Database Code: TV010

Title: Long-term growth, mortality and regeneration of trees in permanent vegetation plots in the Pacific Northwest, 1910 to present

Abstract:

A network of more than 130 permanent vegetation plots provides long-term information on patterns and rates of forest succession in most of the major forest zones of the Pacific Northwest. The plot network extends from the coast to the Cascades in western Oregon and Washington and east to ponderosa pine forests in the Oregon Cascades. Most of the permanent plots were established during two intervals: from 1910 to 1948, and from 1970 to 1989. The earlier plots were established by U.S. Forest Service researchers to quantify timber growth in young stands of important commercial species and to help answer other applied forestry questions. The more recent period of plot establishment began under the Coniferous Forest Biome program of the International Biological Program during the 1970s, and continued under the Long-term Ecological Research program. A broader set of objectives motivated plot establishment since 1970, especially quantification of composition, structure, and population and ecosystem dynamics of natural forests. Plots have one of three spatial arrangements: (1) contiguous rectangles subjectively placed within an area of homogeneous forest; (2) circular plots subjectively placed within an area of homogeneous forest; and (3) circular plots systematically located on long transects to sample an entire watershed, ridge, or reserve. Rectangular study areas are mostly 1.0 ha or 0.4 ha (1.0 ac) in size (slope-corrected). Circular plots are 0.1 ha (0.247 ac), not corrected for slope. The tree stratum is the focus of work in closed-forest study areas. All trees larger than a minimum diameter (5 cm for most areas) are permanently tagged. Plots are censused every 5 or 6 years. Attributes measured or assessed at each census include tree diameter, tree vigor, and the condition of the crown and stem. The same attributes are recorded for trees (ingrowth) that have exceeded the minimum diameter since the previous census. In many plots tree locations are surveyed to provide a plot-specific x-y location. A mortality assessment is done for trees that have died since the previous census. The assessment characterizes rooting, stem, and crown condition, obvious signs of distress or disturbance, and the apparent predisposing and proximate causes of tree death.

Keywords: Biomass;Biomass (trees);Biomass (woody debris);Disturbance;Ecosystem dynamics;Forest composition;Forest structure;Growth and yield;Long-Term Ecological Research (LTER);Long-term productivity;Mortality;Natural forests;Old-growth forests;Pathogens;Permanent plots;Primary production;Regeneration;Succession;Tree measurements;Windthrow;Spatial data;Organic matter;

Date data commenced:1910-02-01

Date data terminated: 9999-01-01

Principal Investigator: Mark E. Harmon

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1. Initial tree conditions with spatial coordinates

Attribute List:

DBCODE	N	N	char(5)	enum			
TREEID	Y	N	char(13)	freetext			
PSP_STUDYID	N	N	char(4)	place			
STANDID	N	N	char(4)	place			
PLOTNUMBER	N	N	numeric(4,0)	range	0.0000	9999.0000	number
QUARTER	N	N	char(1)	enum	1.0000	4.0000	

TAG	N	N	numeric(5,0)	range	0.0000	99999.0000	number
SPECIES	N	N	char(5)	taxa			
YEAR	N	N	numeric(4,0)	range	1910.0000	2010.0000	number
MONTH	N	Y	numeric(2,0)	range	1.0000	12.0000	month
XCOORD	N	Y	numeric(6,2)	range	-1.7000	426.1300	m
YCOORD	N	Y	numeric(6,2)	range	-49.1700	995.7000	m
CROWN1	N	N	char(1)	enum			
CROWN2	N	N	char(1)	enum			
CROWN3	N	N	char(1)	enum			
BOLE1	N	N	char(1)	enum			
BOLE2	N	N	char(1)	enum			
BOLE3	N	N	char(1)	enum			
ROOT	N	N	char(1)	enum			
DISTURB1	N	N	char(1)	enum			
DISTURB2	N	N	char(1)	enum			
AGE	N	Y	numeric(4,0)	range	1.0000	560.0000	years

2. Individual tree remeasurement

Table containing periodic remeasurement data of individual trees within reference stands

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	2.0000	2.0000	number
TREEID	Y	N	char(13)	freetext			
PSP_STUDYID	N	N	char(4)	place			
STANDID	N	N	char(4)	place			
PLOTNUMBER	N	N	numeric(4,0)	range	0.0000	1005.0000	number
QUARTER	N	N	char(1)	enum			
SPECIES	N	N	char(5)	taxa			
TAG	N	N	numeric(5,0)	range	0.0000	9999.0000	number
YEAR	Y	N	numeric(4,0)	range	1910.0000	2014.0000	number
TREE_STATUS	N	N	char(1)	enum			
DBH	N	Y	numeric(6,1)	range	0.1000	625.0000	cm
DBH_CODE	N	N	char(1)	enum			
CANOPY_CLASS	N	N	char(1)	enum			
TREE_VIGOR	N	N	char(1)	enum			
CROWN_RATIO	N	Y	numeric(3,0)	range	0.0000	100.0000	%

MAIN_STEM	N	N	char(1)	enum			
ROOTING	N	N	char(1)	enum			
CROWN_PCT	N	Y	numeric(3,0)	range	0.0000	100.0000	%
TREE_PCT	N	Y	numeric(3,0)	range	0.0000	100.0000	%
LEAN_ANGLE	N	Y	numeric(3,0)	range	0.0000	130.0000	deg angle
SAMPLEDATE	N	N	datetime	range	2/1/1910 12:00:00 AM	9/30/2014 12:00:00 AM	YYYY-MM-DD
CHECK_NOTES	N	Y	varchar(250)	freetext			

3. Individual tree mortality

Table recording individual tree mortality year and contributing conditions and causes of mortality

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	3.0000	3.0000	number
TREEID	Y	N	char(13)	freetext			
PSP_STUDYID	N	N	char(4)	place			
STANDID	N	N	char(4)	place			
PLOTNUMBER	N	N	numeric(4,0)	range	0.0000	1005.0000	number
SPECIES	N	N	char(5)	taxa			
TAG	N	N	numeric(5,0)	range	0.0000	9999.0000	number
YEAR	N	N	numeric(4,0)	range	1915.0000	2014.0000	number
DBH_LAST	N	N	numeric(6,1)	range	0.3000	252.3000	cm
MAIN_STEM	N	N	char(1)	enum			
ROOTING	N	N	char(1)	enum			
POSITION	N	N	char(1)	enum			
CROWN_PCT	N	Y	numeric(3,0)	range	0.0000	100.0000	%
TREE_PCT	N	Y	numeric(3,0)	range	0.0000	100.0000	%
LEAN_ANGLE	N	Y	numeric(3,0)	range	0.0000	170.0000	deg angle
GROUND_PCT	N	Y	numeric(3,0)	range	0.0000	100.0000	%
SUPPORT_PCT	N	Y	numeric(3,0)	range	0.0000	100.0000	%
MORT_CAUSE1	N	N	char(2)	enum			
MORT_CAUSE2	N	N	char(2)	enum			
CONDITION1	N	N	char(2)	enum			
CONDITION2	N	N	char(2)	enum			
CONDITION3	N	N	char(2)	enum			
CONDITION4	N	N	char(2)	enum			

CONDITION5	N	N	char(2)	enum			
CONDITION6	N	N	char(2)	enum			
MORT_NOTES	N	Y	varchar(110)	freetext			

4. Tree heights

Height data of selected trees.

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	4.0000	4.0000	number
PSP_STUDYID	Y	N	char(4)	place			
STANDID	Y	N	char(4)	place			
PLOTNUMBER	Y	N	numeric(4,0)	range	0.0000	1005.0000	number
TAG	Y	N	numeric(5,0)	range	0.0000	9991.0000	number
SPECIES	N	N	char(5)	taxa			
YEAR	Y	N	numeric(4,0)	range	1910.0000	2050.0000	number
MONTH	N	Y	numeric(2,0)	range	1.0000	12.0000	month
DBH	N	Y	numeric(6,1)	range	0.5000	800.0000	cm
SLOPEDIST	N	Y	numeric(5,2)	range	0.0000	63.1000	m
ANBASE	N	Y	numeric(4,0)	range	-88.0000	64.0000	%
ANCRBASE	N	Y	numeric(4,0)	range	-71.0000	84.0000	%
ANTOP	N	Y	numeric(4,0)	range	-37.0000	134.0000	%
ADDHT	N	Y	numeric(5,2)	range	0.0000	7.3000	m
HEIGHT	N	Y	numeric(6,1)	range	1.3000	275.3000	m
CRBASEHT	N	Y	numeric(6,1)	range	0.0000	4041.0000	m
BROKEN	N	Y	char(1)	enum			
MORT_NOTES	N	Y	varchar(110)	freetext			

5. Plot description and establishment year

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	5.0000	5.0000	number
PSP_STUDYID	Y	N	char(4)	place			
STANDID	Y	N	char(4)	place			
PLOTNUMBER	Y	N	numeric(4,0)	range	0.0000	1005.0000	number
AREA	N	Y	numeric(4,0)	range	400.0000	4047.0000	m2
SLOPE	N	Y	numeric(3,0)	range	0.0000	110.0000	%
EST_YEAR	N	N	numeric(4,0)	range			YYYY

DETAILPLOT	N	Y	char(1)	enum			
MIN_DBH	N	Y	numeric(3,0)	range	0.1000	20.0000	cm

6. Stand characteristics and sampling status

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	6.0000	6.0000	number
PSP_STUDYID	N	N	char(4)	place			
STANDID	Y	N	char(4)	place			
LOC_NAME	N	Y	varchar(41)	freetext			
STATE	N	Y	char(2)	freetext			
VEG_TYPE	N	Y	varchar(20)	freetext			
DOM_TREE	N	Y	char(12)	freetext			
DOM_YR	N	Y	numeric(4,0)	range			YYYY
SERAL	N	Y	char(10)	enum			
AGE_DOM	N	Y	numeric(4,0)	range	40.0000	1200.0000	years
EST_REPORT	N	Y	varchar(150)	freetext			
ESTAB	N	N	numeric(4,0)	range			YYYY
EXPANSION	N	Y	char(15)	freetext			
LASTREM	N	N	numeric(4,0)	range			YYYY
LASTMORT	N	N	numeric(4,0)	range			YYYY
NEXTREM	N	N	numeric(4,0)	range			YYYY
NEXTMORT	N	N	numeric(4,0)	range			YYYY
INTERVAL	N	Y	numeric(2,0)	range	0.0000	6.0000	number
SEASON	N	Y	char(10)	enum			
CREW4_DAYS	N	Y	numeric(4,1)	range	0.0000	50.0000	number
STND_SHAPE	N	Y	varchar(80)	freetext			
AREA_HA	N	Y	numeric(5,3)	range	0.1600	21.4000	ha
ASPECT	N	Y	char(10)	freetext			
ST_SLOPE	N	Y	char(10)	freetext			
ELEVATION	N	Y	numeric(4,0)	range	61.0000	3100.0000	m
LATITUDE	N	Y	numeric(6,3)	range	36.5700	47.9910	deg dec lat-lon
LONGITUDE	N	Y	numeric(7,3)	range	118.7000	124.0000	deg dec lat-lon
LCOORD	N	Y	varchar(25)	freetext			

SEC4TH	N	Y	char(2)	freetext			
SEC16TH	N	Y	char(2)	freetext			
SEC64TH	N	Y	char(2)	freetext			
ADD_LCOORD	N	Y	varchar(20)	freetext			
QUAD_MAP	N	Y	varchar(25)	freetext			
QREF_CODE	N	Y	varchar(20)	freetext			
ADD_QUAD	N	Y	varchar(25)	freetext			
ADD_QRCODE	N	Y	varchar(20)	freetext			
MNG_AGNC	N	Y	varchar(20)	freetext			
RNGR_DIST	N	Y	varchar(40)	freetext			
DIRECTIONS	N	Y	text	freetext			
HISTORY	N	Y	text	freetext			
STEM_MAP	N	Y	char(1)	enum			
LOG_MAP	N	Y	char(1)	enum			
MAP_TREES	N	Y	char(1)	enum			
UNDERSTORY	N	Y	char(1)	enum			
TOPO	N	Y	varchar(60)	freetext			
SOILS	N	Y	varchar(120)	freetext			
CLIMATE	N	Y	varchar(60)	freetext			
SHRUB_DOM	N	Y	varchar(70)	freetext			
HERB_DOM	N	Y	varchar(60)	freetext			
MOSS_DOM	N	Y	varchar(60)	freetext			
IN_TV010	N	N	char(1)	enum			
FSDBCODE	N	N	char(5)	enum			

7. Stand GPS spatial data

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	7.0000	7.0000	number
PSP_STUDYID	Y	N	char(4)	place			
STANDID	Y	N	char(4)	place			
TRANSECT	Y	Y	char(4)	freetext			
PLOT_NR	Y	Y	numeric(4,0)	range	1.0000	1004.0000	number
REF_POINT	N	Y	varchar(50)	freetext			
DATUM	N	Y	char(10)	freetext			

START_DATE	N	Y	char(10)	freetext			
ELEV_M	N	Y	numeric(8,2)	range	80.9400	1811.5699	m
ELEVSTDDEV	N	Y	numeric(5,3)	range	0.2000	77.4200	m
HITS	N	Y	numeric(4,0)	range	18.0000	2071.0000	number
PDOP	N	Y	char(2)	freetext			
SIGSTR	N	Y	numeric(2,0)	range	6.0000	6.0000	number
ELEV_MASK	N	Y	numeric(4,0)	range	15.0000	15.0000	number
LAT_DEG	N	N	numeric(3,0)	range	43.0000	47.0000	deg lat-lon
LAT_MIN	N	N	numeric(2,0)	range	1.0000	50.0000	minutes
LAT_SEC	N	N	numeric(7,4)	range	0.3900	59.9800	seconds
LATSTDDEV	N	Y	numeric(5,3)	range	0.0800	76.5100	deg dec lat-lon
LON_DEG	N	N	numeric(3,0)	range	-124.0000	-121.7400	deg lat-lon
LON_MIN	N	N	numeric(2,0)	range	0.0000	59.0000	minutes
LON_SEC	N	N	numeric(7,4)	range	0.3900	59.4700	seconds
LONSTDDEV	N	Y	numeric(5,3)	range	0.0800	37.5700	deg dec lat-lon
LAT_DEC	N	Y	numeric(13,9)	range	44.1692	46.7759	deg dec lat-lon
LON_DEC	N	Y	numeric(13,9)	range	-124.0000	-121.7400	deg dec lat-lon
LATCENTER	N	Y	numeric(8,4)	range	45.0265	46.7765	deg dec lat-lon
LONCENTER	N	Y	numeric(8,4)	range	-123.9200	-121.7400	deg dec lat-lon
LAT_UTM	N	Y	numeric(10,3)	range	421262.5938	536494.6875	m
LON_UTM	N	Y	numeric(12,3)	range	4891145.0000	4992649.0000	m
UTM_DATUM	N	Y	char(5)	freetext			
ANTENNAHT	N	Y	numeric(5,0)	range	2.0000	5.0000	m
GEOIDSEP	N	Y	numeric(10,2)	range	-22.2400	-22.0200	m
MORT_NOTES	N	Y	varchar(110)	freetext			

8. Stem tallies in three stands of the Cascade Head EF

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range	7.0000	7.0000	number
PSP_STUDYID	N	N	char(4)	place			
STANDID	Y	N	char(4)	place			

YEAR	Y	N	numeric(4,0)	range	1935.0000	1941.0000	number
MONTH	N	N	numeric(2,0)	range	1.0000	12.0000	month
SPECIES	Y	N	char(5)	taxa			
CLASSTYPE	Y	N	char(1)	enum			
MIDPOINT	Y	N	numeric(1,0)	range	1.0000	9.0000	in
STEMCOUNT	N	N	numeric(4,0)	range	1.0000	660.0000	number

9. Summaries for density, basal area, volume, biomass, bole npp, and mortality

Attribute List:

DBCODE	N	N	char(5)	enum			
ENTITY	N	N	numeric(2,0)	range			number
PSP_STUDYID	N	N	char(4)	place			
STANDID	Y	N	char(4)	place			
SPECIES	Y	N	char(5)	taxa			
BEG_YEAR	Y	N	char(10)	freetext			YYYY
END_YEAR	N	N	numeric(4,0)	range			YYYY
BASALAREA	N	N	numeric(8,3)	range			m2/ha
REL_BA	N	N	numeric(5,1)	range			%
DENSITY	N	N	numeric(8,1)	range			number/ha
REL_DENSITY	N	N	numeric(5,1)	range			%
BIOMASS	N	N	numeric(8,2)	range			megag/ha
REL_BIOMASS	N	N	numeric(5,1)	range			%
VOLUME	N	N	numeric(8,2)	range			m3/ha
REL_VOLUME	N	Y	numeric(5,1)	range			%
ANN_MORT_BM	N	Y	numeric(8,2)	range			megag/ha
NPP	N	Y	numeric(6,2)	range			megag/ha*year
INIT_BM	N	Y	numeric(8,2)	range			megag/ha
INIT_DENSITY	N	Y	numeric(8,1)	range			number/ha
PCTMORTPERYR	N	Y	numeric(7,2)	range			%

Attributes Definitions:

ADD_LCOORD

Additional legal coordinates

ADD_QRCODE

Additional quad reference code

ADD_QUAD

Additional quad maps

ADDHT

Additional height if base of tree not visible

AGE

Tree age at stand establishment

AGE_DOM

Age of dominant trees in stand

ANBASE

Angle to base of tree

ANCRBASE

Angle to base of tree crown

ANN_MORT_BM

Annual mortality biomass (total only)

ANTENNAHT

Antenna height

ANTOP

Angle to top of tree

AREA

Area of plot

AREA_HA

Stand area in ha, slope-corrected

ASPECT

Overall aspect of stand

BASALAREA

Basal area

BIOMASS

Bole Biomass (wood plus bark)

BOLE1

Bole conditions

BROKEN

Was top broken?

CANOPY_CLASS

Canopy class code

CHECK_NOTES

Pertinent comments about the condition of the tree or to explain oddities about the measurement for a given remeasurement check

CLASSTYPE

Type of class (d = diameter class, h = height class)

CLIMATE

Climate information

CONDITION1

Condition code 1 - general tree health indicator is one of potentially six noted conditions in arbitrary order

CONDITION2

Condition code 2 - general tree health indicator is one of potentially six noted conditions in arbitrary order

CONDITION3

Condition code 3 - general tree health indicator is one of potentially six noted conditions in arbitrary order

CONDITION4

Condition code 4 - general tree health indicator is one of potentially six noted conditions in arbitrary order

CONDITION5

Condition code 5 - general tree health indicator is one of potentially six noted conditions in arbitrary order

CONDITION6

Condition code 6 - general tree health indicator is one of potentially six noted conditions in arbitrary order

CRBASEHT

Height to base of crown

CREW4_DAYS

Total number of days required for remeasurement with a crew of 4 people

CROWN_PCT

Percent of a tree's live crown volume that is still intact along the stem (does not apply to uprooted trees); record for living trees begins in 2010 (Entity 2) - only recorded when mortality is noted before 2010 (Entity 3).

CROWN_RATIO

Percent of a tree's height with live branches around one third or more of the bole's circumference

CROWN1

Crown conditions

DATUM

Datum

DBCODE

FSDB Database code

DBH

Tree diameter at breast height (1.37 m)

DBH_CODE

Describes cases where dbh was estimated using methods defined in the codes

DBH_LAST

Last measured tree diameter at breast height (1.37m) - typically from last remeasurement as dbh is usually not measured for dead trees

DENSITY

Density

DETAILPLOT

Indicates whether plot is a detail plot

DIRECTIONS

Explicit directions for reaching stand

DISTURB1

Disturbance conditions

DOM_TREE

Dominant tree species (codes according to Garrison et al., 1972)

DOM_YR

The year of remeasurement for which rank of tree species dominance (relative basal area) was assessed

ELEV_M

Elevation

ELEV_MASK

Elevation mask

ELEVATION

Stand elevation

ELEVSTDDEV

Elevation standard deviation

ENTITY

Entity number

EST_REPORT

Existance of establishement report (paper) and comments

EST_YEAR

Establishment year of plot

ESTAB

Establishment year

EXPANSION

Year(s) of stand expansion

FSDBCODE

Primary FSDB database code associated with study metadata and tree growth data for this STANDID

GEOIDSEP

Geoid differential

GROUND_PCT

Percent of the down portion of the tree bole that is in direct contact with the ground (does not include branch contact). Only applies to MAIN_STEM code= 1,2 or POSITION code=2,4

HEIGHT

Tree height

HERB_DOM

Dominant herbs, year of evaluation, and comments

HISTORY

Stand history

HITS

Number of positon fixes

IN_TV010

Indicates whether stand is part on TV010 database

INIT_BM

Bole biomass at the begining of a remeasurement period

INIT_DENSITY

Density at the begining of a remeasurement period (stems < 15cm in stands with detailplots are ignored)

INTERVAL

Remeasurement time interval (years)

LASTMORT

Most recent year of mortality check

LASTREM

Most recent year of remeasurement

LAT_DEC

Latitude decimal

LAT_DEG

Latitude degrees

LAT_MIN

Latitude minutes

LAT_SEC

Latitude seconds

LAT_UTM

Latitude utm

LATCENTER

Mean latitude value

LATITUDE

Stand latitude

LATSTDDEV

Latitude standard deviation

LCOORD

Legal coordiinates

LEAN_ANGLE

Angle of tree lean in degrees from vertical, where vertical is 0 degrees (not recorded for uprooted trees); record for living trees begins in 2010 (Entity 2) - only recorded when mortality is noted before 2010 (Entity 3).

LOC_NAME

Location name

LOG_MAP

Presence of log map (y/n)

LON_DEC

Longitude decimal

LON_DEG

Longitude degrees

LON_MIN

Longitude minutes

LON_SEC

Longitude seonds

LON_UTM

Longitude utm

LONCENTER

Mean longitude value

LONGITUDE

Sand longitude

LONSTDDEV

Longitude standard deviation

MAIN_STEM

Main stem condition code (use of this code begins in 2010)

MAP_TREES

A stem map (paper) exists for the stand (y/n)

MIDPOINT

Midpoint of class in inches

MIN_DBH

Minimum dbh measured in non-detail plots

MNG_AGNC

Managing agency

MONTH

Month

MORT_CAUSE1

Proximate mortality cause: the immediate cause that precipitates tree death (defined as primary mortality cause before 2010)

MORT_CAUSE2

Predisposing mortality cause: any condition that produces a susceptibility or disposition to tree death without actually causing it (defined as secondary or contributing mortality cause before 2010)

MORT_NOTES

Mortality check comments added to clarify observations and decisions (for example, note the name of the pathogen if known)

MOSS_DOM

Dominant mosses, year of evaluation, and comments

NEXTMORT

Next mortality check

NEXTREM

Next remeasurement year

NPP

Net primary bole production

PCTMORTPERYR

Percent annual mortality

PDOP

Position, dilution and precision

PLOT_NR

Plot number

PLOTNUMBER

Plot number within STANDID

POSITION

Tree position (used prior to 2010); describes the physical position of the tree; POSITION is replaced with two separate measurements of MAIN_STEM and ROOTING beginning 2010

PSP_STUDYID

Permanent Study Plots (PSP) study identification code - a mutually exclusive grouping of study forest stands

QREF_CODE

Quad reference code

QUAD_MAP

Name of quad map

QUARTER

Quarter subplot number for circular plots - zero is assigned when quarter is not used or not applicable

REF_POINT

Reference point

REL_BA

Relative basal area

REL_BIOMASS

Relative biomass

REL_DENSITY

Relative density

REL_VOLUME

Relative bole wood volume

RNGR_DIST

Ranger district

ROOT

Rooting medium

ROOTING

Tree rooting condition code (use of this code begins in 2010)

SAMPLEDATE

Date of remeasurement (day of month was not always tracked; in these cases the 1st of each month is assigned)

SEASON

Season of remeasurement

SEC16TH

Direction of 1/16th section

SEC4TH

Direction of quarter section

SEC64TH

Direction of 1/64th section

SERAL

Seral stage

SHRUB_DOM

Dominant shrubs, year of evaluation, and comments

SIGSTR

Satellite signal level

SLOPE

Slope of plot

SLOPEDIST

Horizontal distance from measuring point to tree

SOILS

Soil information

SPECIES

Tree species code (Taxonomic reference: Garrison and Skovlin 1976)

ST_SLOPE

Overall slope of stand

STANDID

Study forest stand or watershed identification code

START_DATE

Starting date

STATE

State

STEM_MAP

Presence of stem map (y/n)

STEMCOUNT

Count of stems in class

STND_SHAPE

Plot shapes

SUPPORT_PCT

Percent of the down portion of the tree bole that is suppored above the ground (by its own branches, other trees or downed logs, or other objects such as rocks). Only applies to MAIN_STEM code= 1,2 or POSITION code=2,4

TAG

Current tree tag number

TOPO

Stand topography information

TRANSECT

Transect number

TREE_PCT

Percent of the entire main stem length that is intact (does not apply to uprooted trees); record for living trees begins in 2010 (Entity 2) - only recorded when mortality is noted before 2010 (Entity 3).

TREE_STATUS

Tree status code

TREE_VIGOR

Overall vigor code

TREEID

Tree identification code represented as STANDID+PLOTID+00000, where 00000 represents a unique tree number for that stand and plot

UNDERSTORY

Presence of understory data (y/n)

UTM_DATUM

Utm datum

VEG_TYPE

Dominant vegetation

VOLUME

Bole wood volume

XCOORD

X coordinate

YCOORD

Y coordinate

YEAR

Year of establishment, remeasurement, or mortality

Enumerated Domains:

Enumerated Domain for Attribute: BOLE1

U	No bole condition is recorded
1	Good straight bole
2	Pistol butt
3	Butt swell -- listed if abnormal for species
4	Forked or multiple butt
5	Leaning
6	Grouse ladder
7	Sweeping
8	Crooks in bole
9	Conks present

Enumerated Domain for Attribute: BOLE2

U	No bole condition is recorded
1	Good straight bole
2	Pistol butt
3	Butt swell -- listed if abnormal for species
4	Forked or multiple butt
5	Leaning
6	Grouse ladder
7	Sweeping
8	Crooks in bole
9	Conks present

Enumerated Domain for Attribute: BOLE3

U	No bole condition is recorded
1	Good straight bole
2	Pistol butt
3	Butt swell -- listed if abnormal for species
4	Forked or multiple butt
5	Leaning
6	Grouse ladder
7	Sweeping
8	Crooks in bole
9	Conks present

Enumerated Domain for Attribute: CROWN1

U	No crown condition is recorded
1	Crown in good condition
2	Broken top
3	Multiple tops or leaders
4	Dead top
5	Top condition is unknown
6	Half-crowned
7	Crook in crown
8	Mistletoe
9	Flat top

Enumerated Domain for Attribute: CROWN2

U	No crown condition is recorded
1	Crown in good condition
2	Broken top
3	Multiple tops or leaders
4	Dead top
5	Top condition is unknown
6	Half-crowned
7	Crook in crown
8	Mistletoe
9	Flat top

Enumerated Domain for Attribute: CROWN3

U	No crown condition is recorded
1	Crown in good condition
2	Broken top
3	Multiple tops or leaders
4	Dead top
5	Top condition is unknown
6	Half-crowned
7	Crook in crown
8	Mistletoe
9	Flat top

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: DISTURB1

U	No disturbance condition noetd
1	No scars or other disturbances observed
2	Fire scar
3	Log fall scar
4	Unknown scar
5	Animal scar
6	Frost crack
7	Lightning

Enumerated Domain for Attribute: DISTURB2

U	No disturbance condition noetd
1	No scars or other disturbances observed
2	Fire scar
3	Log fall scar
4	Unknown scar
5	Animal scar
6	Frost crack
7	Lightning

Enumerated Domain for Attribute: QUARTER

0	No quarter subplot number assigned
1	Quarter subplot number 1
2	Quarter subplot number 2
3	Quarter subplot number 3
4	Quarter subplot number 4

Enumerated Domain for Attribute: ROOT

U	Rooting medium not recorded
1	Trees rooted in mineral medium
2	Trees rooted in an organic medium
3	Rooting medium examined but unknown

Enumerated Domain for Attribute: CANOPY_CLASS

C	Co-dominant: Crown extends to the top of the general canopy layer and receives light from the top but not much from the sides
D	Dominant: Crown emerges from the general canopy layer and receives light from the top and the sides
E	Emergent: only used in Stand RS39 in 1992

I	Intermediate: Crown extends into the lower portion of the general canopy layer and receives mostly filtered light from the top and the sides
S	Suppressed: Crown completely beneath the general canopy layer
U	Unknown or not measured

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: DBH_CODE

1	DBH estimated by linear interpolation or extrapolation
2	DBH estimated from growth rates of nearby trees of similar size
3	DBH estimated assuming 'no growth' (usually missing, non-vigorous, or damaged trees)
4	DBH estimated for individual boles using basal area of joint dbh of grown together (fused) trees
8	DBH is measured using a non-standard field procedure or estimated in the field
9	DBH estimated, method unknown or unspecified
G	Good: normally measured DBH
M	Missing: no measurement taken for missing or dead (mortality) trees
U	Unknown: DBH is missing for a tree not listed as missing or dead
V	Verified: diameter is double checked in the field

Enumerated Domain for Attribute: QUARTER

0	No quarter subplot number assigned
1	Quarter subplot number 1
2	Quarter subplot number 2
3	Quarter subplot number 3
4	Quarter subplot number 4

Enumerated Domain for Attribute: TREE_STATUS

1	Living tree
2	Ingrowth - typically young and previously unmeasured trees that now satisfy minimum diameter requirements. Ingrowth codes are not used in the year of plot establishment
3	Living stem is fused with one or more tree stems at measurement height and measured together as one
6	Dead tree - typically is not noted in the year of plot establishment
9	Tree is missing or not found; no measurements are possible

Enumerated Domain for Attribute: TREE_VIGOR

1	Good vigor: no apparent signs of distress
2	Fair vigor: some signs of distress apparent (e.g., discolored foliage, paucity of leaves or needles, broken stem with few live branches)
3	Poor vigor: extreme distress apparent (i.e., death imminent)
M	Vigor is not recorded for dead or missing trees
U	Unknown vigor of a living tree - vigor is not recorded

Enumerated Domain for Attribute: MAIN_STEM

1	Main stem intact (not broken)
2	Main stem broken at or above the root collar
3	Main stem broken below root collar
9	Not recorded / missing

Enumerated Domain for Attribute: ROOTING

1	Fully rooted; root-soil interface intact, stem is freestanding
2	Partially uprooted (roots exposed), but stem is still freestanding and self-supporting
3	Uprooted and down, stem is not freestanding
9	Condition not recorded / missing

Enumerated Domain for Attribute: MORT_CAUSE1

01	Suppression
10	Disease
11	Mistletoe
12	Bark insect
13	Defoliating insect
14	Unknown pathogen
20	Windthrow
21	Co-opted windthrow
22	Windsnap
23	Broken top
24	Crushed by fallen GREEN tree or limb
30	Crushed by fallen DEAD tree, limb, rock, etc.
31	Lightning
32	Animal kill
33	Snow or ice breakage or crushing
34	Mudflow
40	Fire
50	Other disturbance
60	Unable to determine primal or primary cause during field inspection
70	Tree removed from plot via landslides or other disturbance. This does not apply to trees not found or missing.
99	Unknown: no attempt to note proximal or primary cause of mortality
02	Previously noted injury/damage

Enumerated Domain for Attribute: MORT_CAUSE2

99	Unknown: no attempt to note proximal or primary cause of mortality
01	Suppression
10	Disease
11	Mistletoe
12	Bark insect
13	Defoliating insect
14	Unknown pathogen
20	Windthrow
21	Co-opted windthrow
22	Windsnap
23	Broken top
24	Crushed by fallen GREEN tree or limb
30	Crushed by fallen DEAD tree, limb, rock, etc.
31	Lightning
32	Animal kill
33	Snow or ice breakage or crushing
34	Mudflow
40	Fire
50	Other disturbance
60	Unable to determine primal or primary cause during field inspection
70	Tree removed from plot via landslides or other disturbance. This does not apply to trees not found or missing.
02	Previously noted injury/damage

Enumerated Domain for Attribute: CONDITION1

01	Green needles or leaves present
02	Dead needles or leaves present
03	Bark sloughing
04	Tree has been dead for several years
11	Crown flat-topped
12	Evidence for earlier loss of part of crown
13	Spike top / Top dieback
14	Crown stripped by falling tree or snag
21	Rot at break
41	Pitch tubes on bole
42	Beetle galleries

51	Conks
52	Rot
53	Tree hollow
54	Pitch sheets
55	Oozing wounds
56	Mistletoe plants observed
60	Witch's broom
71	Scarring of bole
72	Girdling
73	Woodpecker / Sapsucker activity
74	No bark remaining on tree
99	Condition code not noted

Enumerated Domain for Attribute: CONDITION2

01	Green needles or leaves present
02	Dead needles or leaves present
03	Bark sloughing
04	Tree has been dead for several years
11	Crown flat-topped
12	Evidence for earlier loss of part of crown
13	Spike top / Top dieback
14	Crown stripped by falling tree or snag
21	Rot at break
41	Pitch tubes on bole
42	Beetle galleries
51	Conks
52	Rot
53	Tree hollow
54	Pitch sheets
55	Oozing wounds
56	Mistletoe plants observed
60	Witch's broom
71	Scarring of bole
72	Girdling
73	Woodpecker / Sapsucker activity

74	No bark remaining on tree
99	Condition code not noted

Enumerated Domain for Attribute: CONDITION3

01	Green needles or leaves present
02	Dead needles or leaves present
03	Bark sloughing
04	Tree has been dead for several years
11	Crown flat-topped
12	Evidence for earlier loss of part of crown
13	Spike top / Top dieback
14	Crown stripped by falling tree or snag
21	Rot at break
41	Pitch tubes on bole
42	Beetle galleries
51	Conks
52	Rot
53	Tree hollow
54	Pitch sheets
55	Oozing wounds
56	Mistletoe plants observed
60	Witch's broom
71	Scarring of bole
72	Girdling
73	Woodpecker / Sapsucker activity
74	No bark remaining on tree
99	Condition code not noted

Enumerated Domain for Attribute: CONDITION4

01	Green needles or leaves present
02	Dead needles or leaves present
03	Bark sloughing
04	Tree has been dead for several years
11	Crown flat-topped
12	Evidence for earlier loss of part of crown
13	Spike top / Top dieback

14	Crown stripped by falling tree or snag
21	Rot at break
41	Pitch tubes on bole
42	Beetle galleries
51	Conks
52	Rot
53	Tree hollow
54	Pitch sheets
55	Oozing wounds
56	Mistletoe plants observed
60	Witch's broom
71	Scarring of bole
72	Girdling
73	Woodpecker / Sapsucker activity
74	No bark remaining on tree
99	Condition code not noted

Enumerated Domain for Attribute: CONDITION5

01	Green needles or leaves present
02	Dead needles or leaves present
03	Bark sloughing
04	Tree has been dead for several years
11	Crown flat-topped
12	Evidence for earlier loss of part of crown
13	Spike top / Top dieback
14	Crown stripped by falling tree or snag
21	Rot at break
41	Pitch tubes on bole
42	Beetle galleries
51	Conks
52	Rot
53	Tree hollow
54	Pitch sheets
55	Oozing wounds
56	Mistletoe plants observed

60	Witch's broom
71	Scarring of bole
72	Girdling
73	Woodpecker / Sapsucker activity
74	No bark remaining on tree
99	Condition code not noted

Enumerated Domain for Attribute: CONDITION6

01	Green needles or leaves present
02	Dead needles or leaves present
03	Bark sloughing
04	Tree has been dead for several years
11	Crown flat-topped
12	Evidence for earlier loss of part of crown
13	Spike top / Top dieback
14	Crown stripped by falling tree or snag
21	Rot at break
41	Pitch tubes on bole
42	Beetle galleries
51	Conks
52	Rot
53	Tree hollow
54	Pitch sheets
55	Oozing wounds
56	Mistletoe plants observed
60	Witch's broom
71	Scarring of bole
72	Girdling
73	Woodpecker / Sapsucker activity
74	No bark remaining on tree
99	Condition code not noted

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: POSITION

1	Standing with crown (may be leaning)

2	Main stem broken
3	Crushed/knocked over/fallen over AND still rooted
4	Uprooted
9	Unknown: position not recorded or otherwise unknown

Enumerated Domain for Attribute: MAIN_STEM

1	Main stem intact (not broken)
2	Main stem broken at or above the root collar
3	Main stem broken below root collar
9	Not recorded / missing

Enumerated Domain for Attribute: ROOTING

1	Fully rooted; root-soil interface intact, stem is freestanding
2	Partially uprooted (roots exposed), but stem is still freestanding and self-supporting
3	Uprooted and down, stem is not freestanding
9	Condition not recorded / missing

Enumerated Domain for Attribute: BROKEN

	TREE NORMAL (BLANK)
B	TREE WITH BROKEN TOP

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: DETAILPLOT

T	Plot is a detailplot
F	Plot is not a detailplot

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: IN_TV010

T	Stand is in TV010 database
F	Stand is not in TV010 database

Enumerated Domain for Attribute: LOG_MAP

Y	Stem map exists
N	Stem map does not exist

Enumerated Domain for Attribute: MAP_TREES

Y	Stem map exists
N	Stem map does not exist

Enumerated Domain for Attribute: SERAL

Old-growth	Old-growth stage
Mature	Mature stage
Young	Yound stage

Enumerated Domain for Attribute: STEM_MAP

Y	Stem map exists
N	Stem map does not exist

Enumerated Domain for Attribute: UNDERSTORY

Y	Stem map exists
N	Stem map does not exist

Enumerated Domain for Attribute: SEASON

Spring	Spring remeasurement; before leaf out
Summer	Summer remeasurement

Enumerated Domain for Attribute: FSDBCODE

TV010	Tree growth and mortality measurements in long-term permanent vegetation plots in the Pacific Northwest (LTER Reference Stands) study code
TP073	Plant succession and biomass dynamics following logging and burning in the Andrews Experimental Forest Watersheds 1 and 3, 1962-Present study code
TP041	Post-logging community structure and biomass accumulation in Andrews Experimental Forest Watershed 10 study code
TP059	WATERSHED 10, H.J. ANDREWS EF; RIPARIAN study code
TP098	MACK WATERSHED, H.J. ANDREWS EF; RIPARIAN study code
TP114	Plant biomass dynamics following logging, burning, and thinning in watersheds 6 and 7 at the Andrews Experimental Forest study code
TP115	Plant biomass dynamics in old-growth watersheds 8 and 9 at the Andrews Experimental Forest study code

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: CLASSTYPE

D	Diameter class
H	Height class

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010

Enumerated Domain for Attribute: DBCODE

TV010	FSDB Data set code TV010