Appendix F. Established Invasive Plant Species Monitoring Database Documentation

The database for this project consists of four types of tables: core tables describing the “who, where, and when” of data collection, project-specific tables, lookup tables that contain domain constraints for other tables, and cross reference tables that link lookup tables with data tables. Figure F.1 illustrates the relationships between the tables in the database. Although core tables are based on Pacific Island Network (PACN) standards, they may contain fields, domains or descriptions that have been added or altered to meet project objectives.

The database includes the following standard tables:

tbl\_Sites Sample sites – individual parks

tbl\_Locations Sample locations – area where monitoring is being conducted

tbl\_Events Data collection event for a given location

tbl\_Images Images associated with transect segments

tbl\_Db\_Meta Database description and links to Inventory and Monitoring Program (I&M) metadata tools

tbl\_Db\_Revisions Database revision history data

tbl\_QA\_Results Data validation results from using the quality review tool

The following are project-specific data tables:

tbl\_Transects Transect location information

tbl\_Segments Transect segments

tbl\_Image\_Points Transect image points

The following are a few of the more prominent, standard cross-reference tables:

xref\_Event\_Contacts Cross-reference table for event contacts

xref\_Cover\_Class\_Species Cross-reference table for segments and species

xref\_Park\_Species\_Nativity Cross-reference table for species and park nativity

The following are a few of the more prominent, standard lookup tables:

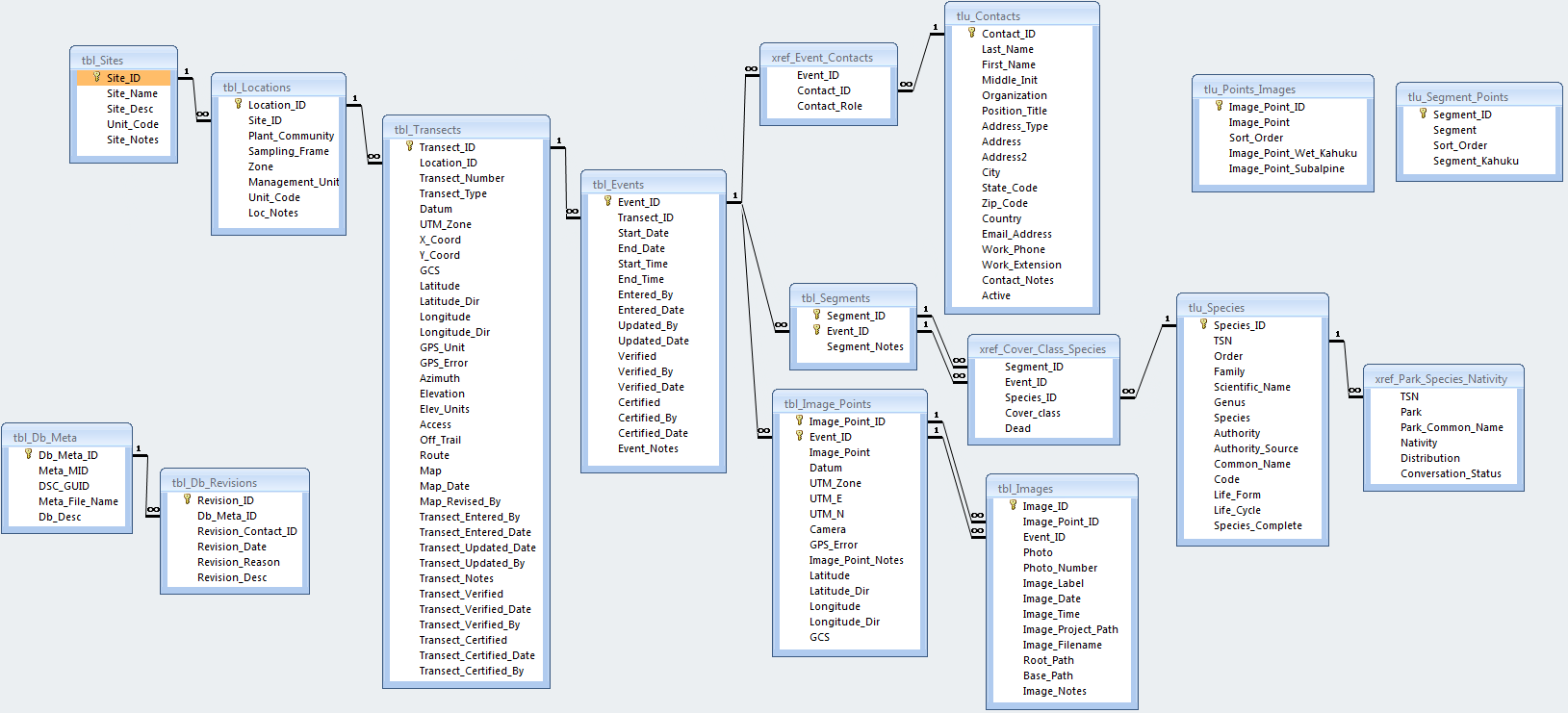
tlu\_Contacts Contact data from project-related personnel

tlu\_Enumerations Enumerated lookup table

tlu\_Species Species taxon table for sampling events

tlu\_Segment\_Points Lookup table for segments

tlu\_Points\_Images Lookup table for image points



**Figure F.1.** Data model for the PACN Established Invasive Plant Species Monitoring database.

Database Tables

**tbl\_ Sites: Sample sites – individual parks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Site\_ID Yes Text 50 Unique identifier for site records (Parks)

Unit\_Code No Text 5 Park, monument or network code

Site\_Name No Text 100 Unique name or code for a site

Site\_Desc No Text 255 Description for a site

Site\_Notes No Memo - General notes on the site

**tbl\_ Locations: Sample locations – area where monitoring is being conducted**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Location\_ID Yes Text 50 Unique identifier for sample location records

Site\_ID No Text 50 Link to tbl\_Sites

Unit\_Code No Text 5 Park, monument or network code

Community No Text 50 Community name (wet forest, subalpine shrubland,  
 coastal strand, mangrove forest)

Sampling\_Frame No Text 50 Subset of community

Zone No Text 50 Zone

Management\_Unit No Text 50 Resource management unit

Loc\_Notes No Memo - Other notes about the sample location

**tbl\_ Transects: Transect location information**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Transect\_ID Yes Text 50 Unique identifier for transect records

Location\_ID No Text 50 Link to tbl\_Locations

Transect\_Number No Number Lng Int Transect number

Transect\_Type No Text 20 Indicates the type of transect (fixed or rotational)

Datum No Text 50 Datum of mapping ellipsoid

UTM\_Zone No Text 10 UTM Zone

X\_Coord No Text 10 X coordinate

Y\_Coord No Text 10 Y coordinate

GCS No Text 255 Geographic Coordinate System

Latitude No Number Double Latitude

Latitude\_Dir No Text 50 Latitude direction

Longitude No Number Double Longitude

Longitude\_Dir No Text 50 Longitude direction

Elevation No Number Double Elevation of the location

Elev\_Units No Text 20 Elevation units (meters or feet)

Azimuth No Number Double Angle of reference direction

GPS\_Unit No Text 50 What GPS unit was used to collect the plot coordinates

GPS\_Error No Number Lng Int GPS unit error (meters)

Access No Memo - Road and trail used to travel to the transect

origin (i.e., the point where monitoring begins)

Off\_Trail No Memo - Location where field crew leaves access

road/trail & azimuth to transect origin

Route No Memo - Describes route to the transect origin including

hand drawn maps, transect layout, and

reference features. Also describe exit route

from the transect endpoint if different than

Map No Boolean - Is a map available?

Map\_Date No Date/Time - Date of most recent map revision

Map\_Revised\_By No Text 50 Person who made the map revision

Transect\_Entered\_By No Text 50 Person who created this record

Transect\_Entered\_Date No Date/Time - Time stamp for record creation

Transect\_Updated\_By No Text 50 Person who made the most recent edits

Transect\_Updated\_Date No Date/Time - Date of the last update to this record

Transect\_Verified No Boolean - Has the record been verified

Transect\_Verified\_Date No Date/Time - Date that the record was verified

Transect\_Verified\_By No Text 50 Person who verified the record

Transect\_Certified No Boolean - Has the record been certified

Transect\_Certified\_Date No Date/Time - Date that the record was certified

Transect\_Certified\_By No Text 50 Person who certified the record

Transect\_Notes No Memo - Other notes about the transect

**tbl\_ Events: Data collection event for a given location**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Event\_ID Yes Text 50 Unique identifier for event records

Transect\_ID No Text 50 Link to tbl\_Transects

Start\_Date No Date/Time - Starting date for the event

End\_Date No Date/Time - Ending date for the event

Start\_Time No Date/Time - Starting time for the event

End\_Time No Date/Time - Ending time for the event

Entered\_By No Text 50 Person who entered the data for this event

Entered\_Date No Date/Time - Date on which data entry occurred

Updated\_By No Text 50 Person who made the most recent updates

Updated\_Date No Date/Time - Date of the most recent edits

Verified No Boolean - Has the data has been verified

Verified\_By No Text 50 Person who verified accurate data transcription

Verified\_Date No Date/Time - Date on which data were verified

Certified\_By No Text 50 Person who certified data for accuracy and  
 completeness

Certified\_Date No Date/Time - Data on which data were certified

Event\_Notes No Memo - General notes on the event

**tbl\_ Images: Images associated with transect segments**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Image\_ID Yes Text 50 Unique identifier for image records

Image\_Point\_ID No Text 50 Link to tbl\_Image\_Points

Event\_ID No Text 50 Link to tbl\_Events

Photo No Text 50 Photo number taken

Photo\_Number No Text 50 Camera photo identification number

Image\_Label No Text 100 Image caption or label

Image\_Date No Date/Time - Date on which the image was created, if

different from the sampling event date

Image\_Time No Date/Time - Time image was taken

Image\_Project\_Path No Text 255 Location of the image from the main project

folder or image library

Image\_Filename No Text 100 Name of the image including extention (.jpg)

but without the image path

Root\_Path No Text 255 The root path for the linked image file. This will change   
 upon re-linking of database

Base\_Path No Text 255 The base file path for the linked image file. This will stay  
 the same no matter where the root folder is

Image\_Notes No Memo - General notes about the image

**tbl\_ Segments: Transect segments**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Segment\_ID Yes Text 50 Link to tlu\_Segment\_Points

Event\_ID Yes Text 50 Link to tbl\_Events

Segment\_Notes No Memo - Comments or notes about the segment

**tbl\_ Image\_Points: Transect image points**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Image\_Point\_ID Yes Text 50 Unique identifier for transect segment records

Event\_ID Yes Text 50 Link to tbl\_Events

Image\_Point No Text 50 Image point identification

Datum No Text 50 Datum of mapping ellipsoid

UTM\_Zone No Text 10 UTM Zone

UTM\_E No Text 10 UTM East (X coordinate)

UTM\_N No Text 10 UTM North (Y coordinate)

Camera No Text 100 Camera used to take the image

Error No Text 25 GPS error (meters)

GCS No Text 255 Geographic coordinate system

Latitude No Number Double Latitude

Latitude\_Dir No Text 50 Latitude direction

Longitude No Number Double Longitude

Longitude\_Dir No Text 50 Longitude direction

Image\_Point\_Notes No Memo - General notes about the image point

**tbl\_ QA\_Results: Data validation results from using the quality review tool**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Query\_Name No Text 100 Name of query

Data\_Scope No Number Byte Scope of data

Time\_Frame No Text 30 Time frame of data records

Query\_Type No Text 20 Type of query

Query\_Result No Text 50 The number of records returned by the query

Query\_Run\_Time No Date/Time - Most recent run time of the query

Query\_Description No Memo - Query description

Query\_Expression No Memo - Expression used to run query

Remedy\_Desc No Memo - Action taken to fix error

Remedy\_Date No Date/Time - Remedy date

QA\_User No Text 50 Remedy by

Is\_Done No Boolean - Was the query checked

**tbl\_ Db\_Meta: Database description and links to I&M metadata tools**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Db\_Meta\_ID Yes Text 50 Unique local primary key

Meta\_MID No Text 255 Link to NPS Data Store

Db\_Desc No Memo - Description of the database purpose

DSC\_GUID No Text 50 Link to I&M Dataset Catalog desktop

metadata tool

Meta\_File\_Name No Text 50 Name of the metadata file that describes

this Natural Resources Database Template data file  
 (must be in the same directory as this data file)

**tbl\_ Db\_Revisions: Database revision history data**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Revision\_ID Yes Text 50 Unique database revision (version) number or code

Db\_Meta\_ID No Text 50 Link to tbl\_DB\_Meta

Revision\_Contact\_ID No Text 50 Link to tlu\_Contacts

Revision\_Date No Date/Time - Database revision date

Revision\_Reason No Memo - Reason for the database revision

Revision\_Desc No Memo - Revision description

**xref\_ Event\_Contacts: Cross-reference table for event contacts**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Contact\_ID No Text 50 Link to tlu\_Contacts

Event\_ID No Text 50 Link to tb\_Events

Contact\_Role No Text 50 The contact’s role in the protocol

**xref\_ Cover\_Class\_Species: Cross-reference table for segments and species**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Segment\_ID No Text 50 Together with Event\_ID, a link to tbl\_Segments

Event\_ID No Text 50 Together with Segment\_ID, a link to tbl\_Segments

Species\_ID No Text 50 Link to tlu\_Species

Cover\_Class No Text 50 Cover class

Dead No Boolean - Is the species dead?

**xref\_ Park\_Species\_Nativity: Cross-reference table for species and park nativity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

TSN No Number Double TSN number

Park No Text 255 Park unit code

Park\_Common\_Name No Text 255 Species common name in park

Nativity No Text 255 Species nativity

Distribution No Text 50 Species distribution

Conservation\_Status No Text 10 Species conservation status

**tlu\_ Contacts: Contact data for project-related personnel**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Contact\_ID Yes Text 50 Unique record identifier for each contact

Address No Text 50 Street address (cntaddr)

Address\_Type No Text 50 Address (mailing, physical, both) type

Address2 No Text 50 Address line 2, suite, apartment number

City No Text 50 City or town

Contact\_Notes No Memo - Contact notes

Country No Text 50 Country

Email\_Address No Text 50 E-mail address

First\_Name No Text 50 First name

Last\_Name No Text 50 Last name

Middle\_Int No Text 4 Middle initial

Organization No Text 50 Organization or employer

Position\_Title No Text 50 Title or position description

State\_Code No Text 8 State or province

Work\_Extension No Text 50 Phone extension

Work\_Phone No Text 50 Phone number

Zip\_Code No Text 50 Zip code

Active No Boolean - Is the contact active

**tlu\_ Enumerations: Enumerated lookup table**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Enum\_Group Yes Text 50 Category for lookup value

Enum\_Code No Text 50 Code for lookup values

Enum\_Description No Memo - Lookup value description

Sort\_Order No Number Integer Order in which to sort lookup values

**tlu\_ Species: Species taxon table for sampling event**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***Field*** | ***Primary?*** | ***Data Type*** | ***Size*** | ***Description*** |

Species\_ID Yes Text 50 Unique identifier for species records

TSN No Number Double The TSN of target species

Order No Text 255 Order of target species

Family No Text 255 Family of target species

Scientific\_Name No Text 255 Scientific name of target species, includes  
 genus, species, and variety

Genus No Text 255 Genus of target species

Species No Text 255 Species name

Authority No Text 255 Authority for the species

Authority\_Source No Text 255 Source for the species’ authority

Common\_Name No Text 255 Common name of the target species

Code No Text 255 6 letter code to identify the species. First 3 letters  
 genus and the first 3 letters of species

Life\_Form No Text 50 Life form of the species

Life\_Cycle No Text 255 Life cycle of the species, i.e., annual or perennial

Species\_Complete No Text 25 Has this species been checked by the PACN for  
 authority, preferred common name, and life form?