white oak, chestnut oak, yellow poplar, and cucumber tree. Sites - wide variety but favors cool locations, moist ravines, and north slopes.

#### 105

**Eastern hemlock (includes Carolina hemlock):** Associates - white pine, balsam fir, red spruce, beech, sugar maple, yellow birch, basswood, red maple, black cherry, white ash, paper birch, sweet birch, northern red oak, and white oak. Sites - cool locations, moist ravines, and north and east slopes.

## SPRUCE/FIR GROUP

These types are mostly in the Eastern United States. See FIR/SPRUCE/MOUNTAIN HEMLOCK for Western United States.

### 121

**Balsam fir:** Associates - black, white, or red spruce; paper or yellow birch; quaking or bigtooth aspen, beech; red maple; hemlock; tamarack; black ash; or northern white cedar. Sites - upland sites on low-lying moist flats and in swamps.

### 122

**White spruce:** Associates - black spruce, paper birch, quaking aspen, red spruce, balsam fir, and balsam poplar. Sites - transcontinental; grows well on calcareous and well-drained soils, but is found on acidic rocky and sandy sites, and sometimes in fen peatlands along the maritime coast.

### 123

**Red spruce:** Associates - vary widely and may include red maple, yellow birch, eastern hemlock, eastern white pine, white spruce, northern white cedar, paper birch, pin cherry, gray birch, mountain-ash, beech, striped maple, sugar maple, northern red oak, red pine, and aspen. Sites - include moderately well-drained to poorly drained flats and thin slopes and on varying acidic soils in abandoned fields and pastures. This code should be used where red spruce comprises a plurality or majority of the stand's stocking but where balsam fir is either nonexistent or has very little stocking (<5 percent of total). Otherwise, the type would be coded 124, red spruce / balsam fir.

### 124

**Red spruce/balsam fir:** Associates - red maple, paper birch, white pine, hemlock, white spruce, and northern white cedar. Sites - moderately drained to poorly drained flats or on thin soiled upper slopes.

### 125

**Black spruce:** Associates - white spruce, quaking aspen, balsam fir, paper birch, tamarack, northern white cedar, black ash, and red maple. Sites - wide variety from moderately dry to very wet.

### 126

**Tamarack:** Associates - black spruce, balsam fir, white spruce, northern white-cedar, and quaking aspen. Sites - found on wetlands and poorly drained sites.

### 127

**Northern white cedar:** Associates - balsam fir, tamarack, black spruce, white spruce, red spruce, black ash, and red maple. Sites - mainly occurs in swamps, but also in seepage areas, limestone uplands and old fields.

### 128

**Fraser fir:** Associates - red spruce, hemlock, yellow birch, less frequently, beech, sugar maple, yellow buckeye, mountain-ash, and mountain maple. Sites - mainly occurs in the Appalachian Mountains of North Carolina and Tennessee. This type is used if the stocking of Fraser fir is at least 50 percent of the total stocking.

### 129

**Red spruce/Fraser fir:** Associates - hemlock, yellow birch, and less frequently, beech, sugar maple, yellow buckeye, mountain-ash, and mountain maple. Sites - mainly occurs in the Appalachian Mountains of North Carolina and Tennessee. For this type to be used, the sum of the stocking of red spruce and Fraser fir must be at least 50 percent of the total stocking and red spruce stocking must be between 5 and 49 percent of total and Fraser fir stocking must be between 5 and 49 percent of total.

**LONGLEAF/SLASH PINE GROUP****141**

**Longleaf pine:** Longleaf pine occurs as a pure type or comprises a majority of the trees in the overstory. Associates - slash, loblolly and shortleaf pine, southern red oak, blackjack oak, water oak, persimmon, and sweetgum. Sites - those areas that can and do burn on a periodic basis usually occurs on middle and upper slopes with a low severity of hardwood and brush competition. Southern distribution coastal plain and piedmont units.

**142**

**Slash pine:** Slash pine is pure or provides a majority of the stocking. Associates on moist sites; a wide variety of moist site hardwoods, pond pine, and pondcypress. On dry sites; a wide variety of dry site hardwoods, longleaf, loblolly, and sand pine. Sites both moist and well drained flatwoods, and bays. Southern distribution coastal plain and piedmont units from North Carolina to Florida.

**TROPICAL SOFTWOODS GROUP****151**

**Tropical pines:** Tropical pine forests and plantations composed of Caribbean pine (*Pinus caribaea*). Associates are *P. oocarpa*, *P. patula* and other pine species native to the Florida Keys, Caribbean, Central America and Mexico. Pines are not native to Puerto Rico or the U.S. Virgin Islands but can be found in plantations or naturally regenerating to a limited extent on sites that were formerly plantations. *P. caribaea* was once rare on the South Florida mainland, but practically non-existent there now and it is not used in plantations in Florida.

**LOBLOLLY/SHORTLEAF PINE GROUP****161**

**Loblolly pine:** Associates - sweetgum, southern red oak, post oak, blackjack oak, blackgum, yellow poplar, and pond pine. Sites - upland soils with abundant moisture but good drainage, and on poorly drained depressions.

**162**

**Shortleaf pine:** Associates - white oak, southern red oak, scarlet oak, black oak, hickory, post oak, blackjack oak, blackgum, red maple, pitch pine, and Virginia pine. Sites - low, well drained ridges to rocky, dry, south slopes and the better drained spur ridges on north slopes and also on old fields.

**163**

**Virginia pine:** Associates - shortleaf pine, white oak, chestnut oak, southern red oak, black oak, sweetgum, red maple, blackgum, and pitch pine. Sites - dry sites, often abandoned fields.

**164**

**Sand pine:** Sand pine occurs in pure stands or provides a majority of the stocking. Associates - dwarf live oak, dwarf post oak, turkey oak, persimmon, and longleaf pine. Sites - dry, acidic, infertile sands. Southern distribution found chiefly in the central peninsula and panhandle of Florida, although planted stands extend into the sandhills of Georgia and South Carolina.

**165**

**Table mountain pine:** Associates - chestnut oak, scarlet oak, pitch pine, and black oak. Sites - poor, dry, often rocky slopes.

**166**

**Pond pine:** Associates - loblolly pine, sweetgum, baldcypress, and Atlantic white cedar. Sites - rare, but found in southern New Jersey, Delaware, and Maryland in low, poorly drained areas, swamps, and marshes.

**167**

**Pitch pine:** Associates - chestnut oak, scarlet oak, table mountain pine, black oak, and blackgum. Sites - relatively infertile ridges, dry flats, and slopes.

**168**

**Spruce pine:** Spruce pine comprises a majority of the stocking. Associates - any of the moist site softwood or hardwood species. Sites - moist or poorly drained areas. Southern distribution this type is rarely encountered and is found almost exclusively in the coastal plain.

**OTHER EASTERN SOFTWOODS GROUP****171**

**Eastern redcedar (includes southern redcedar):** Associates - gray birch, red maple, sweet birch, Virginia Pine, shortleaf pine, and oak. Sites - usually dry uplands and abandoned fields on limestone outcrops and other shallow soils but can grow well on good sites.

**172**

**Florida softwoods (includes either Florida yew or Florida torreya):** Either of these two species comprises the majority of stocking. Sites - Along bluffs and ravines of the Apalachicola River and its tributaries in north Florida and South Georgia.

**PINYON/JUNIPER GROUP****182**

**Rocky Mountain juniper:** Rocky Mountain juniper comprises the majority of stocking. Associates - ponderosa pine, Douglas-fir, other junipers, pinyons, and oaks. Sites - often found on calcareous and somewhat alkaline soils.

**184**

**Juniper woodland:** Includes Pinchot juniper, redberry juniper, Ashe juniper, California juniper, alligator juniper, Utah juniper, oneseed juniper and pinyon is NOT present. Associates - various woodland oaks and cercocarpus, ponderosa pine, Arizona cypress, and Douglas-fir. Sites - lower elevation with low annual precipitation.

**185**

**Pinyon-juniper woodland:** Includes all pinyons and all junipers except Rocky Mountain and western juniper. Must have pinyon present. Associates - various woodland oaks and cercocarpus, ponderosa pine, Arizona cypress, and Douglas-fir. Sites - occurs at lower elevations with low annual precipitation.

**DOUGLAS-FIR GROUP****201**

**Douglas-fir:** Associates - western hemlock, grand fir, Pacific silver fir, white fir, noble fir, California red fir, western redcedar, bigleaf maple, red alder, ponderosa pine, western white pine, western hemlock, and Sitka spruce. Sites - throughout the western U.S.

**202**

**Port-Orford-cedar:** Associates - Douglas-fir, western hemlock, Sitka spruce, grand fir, lodgepole pine, western redcedar, redwood, tanoak, red alder, bigleaf maple and California laurel. Sites - higher elevations tending to occur on northerly aspects.

**203**

**Bigcone Douglas-fir:** Associates - Canyon live oak, ponderosa, Jeffrey, sugar, knobcone, and Coulter pines, incense-cedar, white fir, California black oak, California laurel, and bigleaf maple. Sites - Mainly confined to the Transverse and Peninsular Ranges of southern California. Stands are found on many combinations of slope, aspect, soil, but as elevations increase, the preferred aspect shifts from cooler to warmer slopes.

**PONDEROSA PINE GROUP****221**

**Ponderosa pine (includes Arizona pine):** Associates - Douglas-fir, lodgepole pine, grand fir, Jeffrey pine, western larch, quaking aspen, Utah juniper, and Gambel oak. Sites - this forest type is distributed over vast areas in the West and therefore can have great differences in environmental conditions.

**222**

**Incense-cedar:** Associates - Douglas-fir, ponderosa pine, sugar pine, western white pine, Jeffrey pine, white and grand fir, western hemlock, western redcedar, Port-Orford-cedar, giant sequoia, Oregon white oak, California black oak, tanoak, giant chinkapin, and Pacific madrone; it is rarely found in pure stands. Sites - Grows from the coastal fog belt to the dry inland slopes of eastern California and central Oregon. Once established, incense-cedar is a good competitor on hot, dry sites and commonly shares an upper canopy position on southwestern slopes. On cooler, moister aspects, it is usually subdominant to other species.

**224**

**Sugar pine:** Associates - In the northern part of its range: Douglas-fir, ponderosa pine, grand fir, incense-cedar, western hemlock, western redcedar, Port-Orford-cedar, tanoak, and madrone. In the central part of its range: ponderosa pine, Jeffrey pine, white fir, incense-cedar, California red fir, giant sequoia, and California black oak. Farther south: Jeffrey pine, ponderosa pine, Coulter pine, incense-cedar, white fir, and bigcone Douglas-fir. Sites - grows in areas that have warm, dry summers and cool, wet, mild winters. Terrain is commonly steep and rugged, favoring warm exposures as the elevation increases. Found in Oregon and California, but is most abundant in the mixed conifer forests on the west slope of the Sierra Nevada.

**225**

**Jeffrey pine:** Associates - Incense-cedar, ponderosa pine, sugar pine, Douglas-fir, Port-Orford-cedar, western white pine, knobcone pine, gray or California foothill pine, red and white fir. Sites - thrives in fairly harsh environments throughout most of its range, and is cold hardy, drought tolerant, adapted to short growing seasons, and tolerant of infertile sites. The majority of trees are found in California, although its range extends into southwest Oregon and western Nevada.

**226**

**Coulter pine:** Associates - blue oak, California black oak, interior live oak, coast live oak, California white oak, California scrub oak, buckeye, and ponderosa pine. Sites - grows singly or in small stands primarily on dry, rocky slopes of southern California coastal ranges, between 3,000 and 6,000 feet. Occurs from Mt. Diablo and the Santa Lucia Mountains down to the San Bernardino, San Jacinto, and Cuyamaca Mountains in the south.

**WESTERN WHITE PINE GROUP****241**

**Western white pine:** Associates - western larch, grand fir, western redcedar, and western hemlock. Sites - occurs primarily on moist, mid-elevation sites from 1,500 to 4,000 feet.

**FIR/SPRUCE/MOUNTAIN HEMLOCK GROUP****261**

**White fir:** Associates - Douglas-fir, sugar pine, ponderosa pine, Jeffrey pine, incense-cedar, California red fir, blue spruce, limber pine, and aspen. Sites - deep well-drained sandy loam-covered slopes and benches with a northerly exposure.

**262**

**Red fir (includes California and Shasta red fir):** Associates - Jeffrey pine, western white pine, lodgepole pine, mountain hemlock, and sugar pine. Sites - found at elevations ranging from 5,400 to 7,500 feet.

**263**

**Noble fir:** Associates - Douglas-fir, Pacific silver fir, western and mountain hemlocks, lodgepole pine, western redcedar, and Alaska-yellow-cedar. Sites - found on a variety of sites where precipitation is high and snowpacks are common, generally above 3,000 feet in elevation in the Cascade and Coast ranges.

**264**

**Pacific silver fir:** Associates - western and mountain hemlocks, western redcedar, Alaska-yellow-cedar, grand fir, Sitka spruce, lodgepole pine, subalpine fir, and Engelmann spruce. Sites - most abundant on sites where summer drought is minimal and snowpacks are common, such as areas of heavy rainfall, seepage, or prolonged snowmelt.

**265**

**Engelmann spruce:** Associates - western white pine, western redcedar, western hemlock, Douglas-fir, western larch, grand fir, subalpine fir, and lodgepole pine. For this type to be used, the total stocking of Engelmann spruce must be at least 75 percent of the total stocking.

**266**

**Engelmann spruce-subalpine fir:** Associates - western white pine, western redcedar, western hemlock, Douglas-fir, western larch, grand fir, and lodgepole pine. Sites - this type is widespread in the Western U.S. For this type to be used, the sum of the stocking of Engelmann spruce and subalpine fir must be at least 75 percent of the total stocking and Engelmann spruce stocking must be between 5 and 74 percent of total and subalpine fir stocking must be between 5 and 74 percent of total.

**267**

**Grand fir:** Associates - ponderosa pine, Douglas-fir, western hemlock, western redcedar, western white pine, Pacific yew, lodgepole pine, and western larch. Sites - in Idaho, found on moist slopes from 1,500 to 5,200-foot elevations; in Oregon, it occupies moist low-elevation sites, but also extends up to mid-elevations to as high as 6,000 feet.

**268**

**Subalpine fir:** Associates - western white pine, western redcedar, western hemlock, Douglas-fir, western larch, grand fir, Engelmann spruce, and lodgepole pine. For this type to be used, the total stocking of subalpine fir must be at least 75 percent of the total stocking. Sites - found at high elevations, near timberline.

**269**

**Blue spruce:** Associates - Douglas-fir, ponderosa pine, white fir, lodgepole pine, and Rocky Mountain juniper. Sites - restricted to the southern Rocky Mountains, typically located in the montane zone.

**270**

**Mountain hemlock:** Associates - Alaska-yellow-cedar, Pacific silver fir, western white pine, lodgepole pine, noble fir, and subalpine fir. Sites - occurs in cold, moist regions and growing conditions are poor.

**271**

**Alaska-yellow-cedar:** Associates - In California, California red fir, Brewer spruce, incense-cedar, Pacific yew, and western white pine; in Oregon and Washington, found with mountain hemlock, subalpine fir, Pacific silver fir, noble fir, western white pine, and western hemlock. Sites - Cool and humid climate, most stands grow within 100 miles of the Pacific coast.

**LODGEPOLE PINE GROUP****281**

**Lodgepole pine:** Associates - subalpine fir, Engelmann spruce, white spruce, Douglas-fir, western redcedar, red alder, and western hemlock. Sites - one of the most widespread types in the Western U.S. tolerating a broad range of temperature and moisture regimes.

**HEMLOCK/SITKA SPRUCE GROUP****301**

**Western hemlock:** Associates - Sitka spruce, western redcedar, Douglas-fir, Alaska-yellow-cedar, grand fir, Engelmann spruce, bigleaf maple, and red alder. Sites - nearly any soil provides a seedbed but requires abundant moisture. Often associated with cut-over or burned-over areas.

**304**

**Western redcedar:** Associates - western white pine, western hemlock, western larch, grand fir, Douglas-fir, and Pacific silver fir. Sites - inhabits moist flats and slopes, the banks of rivers and swamps and can be found in bogs.

**305**

**Sitka spruce:** Associates - western hemlock, Douglas-fir, western redcedar, Port-Orford-cedar, red alder, bigleaf maple, and black cottonwood. Sites - limited to a relatively narrow oceanside strip characterized by mild winters, cool summers, and abundant moisture throughout the growing season.

**WESTERN LARCH GROUP****321**

**Western larch:** Associates - Douglas-fir, subalpine fir, lodgepole pine, Engelmann spruce, western hemlock, and western redcedar. Sites - best growth on deep, moist, porous soils in high valleys and on mountain slopes of northern and western exposure.

**REDWOOD GROUP****341**

**Redwood:** Associates - Douglas-fir, grand fir, western hemlock, California torreya, Pacific yew, and western redcedar. Sites - largely confined to coastal topography between 35 degrees 41 minutes and 42 degrees 9 minutes north latitude.

**342**

**Giant sequoia:** Associates - California white fir, sugar pine, incense-cedar, California red fir, white fir, ponderosa pine and California black oak. Sites - Deep, well-drained soils with high soil moisture available during dry summers. Most stands found above 4,000 feet elevation, rarely forming pure stands.

**OTHER WESTERN SOFTWOODS GROUP****361**

**Knobcone pine:** Associates - Gray or California foothill pine, canyon live oak and many western oaks, Douglas-fir, and Port-Orford-cedar. Sites - found on soils that are shallow, dry, stony or high in magnesium.

**362**

**Southwestern white pine:** Associates - Douglas-fir, white fir, ponderosa pine, Gambel oak, and aspen. Sites - higher elevations in Arizona and New Mexico.

**363**

**Bishop pine:** Grows singly or in small stands along the coast of California.

**364**

**Monterey pine:** Grows singly or in small stands. Sites - Native stands are found in the high humidity and summer fogs of the central-coast area of California in San Mateo, Santa Cruz, Monterey, and San Luis Obispo Counties.

**365**

**Foxtail pine/bristlecone pine:** Associates - limber pine, white fir, Engelmann spruce, ponderosa pine, and pinyon. Sites - found on rocky outcrops, usually on southern or southwestern exposures and can range in elevation from 8,000 to 11,000 feet.

**366**

**Limber pine:** Associates - low to mid elevations: Douglas-fir, ponderosa pine, and Rocky Mountain juniper; mid to high elevations: lodgepole pine and aspen; high elevations: Engelmann spruce, subalpine fir, bristlecone pine, and whitebark pine. Sites - a very wide range of elevations and latitudes across the Rocky Mountains; can be the majority species as an early seral stage under a variety of harsh establishment conditions, as climax in dry, high elevation sites in the central and southern Rockies.

**367**

**Whitebark pine:** Associates - subalpine fir, subalpine larch, Engelmann spruce, and lodgepole pine. Sites - poor, high elevation.

**368**

**Miscellaneous western softwoods:** A "catch-all" group for such species as all cypress (*Cupressus*) species, subalpine larch, Brewer spruce, Apache pine, Chihuahua pine, Washoe pine, Torrey pine, Pacific yew, and California torreya.

**369**

**Western juniper:** Associates - ponderosa pine and Jeffrey pine. Sites - found on dry sites and ranges in elevation from just above sea level to 6,500 feet.

**CALIFORNIA MIXED CONIFER GROUP****371**

**California mixed conifer:** Associates - defined only for plots in California (STATECD = 06), typically a mixture of several conifer species occurring as single trees or small groups, sometimes with a broad range of heights, in which any of ponderosa pine, Jeffrey pine, sugar pine, Douglas-fir, white fir, red fir, Shasta red fir and incense-cedar may predominate. In some cases, only one species is present (as implied by rules 1 and 2 below). The type is often found on, but not limited to, east-facing slopes of the Coast Range and on the west-facing and higher elevation east-facing slopes of the Cascades and Sierra Nevada.

Formal rules - to classify as a mixed-conifer forest type, the condition class must be capable of being stocked with 70 percent or greater in conifers and one of the following must be true:

1. Douglas-fir predominates and the county code (COUNTYCD) is not Del Norte (015), Humboldt (023), Marin (041), Mendocino (045), Napa (055), San Mateo (081), Santa Clara (085), Santa Cruz (087), or Sonoma (097).
2. Sugar pine (SPCD = 117) or incense cedar (SPCD = 081) predominates.
3. Ponderosa pine (SPCD = 122) and/or Jeffrey pine (SPCD = 116), either singly or in combination, predominate but make up less than 80 percent of the conifer stocking.
4. White fir (SPCD = 015), and/or red fir (SPCD = 020), and/or Shasta red fir (SPCD = 021) either singly or in combination predominate, but make up less than 80 percent of the conifer stocking.

**EXOTIC SOFTWOODS GROUP****381**

**Scotch pine:** Plantation type, not naturally occurring.

**383**

**Other exotic softwoods:** Austrian pine.

**384**

**Norway spruce:** Plantation type, not naturally occurring.

**385**

**Introduced larch:** Introduced larch (species code 0070).

**OTHER SOFTWOODS GROUP****391**

**Other softwoods:** All softwood species identified to genus level only, except cypress, baldcypress, and larch.

**OAK/PINE GROUP**

In these oak/pine forest types, stocking of the pine component needs to be 25-49 percent.

**401**

**Eastern white pine/northern red oak/white ash:** Associates - red maple, basswood, yellow birch, bigtooth aspen, sugar maple, beech, paper birch, black cherry, hemlock, and sweet birch. Sites - deep, fertile, well-drained soil.

**402**

**Eastern redcedar/hardwood:** Associates - oak, hickory, walnut, ash, locust, dogwood, blackgum, hackberry, winged elm, shortleaf pine, and Virginia pine. Sites - usually dry uplands and abandoned fields.

**403**

**Longleaf pine/oak:** Longleaf pine and scrub oaks primarily turkey, bluejack, blackjack, and dwarf post oak comprise the type. Associates - southern scrub oaks in the understory. Sites - common on sandhills where soils are dry, infertile, and coarse textured. Southern distribution coastal plain and piedmont units.

**404**

**Shortleaf pine/oak:** Associates - (oaks generally include white, scarlet, blackjack, black, post, and southern red), hickory, blackgum, sweetgum, Virginia pine, and pitch pine. Sites - generally in dry, low ridges, flats, and south slopes.

**405**

**Virginia pine/southern red oak:** Associates - black oak, scarlet oak, white oak, post oak, blackjack oak, shortleaf pine, blackgum, hickory, pitch pine, table mountain pine, and chestnut oak. Sites - dry slopes and ridges.

**406**

**Loblolly pine/hardwood:** Associates - wide variety of moist and wet site hardwoods including blackgum, sweetgum, yellow poplar, red maple, white and green ash, and American elm; on drier sites associates include southern and northern red oak, white oak, post oak, scarlet oak, persimmon, and hickory. Sites - usually moist to very moist though not wet all year, but also on drier sites.

**407**

**Slash pine/hardwood:** Slash pine and a variable mixture of hardwoods comprise the type. Associates codominant with the slash pine component are sweetbay, blackgum, loblolly bay, pondcypress, pond pine, Atlantic white-cedar, red maple, ash, and water oak. Sites - undrained or poorly drained depressions such as bays or pocosins and along pond margins. Southern distribution primarily coastal plain units.

**409**

**Other pine/hardwood:** A type used for those unnamed pine-hardwood combinations that meet the requirements for oak-pine. These are stands where hardwoods (usually oaks) comprise the plurality of the stocking with at least a 25 to 49 percent pine, eastern redcedar, or southern redcedar component.

**OAK/HICKORY GROUP****501**

**Post oak/blackjack oak (includes dwarf post oak):** Associates - black oak, hickory, southern red oak, white oak, scarlet oak, shingle oak, live oak, shortleaf pine, Virginia pine, blackgum, sourwood, red maple, winged elm, hackberry, chinkapin oak, shumard oak, dogwood, and eastern redcedar. Sites - dry uplands and ridges.

**502**

**Chestnut oak:** Associates - scarlet oak, white oak, black oak, post oak, pitch pine, blackgum, sweetgum, red maple, red oak, shortleaf pine, and Virginia pine. Sites - rocky outcrops with thin soil, ridge tops.

**503**

**White oak/red oak/hickory (includes all hickories except water and shellbark hickory):** Associates - pin oak, northern pin oak, chinkapin oak, black oak, dwarf chinkapin oak, American elm, scarlet oak, bur oak, white ash, sugar maple, red maple, walnut, basswood, locust, beech, sweetgum, blackgum, yellow-poplar, and dogwood. Sites - wide variety of well-drained upland soils.

**504**

**White oak:** Associates - black oak, northern red oak, bur oak, hickory, white ash, and yellow-poplar. Sites - scattered patches on upland, loamy soils but on drier sites than type 503.

**505**

**Northern red oak:** Associates - black oak, scarlet oak, chestnut oak, and yellow-poplar. Sites - spotty distribution on ridge crests and north slopes in mountains but also found on rolling land, slopes, and benches on loamy soil.

**506**

**Yellow-poplar/white oak/northern red oak:** Associates - black oak, hemlock, blackgum, and hickory. Sites - northern slopes, coves, and moist flats.

**507**

**Sassafras/persimmon:** Associates - elm, eastern redcedar, hickory, ash, sugar maple, yellow-poplar, Texas sophora, and oaks. Sites - abandoned farmlands and old fields.

**508**

**Sweetgum/yellow-poplar:** Associates - red maple, white ash, green ash, and other moist site hardwoods. Sites - generally occupies moist, lower slopes.

**509**

**Bur oak:** Associates - northern pin oak, black oak, chinkapin oak, and eastern redcedar in northern and dry upland sites; shagbark hickory, black walnut, eastern cottonwood, white ash, American elm, swamp white oak, honey locust, and American basswood in southern and lowland sites. Sites - drier uplands to moist bottomlands with the drier uplands more common in the northern part of the range and the moist bottomlands more common in the southern part of the range.

**510**

**Scarlet oak:** Associates - black oak, southern red oak, chestnut oak, white oak, post oak, hickory, pitch pine, blackgum, sweetgum, black locust, sourwood, dogwood, shortleaf pine, and Virginia pine. Sites - dry ridges, south or west facing slopes and flats but often moister situations probably as a result of logging or fire.

**511**

**Yellow poplar:** Associates - black locust, red maple, sweet birch, cucumber tree, and other moist site hardwoods (except sweetgum, see type 508) and white oak and northern red oak (see type 503). Sites - lower slopes, northerly slopes, moist coves, flats, and old fields.

**512**

**Black walnut:** Associates - yellow-poplar, white ash, black cherry, basswood, beech, sugar maple, oaks, and hickory. Sites - coves and well-drained bottoms.

**513**

**Black locust:** Associates - many species of hardwoods and hard pines may occur with it in mixture, either having been planted or from natural seeding. Sites - may occur on any well-drained soil but best on dry sites, often in old fields.

**514**

**Southern scrub oak:** This forest cover type consists of a mixture of scrub oaks that may include several of the following species: turkey oak, bluejack oak, dwarf live oak, Durand oak, and bear oak (otherwise known as scrub oak). Also includes anacahuita. Sites - dry sandy ridges the type frequently develops on areas formerly occupied by longleaf pine. Southern distribution common throughout all coastal plain units and into the lower Piedmont.

**515**

**Chestnut oak/black oak/scarlet oak:** Associates - northern and southern red oaks, post oak, white oak, sourwood, shagbark hickory, pignut hickory, yellow-poplar, blackgum, sweetgum, red maple, eastern white pine, pitch pine, Table Mountain pine, shortleaf pine, and Virginia pine. Sites - dry upland sites on thin-soiled rocky outcrops on dry ridges and slopes.

**516**

**Cherry/white ash/yellow-poplar:** Associates - sugar maple, American beech, northern red oak, white oak, blackgum, hickory, cucumber tree, and yellow birch. Sites - fertile, moist, well-drained sites.

**517**

**Elm/ash/black locust:** Associates - Black locust, silver maple, boxelder, blackbead ebony, American elm, slippery elm, rock elm, red maple, and green ash predominate. Found in North Central region, unknown in the Northeast. Sparse in the West. Sites - upland.

**519**

**Red maple/oak:** Associates - the type is dominated by red maple and some of the wide variety of central hardwood associates include upland oak, hickory, yellow-poplar, black locust, sassafras as well as some central softwoods like Virginia and shortleaf pines. Sites - uplands.

**520**

**Mixed upland hardwoods:** Includes Ohio buckeye, yellow buckeye, Texas buckeye, red buckeye, painted buckeye, American hornbeam, American chestnut, eastern redbud, flowering dogwood, hawthorn spp., cockspur hawthorn, downy hawthorn, Washington hawthorn, fleshy hawthorn, dwarf hawthorn, honeylocust, Kentucky

coffeetree, Osage-orange, all mulberries, blackgum, sourwood, southern red oak, shingle oak, laurel oak, water oak, live oak, willow oak, black locust, blackbead ebony, anacahuita, and September elm. Associates - Any mixture of hardwoods of species typical of the upland central hardwood region, should include at least some oak. Sites - wide variety of upland sites.

## OAK/GUM/CYPRESS GROUP

### 601

**Swamp chestnut oak/cherrybark oak:** Associates - Shumard oak, Delta post oak, white ash, hickory, white oak, blackgum, sweetgum, southern red oak, post oak, American elm, winged elm, yellow poplar, and beech. Sites - within alluvial floodplains of major rivers, on all ridges in the terraces, and on the best fine sandy loam soils on the highest first bottom ridges.

### 602

**Sweetgum/Nuttall oak/willow oak:** Associates - American holly, green ash, American elm, pecan, cottonwood, red maple, honeylocust, persimmon, and anacahuita. Sites very wet.

### 605

**Overcup oak/water hickory (includes shellbark hickory):** Associates - pin oak, willow oak, American elm, green ash, hackberry, persimmon, and red maple. Sites - in South within alluvial floodplains in low, poorly drained flats with clay soils; also in sloughs and lowest backwater basins and low ridges with heavy soils that are subject to late spring inundation.

### 606

**Atlantic white cedar:** Associates - The northern region includes gray birch, pitch pine, hemlock, blackgum, and red maple. The southern region includes pond pine, baldcypress, and red maple. Sites - usually confined to sandy bottomed, peaty, interior, and river swamps, wet depressions, and stream banks.

### 607

**Baldcypress/water tupelo:** 25-50 percent stocking of baldcypress (either baldcypress or Montezuma baldcypress). Associates - blackgum, willow, red maple, American elm, persimmon, overcup oak, and sweetgum. Sites - very low, poorly drained flats, deep sloughs, and swamps; wet most all the year. Also, floodplains and stream margins.

### 608

**Sweetbay/swamp tupelo/red maple:** Associates - blackgum, Florida maple, water birch, gum bumelia, waterlocust, loblolly bay, all magnolias, red maple, Ogeechee tupelo, red bay, water-elm, Oglethorpe oak, loblolly and pond pines, American elm, and other moist site hardwoods. Sites - very moist but seldom wet all year shallow ponds, muck swamps, along smaller creeks in Coastal Plain (rare in Northeast).

### 609

**Baldcypress/pondcypress:** >50 percent stocking of baldcypress and/or pondcypress. Associates - blackgum, willow, red maple, American elm, persimmon, overcup oak, and sweetgum. Sites - very low, poorly drained flats, deep sloughs, and swamps; wet most all the year. Also, floodplains and stream margins.

**ELM/ASH/COTTONWOOD GROUP****701**

**Black ash/American elm/red maple (includes slippery and rock elm):** Associates - swamp white oak, silver maple, sycamore, pin oak, blackgum, white ash, and cottonwood. Sites - moist to wet areas, swamps, gullies, and poorly drained flats.

**702**

**River birch/sycamore:** Associates - red maple, black willow, and other moist site hardwoods. Sites - moist soils at edges of creeks and rivers.

**703**

**Cottonwood:** Associates - willow, white ash, green ash, and sycamore. Sites - streambanks where bare, moist soil is available.

**704**

**Willow (includes peachleaf and black willow):** Associates - cottonwood, green ash, sycamore, pecan, American elm, red maple, and boxelder. Sites - streambanks where bare, moist soil is available.

**705**

**Sycamore/pecan/American elm (includes slippery and rock elm):** Associates - sweetgum, green ash, hackberry, silver maple, cottonwood, willow, boxelder, and river birch. Sites - bottomlands, alluvial floodplains of major rivers.

**706**

**Sugarberry/hackberry/elm/green ash (includes American, winged, cedar, slippery and rock elm):** Associates - boxelder, pecan, blackgum, persimmon, honeylocust, red maple, and hackberry. Sites - low ridges and flats in floodplains.

**707**

**Silver maple/American elm:** Silver maple and American elm are the majority species in this type. Associates - chalk maple, sweetgum, pin oak, swamp white oak, eastern cottonwood, sycamore, green ash, and other moist-site hardwoods, according to the region. Sites - primarily on well-drained moist sites along river bottoms and floodplains, and beside lakes and larger streams.

**708**

**Red maple/lowland:** Red maple comprises a majority of the stocking. Because this type grows on a wide variety of sites over an extensive range, associates are diverse. Associates include yellow-poplar, blackgum, sweetgum, and loblolly pine. Site - generally restricted to very moist to wet sites with poorly drained soils, and on swamp borders.

**709**

**Cottonwood/willow (includes peachleaf, black and Bebb willow):** Associates - white ash, green ash, sycamore, American elm, red maple and boxelder. Sites - stream banks where bare, moist soil is available.

**722**

**Oregon ash:** Associates - red alder, bigleaf maple, black cottonwood, and willow. Sites - riparian areas, prefers damp, loose soils, below 3000 feet.

**MAPLE/BEECH/BIRCH GROUP****801**

**Sugar maple/beech/yellow birch:** Associates - butternut, basswood, red maple, hemlock, northern red oak, white ash, white pine, black cherry, sweet birch, American elm, rock elm, and eastern hophornbeam. Sites - fertile, moist, well-drained sites.

**802**

**Black cherry:** Associates - sugar maple, northern red oak, red maple, white ash, basswood, sweet birch, butternut, American elm, and hemlock. Sites - fertile, moist, well-drained sites.

**805**

**Hard maple/basswood (includes American, Carolina, and white basswood):** Associates - black maple, white ash, northern red oak, eastern hophornbeam, American elm, red maple, eastern white pine, and eastern hemlock. Sugar maple and basswood occur in different proportions but together comprise the majority of the stocking. Sites - fertile, moist, well-drained sites.

**809**

**Red maple/upland:** Associates - the type is dominated by red maple and some of the wide variety of northern hardwood associates include sugar maple, beech, birch, aspen, as well as some northern softwoods like white pine, red pine, and hemlock; this type is often the result of repeated disturbance or cutting. Sites - uplands. (See Type 519 under oak/hickory group.)

**ASPEN/BIRCH GROUP****901**

**Aspen:** Associates - Engelmann spruce, lodgepole pine, ponderosa pine, Douglas-fir, subalpine fir, white fir, white spruce, balsam poplar, and paper birch. Sites - aspen has the capacity to grow on a variety of sites and soils, ranging from shallow stony soils and loamy sands to heavy clays.

**902**

**Paper birch (includes northern paper birch):** Associates - aspen, white spruce, black spruce, and lodgepole pine. Sites - can be found on a range of soils, but best developed on well-drained sandy loam and silt loam soils.

**903**

**Gray birch:** Associates - oaks, red maple, white pine, and others. Sites - poor soils of abandoned farms and burns.

**904**

**Balsam poplar:** Associates - paper birch, white spruce, black spruce, and tamarack. Sites - occurs on rich floodplains where erosion and folding are active.

**905**

**Pin cherry:** Associates - quaking and bigtooth aspen; paper and yellow birch; striped, red and sugar maple; beech; northern red oak; balsam fir; and red spruce. In the Appalachians, Fraser fir and mountain-ash are additional associates. In the central and Lake States, chokecherry and black cherry are common. Sites - Occurs over a wide range of soils and drainage classes, found on sites varying from dry rocky ledges and sandy plains to moist loamy soils.

**ALDER/MAPLE GROUP****911**

**Red alder:** Associates - Douglas-fir, western hemlock, western redcedar, grand fir, Sitka spruce, black cottonwood, bigleaf maple, and willow. Sites - stream bottoms and lower slopes, west of the Cascades, usually within 125 miles of the coast, below 2,400 feet.

**912**

**Bigleaf maple:** Associates - Douglas-fir, western hemlock, western redcedar, black cottonwood, Pacific madrone, Pacific dogwood, and red alder. Sites - Flat interior valleys, gently sloping stream bottoms, and moderate to steep slopes; favors moist, well-drained soils of river terraces and floodplains, but also grows on drier rocky, south-facing slopes in the Coast Ranges of northwestern Oregon.

**WESTERN OAK GROUP****921**

**Gray pine:** Associates - Blue oak, California black oak, interior live oak, coast live oak, California white oak, California scrub oak, buckeye, western juniper, and Coulter pine. Sites - dry foothill woodland communities of California's Central Valley, on rocky slopes and steep canyon walls below 3,000 feet. Prefers areas with hot, dry summers and absence of summer fog. Tolerates infertile, low moisture soils.

**922**

**California black oak:** Associates - ponderosa pine, Douglas-fir, incense-cedar, knobcone pine, Pacific madrone, tanoak, and Oregon white oak.

**923**

**Oregon white oak:** Associates - Douglas-fir, bigleaf maple, and Oregon ash. Sites - commonly occurs in very moist locations, in mixture with Oregon ash on floodplains of the Willamette Valley, and on poorly drained heavy clay soils.

**924**

**Blue oak:** Associates - Gray pine, interior live oak, canyon live oak, valley oak, and California buckeye. Sites - low valleys and foothills of the Coast Ranges and Sierras in California.

**931**

**Coast live oak:** Associates - knobcone pine, Monterey pine, interior live oak, valley oak, blue oak, tanoak, Pacific madrone, and California laurel. Sites - usually occupies well-drained soils.

**933**

**Canyon live oak:** Associates - Douglas-fir, bigcone Douglas-fir, ponderosa pine, Jeffrey pine, bigleaf maple, Pacific madrone, and California laurel. Sites - found on steep rocky canyon slopes and boulder-filled bottoms.

**934**

**Interior live oak:** Associates - Blue oak, coast live oak, valley oak, canyon live oak, gray pine, ponderosa pine, and Douglas-fir. Sites - from valleys to foothills, below 5,000 feet; grows on moister sites than blue oak.

**935**

**California white oak (valley oak):** Associates - Canyon live oak, coast live oak, California black oak, blue oak, California buckeye, gray pine, and ponderosa pine. Sites - hot interior valleys and slopes below 2,000 feet; tolerates cool wet winters and hot dry summers; prefers fertile soils of valley floors.

**TANOAK/LAUREL GROUP****941**

**Tanoak:** Associates - Douglas-fir, Pacific madrone, and canyon live oak. Sites - sea level to 5,000 feet elevation from southern Oregon south along the Coast Ranges to the Santa Ynez Mountains in California.

**942**

**California laurel:** Associates - usually found in mixed stands with a wide variety of associated species. Sites - from the cool, humid conditions of dense coastal forests to hot, dry sites found inland in open woodlands and chaparral, below 4,000 feet.

**943**

**Giant chinkapin:** Associates - rarely grows in pure stands, usually a component of other types. Found with Douglas-fir, western hemlock, incense-cedar, white fir, western white pine, sugar pine, ponderosa pine, Pacific madrone, tanoak, and California black oak. Sites - from valley bottoms to ridgetops, in the coast and cascade ranges, below 5,000 feet. Tolerates infertile and droughty sites.

**OTHER HARDWOODS GROUP****961**

**Pacific madrone:** Associates - a wide variety of species, but most common with Douglas-fir and tanoak. Sites - grows on all aspects but is found most often on those facing south and west, and tolerates low soil moisture in summer.

**962**

**Other hardwoods:** A "catch-all" group for hardwood species identified only to the genus level, with the exception of the following species (Note: This code primarily applies to a mapped subplot, where only one or two "uncommon" tree species are tallied): hackberry spp., hawthorn spp., eucalyptus spp., persimmon spp., magnolia spp., mulberry spp., mesquite spp., citrus spp., royal palm spp., willow spp., and saltcedar spp., striped maple, mountain maple, California buckeye, Arizona alder, serviceberry, Arizona madrone, pawpaw, sweet birch, Virginia roundleaf birch, Allegany chinkapin, Ozark chinkapin, southern catalpa, northern catalpa, yellowwood, Pacific dogwood, pumpkin ash, blue ash, velvet ash, Carolina ash, Texas ash, all silverbells, California black walnut, southern California black walnut, Texas walnut, Arizona walnut, all apple species, eastern hop hornbeam, California sycamore, Arizona sycamore, chokecherry, peach, Canada plum, wild plum, bitter cherry, Allegheny plum, Chickasaw plum, sweet cherry, sour cherry, European plum, Mahaleb plum, western soapberry, American mountain-ash, northern mountain-ash, Joshua tree, smoketree, great leucaena, and berlandier ash.

**WOODLAND HARDWOODS GROUP****971**

**Deciduous oak woodland:** Areas with predominantly Gambel oak, which is often associated with ponderosa pine, white fir, Douglas-fir, alligator juniper, bigtooth maple, and chokecherry. Sites - most soils, on elevations generally ranging from 4,000 to 8,000 feet.

**972**

**Evergreen oak woodland:** Areas with predominantly evergreen oaks, such as Arizona white oak, Emory oak, Engelmann oak, Mexican blue oak, silverleaf oak, gray oak and/or netleaf oak. Other associates - various pinyons and junipers. Sites - alluvial soils, from 4,000 to 7,500 feet elevation.

**973**

**Mesquite woodland:** Honey mesquite and screwbean mesquite comprise the majority of the stocking of this cover type. Honey mesquite associates, which are many, vary with climate and soils. Sites - occurs on a wide variety of soils at elevations mostly below 5,000 feet.

**974**

**Cercocarpus (Mountain brush) woodland (includes curlleaf mountain-mahogany):** Associates - Rocky Mountain juniper, big sagebrush, and snowberry. Sites - dry, course-textured soils.

**975**

**Intermountain maple woodland (includes Rocky Mountain and/or bigtooth maple):** Associates - chokecherry, boxelder, birchleaf mountain-mahogany, and Gambel oak. Sites - most soils but does not tolerate long flooding periods. Found growing between 4,500 and 7,500 feet elevation.

**976**

**Miscellaneous woodland hardwoods [includes acacia, New Mexico locust, and/or Arizona ironwood (tesota)]:** Sites - occurs on a wide variety of soils at elevations mostly below 5,000 feet.

**TROPICAL HARDWOODS GROUP****982**

**Mangrove:** Forests in which mangrove comprises a majority of the stocking. Associates cabbage palm on some of the higher sites in the area. Sites - predominantly salt marshes; mangrove frequently develops its own island or shoreline made up of a dense mat of root structures. Southern distribution restricted to South Florida and the Keys.

**983**

**Palms:** Includes paurotia-palm, silver palm, coconut palm, royal palm spp., cabbage palmetto, Mexican palmetto, key thatch palm, Florida thatch palm, and other palms. Associates - Sand live oak, slash pine, live oak, laurel oak, water oak, baldcypress, southern magnolia, red maple, redbay, swamp tupelo, sweetgum, southern redcedar, and loblolly pine. In extreme southern Florida, tropical hardwoods replace temperate hardwoods as associates. Sites - can tolerate a broad range of soil pH, salinity, and drainage.

**984**

**Dry forest (FGDC - Lowland to Submontane Drought Deciduous, Semi-deciduous and Semi-evergreen Forest; Holdridge life zone - Subtropical Dry Forest):** *Bursera simaruba* (L.) Sarg., *Bucida buceras* L., *Cephalocereus rostenii* (L.) Britton, and *Guaiacum officinale* L. are species commonly associated with Puerto Rican dry forest. The more heavily-disturbed dry forest areas have numerous, smaller stemmed *Leucaena leucocephala* (Lam.) deWit, *Prosopis juliflora* (Sw.) DC., *Acacia macracantha* Humb. & Bonpl. and *Acacia farnesiana* (L.) Willd. individuals. Some of the native tree species that are common in subtropical dry forest in the U.S. Virgin Islands are *Bursera simaruba* (L.) Sarg., *Amyris elemifera* L., *Capparis cynophallophora* L., *Cordia rickseckeri* Millsp., *Pisonia subcordata* Sw., *Guaiacum officinale* L., *Plumeria alba* L., and *Pictetia aculeata* (Vahl) Urban. The more heavily-disturbed dry forest areas have numerous, smaller stemmed *Leucaena leucocephala* (Lam.) deWit, *Prosopis juliflora* (Sw.) DC., *Acacia macracantha* Humb. & Bonpl., and *Acacia farnesiana* (L.) Willd. Individuals.

**985**

**Moist forest (FGDC - Lowland and Submontane Seasonal Evergreen; Holdridge life zone - Subtropical Moist Forest):** In the Caribbean, subtropical moist forests are found in areas with 1000 to 2200 mm of annual precipitation. The subtropical moist life zone is the most extensive on Puerto Rico and covers a wide variety of soil parent materials, topographic classes and land uses resulting in highly diverse mixes that typically include *Tabebuia heterophylla* (DC.) Britton, *Spathodea campanulata* Beauv., *Guarea guidonia* (L.) Sleumer, *Andira inermis* (W. Wright) Kunth ex DC., *Roystonea borinquena* O. F. Cook, *Mangifera indica* L., *Cecropia peltata* L., *Schefflera morototoni* (Aubl.) Maguire, Steyermark and species of the Nectandra, Ocotea, and Coccoloba genera. Some of the many natural indicator species of subtropical moist forest in the U.S. Virgin Islands include the *Andira inermis* (W. Wright) Kunth ex DC., *Guapira fragrans* (Dum.-Cours.) Little, *Spondias mombin* L., *Bucida buceras* L., *Hura crepitans* L., *Ceiba pentandra* (L.) Gaertn., *Cedrela odorata* L., *Pimenta racemosa* var. *racemosa*, *Roystonea borinquena* O.F. Cook (on St. Croix only), *Hymanaea courbaril* L., *Cecropia schreberiana* Miq., and *Tabebuia heterophylla* (DC.) Britt. While subtropical moist forests have some of the same introduced species found in subtropical dry forest, *Tamarindus indica* L. and *Melicoccus bijugatus* Jacq. are also common.

**986**

**Wet and rain forest (FGDC - Submontane Evergreen Forest; Holdridge life zone - Subtropical Wet and Rain Forest):** In the Caribbean, subtropical wet and rain forests are found in areas with 2000 to 4000 mm of annual precipitation. *Dacryodes excelsa* Vahl., *Sloanea berteriana* Choisy, *Manilkara bidentata* (A.DC.) are species indicative of the tabonuco forest type. *Cecropia peltata* L., *Schefflera morototoni* (Aubl.) Maguire and *Ochroma lagopus* Sw. are also common in wet forest stands at early stages of succession or recovery from disturbance. Wet forest shade coffee plantations hold species such as *Guarea guidonia* (L.) Sleumer, *Inga laurina* (Sw.) Willd., *Inga vera* Willd., and *Erythrina poeppigiana* (Walp.) O.F. Cook.

**987**

**Lower montane wet and rain forest (FGDC - Montane Evergreen Forest; Holdridge life zone - Lower Montane Wet and Rain Forest):** In the Caribbean, lower montane wet and rain forests are found in areas with elevations between 700-1000 meters. Forest types and their typical species include the palo colorado forest type (*Cyrilla racemiflora* L., *Ocotea spathulata* Mez., *Micropholis guyanensis* (A. DC.) Pierre and *Micropholis garciniiifolia* Pierre), elfin forest type (*Eugenia borinquensis* Britton, *Tabebuia rigida* Urban, *Weinmannia pinnata* L. and *Calycogonium squamulosum* Cogn.) and the palm brake forest type (*Prestoea montana* (Graham) Nichols.).

**988**

**Cloud forest:** These forests are covered with clouds or fog much of the time. The trees have low canopies and are often dripping with moisture. The trees are typically small-leaved and covered with masses of epiphytic mosses and liverworts, which also form a deep ground cover.

**989**

**Other tropical hardwoods:** This type consists of dense forests of hardwood trees and palms. Includes gumbo-limbo, tamarind, poisonwood, pigeon-plum, torchwood, willow bustic, false mastic, pond apple, sheoak, gray sheoak, river sheoak, camphor tree, fiddlewood, citrus spp., soldierwood, Geiger tree, carrotwood, red stopper, inkwood, strangler fig, shortleaf fig, blolly, manchineel, paradise tree, Java plum, false tamarind, mango, fishpoison tree, and octopus tree. Associates -black ironwood (leadwood), lancewood, and mastic as well as more temperate live oak and red bay. Sites - Occurs on land slightly higher than surrounding fresh and saltwater marshes or on pine land.

**EXOTIC HARDWOODS GROUP****991**

**Paulownia:** Stands with the majority of stocking composed of *Paulownia tomentosa*, commonly known as Princess tree, royal paulownia or empress tree. Sites - can be found along roadsides, streambanks, and forest edges. It tolerates infertile and acid soils and drought conditions. It easily adapts to disturbed habitats, including previously burned areas, forests defoliated by pests (such as the gypsy moth) and landslides and can colonize rocky cliffs and scoured riparian zones. Paulownia can also be found in plantations.

**992**

**Melaleuca:** Stands with the majority of stocking composed of melaleuca (*Melaleuca quinquenervia*). Melaleuca trees, also known as punk trees or paperbark tea trees, are native to Australia. Sites - In the gulf-coastal plain, it is found in swamps and glades, often eliminating all other forms of vegetation.

**993**

**Eucalyptus:** Associates - As an introduced and naturalized species, it has few common associates. Usually planted as an ornamental, in plantations for firewood, or along roads and parks for cover. Sites - good drainage, low salinity, mild temperate climates.

**995**

**Other exotic hardwoods:** Includes any of the following species: Norway maple, ailanthus, mimosa, European alder, Chinese chestnut, ginkgo, Lombardy poplar, European mountain-ash, West Indian mahogany, Siberian elm, saltcedar spp., chinaberry, Chinese tallowtree, tung-oil-tree, Russian-olive, and avocado.



Section revision: 11.01.2024

# Appendix G: FIA Volume, Biomass, and Carbon Estimation

## Appendix Contents:

Description
<a href="#">Overview: FIA Volume, Biomass, and Carbon Estimation</a>
<a href="#">Steps for estimating volume, biomass, and carbon using NSVB</a>
<a href="#">Accounting for structural loss and standing dead trees using NSVB</a>

## Overview: FIA Volume, Biomass, and Carbon Estimation

The National Scale Volume and Biomass (NSVB) system is the primary approach used by FIA to estimate cubic-foot volume, biomass, and carbon in trees. This system was designed to generate optimal estimates of total stem wood volume and total aboveground biomass while simultaneously providing compatible estimates of individual components (for example, total stem wood biomass + total stem bark biomass = total stem biomass). NSVB is applied to all timber tree species (trees where diameter is measured at breast height [d.b.h.]) growing in the continental United States measured under the urban FIA annual inventory. Belowground biomass (ID\_TREE.DRYBIO\_BG) is estimated using the Component Ratio Method (CRM). See Heath and others (2009) for further details on belowground biomass estimation.

Volume, biomass, and carbon estimates for woodland species (trees where diameter is measured at root collar [d.r.c.]; identified by REF\_SPECIES.WOODLAND = 'Y') and trees growing in the Pacific Islands, including Hawaii, and the Caribbean Islands (STATECD = 15, 64, 66, 68, 69, 70, 72, 78) are calculated using regional or CRM equations. See Woodall and others (2011) for details on methods and equations for estimating aboveground volume, biomass, and carbon using the CRM approach.

The following is a brief guide on the NSVB steps for estimation. For further details on how the NSVB system was developed, along with model coefficients and detailed examples, see Westfall and others (2024).

## Steps for estimating volume, biomass, and carbon using NSVB

The NSVB approach for timber species (trees where diameter is measured at breast height [d.b.h.]) involves the following steps:

- Predict total stem wood volume as a function of the following attributes: species (SPCD), diameter (DIA), and total length (TOTAL\_LENGTH).
- Predict total stem bark volume as a function of DIA and TOTAL\_LENGTH.
- Estimate stem component volumes (stump, merchantable, sawlog, stem-top) using a volume ratio model.
- Convert total stem wood volume to biomass using published wood density values (Miles and Smith 2009).

5. Predict total stem bark biomass as a function of DIA and TOTAL\_LENGTH.
6. Predict total branch biomass as a function of DIA and TOTAL\_LENGTH.
7. Predict total aboveground biomass as a function of DIA and TOTAL\_LENGTH.
8. Sum total stem wood biomass, total stem bark biomass, and total branch biomass to obtain a secondary total aboveground biomass.
9. Determine the difference between the predicted total biomass (step 7) and the total from the component estimates (step 8).
10. Proportionally distribute the difference across total stem wood, total stem bark, and total branch weights to create an adjusted total stem wood weight, an adjusted total stem bark weight, and an adjusted total branch weight.
11. Calculate a 'derived' wood density by dividing the adjusted total stem wood weight by the predicted total stem wood volume. This 'derived' wood density can be used to convert any subsection of the main stem wood volume to biomass.
12. Calculate a 'derived' bark density by dividing the adjusted total stem bark weight by the predicted total stem bark volume. This value can be used to convert any subsection of the main stem bark volume to biomass.
13. Predict total foliage dry weight as a function of DIA and TOTAL\_LENGTH.
14. Estimate aboveground carbon using aboveground biomass and species-specific carbon fractions (REF\_SPECIES.CARBON\_RATIO\_LIVE).

Steps 11 and 12 ensure that the main stem can be broken into any sub-components (e.g., stump, merchantable bole, top) and still be additive with the adjusted total stem weight.

### **Accounting for structural loss and standing dead trees using NSVB**

The NSVB system was designed to estimate the volume, biomass, and carbon of live trees with minimal structural loss (e.g., significant rot, broken tops, crown loss). Often, attributes that attempt to quantify structural loss are measured or estimated in forest inventory systems with the purpose of deducting an amount of volume or biomass from the estimate of a healthy/intact tree. This section briefly highlights how estimates of structural loss are incorporated in the NSVB system. The underlying methodology behind NSVB is to have optimal estimates of total stem wood volume and total aboveground biomass (AGB), while also having compatible component biomass estimates. To maintain additivity and consistency between the components and the optimal AGB, any deductions for cull/rot/loss from a component must also be taken out of the independently predicted AGB. This is accomplished by applying a component-weighted 'reduction factor' to the optimal AGB. This is achieved by determining the ratio between the sum of the components with reduction and the sum of the components without reductions.

Currently, FIA accounts for biomass reductions in the following ways:

- Amount of stem wood and bark lost due to broken tops (*value not stored in the database*).
- Amount of branches lost due to broken tops (*value not stored in the database*).
- Amount of foliage lost due to broken tops (*value not stored in the database*).
- Percentage of rot/missing cull in stem wood (ID\_TREE.CULL\_FLD).
- Amount of mass lost due to decay proportion in standing dead trees (*value not stored in the database*; calculated using the following attributes: REF\_TREE\_DECAY\_PROP.DENSITY\_PROP, REF\_TREE\_DECAY\_PROP.BARK\_LOSS\_PROP, REF\_TREE\_DECAY\_PROP.BRANCH\_LOSS\_PROP).

## Broken tops

Trees with broken tops are identified by ID\_TREE.ACUAL\_LENGTH < ID\_TREE.TOTAL\_LENGTH. The volume ratio model mentioned above is used to estimate the amount of volume remaining in the tree below the broken top. Broken tops reduce the amount of volume and biomass in both wood and bark and always affect the total stem values of these components. If the broken top is observed to be below the estimated merchantable height (4.0-inch top diameter outside bark, DOB), the merchantable volume and biomass are appropriately reduced. Similarly, if the broken top is below the estimated sawlog top height (7.0-inch top DOB for softwoods; 9.0-inch top DOB for hardwoods), the corresponding volume and biomass are reduced.

If part of the main stem is missing, then some of the branch and foliage biomass of an intact tree must be missing as well. To estimate the amount of biomass missing, the crown ratio of the tree without a broken top must be estimated. This is determined using the field-estimated compacted crown ratio (ID\_TREE.COMP\_CROWN\_RATIO).

- CRpropHT = (TOTAL\_LENGTH - ACTUAL\_LENGTH \* (1 - COMP\_CROWN\_RATIO/100)) / TOTAL\_LENGTH

*CRpropHT value not stored in the database.*

For standing dead trees, the mean crown ratio (REF\_TREE\_STND\_DEAD\_CR\_PROP.CR\_MEAN) for intact trees by ecoregion province (REF\_TREE\_STND\_DEAD\_CR\_PROP.ECOPROV) and softwood/hardwood classification is used to calculate CRpropHT.

The proportion of the expected total crown remaining after accounting for broken tops is then calculated as follows:

- Broken crn\_prop = max(0,(ACTUAL\_LENGTH - (1 - CrpropHT) \* TOTAL\_LENGTH) / (CRpropHT \* TOTAL\_LENGTH))

*Broken crn\_prop value not stored in the database.*

This broken crown proportion is then multiplied by the original biomass equation result for an intact top to estimate remaining branch biomass and foliage biomass.

## Cull

For live tree biomass, stem wood (e.g., total stem, merchantable stem) biomass is proportionally reduced to account for cull. The density reduction (REF\_TREE\_DECAY\_PROP.DENSITY\_PROP) for a REF\_TREE\_DECAY\_PROP.DECAYCD = 3 standing dead tree is used to account for wood decay in living trees as follows:

- (1 - (1 - DENSITY\_PROP) \* CULL\_FLD / 100) \* Stem Wood

Cull does not affect the biomass of bark, branches, or foliage. For dead tree biomass, no adjustments for ID\_TREE.CULL\_FLD or other types of cull are made.

### Standing dead

The ID\_TREE.[DECAYCD](#) attribute classifies standing dead trees by the stage of decay and fragmentation. For the wood and bark material remaining in a standing dead tree, density reduction factors are used to estimate the loss of mass of a decayed standing dead tree compared to a live tree. Table REF\_TREE\_DECAY\_PROP contains density reduction factors by decay class and softwood/hardwood classification that are applied to stem wood, stem bark, and branch biomass:

- REF\_TREE\_DECAY\_PROP.[DENSITY\\_PROP](#) \* Wood
- REF\_TREE\_DECAY\_PROP.[BARK\\_LOSS\\_PROP](#) \* Bark
- REF\_TREE\_DECAY\_PROP.[BRANCH\\_LOSS\\_PROP](#) \* Branch

To determine the aboveground carbon in standing dead trees, aboveground biomass is multiplied by the mean carbon ratio (REF\_TREE\_CARBON\_RATIO\_DEAD.[CARBON\\_RATIO](#)) by decay class and softwood/hardwood classification.

Section revision: 09.02.2024

# Appendix H: Supplemental Urban Database Tables

This appendix lists supplemental database tables that are not available in the Urban Forest Inventory and Analysis Database (Urban FIADB) because of the FIA data confidentiality policy (see [table H-1](#)).

Users needing this type of information should contact the [FIA Spatial Data Services \(SDS\)](#) team by following the instructions provided at the following web address:  
<https://research.fs.usda.gov/programs/fia/sds>.

**Table H-1:** Supplemental urban database tables.

Database table	Oracle table name	Description
Boundary Table	ID_BOUNDARY	This table stores boundary data collected during the field visit for a plot. Boundaries are used to delineate land conditions that intersect the plot footprint. There are two types of boundaries defined within the urban FIA field protocol: traditional and closed. This table stores traditional boundary data.
Closed Boundary Table	ID_CLOSED_BOUNDARY	This table stores closed boundary data collected during the field visit for a plot. Boundaries are used to delineate land conditions that intersect the plot footprint. There are two types of boundaries defined within the urban FIA field protocol: traditional and closed. This table stores closed boundary data.
Reference Boundary Change Table	REF_BOUNDARY_CHANGE	This table stores reference data for the BNDCHG attribute. Code for this attribute indicates if a boundary has changed since the previous measurement.
Reference Building Distance Table	REF_BUILDING_DISTANCE	This table stores reference data for the DISTANCE_CD attribute. Code for this attribute indicates the distance between a sampled tree and a building.
Reference Offset Point Table	REF_OFFSET_POINT	This table stores reference data for the OFFSET_POINT attribute. Code for this attribute identifies which offset point was used as a reference for a given measurement.
Reference Plot Type Table	REF_PLOT_TYPE	This table stores reference data for the SUBP_TYPE attribute. Code for this attribute identifies the type of footprint element (subplot or microplot) on which a boundary was delineated.

