Urban Forest Inventory and Analysis Database

Urban FIADB User Guides

Volume: Database Description (version 2.0)

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Preface

Preface Contents

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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 traditional Forest Inventory and Analysis Database (FIADB) 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 FIA urban inventory. The data contained within the traditional FIADB are for the FIA rural inventory.

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

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Update highlights

The document "The Forest Inventory and Analysis Database: Database Description and User Guide for Urban Data (version 1.0), October 2015" (available at web address: https://www.fia.fs.fed.us/library/database-documentation/) was the initial documentation for this database. It was written to reflect the database at the time and closely followed the data structure used by the i-Tree urban inventory system (https://www.itreetools.org/). This was done to expedite delivery of results following the first year of inventory work. This initial version was not intended to be the final format for urban FIA data.

This document, the "Urban FIADB User Guides, volume: Database Description (version 2.0)," reflects the revised version of the Urban FIADB (to date), which was updated by the Forest Inventory and Analysis (FIA) program to provide enhanced flexibility.

Highlights:

- The initial 2015 database was *draft* version 1.0.
- Additional development work for the Urban FIADB has been done since the initial draft, version 1.0, resulting in the current design and documentation.
- This document, version 2.0, presents the first official release for the "Urban FIADB User Guides, volume: Database Description."
- This document is based on the current release for the database, Urban FIADB, version 1.3.

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.

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

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Chapter 1: Overview

Chapter Contents:

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1.2	Table Groups
1.3	Keys Presented with the Tables
1.4	Oracle Data Types

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. However, the Urban FIADB does not contain sensitive plot information, such as detailed plot location coordinates and private ownership information.

The Urban FIADB User Guides can be accessed at the following web address: https://www.fia.fs.fed.us/library/database-documentation/. Refer to appendix A (Quick Links) for references to various websites.

Analyses using Urban FIADB data are accessible through FIA web-based interactive tools: Urban Data Mart. FIA data and tools can be found at the following web address: https://fia.fs.fed.us/tools-data/.

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 below. 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	Sample Organization Prefix: SO_	This table group provides information describing the context of a project. It organizes information identifying projects, the populations they target, the structure of the target population, and the sampling rules for the project.
3	Inventory Data 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	Population Estimation 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 *statistical sample* and a *stratification* of the target population. FIA uses the term 'evaluation' to refer to this combination.
5	Population Model 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	Reference Data 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	Administration 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) that are used for database entities in the Urban FIADB. This list is stored in the ADMIN_ENTITY_SHORTNAME table.

Table 1-2: Entity short names (alias).

ENTITY_NAME	ENTITY_SHORTNAME
ADMIN_DB_VERSION	ADBVER
ADMIN_ENTITY_SHORTNAME	AES
ADMIN_PUB_DATA_STANDARD	PDS
ADMIN_PUB_SUMMARY_RPT	APSR
ID_BOUNDARY	BND
ID_BUILDING_INTERACTION	BINTA
ID_CLOSED_BOUNDARY	CBND
ID_COND	CND
ID_ENERGY_EFFECT	EE
ID_INVASIVE_SUBP_COND	ISPCND
ID_MOTHER_TREE	MTRE
ID_PLOT	PLT
ID_PLOT_FLDSAMP_ASSGN	PFSA
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_STAT_SAMP	PSS
POP_STAT_SAMP_ATTRIBUTE_ASSGN	PSSAA
POP_STAT_SAMP_CONSTR_ASSGN	PSSCA
POP_STAT_SAMP_DOMAIN_ASSGN	PSSDA
POP_STRATUM_CALC	PSC
REF_ABNORMAL_TERMINATION	RAT
REF_ABSENT_PRESENT	RAP
REF_BOLE_STUMP_REMOVED	RBSR
REF_BOUNDARY_CHANGE	RBC
REF_BUILDING_DISTANCE	RBD
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_FOREST_TYPE	RFT
REF_FOREST_TYPE_GROUP	RFTG
REF_HORIZ_DIST_IMPRVD_ROAD	RHDIR
REF_INVASIVE_SPECIES	RIS
REF_ITREE_LANDUSE	RIL
REF_LAND_COVER_CLASS	RLCC
REF_LENGTH_METHOD	RLM

ENTITY_NAME	ENTITY_SHORTNAME
REF_NONFOREST_LANDUSE	RNL
REF_NO_YES	RNY
REF_OFFSET_POINT	ROP
REF_OWNER_CLASS	ROC
REF_OWNER_GROUP	ROG
REF_PERCENT_CLASS_CODE	RPCC
REF_PHYSIOGRAPHIC_CLASS	RPC
REF_PLANT_DICTIONARY	RPD
REF_PLOT_NONSAMPLE_REASN	RPNR
REF_PLOT_STATUS	RPS
REF_PLOT_TYPE	RPT
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_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_CLASS	RTC
REF_TREE_DENSITY	RTD
REF_TREE_PLANTED	RTP
REF_TREE_STATUS	RTS
REF_UNIT	RUNT
REF_WATER_ON_PLOT	RWOP
SO_FIELD_SAMPLE	FLDSMP
SO_POP_STRUCT_ELMT	PSTREL
SO_PROJECT	PRJ
SO_RESEARCH_ORGANIZATION	RESORG
SO_SAMPLE_RULE	SMPRL

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 ID_PLOT 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	A data type that stores the date, typically in the format of MM/DD/YYYY. 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.
NUMBER	A data type that contains only numbers, positive or negative, with a floating-decimal point.
NUMBER(SIZE, D)	A data type that contains only numbers up to a specified maximum size. The maximum size (*and optional fixed-decimal point*) is specified by the value(s) listed in the parentheses. For example, an attribute with a data type specified as "NUMBER(2)" indicates that the attribute may contain a maximum of 2 digits (*for example*, "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 (*for example*, "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 (*for example*, "18.7200"). **Note:** When needed, digits to the right of a fixed-decimal point are filled in with zero(s).
VARCHAR2(SIZE)	A data type that contains alphanumeric data (numbers and/or characters) up to a specified maximum size. For example, an attribute with a data type specified as "VARCHAR2(8)" indicates that the attribute may contain a maximum of eight alphanumeric characters.

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	Field Sample Table	SO_FIELD_SAMPLE
2.2	Population Structure Element Table	SO_POP_STRUCT_ELMT
2.3	Project Table	SO_PROJECT
2.4	Research Organization Table	SO_RESEARCH_ORGANIZATION
2.5	Sample Rule Table	SO_SAMPLE_RULE

Overview: Table Group - Sample Organization

Prefix: SO_

The purpose of the **Sample Organization** table group is to provide information describing the context of a project. It organizes information identifying projects, the populations they target, the structure of the target population, and the sampling rules for the project. A **project** is composed of one or more series. A **series** is a distinct cohort of data within a project that share the same sampling methodology, field protocol, and target a specific set of population attributes. A project is implemented in the field by drawing a **field sample** for each active series. 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.

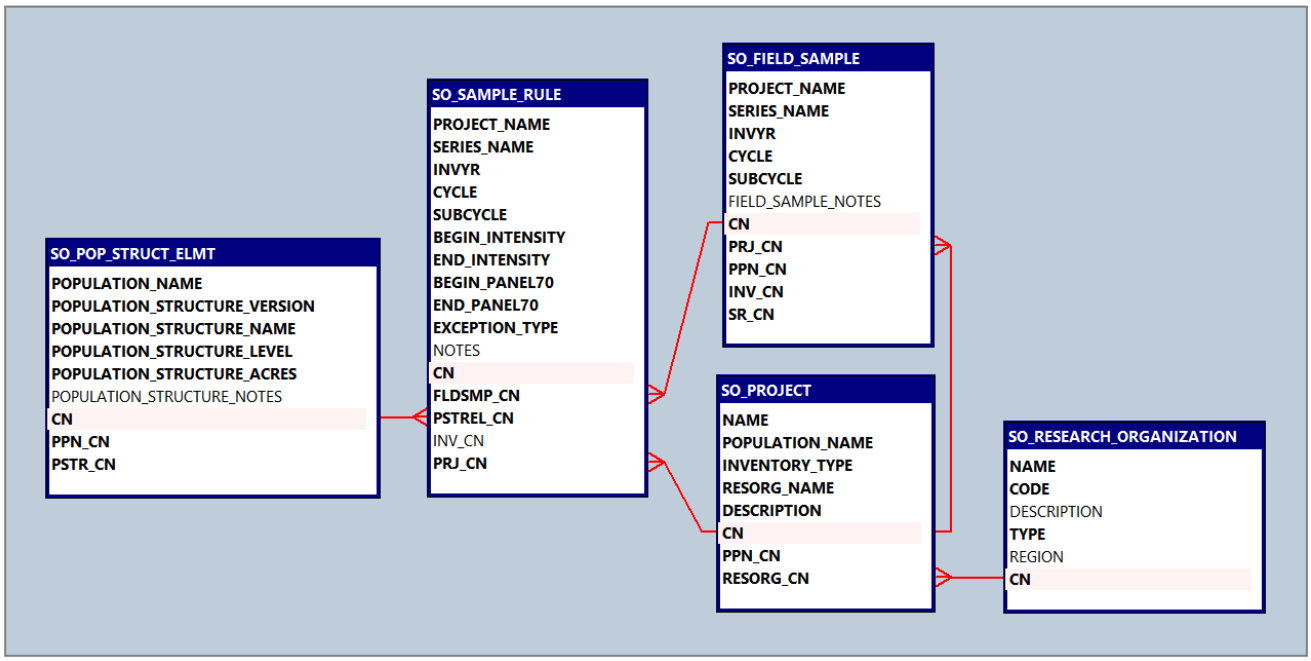


Figure 2-1: Sample organization table group.

2.1 Field Sample Table

Oracle table name: SO_FIELD_SAMPLE

The purpose of the **SO_FIELD_SAMPLE** table is to store information describing distinct field samples supporting a series within a project. Thus, this table includes several different concepts consolidated into a single table. This consolidation was done to provide more information to the user with a minimum of table joins.

The following concepts are consolidated into the SO_FIELD_SAMPLE table:

- **Project** - A well-defined inventory effort (one or more inventories) targeting a defined population with a dedicated set of resources.
- **Series** - A distinct cohort of data that share the same sampling methodology, field protocol, and target a specific set of population attributes.
- **Field Sample** - A cohort of plots that share the same unique combination of a project, series, and time period.

The finest granularity of the above concepts is the **field sample**. Therefore, it is the field sample that defines the primary key for the SO_FIELD_SAMPLE table. However, users can query the table for any of the above concepts, or any combination of the above concepts, to locate the specific data of interest.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.1.1	PROJECT_NAME	Project name	VARCHAR2(50)
2.1.2	SERIES_NAME	Series name	VARCHAR2(50)
2.1.3	INVYR	Inventory year	NUMBER(4)
2.1.4	CYCLE	Inventory cycle iterator	NUMBER(2)
2.1.5	SUBCYCLE	Inventory subcycle iterator	NUMBER(2)
2.1.6	FIELD_SAMPLE_NOTES	Field sample notes	VARCHAR2(2000)
2.1.7	CN	Field sample sequence number	INTEGER
2.1.8	PRJ_CN	Project sequence number	INTEGER
2.1.9	PPN_CN	Population sequence number	INTEGER
2.1.10	INV_CN	Inventory sequence number	INTEGER
2.1.11	SR_CN	Series sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	FLDSMP_PK	CN	N/A
Unique	FLDSMP_UK	PROJECT_NAME, SERIES_NAME, INVYR, CYCLE	N/A
Foreign	FLDSMP_PRJ_FK	PRJ_CN	SO_FIELD_SAMPLE.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 SERIES_NAME

Series name. The name of the series within the project (e.g., URBAN, URBAN_INTENSIFIED). A series represents a distinct cohort of data within a project that share the same sampling methodology, field protocol, and target a specific set of population attributes.

2.1.3 INVYR

Inventory year. The year that best represents the time period that a cohort of plots were selected for inclusion in the field sample. 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 necessarily imply that it was intended to be collected in the corresponding calendar year. Rather, it is a mechanism to group plots together temporally that were selected, measured, and processed as a group.

2.1.4 CYCLE

Inventory cycle iterator. An iterating number counting the number of times a complete sample has been collected for the related project and targeted population. Periodic and one-time projects are assumed to have a CYCLE = 1.

2.1.5 SUBCYCLE

Inventory subcycle iterator. An iterating number counting the number of subsamples conducted to complete the full sample. An annualized project spreads data collection over *n* number of years where *n* is the number of subcycles.

2.1.6 FIELD_SAMPLE_NOTES

Field sample notes. Any relevant comments regarding the field sample not captured in a more formal column.

2.1.7 CN

Field sample sequence number. A unique sequence number used to identify the field sample record (in SO_FIELD_SAMPLE).

2.1.8 PRJ_CN

Project sequence number. A unique sequence number used to identify the project. This attribute is a foreign key linking the field sample record to the project record (SO_FIELD_SAMPLE.PRJ_CN = SO_PROJECT.CN).

2.1.9 PPN_CN

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

2.1.10 INV_CN

Inventory sequence number. A unique sequence number used to identify the inventory.

2.1.11 SR_CN

Series sequence number. A unique sequence number used to identify the series.

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_NAME	Population structure name	VARCHAR2(70)
2.2.4	POPULATION_STRUCTURE_LEVEL	Population structure level	NUMBER(3)
2.2.5	POPULATION_STRUCTURE_ACRES	Population structure acres	NUMBER
2.2.6	POPULATION_STRUCTURE_NOTES	Population structure 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_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_NAME

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

2.2.5 POPULATION_STRUCTURE_ACRES

Population structure acres. The area of the polygon expressed in acres.

2.2.6 POPULATION_STRUCTURE_NOTES

Population structure 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. Each project is uniquely assigned to a research organization, which has stewardship over that project. Each project targets one population for study.

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.

Code	Description
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).

2.5 Sample Rule Table

Oracle table name: SO_SAMPLE_RULE

There are two main functions of the **SO_SAMPLE_RULE** table. First, it provides the linkage between the field sample (from the SO_FIELD_SAMPLE table) and the population structure element information (from the SO_POP_STRUCT_ELMT table). This relationship is a many-to-many relationship meaning that a given field sample can relate to many population structure elements, and a population structure element can relate to many field samples. Second, it provides detailed information describing how a given field sample was selected within a given inventory.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
2.5.1	PROJECT_NAME	Project name	VARCHAR2(50)
2.5.2	SERIES_NAME	Series name	VARCHAR2(50)
2.5.3	INVYR	Inventory year	NUMBER(4)
2.5.4	CYCLE	Inventory cycle iterator	NUMBER(2)
2.5.5	SUBCYCLE	Inventory subcycle iterator	NUMBER(2)
2.5.6	BEGIN_INTENSITY	Begin intensity	NUMBER(3)
2.5.7	END_INTENSITY	End intensity	NUMBER(3)
2.5.8	BEGIN_PANEL70	Begin panel-70	NUMBER(2)
2.5.9	END_PANEL70	End panel-70	NUMBER(2)
2.5.10	EXCEPTION_TYPE	Exception type	VARCHAR2(10)
2.5.11	NOTES	Sample rule notes	VARCHAR2(2000)
2.5.12	CN	Sample rule sequence number	INTEGER
2.5.13	FLDSMP_CN	Field sample sequence number	INTEGER
2.5.14	PSTREL_CN	Population structure element sequence number	INTEGER
2.5.15	INV_CN	Inventory sequence number	INTEGER
2.5.16	PRJ_CN	Project sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	SMPRL_PK	CN	N/A
Unique	SMPRL_UK	PROJECT_NAME, SERIES_NAME, INVYR, CYCLE, PSTREL_CN	N/A
Foreign	SMPRL_FLDSMP_FK	FLDSMP_CN	SO_SAMPLE_RULE.FLDSMP_CN = SO_FIELD_SAMPLE.CN

Key type	Alias	Constraint column(s)	Table joins
Foreign	SMPRL_PSTREL_FK	PSTREL_CN	SO_SAMPLE_RULE.PSTREL_CN = SO_POP_STRUCT_ELMT.CN
Foreign	SMPRL_PRJ_FK	PRJ_CN	SO_SAMPLE_RULE.PRJ_CN = SO_PROJECT.CN

2.5.1 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).

2.5.2 SERIES_NAME

Series name. The name of the series within the project (e.g., URBAN, URBAN_INTENSIFIED). A series represents a distinct cohort of data within a project that share the same sampling methodology, field protocol, and target a specific set of population attributes.

2.5.3 INVYR

Inventory year. The year that best represents the time period that a cohort of plots were selected for inclusion in the field sample. 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 necessarily imply that it was intended to be collected in the corresponding calendar year. Rather, it is a mechanism to group plots together temporally that were selected, measured, and processed as a group.

2.5.4 CYCLE

Inventory cycle iterator. An iterating number counting the number of times a complete sample has been collected for the related project and targeted population. Periodic and one-time projects are assumed to have a CYCLE = 1.

2.5.5 SUBCYCLE

Inventory subcycle iterator. An iterating number counting the number of subsamples conducted to complete the full sample. An annualized project spreads data collection over *n* number of years where *n* is the number of subcycles.

2.5.6 BEGIN_INTENSITY

Begin intensity. The beginning (lower bound) sampling intensity represented by the record. The FIA hexagonal sampling frame defines sampling intensity in terms of the number of plots located within a parent hexagon. The Federal base sample includes a single plot per parent hexagon and is referred to as 1X where X is interpreted as the number of plots per hexagon. For example, and sampling intensity of 3X indicates three plots located within the parent hex.

2.5.7 END_INTENSITY

End intensity. The ending (upper bound) sampling intensity represented by the record. The FIA hexagonal sampling frame defines sampling intensity in terms of the number of plots located within a parent hexagon. The Federal base sample includes a single plot per parent hexagon and is referred to as 1X where X is interpreted as the number of plots per hexagon. For example, and sampling intensity of 3X indicates three plots located within the parent hex.

2.5.8 BEGIN_PANEL70

Beginning panel-70. The beginning panel-70 value of the field sample within a given population structure element. The FIA hexagonal sampling frame is temporally divided into five national panels according to a repeating spatial pattern. Each of the five national panels is further divided into 14 subpanels governed by a different spatial pattern. The combination of the two spatial patterns produces 70 unique combinations that are spatially distributed. The result is a flexible sampling frame that can distribute a sample across both space and time. Samples are selected by determining the number of subpanel values that can be collected in a field season and these panels are selected sequentially. Therefore, the temporal position of the sample within the sampling frame can be described by the beginning and ending panel 70 values.

2.5.9 END_PANEL70

Ending panel-70. The ending panel-70 value of the field sample within a given population structure element. The FIA hexagonal sampling frame is temporally divided into five national panels according to a repeating spatial pattern. Each of the five national panels is further divided into 14 subpanels governed by a different spatial pattern. The combination of the two spatial patterns produces 70 unique combinations that are spatially distributed. The result is a flexible sampling frame that can distribute a sample across both space and time. Samples are selected by determining the number of subpanel values that can be collected in a field season and these panels are selected sequentially. Therefore, the temporal position of the sample within the sampling frame can be described by the beginning and ending panel 70 values.

2.5.10 EXCEPTION_TYPE

Exception type. A descriptor for the type of exception to the normal sample selection pattern used by FIA. There are circumstances that arise that disrupt the normal sample selection patterns used by FIA. When this occurs, an exception to the sample rule is created and populated in this column.

Codes: EXCEPTION_TYPE

Code	Description
ADDITION	Plots are selected if they fall within a starting and ending subpanel value or if they fall within an addition list. Plots on the addition list are not constrained by the starting and ending subpanel values.
EXCLUSION	Plots are selected if they fall within a starting and ending subpanel value unless they occur on the exclusion list. Plots on the exclusion list are constrained by the starting and ending subpanel values.
INCLUSION	Plots are selected only if they exist on the inclusion list. This exception type allows inventory managers to select the sample as needed.
NONE	There are no exceptions.

2.5.11 NOTES

Sample rule notes. Any relevant notes regarding the sample rule.

2.5.12 CN

Sample rule sequence number. A unique sequence number used to identify the sample rule record (in SO_SAMPLE_RULE).

2.5.13 FLDSMP_CN

Field sample sequence number. Foreign key linking the sample rule record to the field sample record (SO_SAMPLE_RULE.FLDSMP_CN = SO_FIELD_SAMPLE.CN).

2.5.14 PSTREL_CN

Population structure sequence number. Foreign key linking the sample rule record to the population structure element record (SO_SAMPLE_RULE.PSTREL_CN = SO_POP_STRUCT_ELMT.CN).

2.5.15 INV_CN

Inventory sequence number. A unique sequence number used to identify the inventory.

2.5.16 PRJ_CN

Project sequence number. Foreign key linking the sample rule record to the project record (SO_SAMPLE_RULE.PRJ_CN = SO_PROJECT.CN).

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	Boundary Table	ID_BOUNDARY
3.2	Building Interaction Table	ID_BUILDING_INTERACTION
3.3	Closed Boundary Table	ID_CLOSED_BOUNDARY
3.4	Condition Table	ID_COND
3.5	Energy Effect Table	ID_ENERGY_EFFECT
3.6	Invasive Species Subplot Condition Table	ID_INVASIVE_SUBP_COND
3.7	Mother Tree Table	ID_MOTHER_TREE
3.8	Plot Table	ID_PLOT
3.9	Plot Field Sample Assignment Table	ID_PLOT_FLDSAMP_ASSGN
3.10	Plot Statistical Sample Assignment Table	ID_PLOT_STAT_SAMP_ASSGN
3.11	Plot Stratum Calculation Assignment Table	ID_PLOT_STRAT_CALC_ASSGN
3.12	Seedling Table	ID_SEEDLING
3.13	Site Tree Table	ID_SITETREE
3.14	Subplot Table	ID_SUBPLOT
3.15	Subplot Condition Table	ID_SUBP_COND
3.16	Tree Table	ID_TREE
3.17	Woodland Stem Table	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 as well as 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_FLDSAMP_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 Entity Relation Diagrams (ERDs) below. Several ERDs are shown, with each illustrating a functional grouping of tables: an overview (figure 3-1), boundary tables (figure 3-2), area tables (figure 3-3), tree tables (figure 3-4), and linking tables (figure 3-5). The overview diagram only shows table constraints while the other ERDs show the full list of columns in each table.

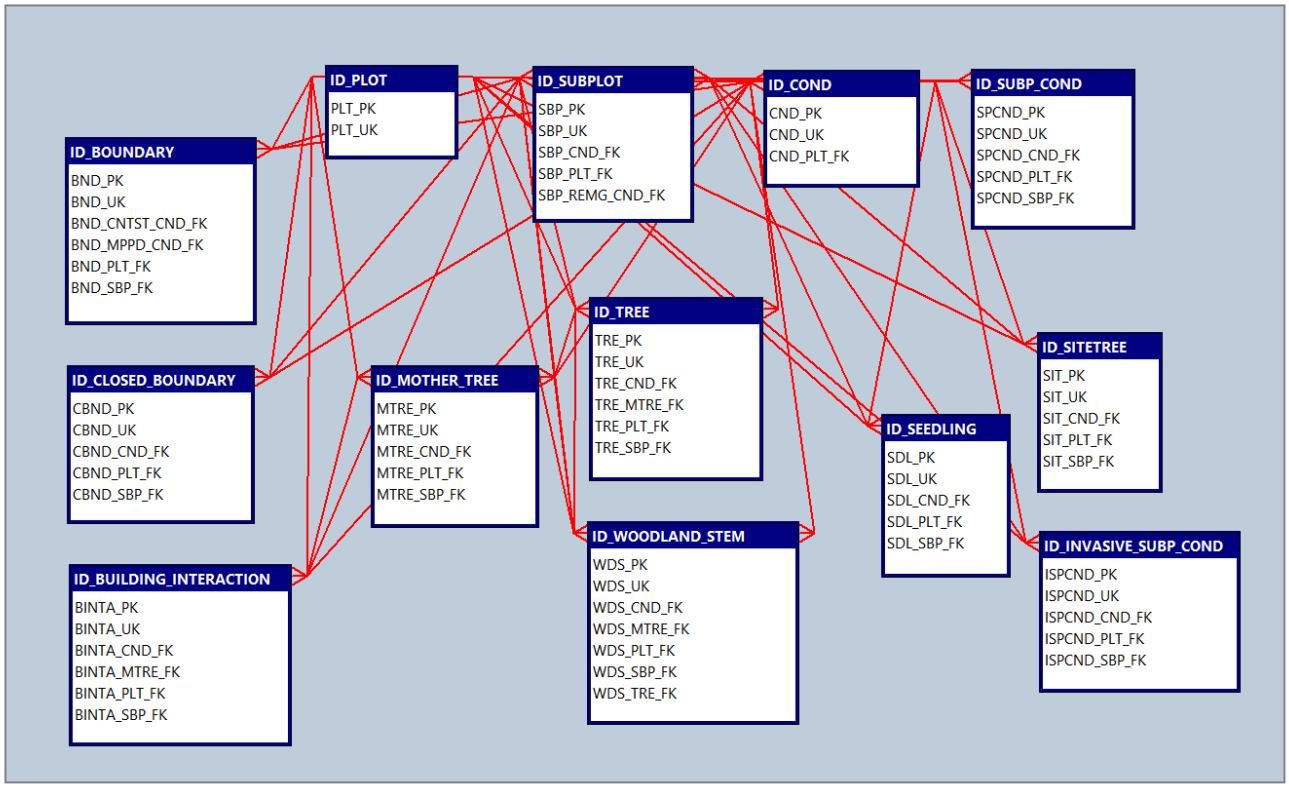


Figure 3-1: Inventory data table group overview - table constraints.

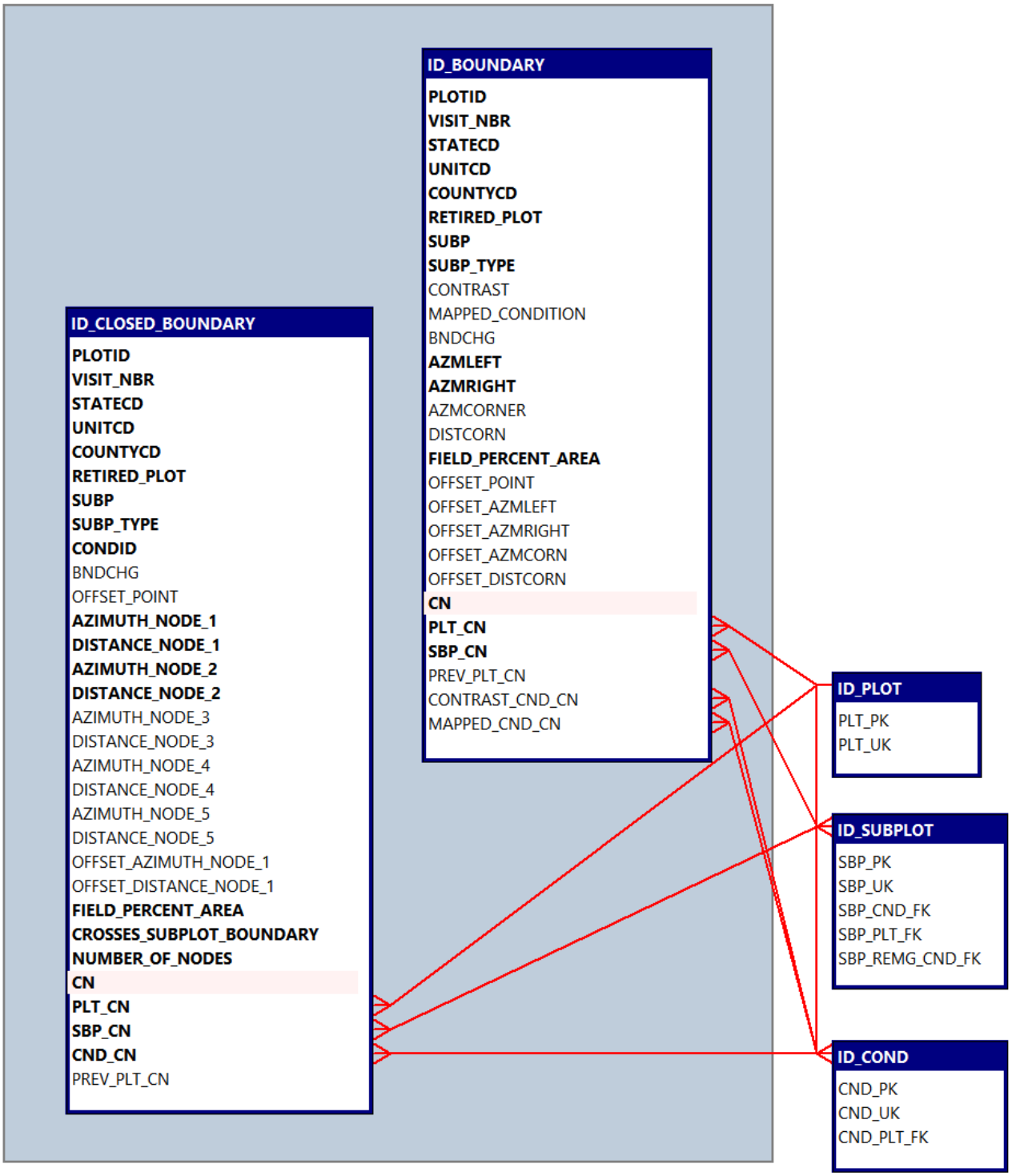


Figure 3-2: Inventory data table group - boundary tables.

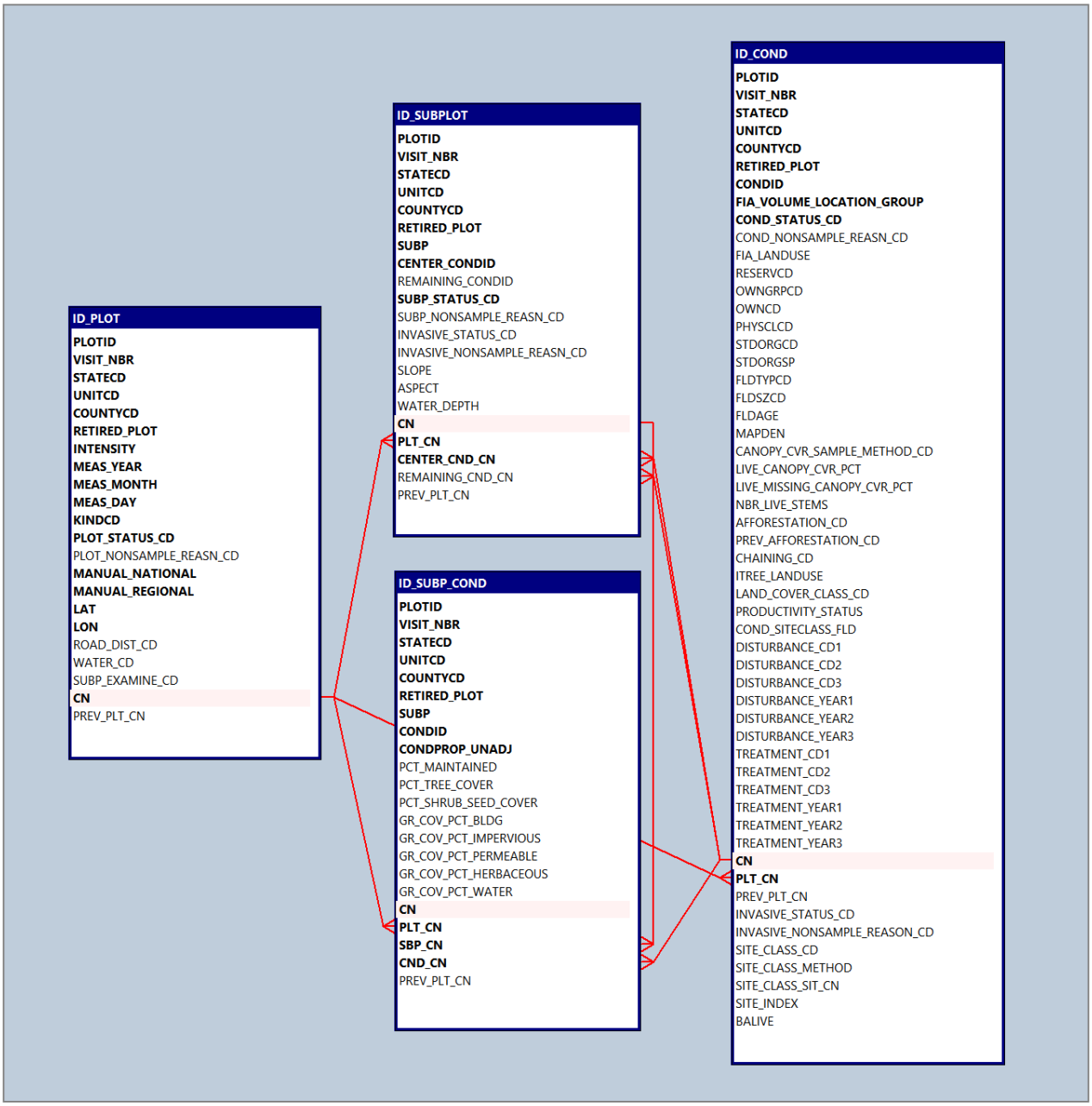


Figure 3-3: Inventory data table group - area tables.

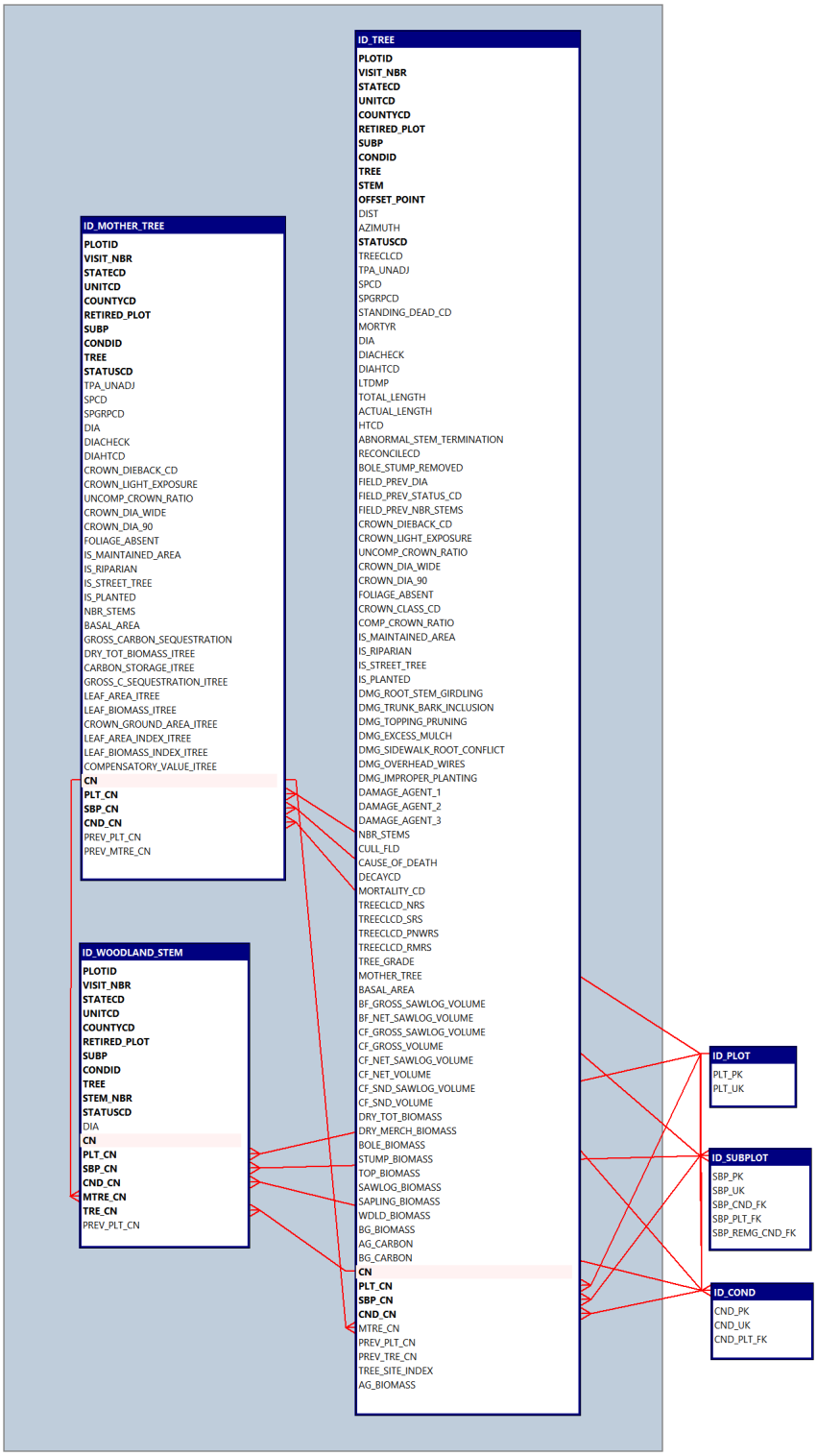


Figure 3-4: Inventory data table group - tree tables.

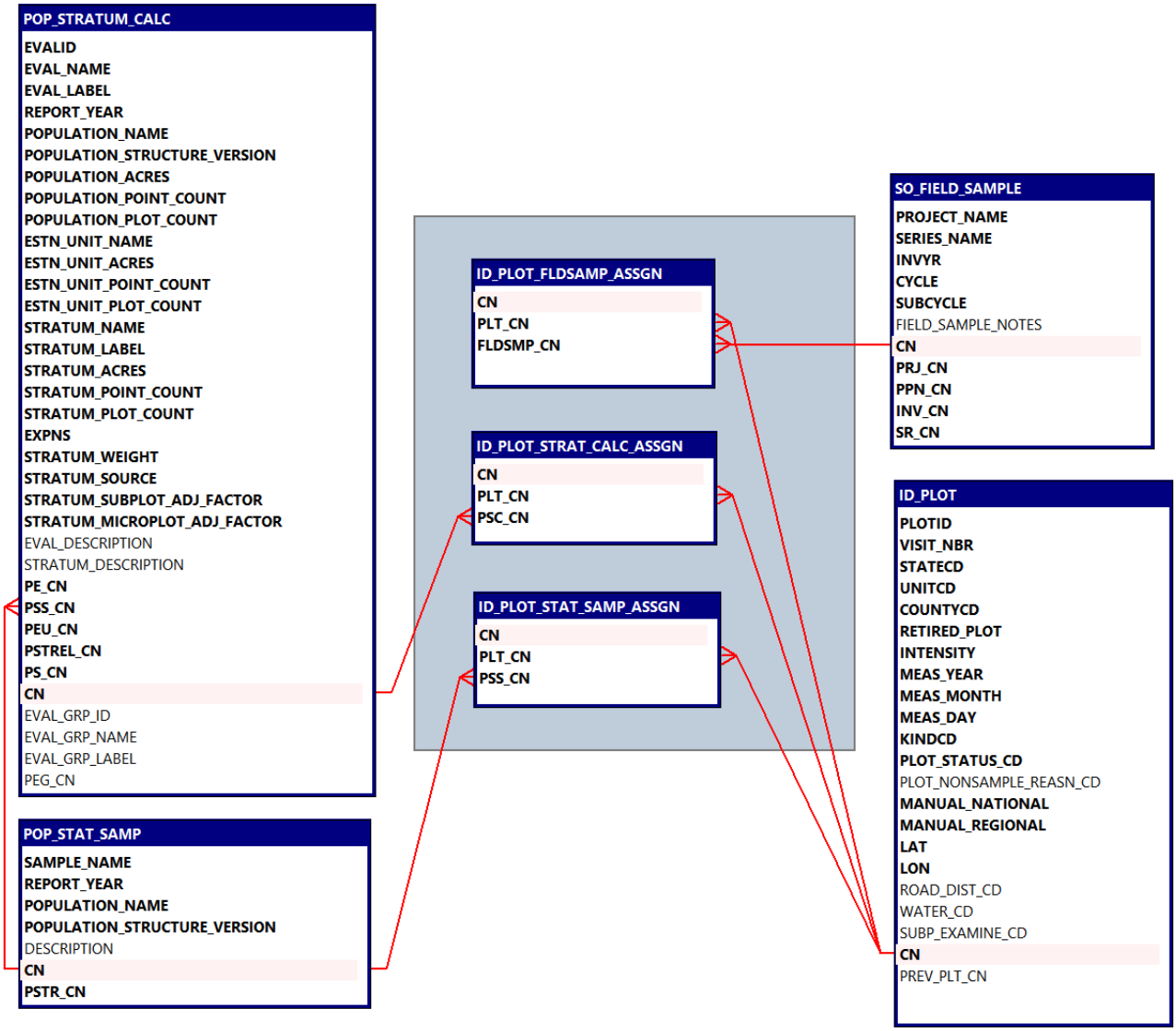


Figure 3-5: Inventory data table group - linking tables.

3.1 Boundary Table

Oracle table name: ID_BOUNDARY

The purpose of the **ID_BOUNDARY** table is to store 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 data are stored in the ID_CLOSED_BOUNDARY table. Boundary data are the basis for the CONDPROP_UNADJ calculation stored in the ID_SUBP_COND table.

A **traditional boundary** is a straight line or a line with a single corner that describes the boundary between two land conditions on the plot footprint. This type of boundary is also used in the rural FIA inventory program. A **closed boundary** is a set of nodes that may or may not intersect the footprint boundary. It can describe a land condition that is entirely contained within the footprint of a given plot. For more information on the collection of boundary data, refer to the FIA National Urban Field Guide (see appendix A, Quick Links).

Note that boundary data are not populated for every plot visit. It is possible that the entire plot footprint falls within a single land condition and thus no boundaries between land conditions exist.

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	SUBP_TYPE	Subplot/microplot type code	NUMBER(1)
3.1.9	CONTRAST	Contrasting condition class	NUMBER(1)
3.1.10	MAPPED_CONDITION	Mapped condition class	NUMBER(1)
3.1.11	BNDCHG	Boundary change code	NUMBER(1)
3.1.12	AZMLEFT	Left azimuth	NUMBER(3)
3.1.13	AZMRIGHT	Right azimuth	NUMBER(3)
3.1.14	AZMCORNER	Corner azimuth	NUMBER(3)
3.1.15	DISTCORN	Corner distance	NUMBER(3)
3.1.16	FIELD_PERCENT_AREA	Field percent area	NUMBER(3)
3.1.17	OFFSET_POINT	Offset point	NUMBER(3)
3.1.18	OFFSET_AZMLEFT	Offset left azimuth	NUMBER(3)
3.1.19	OFFSET_AZMRIGHT	Offset right azimuth	NUMBER(3)
3.1.20	OFFSET_AZMCORN	Offset corner azimuth	NUMBER(3)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.1.21	OFFSET_DISTCORN	Offset corner distance	NUMBER(3)
3.1.22	CN	Boundary sequence number	INTEGER
3.1.23	PLT_CN	Plot sequence number	INTEGER
3.1.24	SBP_CN	Subplot sequence number	INTEGER
3.1.25	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.1.26	CONTRAST_CND_CN	Contrasting condition sequence number	INTEGER
3.1.27	MAPPED_CND_CN	Mapped condition sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	BND_PK	CN	N/A
Unique	BND_UK	PLOTID, VISIT_NBR, SUBP, CONTRAST, MAPPED_CONDITION, AZMLEFT, AZMRIGHT, AZMCORNER	N/A
Foreign	BND_PLT_FK	PLT_CN	ID_BOUNDARY.PLT_CN = ID_PLOT.CN
Foreign	BND_SBP_FK	SBP_CN	ID_BOUNDARY.SBP_CN = ID_SUBPLOT.CN
Foreign	BND_CNTST_CND_FK	CONTRAST_CND_CN	ID_BOUNDARY.CONTRAST_CND_CN = ID_COND.CN
Foreign	BND_MPPD_CND_FK	MAPPED_CND_CN	ID_BOUNDARY.MAPPED_CND_CN = ID_COND.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 rural FIADB product.

3.1.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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.

3.1.8 SUBP_TYPE

Subplot/microplot type code. A code indicating whether the boundary data are for a subplot or microplot.

Reference table: REF_PLOT_TYPE

Codes: SUBP_TYPE

Code	Description
1	Subplot boundary.
2	Microplot boundary.

3.1.9 CONTRAST

Contrasting condition class. The condition class identifier (ID_COND.CONDID) for the condition that contrasts with the condition located at the subplot center (for boundaries on the subplot) or at the microplot center (for boundaries on the microplot), i.e., the number for the condition class present on the other side of the boundary. CONDID is a number that uniquely identifies each condition for the plot visit.

3.1.10 MAPPED_CONDITION

Mapped condition class. The condition class identifier (ID_COND.CONDID) for the condition that is being mapped. CONDID is a number that uniquely identifies each condition for the plot visit.

3.1.11 BNDCHG

Boundary change code. A code indicating the relationship between previously recorded and current boundary information. This code is only valid for remeasurement locations (ID_PLOT.KINDCD = 2).

Reference table: REF_BOUNDARY_CHANGE

Codes: BNDCHG

Code	Description
0	No change - boundary is the same as indicated on plot map and/or data collected by a previous crew.
1	New boundary, or boundary data has been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.
2	Boundary has been changed to correct an error from previous crew.
3	Boundary has been changed to reflect a change in variable definition.

3.1.12 AZMLEFT

Left azimuth. The azimuth, to the nearest degree, from the subplot or microplot center to the farthest left point of the condition being mapped, where the boundary intersects the subplot or microplot perimeter.

3.1.13 AZMRIGHT

Right azimuth. The azimuth, to the nearest degree, from subplot or microplot center to the farthest right point of the mapped condition, where the boundary intersects the subplot or microplot perimeter.

3.1.14 AZMCORNER

Corner azimuth. The azimuth, to the nearest degree, from the subplot or microplot center to a corner or curve in a boundary. If a boundary is best described by a straight line between the two perimeter points, a value of 0 is recorded for AZMCORNER (0 = none).

3.1.15 DISTCORN

Corner distance. The horizontal distance, to the nearest 1 foot, from the subplot or microplot center to a boundary corner point.

3.1.16 FIELD_PERCENT_AREA

Field percent area. The percentage of the plot area within the mapped condition.

3.1.17 OFFSET_POINT

Offset point. A code indicating the location from which the boundary was measured for each subplot/microplot.

Reference table: REF_OFFSET_POINT

Codes: OFFSET_POINT

Code	Description
0	Normal position (subplot center).
1	North subplot offset point.

Code	Description
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.

3.1.18 OFFSET_AZMLEFT

Offset left azimuth. The azimuth, to the nearest degree, from the offset point to the farthest left point of the condition being mapped, where the boundary intersects the subplot or microplot perimeter.

3.1.19 OFFSET_AZMRIGHT

Offset right azimuth. The azimuth, to the nearest degree, from the offset point to the farthest right point of the condition being mapped, where the boundary intersects the subplot or microplot perimeter.

3.1.20 OFFSET_AZMCORN

Offset corner azimuth. The azimuth, to the nearest degree, from the offset point to a corner or curve in a boundary. If a boundary is best described by a straight line between the two perimeter points, a value of 0 is recorded for OFFSET_AZMCORN (0 = none).

3.1.21 OFFSET_DISTCORN

Offset corner distance. The horizontal distance, to the nearest 1 foot, from the offset point to a boundary corner point.

3.1.22 CN

Boundary sequence number. A unique sequence number used to identify the boundary record (in ID_BOUNDARY).

3.1.23 PLT_CN

Plot sequence number. Foreign key linking the boundary record to the plot visit record (ID_BOUNDARY.PLT_CN = ID_PLOT.CN).

3.1.24 SBP_CN

Subplot sequence number. Foreign key linking the boundary record to the subplot record (ID_BOUNDARY.SBP_CN = ID_SUBPLOT.CN).

3.1.25 PREV_PLT_CN

Previous plot sequence number. The sequence number (CN) linking the boundary record to the previous plot visit record (ID_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN).

3.1.26 CONTRAST_CND_CN

Contrasting condition sequence number. Foreign key linking the boundary record to the contrasting condition record (ID_BOUNDARY.CONTRAST_CND_CN = ID_COND.CN). The record in the ID_COND table is for the condition that contrasts with the condition at subplot/microplot center.

3.1.27 MAPPED_CND_CN

Mapped condition sequence number. Foreign key linking the boundary record to the mapped condition record (ID_BOUNDARY.MAPPED_CND_CN = ID_COND.CN). The record in the ID_COND table is for the condition that is being mapped.

3.2 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
3.2.1	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	SUBP	Subplot/microplot identifier	NUMBER(2)
3.2.8	CONDID	Condition class identifier	NUMBER(1)
3.2.9	TREE	Tree identifier	NUMBER(9)
3.2.10	BLDG_INTERACTION_ID	Building interaction identifier	NUMBER(2)
3.2.11	DISTANCE_CD	Distance code	NUMBER(2)
3.2.12	AZIMUTH	Azimuth	NUMBER(3)
3.2.13	ELEC_AVOID_VALUE_SUM	Electricity avoided value	NUMBER
3.2.14	ELEC_AVOID_SUM	Electricity avoided quantity	NUMBER
3.2.15	FUEL_AVOID_VALUE_SUM	Fuel avoided value	NUMBER
3.2.16	FUEL_AVOID_SUM	Fuel avoided quantity	NUMBER
3.2.17	CARBON_AVOID_VALUE_SUM	Carbon emissions avoided value	NUMBER
3.2.18	CARBON_AVOID_SUM	Carbon emissions avoided quantity	NUMBER
3.2.19	COOLING_CLIMATE_C_ELEC_AVOID	Cooling climate electricity-based carbon emissions avoided quantity	NUMBER
3.2.20	COOLING_CLIMATE_ELEC_AVOID	Cooling climate electricity avoided quantity	NUMBER
3.2.21	COOLING_SHADING_C_ELEC_AVOID	Cooling shading electricity-based carbon emissions avoided quantity	NUMBER
3.2.22	COOLING_SHADING_ELEC_AVOID	Cooling shading electricity avoided quantity	NUMBER
3.2.23	HEATING_CLIMATE_FUEL_AVOID	Heating climate fuel avoided quantity	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.2.24	HEATING_CLIMATE_C_FUEL_AVOID	Heating climate fuel-based carbon emissions avoided quantity	NUMBER
3.2.25	HEATING_CLIMATE_C_ELEC_AVOID	Heating climate electricity-based carbon emissions avoided quantity	NUMBER
3.2.26	HEATING_CLIMATE_ELEC_AVOID	Heating climate electricity avoided quantity	NUMBER
3.2.27	HEATING_SHADING_FUEL_AVOID	Heating shading fuel avoided quantity	NUMBER
3.2.28	HEATING_SHADING_C_FUEL_AVOID	Heating shading fuel-based carbon emissions avoided quantity	NUMBER
3.2.29	HEATING_SHADING_C_ELEC_AVOID	Heating shading electricity-based carbon emissions avoided quantity	NUMBER
3.2.30	HEATING_SHADING_ELEC_AVOID	Heating shading electricity avoided quantity	NUMBER
3.2.31	HEATING_WINDBREAK_FUEL_AVOID	Heating windbreak fuel avoided quantity	NUMBER
3.2.32	HEATING_WINDBREAK_C_FUEL_AVOID	Heating windbreak fuel-based carbon emissions avoided quantity	NUMBER
3.2.33	HEATING_WINDBREAK_C_ELEC_AVOID	Heating windbreak electricity-based carbon emissions avoided quantity	NUMBER
3.2.34	HEATING_WINDBREAK_ELEC_AVOID	Heating windbreak electricity avoided quantity	NUMBER
3.2.35	CN	Building interaction sequence number	INTEGER
3.2.36	PLT_CN	Plot sequence number	INTEGER
3.2.37	SBP_CN	Subplot sequence number	INTEGER
3.2.38	CND_CN	Condition sequence number	INTEGER
3.2.39	MTRE_CN	Mother tree sequence number	INTEGER
3.2.40	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

3.2.1 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 rural FIADB product.

3.2.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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.

3.2.8 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.

3.2.9 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.

3.2.10 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.

3.2.11 DISTANCE_CD

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

Reference table: REF_BUILDING_DISTANCE

Codes: DISTANCE_CD

Code	Description
0	No building within 60 feet.
1	Less than 20 feet.
2	21 to 40 feet.
3	41 to 60 feet.

3.2.12 AZIMUTH

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

3.2.13 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.

3.2.14 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.

3.2.15 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.

3.2.16 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.

3.2.17 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.

3.2.18 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.

3.2.19 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.

3.2.20 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.

3.2.21 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.

3.2.22 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.

3.2.23 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.

3.2.24 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.

3.2.25 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.

3.2.26 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.

3.2.27 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.

3.2.28 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.

3.2.29 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.

3.2.30 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.

3.2.31 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.

3.2.32 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.

3.2.33 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.

3.2.34 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.

3.2.35 CN

Building interaction sequence number. A unique sequence number used to identify the building interaction record (in ID_BUILDING_INTERACTION).

3.2.36 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).

3.2.37 SBP_CN

Subplot sequence number. Foreign key linking the building interaction record to the subplot record (ID_BUILDING_INTERACTION.SBP_CN = ID_SUBPLOT.CN).

3.2.38 CND_CN

Condition sequence number. Foreign key linking the building interaction record to the condition record (ID_BUILDING_INTERACTION.CND_CN = ID_COND.CN).

3.2.39 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).

3.2.40 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).

3.3 Closed Boundary Table

Oracle table name: ID_CLOSED_BOUNDARY

The purpose of the **ID_CLOSED_BOUNDARY** table is to store 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. Traditional boundary data are stored in the ID_BOUNDARY table. Boundary data are the basis for the CONDPROP_UNADJ calculation stored in the ID_SUBP_COND table.

A **traditional boundary** is a straight line or a line with a single corner that describes the boundary between two land conditions on the plot footprint. This type of boundary is also used in the rural FIA inventory program. A **closed boundary** is a set of nodes that may or may not intersect the footprint boundary. It can describe a land condition that is entirely contained within the footprint of a given plot. For more information on the collection of boundary data refer to the FIA National Urban Field Guide (see appendix A, Quick Links).

Note that boundary data are not populated for every plot visit. It is possible that the entire plot footprint falls within a single land condition and thus no boundaries between land conditions exist.

Also note that closed boundary data are only collected on subplots. Microplots are only permitted to have use traditional boundaries due to their small size.

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 identifier	NUMBER(2)
3.3.8	SUBP_TYPE	Subplot/microplot type code	NUMBER(1)
3.3.9	CONDID	Condition class identifier	NUMBER(1)
3.3.10	BNDCHG	Boundary change code	NUMBER(1)
3.3.11	OFFSET_POINT	Offset point	NUMBER(3)
3.3.12	AZIMUTH_NODE_1	Azimuth to node 1	NUMBER(3)
3.3.13	DISTANCE_NODE_1	Distance to node 1	NUMBER(2)
3.3.14	AZIMUTH_NODE_2	Azimuth to node 2	NUMBER(3)
3.3.15	DISTANCE_NODE_2	Distance to node 2	NUMBER(2)
3.3.16	AZIMUTH_NODE_3	Azimuth to node 3	NUMBER(3)
3.3.17	DISTANCE_NODE_3	Distance to node 3	NUMBER(2)
3.3.18	AZIMUTH_NODE_4	Azimuth to node 4	NUMBER(3)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.3.19	DISTANCE_NODE_4	Distance to node 4	NUMBER(2)
3.3.20	AZIMUTH_NODE_5	Azimuth to node 5	NUMBER(3)
3.3.21	DISTANCE_NODE_5	Distance to node 5	NUMBER(2)
3.3.22	OFFSET_AZIMUTH_NODE_1	Offset azimuth to node 1	NUMBER(3)
3.3.23	OFFSET_DISTANCE_NODE_1	Offset distance to node 1	NUMBER(2)
3.3.24	FIELD_PERCENT_AREA	Field percent area	NUMBER(3)
3.3.25	CROSSES_SUBPLOT_BOUNDARY	Crosses subplot boundary	NUMBER(1)
3.3.26	NUMBER_OF_NODES	Number of nodes	NUMBER(1)
3.3.27	CN	Boundary sequence number	INTEGER
3.3.28	PLT_CN	Plot sequence number	INTEGER
3.3.29	SBP_CN	Subplot sequence number	INTEGER
3.3.30	CND_CN	Condition sequence number	INTEGER
3.3.31	PREV_PLT_CN	Previous plot sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	CBND_PK	CN	N/A
Unique	CBND_UK	PLOTID, VISIT_NBR, SUBP, CONDID, AZIMUTH_NODE_1, AZIMUTH_NODE_2, AZIMUTH_NODE_3, AZIMUTH_NODE_4, AZIMUTH_NODE_5	N/A
Foreign	CBND_PLT_FK	PLT_CN	ID_CLOSED_BOUNDARY.PLT_CN = ID_PLOT.CN
Foreign	CBND_SBP_FK	SBP_CN	ID_CLOSED_BOUNDARY.SBP_CN = ID_SUBPLOT.CN
Foreign	CBND_CND_FK	CND_CN	ID_CLOSED_BOUNDARY.CND_CN = ID_COND.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 rural FIADB product.

3.3.7 SUBP

Subplot identifier. An identifier for the subplot. For a closed boundary, SUBP = 1 (urban subplot) is the only valid code.

Codes: SUBP (closed boundary)

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

3.3.8 SUBP_TYPE

Subplot/microplot type code. A code indicating whether the boundary data are for a subplot or microplot. For a closed boundary, SUBP_TYPE = 1 (subplot boundary) is the only valid code.

Reference table: REF_PLOT_TYPE

Codes: SUBP_TYPE (closed boundary)

Code	Description
1	Subplot boundary.

3.3.9 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.

3.3.10 BNDCHG

Boundary change code. A code indicating the relationship between previously recorded and current boundary information. This code is only valid for remeasurement locations (ID_PLOT.KINDCD = 2).

Reference table: REF_BOUNDARY_CHANGE

Codes: BNDCHG

Code	Description
0	No change - boundary is the same as indicated on plot map and/or data collected by a previous crew.
1	New boundary, or boundary data has been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.
2	Boundary has been changed to correct an error from previous crew.
3	Boundary has been changed to reflect a change in variable definition.

3.3.11 OFFSET_POINT

Offset point. A code indicating the point serving as the origin for the closed boundary.

Reference table: REF_OFFSET_POINT

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).

Code	Description
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.

3.3.12 AZIMUTH_NODE_1

Azimuth to node 1. The azimuth from subplot center to node 1 (the closest corner point of the closed boundary condition that is being mapped).

3.3.13 DISTANCE_NODE_1

Distance to node 1. The horizontal distance, to the nearest 1 foot, from subplot center to node 1 (the closest corner point of the closed boundary condition that is being mapped).

3.3.14 AZIMUTH_NODE_2

Azimuth to node 2. The azimuth from node 1 to node 2 (the next corner of the closed boundary, clockwise from node 1). The second corner is called node 2.

3.3.15 DISTANCE_NODE_2

Distance to node 2. The horizontal distance, to the nearest 1 foot, from node 1 to node 2 (the next corner of the closed boundary, clockwise from node 1). The second corner is called node 2.

3.3.16 AZIMUTH_NODE_3

Azimuth to node 3. The azimuth from node 2 to node 3 (the next corner of the closed boundary, clockwise from node 2). The third corner is called node 3.

3.3.17 DISTANCE_NODE_3

Distance to node 3. The horizontal distance, to the nearest 1 foot, from node 2 to node 3 (the next corner of the closed boundary, clockwise from node 2). The third corner is called node 3.

3.3.18 AZIMUTH_NODE_4

Azimuth to node 4. The azimuth from node 3 to node 4 (the next corner of the closed boundary, clockwise from node 3). The fourth corner is called node 4.

3.3.19 DISTANCE_NODE_4

Distance to node 4. The horizontal distance, to the nearest 1 foot, from node 3 to node 4 (the next corner of the closed boundary, clockwise from node 3). The fourth corner is called node 4.

3.3.20 AZIMUTH_NODE_5

Azimuth to node 5. The azimuth from node 4 to node 5 (the next corner of the closed boundary, clockwise from node 4). The fifth corner is called node 5.

3.3.21 DISTANCE_NODE_5

Distance to node 5. The horizontal distance, to the nearest 1 foot, from node 4 to node 5 (the next corner of the closed boundary, clockwise from node 4). The fifth corner is called node 5.

3.3.22 OFFSET_AZIMUTH_NODE_1

Offset azimuth to node 1. The azimuth from the OFFSET_POINT to node 1 (the closest corner point of the closed boundary condition being mapped).

3.3.23 OFFSET_DISTANCE_NODE_1

Offset distance to node 1. The horizontal distance, to the nearest 1 foot, from the OFFSET_POINT to node 1 (the closest corner point of the closed boundary condition being mapped).

3.3.24 FIELD_PERCENT_AREA

Field percent area. The percentage of the plot area within the mapped condition.

3.3.25 CROSSES_SUBPLOT_BOUNDARY

Crosses subplot boundary. A code indicating whether the condition being mapped crosses the subplot boundary.

Codes: CROSSES_SUBPLOT_BOUNDARY

Code	Description
0	Does not cross the subplot boundary.
1	Does cross the subplot boundary.

3.3.26 NUMBER_OF_NODES

Number of nodes. The number of nodes that define the condition represented by the closed boundary. The maximum number of nodes is five. For closed boundaries that cross the subplot boundary, the total number of nodes includes the two nodes that result from the intersection of the condition and subplot boundary (node 1 and the final node).

3.3.27 CN

Closed boundary sequence number. A unique sequence number used to identify the closed boundary record (in ID_CLOSED_BOUNDARY).

3.3.28 PLT_CN

Plot sequence number. Foreign key linking the closed boundary record to the plot visit record (ID_CLOSED_BOUNDARY.PLT_CN = ID_PLOT.CN).

3.3.29 SBP_CN

Subplot sequence number. Foreign key linking the closed boundary record to the subplot record (ID_CLOSED_BOUNDARY.SBP_CN = ID_SUBPLOT.CN).

3.3.30 CND_CN

Condition sequence number. Foreign key linking the closed boundary record to the condition record (ID_CLOSED_BOUNDARY.CND_CN = ID_COND.CN).

3.3.31 PREV_PLT_CN

Previous plot sequence number. The sequence number (CN) linking the closed boundary record to the previous plot visit record (ID_CLOSED_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN).

3.4 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.

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 FIA National Urban 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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

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)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
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	CONDID	Condition class identifier	NUMBER(1)
3.4.8	FIA_VOLUME_LOCATION_GROUP	Volume location group (FIA)	VARCHAR2(200)
3.4.9	COND_STATUS_CD	Condition class status code	NUMBER(1)
3.4.10	COND_NONSAMPLE_REASN_CD	Condition nonsampled reason code	NUMBER(2)
3.4.11	FIA_LANDUSE	Land use code (FIA)	NUMBER(3)
3.4.12	RESERVCD	Reserved status code	NUMBER(1)
3.4.13	OWNGRPCD	Owner group code	NUMBER(2)
3.4.14	OWNCD	Owner class code	NUMBER(2)
3.4.15	PHYSCLCD	Physiographic class code	NUMBER(2)
3.4.16	STDORGCD	Stand origin code	NUMBER(2)
3.4.17	STDORGSP	Stand origin species code	NUMBER(4)
3.4.18	FLDTYPCD	Field forest type code	NUMBER(3)
3.4.19	FLDSZCD	Field stand-size class code	NUMBER(2)
3.4.20	FLDAGE	Field-recorded stand age	NUMBER(3)
3.4.21	MAPDEN	Mapping density code	NUMBER(1)
3.4.22	CANOPY_CVR_SAMPLE_METHOD_CD	Canopy cover sample method code	NUMBER(1)
3.4.23	LIVE_CANOPY_CVR_PCT	Live canopy cover percent	NUMBER(3)
3.4.24	LIVE_MISSING_CANOPY_CVR_PCT	Live plus missing canopy cover percent	NUMBER(3)
3.4.25	NBR_LIVE_STEMS	Number of live stems	NUMBER(5)
3.4.26	AFFORESTATION_CD	Current afforestation code	NUMBER(1)
3.4.27	PREV_AFFORESTATION_CD	Previous afforestation code	NUMBER(1)
3.4.28	CHAINING_CD	Chaining code	NUMBER(1)
3.4.29	ITREE_LANDUSE	Land use code (i-Tree urban inventory system)	NUMBER(2)
3.4.30	LAND_COVER_CLASS_CD	Land cover class **RETIRED**	NUMBER(2)
3.4.31	PRODUCTIVITY_STATUS	Site productivity status code	NUMBER(1)
3.4.32	COND_SITECLASS_FLD	Field site productivity class code	NUMBER(1)
3.4.33	DISTURBANCE_CD1	Disturbance code 1	NUMBER(2)
3.4.34	DISTURBANCE_CD2	Disturbance code 2	NUMBER(2)
3.4.35	DISTURBANCE_CD3	Disturbance code 3	NUMBER(2)
3.4.36	DISTURBANCE_YEAR1	Disturbance year 1	NUMBER(4)
3.4.37	DISTURBANCE_YEAR2	Disturbance year 2	NUMBER(4)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.4.38	DISTURBANCE_YEAR3	Disturbance year 3	NUMBER(4)
3.4.39	TREATMENT_CD1	Treatment code 1	NUMBER(2)
3.4.40	TREATMENT_CD2	Treatment code 2	NUMBER(2)
3.4.41	TREATMENT_CD3	Treatment code 3	NUMBER(2)
3.4.42	TREATMENT_YEAR1	Treatment year 1	NUMBER(4)
3.4.43	TREATMENT_YEAR2	Treatment year 2	NUMBER(4)
3.4.44	TREATMENT_YEAR3	Treatment year 3	NUMBER(4)
3.4.45	CN	Condition sequence number	INTEGER
3.4.46	PLT_CN	Plot sequence number	INTEGER
3.4.47	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.4.48	INVASIVE_STATUS_CD	Invasive species status code	NUMBER(1)
3.4.49	INVASIVE_NONSAMPLE_REASON_CD	Invasive species nonsampled reason code	NUMBER(2)
3.4.50	SITE_CLASS_CD	Site productivity class code	NUMBER(1)
3.4.51	SITE_CLASS_METHOD	Site productivity class method code	NUMBER(1)
3.4.52	SITE_CLASS_SIT_CN	Site productivity class site tree sequence number	INTEGER
3.4.53	SITE_INDEX	Site index for the condition	NUMBER(3)
3.4.54	BALIVE	Basal area per acre of live trees	NUMBER
3.4.55	COVER_CLASS	Cover class	NUMBER(2)

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

3.4.7 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.

3.4.8 FIA_VOLUME_LOCATION_GROUP

Volume location group (FIA). 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

Code	Description
S22LAZN	Northern Arizona Ecosections.
S22LAZS	Southern Arizona Ecosections.
S22LCOE	Eastern Colorado Ecosections.
S22LCOW	Western Colorado Ecosections.
S22LID	Idaho Ecosections.
S22LMTE	Eastern Montana Ecosections.

Code	Description
S22LMTW	Western Montana Ecosections.
S22LNMN	Northern New Mexico Ecosections.
S22LNMS	Southern New Mexico Ecosections.
S22LNV	Nevada Ecosections.
S22LUTNE	Northern and Eastern Utah Ecosections.
S22LUTSW	Southern and Western Utah Ecosections.
S22LWYE	Eastern Wyoming Ecosections.
S22LWYW	Western Wyoming Ecosections.
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.

3.4.9 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	**Accessible forest land** - 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	**Accessible nonforest land** - 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 criteria under FIA_LANDUSE). Nonforest includes areas that have sufficient cover or live stems to meet the forest land definition, but do not meet the dimensional requirements.
3	**Noncensus water** - 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	**Census water** - 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	**Nonsampled** - Any portion of a plot within accessible forest land 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 COND_NONSAMPLE_REASN_CD.

3.4.10 COND_NONSAMPLE_REASN_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_REASN_CD

Code	Description
1	**Outside U.S. boundary** - Condition class is outside the U.S. border.
2	**Denied access area** - 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	**Hazardous situation** - 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	**Lost data** - 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	**Lost plot** - Entire plot cannot be found. Used for the single condition that is required for this plot.
7	**Wrong location** - 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	**Skipped visit** - 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	**Dropped intensified plot** - 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	**Other** - Condition class not sampled due to a reason other than one of the specific reasons listed.
11	**Ocean** - Condition class falls in ocean water below mean high tide line.

3.4.11 FIA_LANDUSE

Land use code (FIA). 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.

Refer to the reference tables for full code descriptions.

Reference tables: REF_FIA_LANDUSE, REF_NONFOREST_LANDUSE

Codes: FIA_LANDUSE

Code	Description
1	**Forest land** - Land meeting the Forest Inventory & Analysis (FIA) definition of forest land and is not used for any conflicting purpose.
100	**Agricultural land** - Land managed for crops, pasture, or other agricultural use.
110	**Cropland** - Land utilized for agricultural crops including silage and feed grains; and bare farm fields resulting from cultivation or harvest.
120	**Pasture (improved through cultural practices)** - Land maintained and used for grazing with canopy cover less than 10 percent in live trees (established seedlings, saplings or larger trees).
130	**Idle farmland** - 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.
140	**Orchard/Nursery** - Land utilized for orchards and nursery stock.
150	**Christmas tree plantation.**
160	**Maintained wildlife opening** - Land maintained as a permanent opening of primarily herbaceous vegetation within woodland areas to provide food and cover benefits for early successional wildlife species.
170	**Windbreak/Shelterbelt** - Windbreaks or shelterbelts are plantings of single or multiple rows of trees or shrubs that are established for environmental purposes.
200	**Rangeland** - Land primarily composed of grasses, forbs, or shrubs.
300	**Developed** - Land used primarily by humans for purposes other than forestry or agriculture.
310	**Cultural** - Business (industrial/commercial), residential, and other places of intense human activity.
311	**Residential** - Free standing structures and associated green space/hardscape (maintained or unmaintained) serving a single independent housing unit.
312	**Multi-family residential** - Structures containing more than one housing unit and associated green space/hardscape (maintained or unmaintained).

Code	Description
313	**Institutional** - Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).
314	**Commercial/Industrial** - 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.
315	**Unused** - This category includes land with no clear intended use. **RETIRED** (this code was retired starting with the FIA National Urban Field Guide version 6.1 [ID_PLOT.MANUAL_NATIONAL]; it is still a valid code for the FIA National Urban Field Guide version 6.0).
316	**Cemetery** - 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	**Rights-of-way** - Improved roads, maintained canal.
321	**Transportation** - Limited access roadway (highways with on-off ramps) and associated green space/hardscape (maintained or unmaintained) such as rest areas, railway or airport.
322	**Utility** - Power lines, pipelines, maintained levees, and flood control channels.
330	**Recreation** - Skiing, campgrounds, playing fields, athletic, sports tracks, etc. and associated green space/hardscape (maintained or unmaintained).
331	**Park** - Parks are developed green space that are generally publicly owned and are always open to the public.
332	**Golf courses** - 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	**Mining and wasteland** - Surface mining, gravel pits, dumps, landfills or reclaimed mining areas that are at least 1.0 acre and 120.0 feet in width.
400	**Other** - 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.
410	**Nonvegetated.**
420	**Wetland** - 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.
430	**Beach** - Sandy or pebbly shore associated with an ocean or lake.
450	**Nonforest-Chaparral.**
900	**Water** - Noncensus and census water conditions (COND_STATUS_CD = 3, 4).
910	**Nonsampled** - Nonsampled (COND_STATUS_CD = 5) and has the potential to be forest land.

3.4.12 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

Code	Description
0	Not reserved.
1	Reserved.

3.4.13 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 (OWNCD = 11, 12, 13).
20	Other Federal (OWNCD = 21, 22, 23, 24, 25).
30	State and local government (OWNCD = 31, 32, 33).
40	Private (OWNCD = 41, 42, 43, 44, 45, 46).

3.4.14 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.

Code	Description
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.

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) group by following the instructions provided at: https://www.fia.fs.fed.us/tools-data/spatial/.

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

3.4.15 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
-	**Xeric** sites (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.
-	**Mesic** sites (normally moderate but adequate available moisture)

Code	Description
21	Flatwoods - Flat or fairly level sites outside of flood plains. 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 flood plains.
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 flood plains/Bottomlands - Flood plains 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.
-	**Hydric** sites (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.
39	Other hydric - All other hydric physiographic sites.

3.4.16 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	Natural - Present stand shows no clear evidence of artificial regeneration.
1	Artificial - Present stand shows clear evidence of artificial regeneration.

3.4.17 STDORGSP

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

3.4.18 FLDTYPCD

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 on the condition. Refer to appendix F (Forest Type Codes and Names) for codes and descriptions.

Reference table: REF_FOREST_TYPE

3.4.19 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

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 (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) / 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) / 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.

3.4.20 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.

3.4.21 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 overtopped. 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

Code	Description
1	Initial density class.
2	Density class 2 - density different than 1.
3	Density class 3 - density different than 1 and 2.

3.4.22 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

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 LIVE_CANOPY_CVR_PCT and LIVE_MISSING_CANOPY_CVR_PCT. Used only in areas that are obviously 0 percent LIVE_MISSING_CANOPY_CVR_PCT or obviously greater than 10 percent 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 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 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 LIVE_MISSING_CANOPY_CVR_PCT.

3.4.23 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.

3.4.24 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 plus the estimated missing canopy cover that existed prior to disturbance (e.g., harvesting, fire). Included are live and dead and removed tally trees,

saplings, and seedlings. Dead trees and dead portions of live trees are not considered as missing unless it is part of the condition disturbance. The estimate is based on field observations, aerial photos, historical aerial imagery, and similar evidence of undisturbed conditions. The total value for LIVE_MISSING_CANOPY_CVR_PCT cannot exceed 100 percent.

3.4.25 NBR_LIVE_STEMS

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

3.4.26 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.

3.4.27 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.

3.4.28 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.

3.4.29 ITREE_LANDUSE

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

Refer to the reference table for the full code descriptions.

Reference table: REF_ITREE_LANDUSE

Codes: ITREE_LANDUSE

Code	Description
10	**Agriculture** - 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.
20	**Residential -** 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.
21	**Multi-family Residential -** 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).
22	**Institutional -** Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).
23	**Commercial/Industrial** - 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.
24	**Unused** - 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.
25	**Cemetery -** Includes associated access roads, buildings, and associated green space/hardscape (maintained & unmaintained), and forest land within the Cemetery boundary that is not being managed for wood products.

Code	Description
30	**Transportation -** 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.
31	**Utility -** 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).
40	**Park -** The ITREE_LANDUSE code for Park differs slightly from the FIA_LANDUSE code for Park in that the ITREE_LANDUSE 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.
41	**Golf Course -** 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	**Water/Wetland -** Streams, rivers, lakes, storm-water retention areas and other water bodies and wetlands (natural or manmade) that meet the definition of COND_STATUS_CD = 3 or 4 (see REF_CONDITION_SAMPLING_STATUS table) or areas meeting the definition of FIA_LANDUSE = 420 (see REF_FIA_LANDUSE table).
60	**Other -** Land uses that are not better described by one of the categories listed above.

3.4.30 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 ≥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. 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 ≥10% vegetative cover)

Code	Description
1	**Treeland:** 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	**Shrubland:** 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.

Code	Description
3	**Grassland:** 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	**Non-vascular Vegetation:** 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	**Mixed Vegetation:** 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	**Agricultural Vegetation:** 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	**Developed, Vegetated:** 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)

Code	Description
8	**Barren:** 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	**Developed:** 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	**Water:** Areas persistently covered and predominated by water and have <10% emergent vegetative cover. Examples include census and noncensus water and permanent snow and ice.

3.4.31 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

Code	Description
0	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	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.

3.4.32 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

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.

3.4.33 DISTURBANCE_CD1

Disturbance code 1. A code indicating the type of disturbance present on 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 significant level of disturbance (mortality or damage to 25 percent of the trees in the condition or 50 percent of an individual species' count) is required. 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

Code	Description
0	None - No observable disturbance.
10	Insect damage (to both understory vegetation and trees).
11	Insect damage to understory vegetation.
12	Insect damage to trees, including seedlings and saplings.
20	Disease damage (to both understory vegetation and trees).
21	Disease damage to understory vegetation.
22	Disease damage to trees, including seedlings and saplings.
30	Fire damage (from crown and ground fire, either prescribed or natural).
31	Ground fire damage.
32	Crown fire damage.
40	Animal damage (other than listed below).
41	Beaver (includes flooding caused by beaver).

Code	Description
42	Porcupine.
43	Deer/ungulate.
44	Bear (*core optional*).
45	Rabbit (*core optional*).
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 significant 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.

3.4.34 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

3.4.35 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

3.4.36 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.

3.4.37 DISTURBANCE_YEAR2

Disturbance year 2. The year in which disturbance 2 (DISTURBANCE_CD2) is estimated to have occurred. See DISTURBANCE_YEAR1 for more information.

3.4.38 DISTURBANCE_YEAR3

Disturbance year 3. The year in which disturbance 3 (DISTURBANCE_CD3) is estimated to have occurred. See DISTURBANCE_YEAR1 for more information.

3.4.39 TREATMENT_CD1

Treatment code 1. A code indicating the type of treatment present on 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	**None** - No observable treatment.
10	**Cutting** - The removal of one or more trees from a stand.
20	**Site preparation** - Clearing, slash burning, chopping, disking, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration.
30	**Artificial regeneration** - 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	**Natural regeneration** - 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	**Other silvicultural treatment** - 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 DISTURBANCE_CD1 code 30).

3.4.40 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

3.4.41 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

3.4.42 TREATMENT_YEAR1

Treatment year 1. The year in which treatment 1 (TREATMENT_CD1) is estimated to have occurred.

3.4.43 TREATMENT_YEAR2

Treatment year 2. The year in which treatment 2 (TREATMENT_CD2) is estimated to have occurred.

3.4.44 TREATMENT_YEAR3

Treatment year 3. The year in which treatment 3 (TREATMENT_CD3) is estimated to have occurred.

3.4.45 CN

Condition boundary sequence number. A unique sequence number used to identify the condition record (in ID_COND).

3.4.46 PLT_CN

Plot sequence number. Foreign key linking the condition record to the plot visit record (ID_COND.PLT_CN = ID_PLOT.CN).

3.4.47 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).

3.4.48 INVASIVE_STATUS_CD

Invasive species status code. A code indicating the sampling status of the invasive species indicator on 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, no invasive plants present.
3	Condition not sampled for invasive plants.

3.4.49 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).

3.4.50 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.

3.4.51 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.

3.4.52 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).

3.4.53 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.

3.4.54 BALIVE

Basal area per acre of live trees. The sum of basal area of live trees (≥1.0 inch d.b.h./d.r.c.), in square feet per acre, expanded by IDTREE.TPA_UNADJ and adjusted (divided) by condition proportion.

3.4.55 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. 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 ≥10% live vegetative cover)

Code	Description
1	**Tree Cover:** 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	**Shrub Cover:** 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.
3	**Herbaceous Cover:** 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	**Non-vascular Vegetation Cover:** 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	**Mixed Vegetation Cover:** 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 <10% live vegetative cover)

Code	Description
8	**Barren:** 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	**Impervious:** Areas predominantly covered with constructed materials that contain <10% vegetation cover.
10	**Water:** Areas persistently covered and predominated by water and have <10% emergent vegetative cover.
12	**Unknown:** No classification was possible.

3.5 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). These effects are broken down by energy use and energy influence type. 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 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
3.5.1	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	BLDG_INTERACTION_ID	Building interaction identifier	NUMBER(2)
3.5.11	ENERGY_USE	Energy use	VARCHAR2(120)
3.5.12	ENERGY_INFLUENCE	Energy influence	VARCHAR2(120)
3.5.13	ELEC_C_AVOIDED	Electricity-based carbon emissions avoided quantity	NUMBER
3.5.14	ELEC_AVOIDED	Electricity avoided quantity	NUMBER
3.5.15	FUEL_C_AVOIDED	Fuel-based carbon emissions avoided quantity	NUMBER
3.5.16	FUEL_AVOIDED	Fuel avoided quantity	NUMBER
3.5.17	BINTA_CN	Building interaction sequence number	INTEGER
3.5.18	PLT_CN	Plot sequence number	INTEGER
3.5.19	SBP_CN	Subplot sequence number	INTEGER
3.5.20	CND_CN	Condition sequence number	INTEGER
3.5.21	MTRE_CN	Mother tree sequence number	INTEGER
3.5.22	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

3.5.1 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 rural FIADB product.

3.5.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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 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.

3.5.10 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.

3.5.11 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.

3.5.12 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.

3.5.13 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.

3.5.14 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.

3.5.15 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.

3.5.16 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.

3.5.17 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).

3.5.18 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).

3.5.19 SBP_CN

Subplot sequence number. Foreign key linking the energy effect record to the subplot record (ID_ENERGY_EFFECT.SBP_CN = ID_SUBPLOT.CN).

3.5.20 CND_CN

Condition sequence number. Foreign key linking the energy effect record to the condition record (ID_ENERGY_EFFECT.CND_CN = ID_COND.CN).

3.5.21 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).

3.5.22 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).

3.6 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 the invasive species indicator for all accessible conditions on a subplot. Every record represents the unique intersection of an invasive species, a subplot, and a condition.

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.sc.egov.usda.gov/java/) on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.

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	SUBP	Subplot identifier	NUMBER(2)
3.6.8	CONDID	Condition class identifier	NUMBER(1)
3.6.9	SPECIES_SYMBOL_FLD	Field species symbol	VARCHAR2(10)
3.6.10	UNIQUE_SP_NBR	Unique species number	NUMBER(2)
3.6.11	SPECIES_SYMBOL	Species symbol	VARCHAR2(10)
3.6.12	GROWTH_HABIT	Growth habit	VARCHAR2(40)
3.6.13	COVER_PCT	Cover percent	NUMBER(3)
3.6.14	IS_MAINTAINED_AREA	Is invasive in maintained area	NUMBER(1)
3.6.15	CN	Invasive species subplot condition sequence number	INTEGER
3.6.16	INVS_CN	Invasive species sequence number	INTEGER
3.6.17	PLT_CN	Plot sequence number	INTEGER
3.6.18	SBP_CN	Subplot sequence number	INTEGER
3.6.19	CND_CN	Condition sequence number	INTEGER
3.6.20	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

3.6.1 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 rural FIADB product.

3.6.7 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).

3.6.8 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.

3.6.9 SPECIES_SYMBOL_FLD

Field species symbol. The species symbol assigned by the field crew, conforming to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/).

3.6.10 UNIQUE_SP_NBR

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

3.6.11 SPECIES_SYMBOL

Species symbol. The species symbol used for analysis, conforming to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/). 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

3.6.12 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 (https://plants.sc.egov.usda.gov/java/).

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 (*Poaceae*), sedges (*Cyperaceae*), rushes (*Juncaceae*), arrow-grasses (*Juncaginaceae*), and quillworts (*Isoetes*).
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.

3.6.13 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.

3.6.14 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

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

3.6.15 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).

3.6.16 INVS_CN

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

3.6.17 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).

3.6.18 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).

3.6.19 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).

3.6.20 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).

3.7 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 ≥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.

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) (available at web address: https://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php). 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. However, 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 rural 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
3.7.1	PLOTID	Plot identifier	INTEGER
3.7.2	VISIT_NBR	Visit number	NUMBER(2)
3.7.3	STATECD	State code	NUMBER(2)
3.7.4	UNITCD	Survey unit code	NUMBER(2)
3.7.5	COUNTYCD	County code	NUMBER(3)
3.7.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.7.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.7.8	CONDID	Condition class identifier	NUMBER(1)
3.7.9	TREE	Tree identifier	NUMBER(9)
3.7.10	STATUSCD	Mother tree status code	NUMBER(1)
3.7.11	TPA_UNADJ	Mother trees per acre unadjusted	NUMBER
3.7.12	SPCD	Species code	NUMBER(4)
3.7.13	SPGRPCD	Species group code	NUMBER(2)
3.7.14	DIA	Current diameter	NUMBER(4,1)
3.7.15	DIACHECK	Diameter check code	NUMBER(2)
3.7.16	DIAHTCD	Diameter height code	NUMBER(1)
3.7.17	CROWN_DIEBACK_CD	Crown dieback code	NUMBER(2)
3.7.18	CROWN_LIGHT_EXPOSURE	Crown light exposure	NUMBER(1)
3.7.19	UNCOMP_CROWN_RATIO	Uncompacted live crown ratio	NUMBER(2)
3.7.20	CROWN_DIA_WIDE	Crown diameter at widest point	NUMBER(4,1)
3.7.21	CROWN_DIA_90	Crown diameter at 90 degrees to widest point	NUMBER(4,1)
3.7.22	FOLIAGE_ABSENT	Percent foliage absent	NUMBER(2)
3.7.23	IS_MAINTAINED_AREA	Is tree in maintained area	VARCHAR2(1)
3.7.24	IS_RIPARIAN	Is tree a riparian tree	VARCHAR2(1)
3.7.25	IS_STREET_TREE	Is tree a street tree	VARCHAR2(1)
3.7.26	IS_PLANTED	Is tree planted	VARCHAR2(1)
3.7.27	NBR_STEMS	Number of stems	NUMBER(2)
3.7.28	BASAL_AREA	Basal area	NUMBER
3.7.29	GROSS_CARBON_SEQUESTRATION	Whole-tree gross carbon sequestration	NUMBER
3.7.30	DRY_TOT_BIOMASS_ITREE	Whole-tree dry biomass (i-Tree ECO system)	NUMBER
3.7.31	CARBON_STORAGE_ITREE	Whole-tree carbon storage (i-Tree ECO system)	NUMBER
3.7.32	GROSS_C_SEQUESTRATION_ITREE	Whole-tree gross carbon sequestration (i-Tree ECO system)	NUMBER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.7.33	LEAF_AREA_ITREE	Leaf area (i-Tree ECO system)	NUMBER
3.7.34	LEAF_BIOMASS_ITREE	Leaf biomass (i-Tree ECO system)	NUMBER
3.7.35	CROWN_GROUND_AREA_ITREE	Crown ground area (i-Tree ECO system)	NUMBER
3.7.36	LEAF_AREA_INDEX_ITREE	Leaf area index value (i-Tree ECO system)	NUMBER
3.7.37	LEAF_BIOMASS_INDEX_ITREE	Leaf biomass index value (i-Tree ECO system)	NUMBER
3.7.38	COMPENSATORY_VALUE_ITREE	Compensatory value (i-Tree ECO system)	NUMBER
3.7.39	CN	Mother tree sequence number	INTEGER
3.7.40	PLT_CN	Plot sequence number	INTEGER
3.7.41	SBP_CN	Subplot sequence number	INTEGER
3.7.42	CND_CN	Condition sequence number	INTEGER
3.7.43	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.7.44	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

3.7.1 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.

3.7.2 VISIT_NBR

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

3.7.3 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.

3.7.4 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

3.7.5 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

3.7.6 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 rural FIADB product.

3.7.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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.

3.7.8 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.

3.7.9 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 below for tree and stem numbering examples (for further details, see ID_TREE.TREE and ID_TREE.STEM).

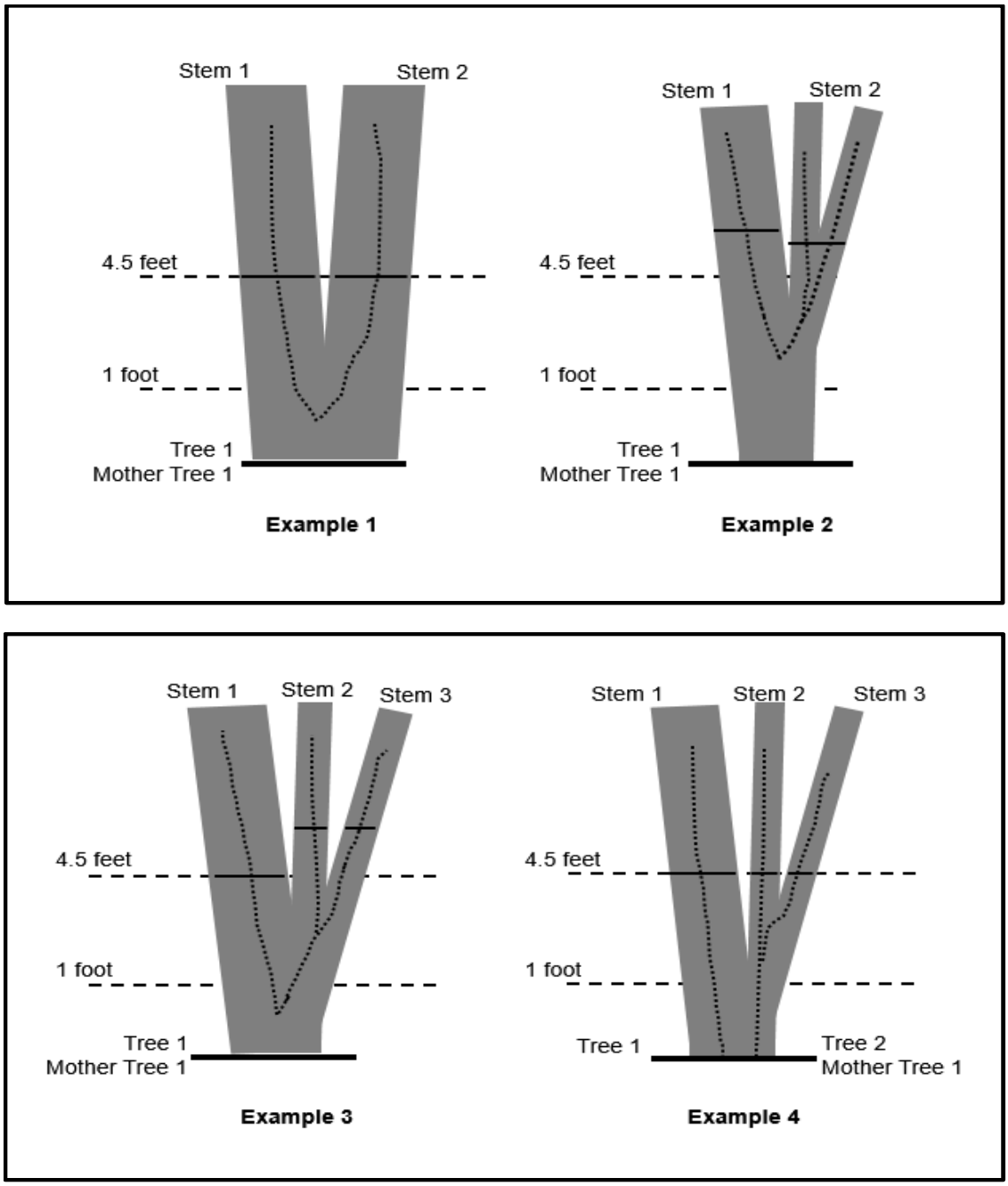


Figure 3-6: Tree and stem numbering examples.

Example	TREE	STEM	MOTHER_TREE
1	1	1	1
1	1	2	1
2	1	1	1
2	1	2	1

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

3.7.10 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	**No status** - 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	**Live tree** - Any live tree (new, remeasured, or ingrowth).
2	**Dead tree** - 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	**Cut & Utilized** - Collected on remeasurement trees only. A tree that occupied a forested condition in the previous inventory only. A tree that has been cut and removed by direct human activity related to harvesting, silviculture, or land clearing. The tree is assumed to have been utilized for commercial purposes, such as timber, chips, or firewood, and noncommercial purposes such as domestic firewood, landscaping, and fence posts.
4	**Removed** - Collected on remeasurement trees only. A tree that has been removed by direct human activity but not likely utilized for a commercial product, such as timber, chips, or firewood, and noncommercial purposes such as domestic firewood, landscaping, and fence posts.

3.7.11 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). For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

3.7.12 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

3.7.13 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 FIA Urban Data Mart (https://www.fia.fs.fed.us/tools-data/), contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

Reference table: REF_SPECIES_GROUP

3.7.14 DIA

Current diameter. The current diameter, in inches, at the mother-tree level. Populated for live and standing dead trees ≥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 ≥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 = SQRT [SUM(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.

3.7.15 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	Diameter measured accurately.
1	Diameter estimated.
2	Diameter measured at different location than previous measurement (remeasurement trees only).

3.7.16 DIAHTCD

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

Codes: DIAHTCD

Code	Description
1	Breast height - 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	Root collar - Diameter at the root collar (d.r.c.) is the targeted diameter measurement.

3.7.17 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%

Code	Description
70	66-70%
75	71-75%
80	76-80%
85	81-85%
90	86-90%
95	91-95%
99	96-100%

3.7.18 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	The tree receives no full light because it is shaded by trees, vines, or other vegetation; the tree has no crown by definition.
1	The tree receives full light from the top or 1 quarter.
2	The tree receives full light from the top and 1 quarter (or 2 quarters without the top).
3	The tree receives full light from the top and 2 quarters (or 3 quarters without the top).
4	The tree receives full light from the top and 3 quarters.
5	The tree receives full light from the top and 4 quarters.

3.7.19 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.

3.7.20 CROWN_DIA_WIDE

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

3.7.21 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.

3.7.22 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.

3.7.23 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.

3.7.24 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.

3.7.25 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.

3.7.26 IS_PLANTED

Is tree planted. A code indicating if the mother tree shows evidence of being planted (plantation trees are included).

Reference table: REF_TREE_PLANTED

Codes: IS_PLANTED

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

3.7.27 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).

3.7.28 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 trees ≥1.0 inch d.b.h./d.r.c.

3.7.29 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 morality and decomposition.

3.7.30 DRY_TOT_BIOMASS_ITREE

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

3.7.31 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.

3.7.32 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 morality and decomposition.

3.7.33 LEAF_AREA_ITREE

Leaf area (i-Tree ECO system). The leaf area estimate, in square feet, produced by the i-Tree ECO system. This value indicates the total leaf area of the live crown of the tree.

3.7.34 LEAF_BIOMASS_ITREE

Leaf biomass (i-Tree ECO system). The leaf biomass estimate, in oven-dry pounds, produced by the i-Tree ECO system. This value indicates the total leaf biomass of the live crown of the tree.

3.7.35 CROWN_GROUND_AREA_ITREE

Crown ground area (i-Tree ECO system). The crown ground area estimate, in square feet, produced by the i-Tree ECO system. This value indicates the area of the tree crown when projected on to the ground.

3.7.36 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.

3.7.37 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.

3.7.38 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.

3.7.39 CN

Mother tree sequence number. A unique sequence number used to identify the mother tree record (in ID_MOTHER_TREE).

3.7.40 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).

3.7.41 SBP_CN

Subplot sequence number. Foreign key linking the mother tree record to the subplot record (ID_MOTHER_TREE.SBP_CN = ID_SUBPLOT.CN).

3.7.42 CND_CN

Condition sequence number. Foreign key linking the mother tree record to the condition record (ID_MOTHER_TREE.CND_CN = ID_COND.CN).

3.7.43 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).

3.7.44 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.

3.8 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:

- **Field samples** - The relationship between a plot visit (a record in the ID_PLOT table) and the contexts it supports is stored in the ID_PLOT_FLDSAMP_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
3.8.1	PLOTID	Plot identifier	INTEGER
3.8.2	VISIT_NBR	Visit number	NUMBER(2)
3.8.3	STATECD	State code	NUMBER(2)
3.8.4	UNITCD	Survey unit code	NUMBER(2)
3.8.5	COUNTYCD	County code	NUMBER(3)
3.8.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.8.7	INTENSITY	Intensity	NUMBER(3)
3.8.8	MEAS_YEAR	Measurement year	NUMBER(4)
3.8.9	MEAS_MONTH	Measurement month	NUMBER(2)
3.8.10	MEAS_DAY	Measurement day	NUMBER(2)
3.8.11	KINDCD	Sample kind code	NUMBER(2)
3.8.12	PLOT_STATUS_CD	Plot status code	NUMBER(1)
3.8.13	PLOT_NONSAMPLE_REASN_CD	Plot nonsampled reason code	NUMBER(2)
3.8.14	MANUAL_NATIONAL	National urban manual (field guide) version	VARCHAR2(10)
3.8.15	MANUAL_REGIONAL	Regional urban manual (field guide) version	VARCHAR2(10)
3.8.16	LAT	Latitude	NUMBER(8,6)
3.8.17	LON	Longitude	NUMBER(9,6)
3.8.18	ROAD_DIST_CD	Horizontal distance to improved road code	NUMBER(2)
3.8.19	WATER_CD	Water on plot code	NUMBER(2)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.8.20	SUBP_EXAMINE_CD	Subplots examined code	NUMBER(1)
3.8.21	CN	Plot sequence number	INTEGER
3.8.22	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

3.8.1 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.

3.8.2 VISIT_NBR

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

3.8.3 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.

3.8.4 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

3.8.5 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

3.8.6 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 rural FIADB product.

3.8.7 INTENSITY

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

3.8.8 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).

3.8.9 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.

3.8.10 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).

3.8.11 KINDCD

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

Reference table: REF_SAMPLE_KIND

Codes: KINDCD

Code	Description
1	Initial plot establishment.
2	Remeasurement - remeasurement of a national design plot that was sampled at the previous inventory.
3	Replacement plot - a replacement plot for a previously established plot.

3.8.12 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.

3.8.13 PLOT_NONSAMPLE_REASN_CD

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

Reference table: REF_PLOT_NONSAMPLE_REASN

Codes: PLOT_NONSAMPLE_REASN_CD

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

3.8.14 MANUAL_NATIONAL

National urban manual (field guide) version. The version of the FIA National Urban 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.

3.8.15 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.

3.8.16 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 +/- ½ mile. There is additional uncertainty for private plots caused by swapping plot coordinates for up to 20 percent of the plots.

3.8.17 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 +/- ½ mile. There is additional uncertainty for private plots caused by swapping plot coordinates for up to 20 percent of the plots.

3.8.18 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

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.

3.8.19 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).

3.8.20 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.

3.8.21 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.

3.8.22 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).

3.9 Plot Field Sample Assignment Table

Oracle table name: ID_PLOT_FLDSAMP_ASSGN

The purpose of the **ID_PLOT_FLDSAMP_ASSGN** table is to store the linkage between plots (see ID_PLOT table) and field samples (see SO_FIELD_SAMPLE table). This relationship is modeled as many-to-many. This means a given field sample can be associated with many plots and a given plot can be associated with many field samples. Allowing a given plot to be associated with many field samples allows a plot to fulfill multiple purposes for a single visit. By modeling this relationship the user can identify the particular series of data they are interested in and then link to the plots that are included in that series without repeating plot data.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.9.1	CN	Plot field sample assignment sequence number	INTEGER
3.9.2	PLT_CN	Plot sequence number	INTEGER
3.9.3	FLDSMP_CN	Field sample sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PFSA_PK	CN	N/A
Unique	PFSA_UK	PLT_CN, FLDSMP_CN	N/A
Foreign	PFSA_PLT_FK	PLT_CN	ID_PLOT_FLDSAMP_ASSGN.PLT_CN = ID_PLOT.CN
Foreign	PFSA_FLDSMP_FK	FLDSMP_CN	ID_PLOT_FLDSAMP_ASSGN.FLDSMP_CN = SO_FIELD_SAMPLE.CN

3.9.1 CN

Plot field sample assignment sequence number. A unique sequence number used to identify the plot field sample assignment record (in ID_PLOT_FLDSAMP_ASSGN).

3.9.2 PLT_CN

Plot sequence number. Foreign key linking the plot field sample assignment record to the plot visit record (ID_PLOT_FLDSAMP_ASSGN.PLT_CN = ID_PLOT.CN).

3.9.3 FLDSMP_CN

Field sample sequence number. Foreign key linking the plot field sample assignment record to the field sample record (ID_PLOT_FLDSAMP_ASSGN.FLDSMP_CN = SO_FIELD_SAMPLE.CN).

3.10 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. Allowing a given plot to be assigned to many statistical samples 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
3.10.1	CN	Plot statistical sample assignment sequence number	INTEGER
3.10.2	PLT_CN	Plot sequence number	INTEGER
3.10.3	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

3.10.1 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).

3.10.2 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).

3.10.3 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).

3.11 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. Different stratifications may perform better than others for certain types of estimates. Allowing a given plot to be associated with many strata allows a plot to be used in many stratifications with a minimum of repeated data.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.11.1	CN	Plot stratum calculation assignment sequence number	INTEGER
3.11.2	PLT_CN	Plot sequence number	INTEGER
3.11.3	PSC_CN	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

3.11.1 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).

3.11.2 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).

3.11.3 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).

3.12 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
3.12.1	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	CONDID	Condition class identifier	NUMBER(1)
3.12.9	SPCD	Species code	NUMBER(4)
3.12.10	SPGRPCD	Species group code	NUMBER(2)
3.12.11	SEEDLING_COUNT	Seedling count	NUMBER(3)
3.12.12	TPA_UNADJ	Trees per acre unadjusted	NUMBER
3.12.13	IS_MAINTAINED_AREA	Is tree in maintained area	VARCHAR2(1)
3.12.14	IS_PLANTED	Is tree planted	VARCHAR2(1)
3.12.15	CN	Seedling sequence number	INTEGER
3.12.16	PLT_CN	Plot sequence number	INTEGER
3.12.17	SBP_CN	Subplot sequence number	INTEGER
3.12.18	CND_CN	Condition sequence number	INTEGER
3.12.19	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

3.12.1 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 rural FIADB product.

3.12.7 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.

3.12.8 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.

3.12.9 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

3.12.10 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 FIA Urban Data Mart (https://www.fia.fs.fed.us/tools-data/), contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

Reference table: REF_SPECIES_GROUP

3.12.11 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.

3.12.12 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). For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

3.12.13 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.

3.12.14 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.

Reference table: REF_SEEDLING_PLANTED

Codes: IS_PLANTED

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

3.12.15 CN

Seedling sequence number. A unique sequence number used to identify the seedling record (in ID_SEEDLING).

3.12.16 PLT_CN

Plot sequence number. Foreign key linking the seedling record to the plot visit record (ID_SEEDLING.PLT_CN = ID_PLOT.CN).

3.12.17 SBP_CN

Subplot sequence number. Foreign key linking the seedling record to the subplot record (ID_SEEDLING.SBP_CN = ID_SUBPLOT.CN).

3.12.18 CND_CN

Condition sequence number. Foreign key linking the seedling record to the condition record (ID_SEEDLING.CND_CN = ID_COND.CN).

3.12.19 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).

3.13 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
3.13.1	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 identifier	NUMBER(2)
3.13.8	CONDID	Condition class identifier	NUMBER(1)
3.13.9	OFFSET_POINT	Offset point	NUMBER(3)
3.13.10	TREE	Site tree identifier	NUMBER(9)
3.13.11	SPCD	Species code	NUMBER(4)
3.13.12	DIA	Diameter	NUMBER(4,1)
3.13.13	HT	Total height	NUMBER(3)
3.13.14	AGEDIA	Age at diameter	NUMBER(3)
3.13.15	DIST	Horizontal distance	NUMBER(4,1)
3.13.16	AZIMUTH	Azimuth	NUMBER(3)
3.13.17	OFFSET_DIST	Horizontal distance from offset point	NUMBER(4,1)
3.13.18	OFFSET_AZIMUTH	Azimuth from offset point	NUMBER(3)
3.13.19	CN	Site tree sequence number	INTEGER
3.13.20	PLT_CN	Plot sequence number	INTEGER
3.13.21	SBP_CN	Subplot sequence number	INTEGER
3.13.22	CND_CN	Condition sequence number	INTEGER
3.13.23	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.13.24	SITE_INDEX	Site index for the site tree	NUMBER(3)
3.13.25	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, TREE	N/A
Foreign	SIT_PLT_FK	PLT_CN	ID_SITETREE.PLT_CN = ID_PLOT.CN
Foreign	SIT_SBP_FK	SBP_CN	ID_SITETREE.SBP_CN = ID_SUBPLOT.CN
Foreign	SIT_CND_FK	CND_CN	ID_SITETREE.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 rural FIADB product.

3.13.7 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)

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

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 OFFSET_POINT

Offset point. A code indicating the offset point used to measure azimuth and distance to the site tree.

Reference table: REF_OFFSET_POINT

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.

Code	Description
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.

3.13.10 TREE

Site tree identifier. A number that uniquely identifies each site tree on a subplot for the plot visit.

3.13.11 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

3.13.12 DIA

Diameter. The diameter, in inches, of the site tree at the point of diameter measurement (d.b.h.).

3.13.13 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.

3.13.14 AGEDIA

Age at diameter. The age, in years, of the site tree at the diameter measurement point.

3.13.15 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.

3.13.16 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.

3.13.17 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.

3.13.18 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.

3.13.19 CN

Site tree sequence number. A unique sequence number used to identify the site tree record (in ID_SITETREE).

3.13.20 PLT_CN

Plot sequence number. Foreign key linking the site tree record to the plot visit record (ID_SITETREE.PLT_CN = ID_PLOT.CN).

3.13.21 SBP_CN

Subplot sequence number. Foreign key linking the site tree record to the subplot record (ID_SITETREE.SBP_CN = ID_SUBPLOT.CN).

3.13.22 CND_CN

Condition sequence number. Foreign key linking the site tree record to the condition record (ID_SITETREE.CND_CN = ID_COND.CN).

3.13.23 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).

3.13.24 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, so one or more of those variables may be null for a site tree on which the height-intercept method was used.

3.13.25 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.

3.14 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 rural FIA inventory program installs a fixed-area footprint composed of four 24-foot subplots (each with a single nested microplot) arranged in a cluster pattern. The annualized urban inventory installs a footprint composed of a single 48-foot subplot with four nested microplots.

This table stores subplot-level information in a normalized structure. Therefore, each individual subplot or microplot included in the plot footprint has its own record. This contrasts with the traditional data structure of the FIADB. The traditional data structure 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
3.14.1	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	CENTER_CONDID	Condition class identifier for center condition	NUMBER(1)
3.14.9	REMAINING_CONDID	Condition class identifier for remaining condition	NUMBER(1)
3.14.10	SUBP_STATUS_CD	Subplot status code	NUMBER(1)
3.14.11	SUBP_NONSAMPLE_REASN_CD	Subplot nonsampled reason code	NUMBER(2)
3.14.12	INVASIVE_STATUS_CD	Invasive species status code	NUMBER(1)
3.14.13	INVASIVE_NONSAMPLE_REASN_CD	Invasive species nonsampled reason code	NUMBER(2)
3.14.14	SLOPE	Subplot percent slope	NUMBER(3)
3.14.15	ASPECT	Subplot aspect	NUMBER(3)
3.14.16	WATER_DEPTH	Water/snow depth	NUMBER(2,1)
3.14.17	CN	Subplot sequence number	INTEGER
3.14.18	PLT_CN	Plot sequence number	INTEGER
3.14.19	CENTER_CND_CN	Center condition sequence number	INTEGER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.14.20	REMAINING_CND_CN	Remaining condition sequence number	INTEGER
3.14.21	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

3.14.1 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 rural FIADB product.

3.14.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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 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.

3.14.9 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.

3.14.10 SUBP_STATUS_CD

Subplot status code. A code indicating the sampling status of the subplot.

Reference table: REF_SUBPLOT_STATUS

Codes: SUBP_STATUS_CD

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.

3.14.11 SUBP_NONSAMPLE_REASN_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

Code	Description
1	**Outside U.S. boundary** - Condition classes beyond the U.S. border.
2	**Denied access area** - 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	**Hazardous situation** - Any area within the sampled area on plot that cannot be accessed because of a hazard or danger.
4	**Time limitation** - Subplot cannot be sampled due to time restriction.
5	**Lost data** - This code is for office use only.
6	**Lost plot** - Entire plot cannot be found.
7	**Wrong location** - 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	**Skipped visit** - This code is for office use only.
9	**Dropped intensified plot** - This code is for office use only.
10	**Other** - Condition class is not sampled due to a reason other than one of the specific reasons listed.
11	**Ocean** - Condition class falls in ocean water below mean high tide line.

3.14.12 INVASIVE_STATUS_CD

Invasive species status code. A code indicating the sampling status of the invasive species indicator on the subplot. 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_REASN_CD).

Codes: INVASIVE_STATUS_CD

Code	Description
1	Urban subplot sampled, invasive plants present.
2	Urban subplot sampled, no invasive plants present.
3	Urban subplot not sampled for invasive plants.

3.14.13 INVASIVE_NONSAMPLE_REASN_CD

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

Codes: INVASIVE_NONSAMPLE_REASN_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).

3.14.14 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.

3.14.15 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.

3.14.16 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.

3.14.17 CN

Subplot sequence number. A unique sequence number used to identify the subplot record (in ID_SUBPLOT).

3.14.18 PLT_CN

Plot sequence number. Foreign key linking the subplot record to the plot visit record (ID_SUBPLOT.PLT_CN = ID_PLOT.CN).

3.14.19 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).

3.14.20 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).

3.14.21 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).

3.15 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 the boundary data. These proportions can be expanded to the population level and expressed in areal units (e.g., acres or hectares).

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	CONDPROP_UNADJ	Condition proportion unadjusted	NUMBER
3.15.10	PCT_MAINTAINED	Percent area - maintained	NUMBER(3)
3.15.11	PCT_TREE_COVER	Percent vegetation cover - tree	NUMBER(3)
3.15.12	PCT_SHRUB_SEED_COVER	Percent vegetation cover - shrub/seeding	NUMBER(3)
3.15.13	GR_COV_PCT_BLDG	Percent ground surface cover - building	NUMBER(3)
3.15.14	GR_COV_PCT_IMPERVIOUS	Percent ground surface cover - impervious	NUMBER(3)
3.15.15	GR_COV_PCT_PERMEABLE	Percent ground surface cover - permeable	NUMBER(3)
3.15.16	GR_COV_PCT_HERBACEOUS	Percent ground surface cover - herbaceous	NUMBER(3)
3.15.17	GR_COV_PCT_WATER	Percent ground surface cover - water	NUMBER(3)
3.15.18	CN	Subplot condition sequence number	INTEGER
3.15.19	PLT_CN	Plot sequence number	INTEGER
3.15.20	SBP_CN	Subplot sequence number	INTEGER
3.15.21	CND_CN	Condition sequence number	INTEGER
3.15.22	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

3.15.1 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 rural FIADB product.

3.15.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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.

3.15.8 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 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 is adjusted 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). For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

3.15.10 PCT_MAINTAINED

Percent area - maintained. The percentage of the condition within the subplot classified as maintained.

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.

3.15.11 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) ≥1.0 inch in diameter.

3.15.12 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 ≥12 inches in height, and all tree species (tally and non-tally tree species) <1.0-inch in diameter and ≥12 inches in height. Woody vines are included as shrubs.

3.15.13 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.

3.15.14 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.

3.15.15 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.

3.15.16 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.

3.15.17 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.

3.15.18 CN

Subplot condition sequence number. A unique sequence number used to identify the subplot condition record (in ID_SUBP_COND).

3.15.19 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).

3.15.20 SBP_CN

Subplot sequence number. Foreign key linking the subplot condition record to the subplot record (ID_SUBP_COND.SBP_CN = ID_SUBPLOT.CN).

3.15.21 CND_CN

Condition sequence number. Foreign key linking the subplot condition record to the condition record (ID_SUBP_COND.CND_CN = ID_COND.CN).

3.15.22 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).

3.16 Tree Table

Oracle table name: ID_TREE

The purpose of the **ID_TREE** table is to store information describing live and standing dead trees ≥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) (available at web address: https://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php). 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 rural 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
3.16.1	PLOTID	Plot identifier	INTEGER
3.16.2	VISIT_NBR	Visit number	NUMBER(2)
3.16.3	STATECD	State code	NUMBER(2)
3.16.4	UNITCD	Survey unit code	NUMBER(2)
3.16.5	COUNTYCD	County code	NUMBER(3)
3.16.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.16.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.16.8	CONDID	Condition class identifier	NUMBER(1)
3.16.9	TREE	Tree identifier	NUMBER(9)
3.16.10	STEM	Stem identifier	NUMBER(9)
3.16.11	OFFSET_POINT	Offset point	NUMBER(3)
3.16.12	DIST	Horizontal distance	NUMBER(3,1)
3.16.13	AZIMUTH	Azimuth	NUMBER(3)
3.16.14	STATUSCD	Tree status code	NUMBER(1)
3.16.15	TREECLCD	Tree class code	NUMBER(2)
3.16.16	TPA_UNADJ	Trees per acre unadjusted	NUMBER
3.16.17	SPCD	Species code	NUMBER(4)
3.16.18	SPGRPCD	Species group code	NUMBER(2)
3.16.19	STANDING_DEAD_CD	Standing dead code	NUMBER(1)
3.16.20	MORTYR	Mortality year	NUMBER(4)
3.16.21	DIA	Current diameter	NUMBER(4,1)
3.16.22	DIACHECK	Diameter check code	NUMBER(2)
3.16.23	DIAHTCD	Diameter height code	NUMBER(1)
3.16.24	LTDMP	Length to diameter measurement point	NUMBER(3,1)
3.16.25	TOTAL_LENGTH	Total length	NUMBER(3)
3.16.26	ACTUAL_LENGTH	Actual length	NUMBER(3)
3.16.27	HTCD	Height method code	NUMBER(2)
3.16.28	ABNORMAL_STEM_TERMINATION	Abnormal stem termination	NUMBER(1)
3.16.29	RECONCILECD	Reconcile code	NUMBER(1)
3.16.30	BOLE_STUMP_REMOVED	Bole and stump removed	NUMBER(1)
3.16.31	FIELD_PREV_DIA	Field previous tree diameter	NUMBER(4,1)
3.16.32	FIELD_PREV_STATUS_CD	Field previous tree status code	NUMBER(1)
3.16.33	FIELD_PREV_NBR_STEMS	Field previous number of stems	NUMBER(2)
3.16.34	CROWN_DIEBACK_CD	Crown dieback code	NUMBER(2)
3.16.35	CROWN_LIGHT_EXPOSURE	Crown light exposure	NUMBER(1)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.16.36	UNCOMP_CROWN_RATIO	Uncompacted live crown ratio	NUMBER(2)
3.16.37	CROWN_DIA_WIDE	Crown diameter at widest point	NUMBER(4,1)
3.16.38	CROWN_DIA_90	Crown diameter at 90 degrees to widest point	NUMBER(4,1)
3.16.39	FOLIAGE_ABSENT	Percent foliage absent	NUMBER(2)
3.16.40	CROWN_CLASS_CD	Crown class code	NUMBER(1)
3.16.41	COMP_CROWN_RATIO	Compacted crown ratio	NUMBER(2)
3.16.42	IS_MAINTAINED_AREA	Is tree in maintained area	VARCHAR2(1)
3.16.43	IS_RIPARIAN	Is tree a riparian tree	VARCHAR2(1)
3.16.44	IS_STREET_TREE	Is tree a street tree	VARCHAR2(1)
3.16.45	IS_PLANTED	Is tree planted	VARCHAR2(1)
3.16.46	DMG_ROOT_STEM_GIRDLING	Urban specific damage - stem girdling from roots	NUMBER(1)
3.16.47	DMG_TRUNK_BARK_INCLUSION	Urban specific damage - trunk-bark inclusion	NUMBER(1)
3.16.48	DMG_TOPPING_PRUNING	Urban specific damage - severe topping or poor pruning	NUMBER(1)
3.16.49	DMG_EXCESS_MULCH	Urban specific damage - excessive mulch	NUMBER(1)
3.16.50	DMG_SIDEWALK_ROOT_CONFLICT	Urban specific damage - conflict with roots and sidewalks	NUMBER(1)
3.16.51	DMG_OVERHEAD_WIRES	Urban specific damage - conflict with crowns and overhead wires	NUMBER(1)
3.16.52	DMG_IMPROPER_PLANTING	Urban specific damage - improper planting	NUMBER(1)
3.16.53	DAMAGE_AGENT_1	Damage agent 1	NUMBER(5)
3.16.54	DAMAGE_AGENT_2	Damage agent 2	NUMBER(5)
3.16.55	DAMAGE_AGENT_3	Damage agent 3	NUMBER(5)
3.16.56	NBR_STEMS	Number of stems	NUMBER(2)
3.16.57	CULL_FLD	Rotten/missing cull, field recorded	NUMBER(2)
3.16.58	CAUSE_OF_DEATH	Cause of death	NUMBER(2)
3.16.59	DECAYCD	Decay class code	NUMBER(2)
3.16.60	MORTALITY_CD	Mortality code	VARCHAR2(5)
3.16.61	TREECLCD_NRS	Tree class code, Northern Research Station	NUMBER(2)
3.16.62	TREECLCD_SRS	Tree class code, Southern Research Station	NUMBER(2)
3.16.63	TREECLCD_PNWRS	Tree class code, Pacific Northwest Research Station	NUMBER(2)
3.16.64	TREECLCD_RMRS	Tree class code, Rocky Mountain Research Station	NUMBER(2)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.16.65	TREE_GRADE	Tree grade	NUMBER(2)
3.16.66	MOTHER_TREE	Mother tree identifier	NUMBER(9)
3.16.67	BASAL_AREA	Basal area	NUMBER
3.16.68	BF_GROSS_SAWLOG_VOLUME	Gross board-foot volume in the sawlog portion of the bole	NUMBER
3.16.69	BF_NET_SAWLOG_VOLUME	Net board-foot volume in the sawlog portion of the bole	NUMBER
3.16.70	CF_GROSS_SAWLOG_VOLUME	Gross cubic-foot volume in the sawlog portion of the bole	NUMBER
3.16.71	CF_GROSS_VOLUME	Gross cubic-foot volume in the bole	NUMBER
3.16.72	CF_NET_SAWLOG_VOLUME	Net cubic-foot volume in the sawlog portion of the bole	NUMBER
3.16.73	CF_NET_VOLUME	Net cubic-foot volume in the bole	NUMBER
3.16.74	CF_SND_SAWLOG_VOLUME	Sound cubic-foot volume in the sawlog portion of the bole	NUMBER
3.16.75	CF_SND_VOLUME	Sound cubic-foot volume in the bole	NUMBER
3.16.76	DRY_TOT_BIOMASS	Aboveground dry biomass total (regional)	NUMBER
3.16.77	DRY_MERCH_BIOMASS	Aboveground dry biomass in the merchantable bole (regional)	NUMBER
3.16.78	BOLE_BIOMASS	Dry biomass in the merchantable bole	NUMBER
3.16.79	STUMP_BIOMASS	Dry biomass in the stump	NUMBER
3.16.80	TOP_BIOMASS	Dry biomass in the top and limbs	NUMBER
3.16.81	SAWLOG_BIOMASS	Dry biomass in the sawlog portion of the bole	NUMBER
3.16.82	SAPLING_BIOMASS	Aboveground dry biomass of saplings	NUMBER
3.16.83	WDLD_BIOMASS	Aboveground dry biomass of woodland species	NUMBER
3.16.84	BG_BIOMASS	Belowground dry biomass	NUMBER
3.16.85	AG_CARBON	Aboveground carbon storage	NUMBER
3.16.86	BG_CARBON	Belowground carbon storage	NUMBER
3.16.87	CN	Tree sequence number	INTEGER
3.16.88	PLT_CN	Plot sequence number	INTEGER
3.16.89	SBP_CN	Subplot sequence number	INTEGER
3.16.90	CND_CN	Condition sequence number	INTEGER
3.16.91	MTRE_CN	Mother tree sequence number	INTEGER
3.16.92	PREV_PLT_CN	Previous plot sequence number	INTEGER
3.16.93	PREV_TRE_CN	Previous tree sequence number	INTEGER

Subsection	Column name (attribute)	Descriptive name	Oracle data type
3.16.94	TREE_SITE_INDEX	Site index for the tree	NUMBER
3.16.95	AG_BIOMASS	Aboveground dry biomass	NUMBER

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

3.16.1 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.

3.16.2 VISIT_NBR

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

3.16.3 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.

3.16.4 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

3.16.5 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

3.16.6 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 rural FIADB product.

3.16.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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.

3.16.8 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.

3.16.9 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 rural FIADB TREE table.
- **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 below for tree and stem numbering examples:

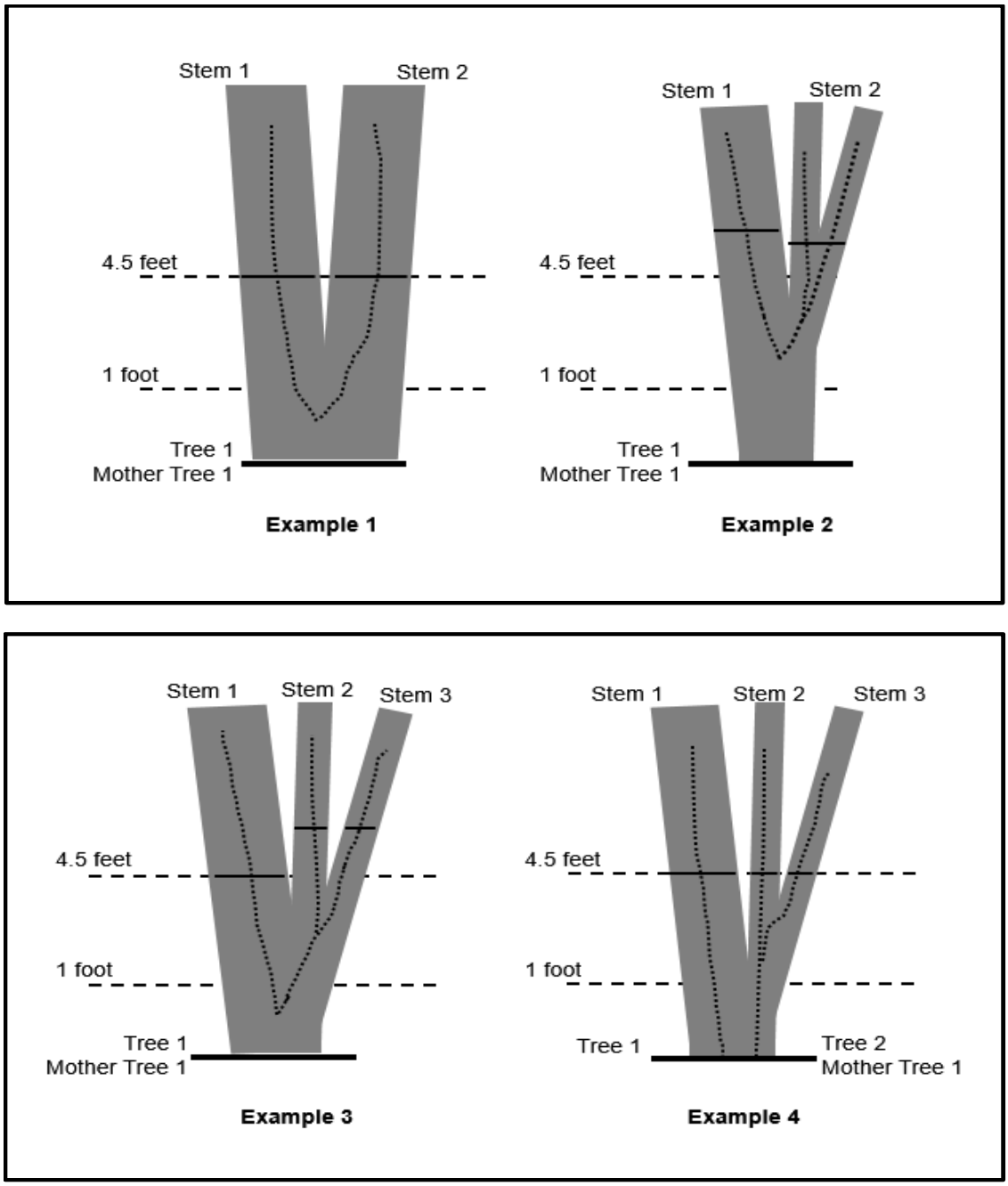


Figure 3-7: Tree and stem numbering examples.

Example	TREE	STEM	MOTHER_TREE
1	1	1	1
1	1	2	1
2	1	1	1
2	1	2	1

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

3.16.10 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.

3.16.11 OFFSET_POINT

Offset point. A code indicating the offset point used to measure azimuth and distance to the tree.

Reference table: REF_OFFSET_POINT

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).

Code	Description
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.

3.16.12 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). This attribute is populated for live and standing dead trees ≥1.0 inch d.b.h./d.r.c.

3.16.13 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. This attribute is populated for live and standing dead trees ≥1.0 inch d.b.h./d.r.c.

3.16.14 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	**No status** - 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 (RECONCILECD) = 5-9.
1	**Live tree** - Any live tree (new, remeasured, or ingrowth).
2	**Dead tree** - 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.

Code	Description
3	**Cut & Utilized** - Collected on remeasurement trees only. A tree that occupied a forested condition in the previous inventory only. A tree that has been cut and removed by direct human activity related to harvesting, silviculture, or land clearing. The tree is assumed to have been utilized for commercial purposes, such as timber, chips, or firewood, and noncommercial purposes such as domestic firewood, landscaping, and fence posts.
4	**Removed** - Collected on remeasurement trees only. A tree that has been removed by direct human activity but not likely utilized for a commercial product, such as timber, chips, or firewood, and noncommercial purposes such as domestic firewood, landscaping, and fence posts.

3.16.15 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	**Growing stock** - 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	**Rough cull** - 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	**Rotten cull** - 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.

3.16.16 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). For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

3.16.17 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

3.16.18 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 FIA Urban Data Mart (https://www.fia.fs.fed.us/tools-data/), contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

Reference table: REF_SPECIES_GROUP

3.16.19 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 ≥1.0 inch d.b.h., have a bole that has an unbroken actual length (ACTUAL_LENGTH) ≥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 if more than 2/3 of the volume is no longer attached or upright; cut and removed volume is not considered. For a woodland species with a single stem to qualify as a standing dead tally tree, the dead tree must be ≥1.0 inch d.r.c., be ≥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.

3.16.20 MORTYR

Mortality year. The estimated year in which a remeasured tree died or was cut.

3.16.21 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 ≥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 ≥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 = SQRT [SUM(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 LTDMP 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).

3.16.22 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	Diameter measured accurately.
1	Diameter estimated.
2	Diameter measured at different location than previous measurement (remeasurement trees only).

3.16.23 DIAHTCD

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

Codes: DIAHTCD

Code	Description
1	**Breast height** - 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	**Root collar** - Diameter at the root collar (d.r.c.) is the targeted diameter measurement.

3.16.24 LTDMP

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.

3.16.25 TOTAL_LENGTH

Total length. The total length (height) of the tree, 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.

3.16.26 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.

3.16.27 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.

3.16.28 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	Stem is not abnormally terminated.
1	Stem is abnormally terminated.

3.16.29 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	**Ingrowth** - A new tally tree not qualifying as through growth.
2	**Through growth** - 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	**RETIRED code** - 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. *Missed live - A live tree missed at previous inventory and that is live or dead now. Includes currently tallied trees on previously nonsampled conditions.*
4	**RETIRED code** - 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. *Missed dead - A dead tree missed at previous inventory and that is dead now. Includes currently tallied trees on previously nonsampled conditions.*
5	**Shrank** - 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 (STATUSCD = 0).
6	**Physical movement** - 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 STATUSCD = 2 (not 0).
7	**Cruiser error** - Either (a) tree was erroneously tallied (added tree), or (b) tree was erroneously not tallied (missed tree) at the previous inventory.
8	**Procedural change** - 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.
9	**Nonsampled area** - 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.

3.16.30 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	**Bole removed** - The bole of the tree was removed but the stump remains on site.
2	**Bole and stump removed** - 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.

3.16.31 FIELD_PREV_DIA

Field previous tree diameter. The diameter of the tree that was recorded by the field crew at the previous plot visit.

3.16.32 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 ≥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	**Live tree** - alive at the previous inventory.
2	**Dead tree** - standing dead at the previous inventory.

3.16.33 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.

3.16.34 CROWN_DIEBACK_CD

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

When trees have an associated mother tree, only one CROWN_DIEBACK_CD measurement is taken for all trees with the same mother tree number (ID_MOTHER_TREE.TREE). In these cases the CROWN_DIEBACK_CD 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.

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%

3.16.35 CROWN_LIGHT_EXPOSURE

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

When trees have an associated mother tree, only one CROWN_LIGHT_EXPOSURE measurement is taken for all trees with the same mother tree number (ID_MOTHER_TREE.TREE). In these cases, the CROWN_LIGHT_EXPOSURE 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.

Reference table: REF_CROWN_LIGHT_EXPOSURE

Codes: CROWN_LIGHT_EXPOSURE

Code	Description
0	The tree receives no full light because it is shaded by trees, vines, or other vegetation; the tree has no crown by definition.
1	The tree receives full light from the top or 1 quarter.
2	The tree receives full light from the top and 1 quarter (or 2 quarters without the top).

Code	Description
3	The tree receives full light from the top and 2 quarters (or 3 quarters without the top).
4	The tree receives full light from the top and 3 quarters.
5	The tree receives full light from the top and 4 quarters.

3.16.36 UNCOMP_CROWN_RATIO

Uncompacted live crown ratio. The ratio of uncompacted live crown length to actual tree length, 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.

When trees have an associated mother tree, only one UNCOMP_CROWN_RATIO measurement is taken for all trees with the same mother tree number (ID_MOTHER_TREE.TREE). In these cases, the UNCOMP_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.

3.16.37 CROWN_DIA_WIDE

Crown diameter at widest point. The width, in feet, of the live crown at the widest point.

When trees have an associated mother tree, only one CROWN_DIA_WIDE measurement is taken for all trees with the same mother tree number (ID_MOTHER_TREE.TREE). In these cases, the CROWN_DIA_WIDE measurement is determined using the widest point across the crowns of all live boles, forks, and branches (including any supported by the same stump that were not tallied) of the mother tree. Abnormally long branches that protrude from the general crown shape of the mother tree are excluded.

3.16.38 CROWN_DIA_90

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

When trees have an associated mother tree, only one CROWN_DIA_90 measurement is taken for all trees with the same mother tree number (ID_MOTHER_TREE.TREE). In these cases, the CROWN_DIA_90 measurement is determined using the widest point along the axis running perpendicular to the CROWN_DIA_WIDE measurement across the crowns of all live boles, forks, and branches (including any supported by the same stump that were not tallied) of the mother tree. Abnormally long branches that protrude from the general crown shape of the mother tree are excluded.

3.16.39 FOLIAGE_ABSENT

Percent foliage absent. The percent foliage missing within the existing "foliage absent outline" crown. This outline is defined as a silhouette around the shape of the crown created by live crown width, actual length (see ACTUAL_LENGTH), and the base of the uncompacted live crown ration (see UNCOMP_CROWN_RATIO).

Foliage can be absent due to pruning, crown dieback (within the outline), defoliation, dead or missing branches unrelated to internal shading, or uneven/missing crown due to competition (from other vegetation or interference from man-made structures) or gaps in the crown that are unrelated to the natural crown shape of a a particular species.

When trees have an associated mother tree, only one FOLIAGE_ABSENT measurement is taken for all trees with the same mother tree number (ID_MOTHER_TREE.TREE). In these cases, the FOLIAGE_ABSENT measurement is determined using a single foliage absent outline drawn around the foliage of all boles, forks, and branches of the mother tree.

3.16.40 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

Code	Description
1	**Open grown** - Trees with crowns that received full light from above and from all sides throughout most of their life, particularly during early development.
2	**Dominant** - 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	**Co-dominant** - 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	**Intermediate** - 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	**Overtopped** - Trees with crowns entirely below the general level of the crown canopy that receive no direct sunlight either from above or the sides.

3.16.41 COMP_CROWN_RATIO

Compacted crown ratio. The ratio of compacted live crown length to actual 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. COMP_CROWN_RATIO indicates the portion of the actual tree length supporting live, healthy 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.

3.16.42 IS_MAINTAINED_AREA

Is tree in maintained area. A code indicating if the 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.

When trees have an associated mother tree, IS_MAINTAINED_AREA is recorded only once for the mother tree, rather than for each stem. The measurement is based on the location of the bole of the single stump that supports the mother tree.

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.

3.16.43 IS_RIPARIAN

Is tree a riparian tree. A code indicating whether or not the 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.

When trees have an associated mother tree, IS_RIPARIAN is recorded only once for the mother tree, rather than for each stem. The measurement is based on the location of the bole of the single stump that supports the mother tree.

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.

3.16.44 IS_STREET_TREE

Is tree a street tree. A code indicating whether or not the 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.

When trees have an associated mother tree, IS_STREET_TREE is recorded only once for the mother tree, rather than for each stem. The measurement is based on the location of the bole of the single stump that supports the mother tree.

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.

3.16.45 IS_PLANTED

Is tree planted. A code indicating if the tree shows evidence of being planted (plantation trees are included).

When trees have an associated mother tree, IS_PLANTED is recorded only once for the mother tree, rather than for each stem. The measurement is based on the location of the bole of the single stump that supports the mother tree.

Reference table: REF_TREE_PLANTED

Codes: IS_PLANTED

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

3.16.46 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

Code	Description
0	Absent.
1	Present.

3.16.47 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

Code	Description
0	Absent.
1	Present.

3.16.48 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

Code	Description
0	Absent.
1	Present.

3.16.49 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.

3.16.50 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.

3.16.51 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.

3.16.52 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.

3.16.53 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 (FHAAST) 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 Codes and Thresholds) for a complete list of damage codes and thresholds.

Reference table: REF_DAMAGE_AGENT

Codes: DAMAGE_AGENT_1

Code	General Agent	Damage Threshold*	Descriptions
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.

Code	General Agent	Damage Threshold*	Descriptions
11000	Bark beetles.	Any evidence of a successful attack (successful attacks generally exhibit boring dust, many pitch tubes and/or fading crowns).	Bark beetles (*Dendroctonus*, *Ips*, 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).
14000	Sucking insects.	Any damage to the terminal leader; damage ≥20% of the foliage with ≥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.

Code	General Agent	Damage Threshold*	Descriptions
15000	Boring insects.	Any damage to the terminal leader; damage ≥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 *Agrilus* (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 ≥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.	Diseases that cannot be placed in any of the following disease categories.

Code	General Agent	Damage Threshold*	Descriptions
21000	Root/butt diseases.	Any occurrence.	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.

Code	General Agent	Damage Threshold*	Descriptions
22000	Cankers (non-rust).	Any occurrence.	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. 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.
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 ≥3; true mistletoes and vines covering ≥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 ≥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 ≥20% of the foliage with ≥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.

Code	General Agent	Damage Threshold*	Descriptions
26000	Stem rusts.	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.	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.	≥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 ≥20% of bole circumference; >20% of stems on multi-stemmed woodland species affected; ≥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.

Code	General Agent	Damage Threshold*	Descriptions
41000	Wild animals.	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.	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 ≥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.	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 ≥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.	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 overtopped 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 ≥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.	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 ≥10% of cubic volume.	Only recorded for woodland species trees that have partial cutting.

Code	General Agent	Damage Threshold*	Descriptions
90000	Other 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.	-
99000	Unknown 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.	Use this code only when observed damage cannot be attributed to a general or specific agent.

* Some regional specific damage agents within a category may have differing damage thresholds.

3.16.54 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

3.16.55 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

3.16.56 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.

3.16.57 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/portion of a 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.

3.16.58 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).

3.16.59 DECAYCD

Decay class code. A code indicating the stage of decay in a standing dead tree (STANDING_DEAD_CD = 1).

Reference table: REF_DECAY_CLASS

Codes: DECAYCD

Code	Description
1	All limbs and branches are present. 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	Few limbs and no fine branches. 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	Limbs stubs only. 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.

Code	Description
4	Few or no limb stubs present. 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	No limbs or branches. 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.

3.16.60 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

Code	Description
0	No - Tree does not qualify as mortality.
1	Yes - Tree does qualify as morality.

3.16.61 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

Code	Description
2	**Growing stock** - 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	**Rough cull** - 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	**Rotten cull** - 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.

Code	Description
5	**Salvable dead** - 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	**Nonsalvable dead** - A standing dead tree that does not qualify as salvable.

3.16.62 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

Code	Description
2	**Growing stock** - 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	**Rough cull** - 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	**Rotten cull** - 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.

3.16.63 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

Code	Description
2	**Growing stock** - 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	**Rough cull** - 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 SPGRPCD 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	**Rotten cull** - 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 nonsalvable (not sound).

3.16.64 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

Code	Description
1	**Sound-live timber species** - 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	**All live woodland species** - All live woodland trees (woodland species can be identified by REF_SPECIES.WOODLAND = X).
3	**Rough-live timber species** - 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	**Rotten-live timber species** - 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	**Hard (salvable) dead** - Dead trees that have less than 67% of the volume cull due to rotten or missing cubic-foot volume loss.
6	**Soft (nonsalvable) dead** - Dead trees that have 67% or more of the volume cull due to rotten or missing cubic-foot volume loss.

3.16.65 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

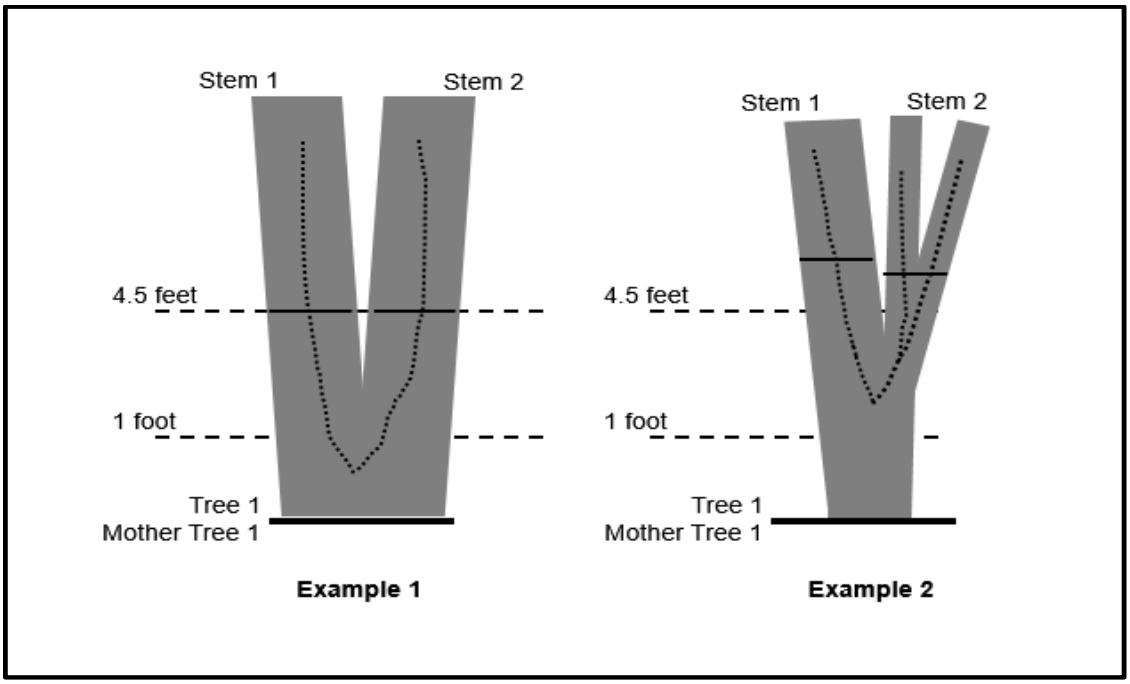
Code	Description
1	Tree grade 1
2	Tree grade 2
3	Tree grade 3
4	Tree grade 4
5	Tree grade 5

3.16.66 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 below for tree and stem numbering examples (for further details, see TREE and STEM).



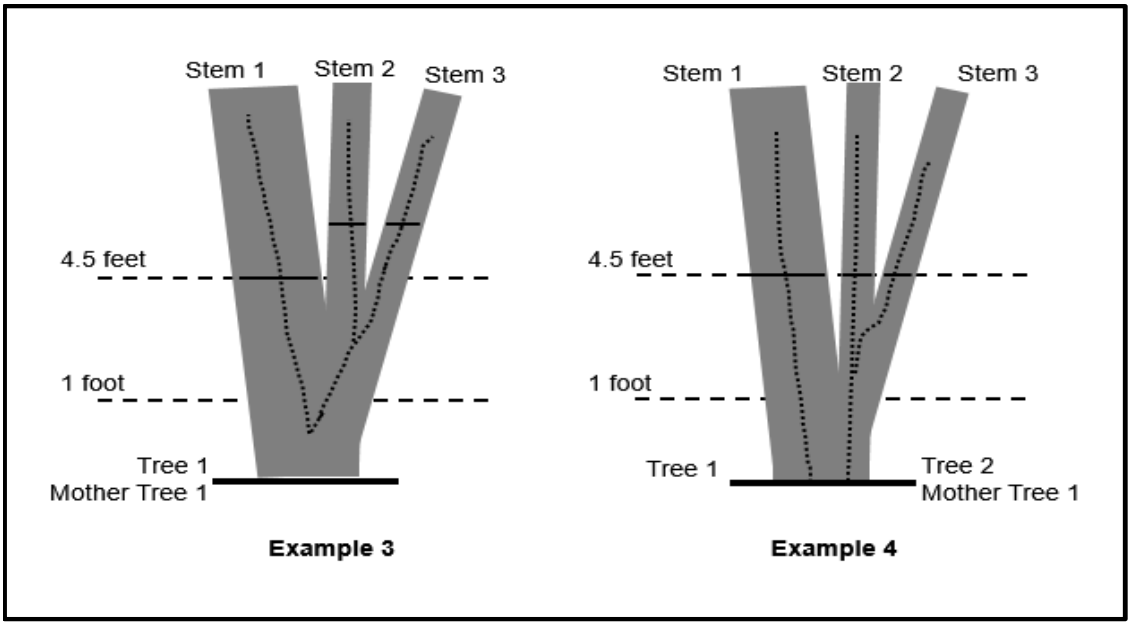


Figure 3-8: Tree and stem numbering examples.

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

3.16.67 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 trees ≥1.0 inch d.b.h./d.r.c.

3.16.68 BF_GROSS_SAWLOG_VOLUME

Gross board-foot volume in the sawlog portion of the bole. This is the total board-foot volume (International ¼-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 larger trees should 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 not excluded.

3.16.69 BF_NET_SAWLOG_VOLUME

Net board-foot volume in the sawlog portion of the bole. This is the net board-foot volume (International ¼-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 larger trees should 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.

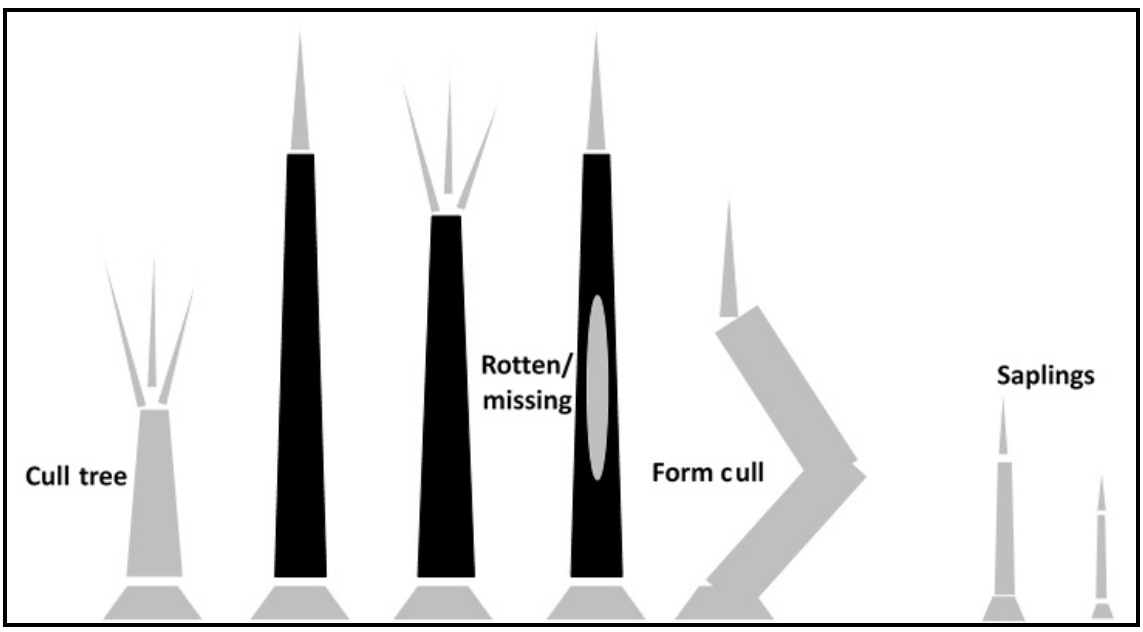


Figure 3-9: Illustration of timber species sawtimber volume (BF_NET_SAWLOG_VOLUME) in black. Gray trees and parts are excluded. See BF_NET_SAWLOG_VOLUME for a full description of this attribute.

3.16.70 CF_GROSS_SAWLOG_VOLUME

Gross cubic-foot volume in the sawlog portion of the bole. This is 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 larger 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.

3.16.71 CF_GROSS_VOLUME

Gross cubic-foot volume in the bole. For timber species (trees where the diameter is measured at breast height [d.b.h.]), this is the total cubic-foot volume of wood in the central stem of sample trees ≥5.0 inches in 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. For woodland species (REF_SPECIES.WOODLAND = X), CF_GROSS_VOLUME 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. This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information. This attribute is blank (null) for trees with DIA <5.0 inches. All trees with DIA ≥5.0 inches (including standing dead trees) have entries in this field. Includes rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has not been deducted).

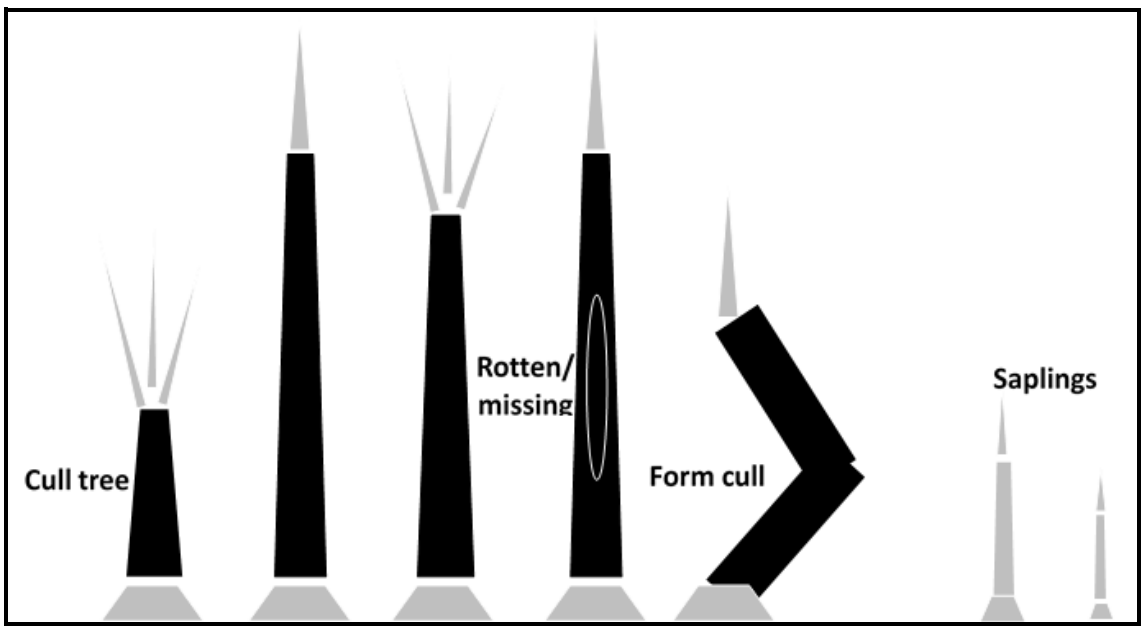


Figure 3-10: Illustration of timber species gross volume (CF_GROSS_VOLUME) in black. Gray tree parts are excluded. See CF_GROSS_VOLUME for a full description of this attribute.

3.16.72 CF_NET_SAWLOG_VOLUME

Net cubic-foot volume in the sawlog portion of the bole. 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 larger 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.

3.16.73 CF_NET_VOLUME

Net cubic-foot volume in the bole. For timber species (trees where the diameter is measured at breast height [d.b.h.]), this is the net cubic-foot volume of wood in the central stem of a sample tree ≥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. For woodland species (REF_SPECIES.WOODLAND = X), CF_NET_VOLUME is the net 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. This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information. This attribute is blank (null) for trees with DIA <5.0 inches. All trees with DIA ≥5.0 inches (including standing dead trees) will have entries in this field. Does not include rotten, missing, and form cull (volume loss due to rotten, missing, and form cull defect has been deducted).

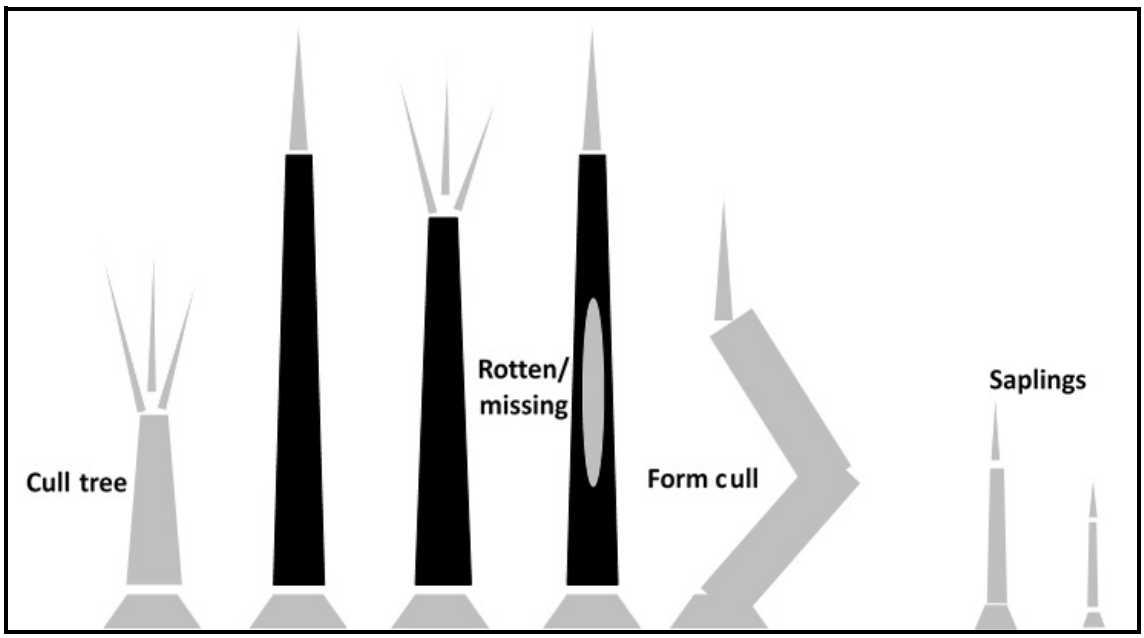


Figure 3-11: Illustration of timber species net volume (CF_NET_VOLUME) in black. Gray trees and gray parts are excluded. See CF_NET_VOLUME for a full description of this attribute.

3.16.74 CF_SND_SAWLOG_VOLUME

Sound cubic-foot volume in the sawlog portion of the bole. 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 larger 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).

3.16.75 CF_SND_VOLUME

Sound cubic-foot volume in the bole. For timber species (trees where the diameter is measured at breast height [d.b.h.]), the cubic-foot volume of sound wood in the central stem of a sample tree ≥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. For woodland species (REF_SPECIES.WOODLAND = X), CF_SND_VOLUME is the net cubic-foot volume of wood and bark from the d.r.c. measurement point(s) to a minimum 1.5-inch top diameter, including branches that are at least 1.5 inches in diameter along the length of the branch. This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information. This attribute is blank (null) for trees with DIA <5.0 inches. All trees with DIA ≥5.0 inches (including dead trees) have entries in this field. Does not include rotten and missing cull (volume loss due to rotten and missing cull defect has been deducted).

3.16.76 DRY_TOT_BIOMASS

Aboveground dry biomass total (regional). The total aboveground biomass, in pounds, of a sample tree ≥1.0 inch d.b.h./d.r.c., including all tops and limbs (but excluding foliage). This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information. Calculated in oven-dry pounds per tree. Because total biomass has been calculated differently among FIA work units, contact the appropriate FIA work units for information on how biomass was estimated and whether bark was included.

3.16.77 DRY_MERCH_BIOMASS

Aboveground dry biomass in the merchantable bole (regional). The total gross biomass, in pounds, in the merchantable stem of a sample tree ≥5.0 inches d.b.h./d.r.c. For timber species (trees where diameter is measured at breast height [d.b.h.]), the merchantable bole is from a 1-foot stump to a minimum 4-inch top diameter of the central stem. For woodland species (trees where diameter is measured at root collar [d.r.c.]), the merchantable portion is from the place(s) of diameter measurement to a minimum 1.5-inch top diameter, including branches that are at least 1.5 inches in diameter along the length of the branch (woodland species can be identified by REF_SPECIES.WOODLAND = X). This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information. Calculated in oven-dry pounds per tree. Because total biomass has been calculated differently among FIA work units, contact the appropriate FIA work unit for information on how biomass was estimated and whether bark was included.

3.16.78 BOLE_BIOMASS

Dry biomass in the merchantable bole. The oven-dry biomass, in pounds, in the merchantable bole of timber species (trees where diameter is measured at breast height [d.b.h.]) ≥5.0 inches d.b.h. This is the biomass of sound wood in live and dead trees, including bark, from a 1-foot stump to a minimum 4-inch top diameter of the central stem. 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. See WDLD_BIOMASS for biomass of woodland species and

SAPLING_BIOMASS for biomass of timber species with DIA <5.0 inches. BOLE_BIOMASS is based on CF_SND_VOLUME and specific gravity information derived by the Forest Products Lab and others (values stored in the REF_SPECIES table). If CF_SND_VOLUME is not available, then either CF_GROSS_VOLUME * percent sound or CF_NET_VOLUME * (average ratio of cubic foot sound to cubic foot net volume, calculated as national averages by species group and diameter) is used.

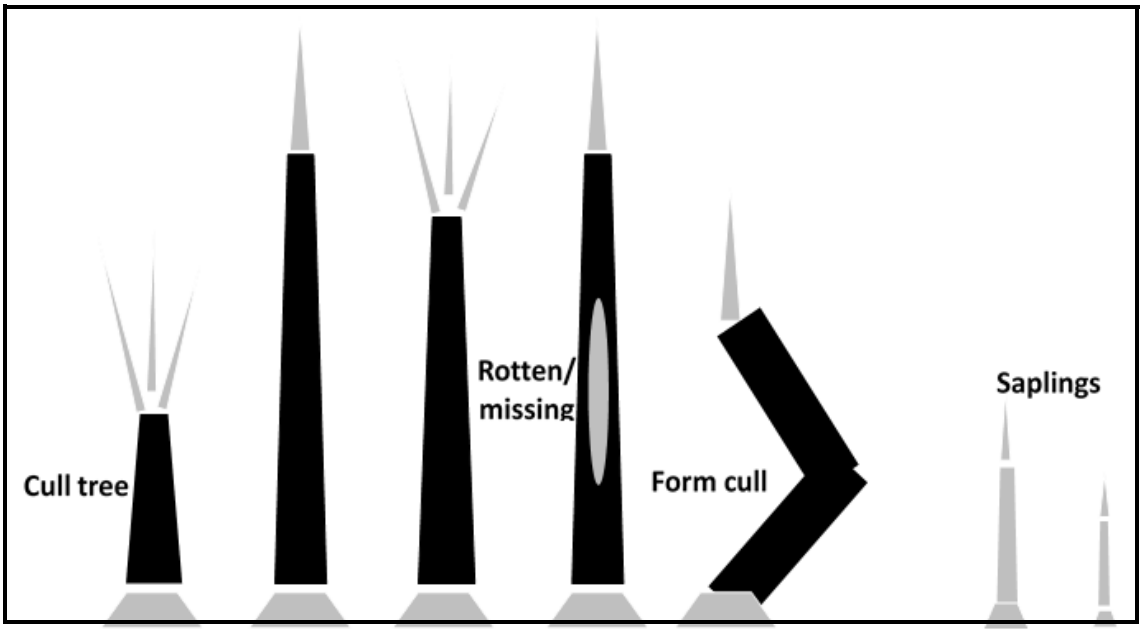


Figure 3-12: Illustration of timber species merchantable bole biomass (BOLE_BIOMASS) in black. Gray trees and gray parts are excluded. BOLE_BIOMASS is based on sound volume (CF_SND_VOLUME). See BOLE_BIOMASS for a full description of this attribute.

3.16.79 STUMP_BIOMASS

Dry biomass in the stump. The oven-dry biomass, in pounds, in the stump of timber species (trees where diameter is measured at breast height [d.b.h.]) ≥5.0 inches d.b.h. The stump is that portion of the tree from the ground to the bottom of the merchantable bole (i.e., below 1 foot). This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information. Estimated for live and dead trees. This attribute is blank (null) for timber species with DIA <5.0 inches and for woodland species. See WDLD_BIOMASS for biomass of woodland species, and SAPLING_BIOMASS for biomass of timber species with DIA <5.0 inches.

3.16.80 TOP_BIOMASS

Dry biomass in the top and limbs. The oven-dry biomass, in pounds, in the top and limbs (combined) of timber species (trees where diameter is measured at breast height [d.b.h.]) ≥5.0 inches d.b.h. TOP_BIOMASS includes the tip, the portion of the stem above the merchantable bole (i.e., above the 4-inch top diameter), and all branches, excluding foliage. Estimated for live and 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. See WDLD_BIOMASS for biomass of woodland species, and SAPLING_BIOMASS for biomass of timber species with DIA <5.0 inches.

3.16.81 SAWLOG_BIOMASS

Dry biomass in the sawlog portion of the bole. The oven-dry biomass, in pounds, 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). SAWLOG_BIOMASS is based on CF_SND_SAWLOG_VOLUME and specific gravity information derived by the Forest Products Lab and others (values stored in the REF_SPECIES table). If CF_SND_SAWLOG_VOLUME is not available, then either CF_GROSS_SAWLOG_VOLUME * percent sound or CF_NET_SAWLOG_VOLUME * (average ratio of cubic foot sound to cubic foot net volume, calculated as national averages by species group and diameter) is used.

3.16.82 SAPLING_BIOMASS

Aboveground dry biomass of saplings. The oven-dry biomass, in pounds, of the aboveground portion, excluding foliage, of live and standing dead trees 1.0-4.9 inches d.b.h. Calculated for timber species only. The biomass of saplings is based on biomass computed from Jenkins and others (2003), using the observed diameter and an adjustment factor. This is a per tree value and must be multiplied by TPA_UNADJ to obtain per acre information.

3.16.83 WDLD_BIOMASS

Aboveground dry biomass of woodland species. The oven-dry biomass, in pounds, of the aboveground portion of a live or dead tree, excluding foliage, the tree tip (top of the tree above 1.5 inches in diameter), and a portion of the stump from ground to diameter at root collar (d.r.c.). Calculated for woodland species (trees where diameter is measured at root collar [d.r.c.]) with a DIA ≥1.0 inch. 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 <1.0 inch and for all timber species.

3.16.84 BG_BIOMASS

Belowground dry biomass. The oven-dry biomass, in pounds, of the belowground portion of a tree, including coarse roots with a root diameter ≥0.1 inch. This is a modeled estimate, calculated for live and standing dead trees ≥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.

3.16.85 AG_CARBON

Aboveground carbon storage. The carbon, in pounds, in the aboveground portion, excluding foliage, of live and standing dead trees ≥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. Carbon is assumed to be one-half the value of biomass and is derived by summing the aboveground biomass estimates and multiplying by 0.5 as follows:

AG_CARBON = 0.5 * (BOLE_BIOMASS + STUMP_BIOMASS + TOP_BIOMASS + SAPLING_BIOMASS + WDLD_BIOMASS)

3.16.86 BG_CARBON

Belowground carbon storage. The carbon, in pounds, of coarse roots >0.1 inch in root diameter. Calculated for live and standing dead trees ≥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. Carbon is assumed to be one-half the value of belowground biomass as follows:

BG_CARBON = 0.5 * BG_BIOMASS

3.16.87 CN

Tree sequence number. A unique sequence number used to identify the tree record (in ID_TREE).

3.16.88 PLT_CN

Plot sequence number. Foreign key linking the tree record to the plot visit record (ID_TREE.PLT_CN = ID_PLOT.CN).

3.16.89 SBP_CN

Subplot sequence number. Foreign key linking the tree record to the subplot record (ID_TREE.SBP_CN = ID_SUBPLOT.CN).

3.16.90 CND_CN

Condition sequence number. Foreign key linking the tree record to the condition record (ID_TREE.CND_CN = ID_COND.CN).

3.16.91 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).

3.16.92 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).

3.16.93 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.

3.16.94 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.

3.16.95 AG_BIOMASS

Aboveground dry biomass. The oven-dry biomass, in pounds, in the aboveground portion, excluding foliage, of live and standing dead trees ≥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.

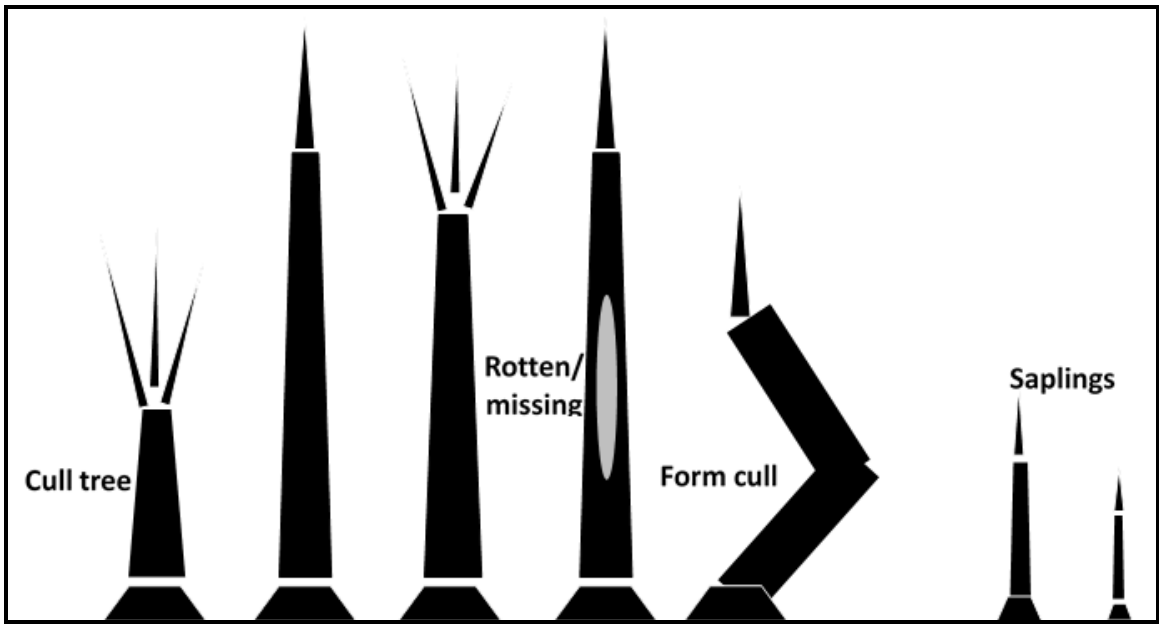


Figure 3-13: Illustration of timber species aboveground biomass (AG_BIOMASS) in black. Roots, foliage and missing wood are excluded. See AG_BIOMASS for a full description of this attribute.

3.17 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
3.17.1	PLOTID	Plot identifier	INTEGER
3.17.2	VISIT_NBR	Visit number	NUMBER(2)
3.17.3	STATECD	State code	NUMBER(2)
3.17.4	UNITCD	Survey unit code	NUMBER(2)
3.17.5	COUNTYCD	County code	NUMBER(3)
3.17.6	RETIRED_PLOT	Retired plot number	NUMBER(5)
3.17.7	SUBP	Subplot/microplot identifier	NUMBER(2)
3.17.8	CONDID	Condition class identifier	NUMBER(1)
3.17.9	TREE	Woodland tree identifier	NUMBER(9)
3.17.10	STEM_NBR	Woodland stem number	NUMBER(3)
3.17.11	STATUSCD	Woodland stem status code	NUMBER(1)
3.17.12	DIA	Woodland stem diameter	NUMBER(4,1)
3.17.13	CN	Woodland stem sequence number	INTEGER
3.17.14	PLT_CN	Plot sequence number	INTEGER
3.17.15	SBP_CN	Subplot sequence number	INTEGER
3.17.16	CND_CN	Condition sequence number	INTEGER
3.17.17	MTRE_CN	Mother tree sequence number	INTEGER
3.17.18	TRE_CN	Tree sequence number	INTEGER
3.17.19	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

3.17.1 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.

3.17.2 VISIT_NBR

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

3.17.3 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.

3.17.4 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

3.17.5 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

3.17.6 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 rural FIADB product.

3.17.7 SUBP

Subplot/microplot identifier. The identity of the subplot or microplot. The national urban protocol includes five subplot elements (listed below).

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.

3.17.8 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.

3.17.9 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.

3.17.10 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).

3.17.11 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.

3.17.12 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:

DRC = SQRT [SUM (stem diameter^2)]

The computed DRC value for the woodland tree is stored in the ID_TREE.DIA column.

3.17.13 CN

Woodland stem sequence number. A unique sequence number used to identify the woodland stem record (in ID_WOODLAND_STEM).

3.17.14 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).

3.17.15 SBP_CN

Subplot sequence number. Foreign key linking the woodland stem record to the subplot record (ID_WOODLAND_STEM.SBP_CN = ID_SUBPLOT.CN).

3.17.16 CND_CN

Condition sequence number. Foreign key linking the woodland stem record to the condition record (ID_WOODLAND_STEM.CND_CN = ID_COND.CN).

3.17.17 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).

3.17.18 TRE_CN

Tree sequence number. Foreign key linking the woodland stem record to the tree record (ID_WOODLAND_STEM.TRE_CN = ID_TREE.CN).

3.17.19 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).

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	Population Attribute Table	POP_ATTRIBUTE
4.2	Population Calculation Table	POP_CALCULATION
4.3	Population Domain Table	POP_DOMAIN
4.4	Population Sample Constraint Table	POP_SAMPLE_CONSTRAINT
4.5	Population Statistical Sample Table	POP_STAT_SAMP
4.6	Population Statistical Sample Attribute Assignment Table	POP_STAT_SAMP_ATTRIBUTE_ASSGN
4.7	Population Statistical Sample Constraint Assignment Table	POP_STAT_SAMP_CONSTR_ASSGN
4.8	Population Statistical Sample Domain Assignment Table	POP_STAT_SAMP_DOMAIN_ASSGN
4.9	Population Stratum Calculation Table	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 field samples and constitute the full set of the most recently sampled plot visits as of the reporting year of each 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 (stored in the POP_STAT_SAMP_CONSTR_ASSGN table) associated with the goal of the sample. 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 a three-tier 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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

Figure 4-1 shows an Entity Relationship Diagram (ERD) for the population estimation table group.

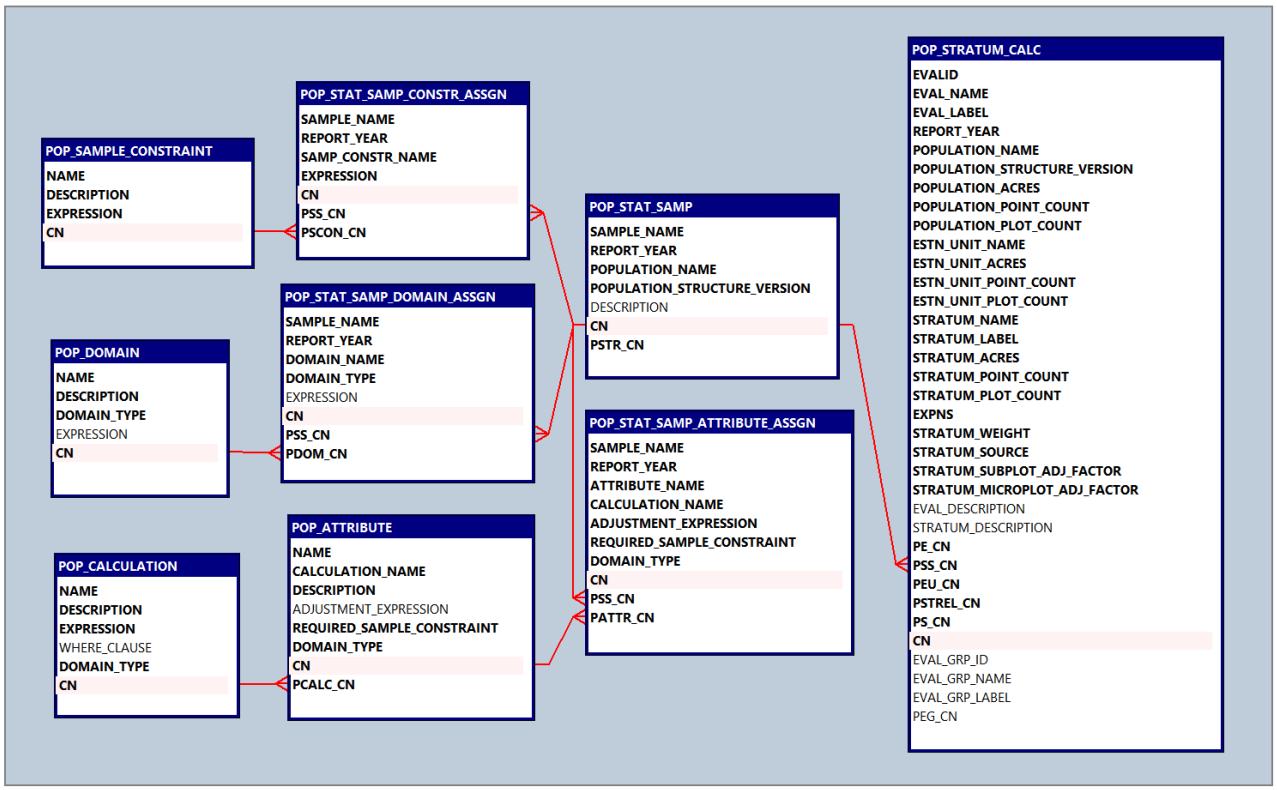


Figure 4-1: Population estimation table group.

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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.1.1	NAME	Population attribute name	VARCHAR2(50)
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 non-response 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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

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 in order 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	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 TREE.STATUSCD = 1: TREE is the table name, STATUSCD is the column name, "=" is the operator, and 1 is the constraint.

4.3.5 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	NAME	Sample constraint name	VARCHAR2(50)
4.4.2	DESCRIPTION	Sample constraint description	VARCHAR2(2000)
4.4.3	EXPRESSION	Sample constraint expression	VARCHAR2(2000)
4.4.4	CN	Population sample constraint sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSCON_PK	CN	N/A
Unique	PSCON_UK	NAME	N/A

4.4.1 NAME

Sample constraint name. A descriptive name for the sample constraint (e.g., SAMPLED, SELECTED, REMEASURED).

4.4.2 DESCRIPTION

Sample constraint description. A brief summary description of the sample constraint.

4.4.3 EXPRESSION

Sample constraint expression. A SQL expression that enforces the constraint when placed in the WHERE clause of a SQL expression.

4.4.4 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 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. Statistical samples are used, in combination with a stratification, to produce population-attribute estimates. This table also provides the ability to define samples that may be used by non-stratified estimators. Such samples would have no corresponding records in the POP_STRATUM_CALC table. Each defined statistical sample can be described by tagging it with one or more descriptive flags, such as the constraints used to form the sample (see POP_SAMPLE_CONSTRAINT table).

The concept of a **statistical sample** is different than a **field sample**. In an annualized inventory, a field sample typically includes only a portion of the full number of plots. A statistical sample includes all available plots regardless of field season. For example, if a particular inventory is conducted on a five-year cycle length, then the full sample is divided into five approximately equal field samples. But the statistical sample includes all plots regardless of the field season for which it was collected.

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.5.1	SAMPLE_NAME	Statistical sample name	VARCHAR2(50)
4.5.2	REPORT_YEAR	Reporting year	NUMBER(4)
4.5.3	POPULATION_NAME	Population name	VARCHAR2(50)
4.5.4	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
4.5.5	DESCRIPTION	Statistical sample description	VARCHAR2(2000)
4.5.6	CN	Population statistical sample sequence number	INTEGER
4.5.7	PSTR_CN	Population structure sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSS_PK	CN	N/A
Unique	PSS_UK	SAMPLE_NAME, REPORT_YEAR	N/A

4.5.1 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).

4.5.2 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.

4.5.3 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).

4.5.4 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.

4.5.5 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.

4.5.6 CN

Population statistical sample sequence number. A unique sequence number used to identify the population statistical sample record (in POP_STAT_SAMP).

4.5.7 PSTR_CN

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

4.6 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
4.6.1	SAMPLE_NAME	Statistical sample name	VARCHAR2(50)
4.6.2	REPORT_YEAR	Reporting year	NUMBER(4)
4.6.3	ATTRIBUTE_NAME	Population attribute name	VARCHAR2(50)
4.6.4	CALCULATION_NAME	Calculation name	VARCHAR2(50)
4.6.5	ADJUSTMENT_EXPRESSION	Adjustment expression	VARCHAR2(250)
4.6.6	REQUIRED_SAMPLE_CONSTRAINT	Required sample constraint	VARCHAR2(30)
4.6.7	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.6.8	CN	Population statistical sample attribute assignment sequence number	INTEGER
4.6.9	PSS_CN	Population statistical sample sequence number	INTEGER
4.6.10	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

4.6.1 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).

4.6.2 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.

4.6.3 ATTRIBUTE_NAME

Population attribute name. A descriptive name for the population attribute (e.g., Total Trees, Total above ground biomass, Total Electricity Use Avoided).

4.6.4 CALCULATION_NAME

Calculation name. A descriptive name for the calculation (e.g., Dry Total Biomass, Electricity Use Avoided, Proportion Tree Cover).

4.6.5 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 non-response in the sample.

4.6.6 REQUIRED_SAMPLE_CONSTRAINT

Required sample constraint. The sample constraint required to estimate the population attribute (e.g., SAMPLED). See POP_SAMPLE_CONSTRAINT table.

4.6.7 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.

4.6.8 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).

4.6.9 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).

4.6.10 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).

4.7 Population Statistical Sample Constraint Assignment Table

Oracle table name: POP_STAT_SAMP_CONSTR_ASSGN

The purpose of the **POP_STAT_SAMP_CONSTR_ASSGN** table is to store the assignment of sample constraints to statistical samples. Each statistical sample is formed from a pool of all available plots selected for a given project and time period. Samples are formed to support specific analytical goals. These analytical goals require that the pool of plots be constrained to meet certain requirements. For example, a statistical sample formed to produce estimates of forest growth, removals, or mortality requires that all plots in the statistical sample are remeasurement plots. This table stores the constraints used to form a given sample. Only plots meeting the list of constraints are included in the sample. The full list of sample constraints can be found in the POP_SAMPLE_CONSTRAINT table.

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	SAMP_CONSTR_NAME	Sample constraint name	VARCHAR2(50)
4.7.4	EXPRESSION	Sample constraint expression	VARCHAR2(2000)
4.7.5	CN	Population statistical sample constraint assignment sequence number	INTEGER
4.7.6	PSS_CN	Population statistical sample sequence number	INTEGER
4.7.7	PSCON_CN	Population sample constraint sequence number	INTEGER

Key type	Alias	Constraint column(s)	Table joins
Primary	PSSCA_PK	CN	N/A
Unique	PSSCA_UK	PSS_CN, PSCON_CN	N/A
Foreign	PSSCA_PSS_FK	PSS_CN	POP_STAT_SAMP_CONSTR_ASSGN.PSS_CN = POP_STAT_SAMP.CN
Foreign	PSSCA_PSCON_FK	PSCON_CN	POP_STAT_SAMP_CONSTR_ASSGN.PSCON_CN = POP_SAMPLE_CONSTRAINT.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 Fully Sampled; 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 SAMP_CONSTR_NAME

Sample constraint name. A descriptive name for the sample constraint (e.g., SAMPLED, INVASIVE).

4.7.4 EXPRESSION

Sample constraint expression. A SQL expression that enforces the constraint when placed in the WHERE clause of a SQL expression.

4.7.5 CN

Population statistical sample constraint assignment sequence number. A unique sequence number used to identify the population statistical sample constraint assignment record (in POP_STAT_SAMP_CONSTR_ASSGN).

4.7.6 PSS_CN

Population statistical sample sequence number. Foreign key linking the population statistical sample constraint assignment record to the population statistical sample record (POP_STAT_SAMP_CONSTR_ASSGN.PSS_CN = POP_STAT_SAMP.CN).

4.7.7 PSCON_CN

Population sample constraint sequence number. Foreign key linking the population statistical sample constraint assignment record to the population sample constraint record (POP_STAT_SAMP_CONSTR_ASSGN.PSCON_CN = POP_SAMPLE_CONSTRAINT.CN).

4.8 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
4.8.1	SAMPLE_NAME	Statistical sample name	VARCHAR2(50)
4.8.2	REPORT_YEAR	Reporting year	NUMBER(4)
4.8.3	DOMAIN_NAME	Population domain name	VARCHAR2(50)
4.8.4	DOMAIN_TYPE	Population domain type	VARCHAR2(30)
4.8.5	EXPRESSION	Population domain expression	VARCHAR2(2000)
4.8.6	CN	Population statistical sample domain assignment sequence number	INTEGER
4.8.7	PSS_CN	Population statistical sample sequence number	INTEGER
4.8.8	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

4.8.1 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 DOMAIN_NAME

Population domain name. A descriptive name for the population domain (e.g., Sampled Land, Live Seedling, Invasive Plant Species).

4.8.4 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.

4.8.5 EXPRESSION

Population domain expression. A SQL expression that identifies the population domain when placed in the WHERE clause of a SQL expression.

4.8.6 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).

4.8.7 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).

4.8.8 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).

4.9 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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.9.1	EVALID	Evaluation identifier	VARCHAR2(20)
4.9.2	EVAL_NAME	Evaluation name	VARCHAR2(50)
4.9.3	EVAL_LABEL	Evaluation label	VARCHAR2(20)
4.9.4	REPORT_YEAR	Reporting year	NUMBER(4)
4.9.5	POPULATION_NAME	Population name	VARCHAR2(50)
4.9.6	POPULATION_STRUCTURE_VERSION	Population structure version	VARCHAR2(10)
4.9.7	POPULATION_ACRES	Population acres	NUMBER
4.9.8	POPULATION_POINT_COUNT	Population point count	NUMBER
4.9.9	POPULATION_PLOT_COUNT	Population plot count	NUMBER
4.9.10	ESTN_UNIT_NAME	Estimation unit name	VARCHAR2(70)
4.9.11	ESTN_UNIT_ACRES	Estimation unit acres	NUMBER
4.9.12	ESTN_UNIT_POINT_COUNT	Estimation unit point count	NUMBER(12)
4.9.13	ESTN_UNIT_PLOT_COUNT	Estimation unit plot count	NUMBER(6)
4.9.14	STRATUM_NAME	Stratum name	VARCHAR2(50)
4.9.15	STRATUM_LABEL	Stratum label	VARCHAR2(15)
4.9.16	STRATUM_ACRES	Stratum acres	NUMBER
4.9.17	STRATUM_POINT_COUNT	Stratum point count	NUMBER(12)
4.9.18	STRATUM_PLOT_COUNT	Stratum plot count	NUMBER(4)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
4.9.19	EXPNS	Stratum expansion factor	NUMBER
4.9.20	STRATUM_WEIGHT	Stratum weight	NUMBER
4.9.21	STRATUM_SOURCE	Stratum source	VARCHAR2(100)
4.9.22	STRATUM_SUBPLOT_ADJ_FACTOR	Stratum subplot adjustment factor	NUMBER
4.9.23	STRATUM_MICROPLOT_ADJ_FACTOR	Stratum microplot adjustment factor	NUMBER
4.9.24	EVAL_DESCRIPTION	Evaluation description	VARCHAR2(2000)
4.9.25	STRATUM_DESCRIPTION	Stratum description	VARCHAR2(2000)
4.9.26	PE_CN	Population statistical evaluation sequence number	INTEGER
4.9.27	PSS_CN	Population statistical sample sequence number	INTEGER
4.9.28	PEU_CN	Population estimation unit sequence number	INTEGER
4.9.29	PSTREL_CN	Population structure element sequence number	INTEGER
4.9.30	PS_CN	Population stratum sequence number	INTEGER
4.9.31	CN	Population stratum calculation sequence number	INTEGER
4.9.32	EVAL_GRP_ID	Evaluation group identifier	VARCHAR2(20)
4.9.33	EVAL_GRP_NAME	Evaluation group name	VARCHAR2(50)
4.9.34	EVAL_GRP_LABEL	Evaluation group label	VARCHAR2(20)
4.9.35	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

4.9.1 EVALID

Evaluation identifier. A short and descriptive name given to an evaluation that functions as a unique identifier (e.g., Houston2017All, Houston2017Curr, Houston2017Invs). This

name is an alpha-numeric identifier that typically follows a pattern of Population-Reporting year-Evaluation type.

Note: Users familiar with the data structure of the traditional FIADB will notice a difference in EVALIDs. In the traditional FIADB, 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.

4.9.2 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).

4.9.3 EVAL_LABEL

Evaluation label. A short label for the evaluation that can be used in reporting outputs. Labels are purely descriptive and contain no information not already present in the other attributes of the evaluation.

4.9.4 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.

4.9.5 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).

4.9.6 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.

4.9.7 POPULATION_ACRES

Population acres. The area within the population in acres.

4.9.8 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.

4.9.9 POPULATION_PLOT_COUNT

Population plot count. The count of plots (primary sampling points) within the population.

4.9.10 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.

4.9.11 ESTN_UNIT_ACRES

Estimation unit acres. The area of the entire estimation unit in acres.

4.9.12 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.

4.9.13 ESTN_UNIT_PLOT_COUNT

Estimation unit plot count. The count of plots (primary sampling points) within the entire estimation unit.

4.9.14 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.

4.9.15 STRATUM_LABEL

Stratum label. A short label that can be used to identify the stratum on reports (e.g., Water, Dev High, Forest/Scrub).

4.9.16 STRATUM_ACRES

Stratum acres. The area of the stratum within the estimation unit in acres.

4.9.17 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.

4.9.18 STRATUM_PLOT_COUNT

Stratum plot count. The count of plots (primary sampling points) within the stratum.

4.9.19 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.

4.9.20 STRATUM_WEIGHT

Stratum weight. The stratum weight presented as a proportion.

4.9.21 STRATUM_SOURCE

Stratum source. The source of the stratification information.

4.9.22 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 non-response 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 ≥5) or area estimates.

4.9.23 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 non-response 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 ≥ DIA < 5).

4.9.24 EVAL_DESCRIPTION

Evaluation description. A brief summary description of the evaluation, the population it targets, and the purpose.

4.9.25 STRATUM_DESCRIPTION

Stratum description. A description of the stratum within the statistical sample.

4.9.26 PE_CN

Population statistical evaluation sequence number. A unique sequence number used to identify the population statistical evaluation.

4.9.27 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).

4.9.28 PEU_CN

Population estimation unit sequence number. A unique sequence number used to identify the population estimation unit.

4.9.29 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_ELMT.CN).

4.9.30 PS_CN

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

4.9.31 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.

4.9.32 EVAL_GRP_ID

Evaluation group identifier. A unique identifier for the evaluation group.

4.9.33 EVAL_GRP_NAME

Evaluation group name. A descriptive name used to identify the evaluation group and its purpose.

4.9.34 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.

4.9.35 PEG_CN

Evaluation group sequence number. A unique sequence number used to identify the evaluation group.

Chapter 5: Table Group - Population Model

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 traditional FIADB for the rural FIA inventory. 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.

For more information on performing analyses using these data, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

Figure 5-1 shows an Entity Relationship Diagram (ERD) for the population model table group.

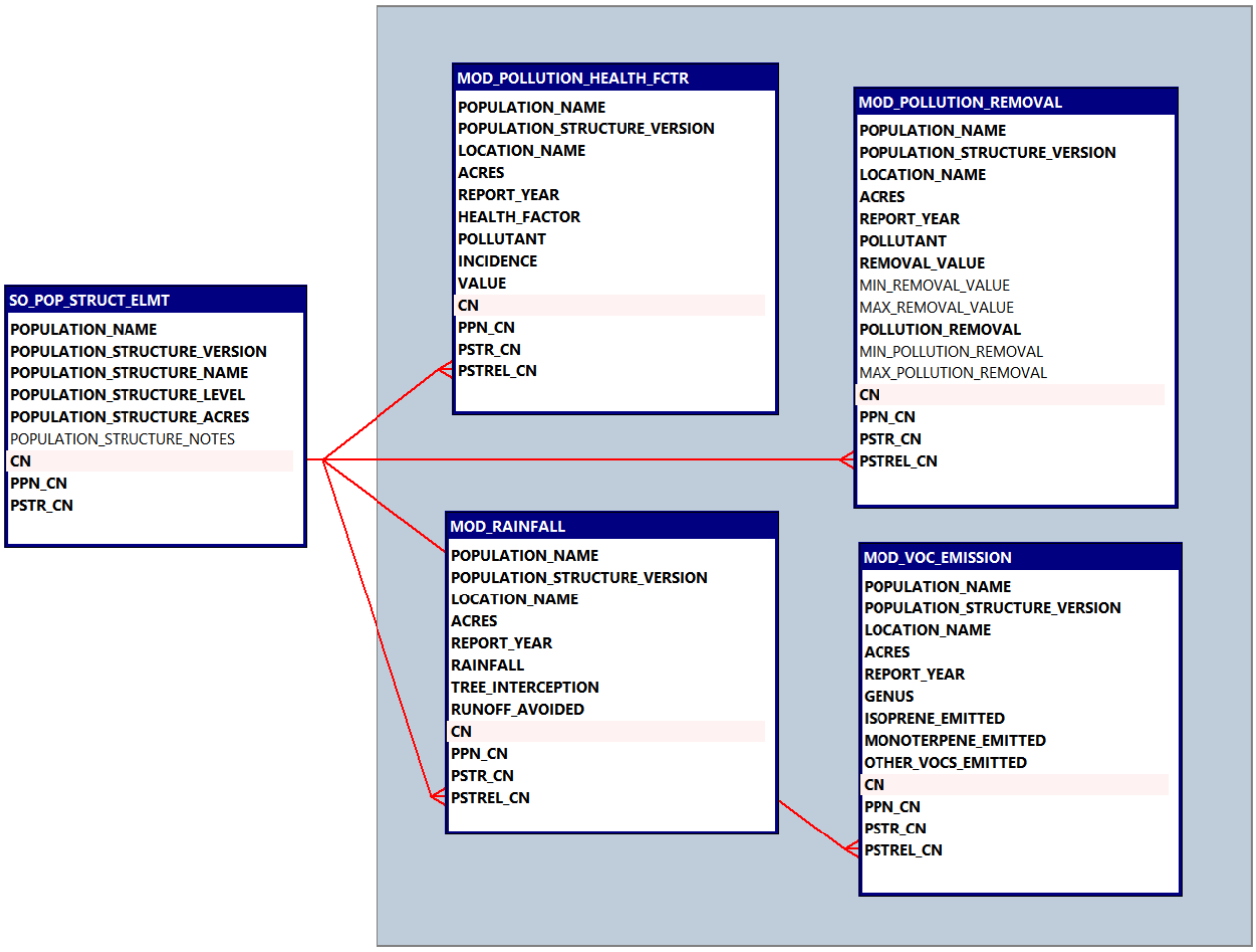


Figure 5-1: Population model table group.

5.1 Model Pollution Health Factor Table

Oracle table name: MOD_POLLUTION_HEALTH_FCTR

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: NO2, SO2, O3, 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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

Pollutant	Description
NO2	Nitrogen dioxide.
SO2	Sulfur dioxide.
O3	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.

Code	Description
O3	Ozone.
PM25	Particulate matter ≤2.5 micrometers (µm).

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

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 NO2, SO2, O3 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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

Pollutant	Description
NO2	Nitrogen dioxide.
SO2	Sulfur dioxide.
O3	Ozone.
PM25	Particulate matter ≤2.5 micrometers (µm).

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

Subsection	Column name (attribute)	Descriptive name	Oracle data type
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 ≤2.5 micrometers (μm).

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

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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

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

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.

For more information, see examples in the Urban FIADB User Guides: Population Estimation volume (available at web address: https://www.fia.fs.fed.us/library/database-documentation/).

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 tons per year, emitted by the genus of the current record.

5.4.8 MONOTERPENE_EMITTED

Monoterpene emitted. The quantity of monoterpene, in tons 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 tons 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).

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 Boundary Change Table	REF_BOUNDARY_CHANGE
6.5	Reference Building Distance Table	REF_BUILDING_DISTANCE
6.6	Reference Canopy Cover Sample Method Table	REF_CANOPY_COVER_SAMPLE_METHOD
6.7	Reference Cause of Death Table	REF_CAUSE_OF_DEATH
6.8	Reference Citation Table	REF_CITATION
6.9	Reference Condition Nonsampled Reason Table	REF_CONDITION_NONSAMPLE_REASON
6.10	Reference Condition Sampling Status Table	REF_CONDITION_SAMPLING_STATUS
6.11	Reference County Table	REF_COUNTY
6.12	Reference Cover Class Table	REF_COVER_CLASS
6.13	Reference Crown Class Table	REF_CROWN_CLASS
6.14	Reference Crown Light Exposure Table	REF_CROWN_LIGHT_EXPOSURE
6.15	Reference Damage Agent Table	REF_DAMAGE_AGENT
6.16	Reference Damage Agent Group Table	REF_DAMAGE_AGENT_GROUP
6.17	Reference Decay Class Table	REF_DECAY_CLASS
6.18	Reference Diameter Check Table	REF_DIA_CHECK
6.19	Reference Disturbance Table	REF_DISTURBANCE
6.20	Reference FIA Land Use Table	REF_FIA_LANDUSE
6.21	Reference Forest Type Table	REF_FOREST_TYPE
6.22	Reference Forest Type Group Table	REF_FOREST_TYPE_GROUP

Section	Database table	Oracle table name
6.23	Reference Horizontal Distance to Improved Road Table	REF_HORIZ_DIST_IMPRVD_ROAD
6.24	Reference Invasive Species	REF_INVASIVE_SPECIES
6.25	Reference Land Use for i-Tree Urban Inventory System Table	REF_ITREE_LANDUSE
6.26	Reference Land Cover Class Table	REF_LAND_COVER_CLASS **RETIRED**
6.27	Reference Length Method Table	REF_LENGTH_METHOD
6.28	Reference Nonforest Land Use Table	REF_NONFOREST_LANDUSE
6.29	Reference No/Yes Table	REF_NO_YES
6.30	Reference Offset Point Table	REF_OFFSET_POINT
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_REASN
6.37	Reference Plot Status Table	REF_PLOT_STATUS
6.38	Reference Plot Type Table	REF_PLOT_TYPE
6.39	Reference Previous Tree Status Table	REF_PREV_TREE_STATUS
6.40	Reference Productivity Status Table	REF_PRODUCTIVITY_STATUS
6.41	Reference Reconcile Table	REF_RECONCILE
6.42	Reference Regeneration Status Table	REF_REGENERATION_STATUS
6.43	Reference Reserved Status Table	REF_RESERVED_STATUS
6.44	Reference Sample Kind Table	REF_SAMPLE_KIND
6.45	Reference Seedling Maintained Area Table	REF_SEEDLING_MAINTAINED_AREA
6.46	Reference Seedling Planted Table	REF_SEEDLING_PLANTED
6.47	Reference Site Class Code Table	REF_SITE_CLASS_CODE
6.48	Reference Species Table	REF_SPECIES

Section	Database table	Oracle table name
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 Class Table	REF_TREE_CLASS
6.55	Reference Tree Density Table	REF_TREE_DENSITY
6.56	Reference Tree Planted Table	REF_TREE_PLANTED
6.57	Reference Tree Status Table	REF_TREE_STATUS
6.58	Reference Unit Table	REF_UNIT
6.59	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)	ID_TREE.ABNORMAL_STEM_TERMINATION
6.2	Reference Absent Present Table (REF_ABSENT_PRESENT)	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
6.3	Reference Bole/Stump Removed Table (REF_BOLE_STUMP_REMOVED)	ID_TREE.BOLE_STUMP_REMOVED
6.4	Reference Boundary Change Table (REF_BOUNDARY_CHANGE)	ID_BOUNDARY.BNDCHG
		ID_CLOSED_BOUNDARY.BNDCHG
6.5	Reference Building Distance Table (REF_BUILDING_DISTANCE)	ID_BUILDING_INTERACTION.DISTANCE_CD
6.6	Reference Canopy Cover Sample Method Table (REF_CANOPY_COVER_SAMPLE_METHOD)	ID_COND.CANOPY_CVR_SAMPLE_METHOD_CD
6.7	Reference Cause of Death Table (REF_CAUSE_OF_DEATH)	ID_TREE.CAUSE_OF_DEATH
6.8	Reference Citation Table (REF_CITATION)	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
		REF_SPECIES.WOOD_SPGR_MC12VOL_DRWT_CIT
6.9	Reference Condition Nonsampled Reason Table (REF_CONDITION_NONSAMPLE_REASON)	ID_COND.COND_NONSAMPLE_REASN_CD
6.10	Reference Condition Sampling Status Table (REF_CONDITION_SAMPLING_STATUS)	ID_COND.COND_STATUS_CD

Section	Reference table (Oracle table name)	Referencing column(s)
6.11	Reference County Table (REF_COUNTY)	ID_BOUNDARY.COUNTYCD
		ID_BUILDING_INTERACTION.COUNTYCD
		ID_CLOSED_BOUNDARY.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
6.12	Reference Cover Class Table (REF_COVER_CLASS)	ID_COND.COVER_CLASS
6.13	Reference Crown Class Table (REF_CROWN_CLASS)	ID_TREE.CROWN_CLASS_CD
6.14	Reference Crown Light Exposure Table (REF_CROWN_LIGHT_EXPOSURE)	ID_MOTHER_TREE.CROWN_LIGHT_EXPOSURE
		ID_TREE.CROWN_LIGHT_EXPOSURE
6.15	Reference Damage Agent Table (REF_DAMAGE_AGENT)	ID_TREE.DAMAGE_AGENT_1
		ID_TREE.DAMAGE_AGENT_2
		ID_TREE.DAMAGE_AGENT_3
6.16	Reference Damage Agent Group Table (REF_DAMAGE_AGENT_GROUP)	REF_DAMAGE_AGENT.DAG_CODE
		REF_DAMAGE_AGENT_GROUP.CODE
6.17	Reference Decay Class Table (REF_DECAY_CLASS)	ID_TREE.DECAYCD
6.18	Reference Diameter Check Table (REF_DIA_CHECK)	ID_MOTHER_TREE.DIACHECK
		ID_TREE.DIACHECK
6.19	Reference Disturbance Table (REF_DISTURBANCE)	ID_COND.DISTURBANCE_CD1
		ID_COND.DISTURBANCE_CD2
		ID_COND.DISTURBANCE_CD3
6.20	Reference FIA Land Use Table (REF_FIA_LANDUSE)	ID_COND.FIA_LANDUSE
6.21	Reference Forest Type Table (REF_FOREST_TYPE)	ID_COND.FLDTYPCD
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)	ID_PLOT.ROAD_DIST_CD
6.24	Reference Invasive Species (REF_INVASIVE_SPECIES)	ID_INVASIVE_SUBP_COND.SPECIES_SYMBOL
6.25	Reference Land Use for i-Tree Urban Inventory System Table (REF_ITREE_LANDUSE)	ID_COND.ITREE_LANDUSE

Section	Reference table (Oracle table name)	Referencing column(s)
6.26	Reference Land Cover Class Table (REF_LAND_COVER_CLASS) **RETIRED**	ID_COND.LAND_COVER_CLASS_CD **RETIRED**
6.27	Reference Length Method Table (REF_LENGTH_METHOD)	ID_TREE.HTCD
6.28	Reference Nonforest Land Use Table (REF_NONFOREST_LANDUSE)	ID_COND.FIA_LANDUSE
6.29	Reference No/Yes Table (REF_NO_YES)	ID_COND.AFFORESTATION_CD
		ID_COND.CHAINING_CD
		ID_COND.PREV_AFFORESTATION_CD
		ID_INVASIVE_SUBP_COND.IS_MAINTAINED_AREA
		ID_MOTHER_TREE.IS_MAINTAINED_AREA
		ID_MOTHER_TREE.IS_RIPARIAN
		ID_MOTHER_TREE.IS_STREET_TREE
		ID_TREE.IS_MAINTAINED_AREA
		ID_TREE.IS_RIPARIAN
		ID_TREE.IS_STREET_TREE
		ID_TREE.MORTALITY_CD
		ID_TREE.STANDING_DEAD_CD
6.30	Reference Offset Point Table (REF_OFFSET_POINT)	ID_BOUNDARY.OFFSET_POINT
		ID_CLOSED_BOUNDARY.OFFSET_POINT
		ID_SITETREE.OFFSET_POINT
		ID_TREE.OFFSET_POINT
6.31	Reference Owner Class Table (REF_OWNER_CLASS)	ID_COND.OWNCD
6.32	Reference Owner Group Table (REF_OWNER_GROUP)	ID_COND.OWNGRPCD
6.33	Reference Percent Class Code Table (REF_PERCENT_CLASS_CODE)	ID_MOTHER_TREE.CROWN_DIEBACK_CD
		ID_TREE.CROWN_DIEBACK_CD
6.34	Reference Physiographic Class Table (REF_PHYSIOGRAPHIC_CLASS)	ID_COND.PHYSCLCD
6.35	Reference Plant Dictionary (REF_PLANT_DICTIONARY)	N/A
6.36	Reference Plot Nonsampled Reason Table (REF_PLOT_NONSAMPLE_REASN)	ID_PLOT.PLOT_NONSAMPLE_REASN_CD
6.37	Reference Plot Status Table (REF_PLOT_STATUS)	ID_PLOT.PLOT_STATUS_CD
6.38	Reference Plot Type Table (REF_PLOT_TYPE)	ID_BOUNDARY.SUBP_TYPE
		ID_CLOSED_BOUNDARY.SUBP_TYPE
6.39	Reference Previous Tree Status Table (REF_PREV_TREE_STATUS)	ID_TREE.FIELD_PREV_STATUS_CD
6.40	Reference Productivity Status Table (REF_PRODUCTIVITY_STATUS)	ID_COND.PRODUCTIVITY_STATUS
6.41	Reference Reconcile Table (REF_RECONCILE)	ID_TREE.RECONCILECD

Section	Reference table (Oracle table name)	Referencing column(s)
6.42	Reference Regeneration Status Table (REF_REGENERATION_STATUS)	ID_COND.STDORGCD
6.43	Reference Reserved Status Table (REF_RESERVED_STATUS)	ID_COND.RESERVCD
6.44	Reference Sample Kind Table (REF_SAMPLE_KIND)	ID_PLOT.KINDCD
6.45	Reference Seedling Maintained Area Table (REF_SEEDLING_MAINTAINED_AREA)	ID_SEEDLING.IS_MAINTAINED_AREA
6.46	Reference Seedling Planted Table (REF_SEEDLING_PLANTED)	ID_SEEDLING.IS_PLANTED
6.47	Reference Site Class Code Table (REF_SITE_CLASS_CODE)	ID_COND.COND_SITECLASS_FLD
		ID_COND.SITE_CLASS_CD
6.48	Reference Species Table (REF_SPECIES)	ID_MOTHER_TREE.SPCD
		ID_SEEDLING.SPCD
		ID_SITETREE.SPCD
		ID_TREE.SPCD
6.49	Reference Species Group Table (REF_SPECIES_GROUP)	ID_MOTHER_TREE.SPGRPCD
		ID_SEEDLING.SPGRPCD
		ID_TREE.SPGRPCD
6.50	Reference Stand-Size Class Table (REF_STAND_SIZE_CLASS)	ID_COND.FLDSZCD
6.51	Reference Subplot Nonsampled Reason Table (REF_SUBPLOT_NONSAMPLE_REASON)	ID_SUBPLOT.SUBP_NONSAMPLE_REASN_CD
6.52	Reference Subplot Status Table (REF_SUBPLOT_STATUS)	ID_SUBPLOT.SUBP_STATUS_CD
6.53	Reference Treatment Table (REF_TREATMENT)	ID_COND.TREATMENT_CD1
		ID_COND.TREATMENT_CD2
		ID_COND.TREATMENT_CD3
6.54	Reference Tree Class Table (REF_TREE_CLASS)	ID_TREE.TREECLCD
6.55	Reference Tree Density Table (REF_TREE_DENSITY)	ID_COND.MAPDEN
6.56	Reference Tree Planted Table (REF_TREE_PLANTED)	ID_MOTHER_TREE.IS_PLANTED
		ID_TREE.IS_PLANTED
6.57	Reference Tree Status Table (REF_TREE_STATUS)	ID_MOTHER_TREE.STATUSCD
		ID_TREE.STATUSCD

Section	Reference table (Oracle table name)	Referencing column(s)
6.58	Reference Unit Table (REF_UNIT)	ID_BOUNDARY.UNITCD
		ID_BUILDING_INTERACTION.UNITCD
		ID_CLOSED_BOUNDARY.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
6.59	Reference Water on Plot Table (REF_WATER_ON_PLOT)	ID_PLOT.WATER_CD

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	VALUE	Code value	NUMBER(1)
6.1.2	ABBR	Code abbreviation	VARCHAR2(12)
6.1.3	MEANING	Code meaning	VARCHAR2(43)
6.1.4	RETIRED	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	Stem is not abnormally terminated.
1	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	VALUE	Code value	NUMBER(1)
6.3.2	ABBR	Code abbreviation	VARCHAR2(18)
6.3.3	MEANING	Code meaning	VARCHAR2(189)
6.3.4	RETIRED	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	**Bole removed** - The bole of the tree was removed but the stump remains on site.
2	**Bole and stump removed** - 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 Boundary Change Table

Oracle table name: REF_BOUNDARY_CHANGE

The **REF_BOUNDARY_CHANGE** table stores reference data for the BNDCHG attribute. Code for this attribute indicates if a boundary has changed since the previous measurement.

Referencing column(s):

- ID_BOUNDARY.BNDCHG
- ID_CLOSED_BOUNDARY.BNDCHG

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.4.1	VALUE	Code value	NUMBER(1)
6.4.2	ABBR	Code abbreviation	VARCHAR2(27)
6.4.3	MEANING	Code meaning	VARCHAR2(164)
6.4.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RBC_PK	VALUE	N/A

6.4.1 VALUE

Code value. The value of the code.

Codes: VALUE (BNDCHG)

Code	Description
0	No change - boundary is the same as indicated on plot map and/or data collected by a previous crew.
1	New boundary, or boundary data has been changed to reflect an actual on-the-ground physical change resulting in a difference from the boundaries recorded.
2	Boundary has been changed to correct an error from previous crew.
3	Boundary has been changed to reflect a change in variable definition.

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 Building Distance Table

Oracle table name: REF_BUILDING_DISTANCE

The **REF_BUILDING_DISTANCE** table stores reference data for the DISTANCE_CD attribute. Code for this attribute indicates the distance between a sampled tree and a building.

Referencing column(s):

- ID_BUILDING_INTERACTION.DISTANCE_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.5.1	VALUE	Code value	NUMBER(1)
6.5.2	ABBR	Code abbreviation	VARCHAR2(17)
6.5.3	MEANING	Code meaning	VARCHAR2(78)
6.5.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RBD_PK	VALUE	N/A

6.5.1 VALUE

Code value. The value of the code.

Codes: VALUE (DISTANCE_CD)

Code	Description
0	No building within 60 feet.
1	Less than 20 feet.
2	21 to 40 feet.
3	41 to 60 feet.

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 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
6.6.1	VALUE	Code value	NUMBER(1)
6.6.2	ABBR	Code abbreviation	VARCHAR2(8)
6.6.3	MEANING	Code meaning	VARCHAR2(1654)
6.6.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCCSM_PK	VALUE	N/A

6.6.1 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_PCTis 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.

6.6.2 ABBR

Code abbreviation. The abbreviation for the code.

6.6.3 MEANING

Code meaning. A brief summary description of the meaning of the code.

6.6.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.

6.7 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
6.7.1	VALUE	Code value	NUMBER(2)
6.7.2	ABBR	Code abbreviation	VARCHAR2(13)
6.7.3	MEANING	Code meaning	VARCHAR2(176)
6.7.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCOD_PK	VALUE	N/A

6.7.1 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).

6.7.2 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 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
- REF_SPECIES.WOOD_SPGR_MC12VOL_DRYWT_CIT

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.8.1	CITATION_NBR	Citation number	NUMBER(7)
6.8.2	CITATION	Citation	VARCHAR2(2000)
6.8.3	CREATED_BY	Created by	VARCHAR2(30)
6.8.4	CREATED_DATE	Created date	DATE
6.8.5	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.8.6	MODIFIED_BY	Modified by	VARCHAR2(30)
6.8.7	MODIFIED_DATE	Modified date	DATE
6.8.8	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCIT_PK	CITATION_NBR	N/A

6.8.1 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).

6.8.2 CITATION

Citation. The citation associated with the citation number (CITATION_NBR).

6.8.3 CREATED_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.8.4 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.8.5 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.

6.8.6 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.

6.8.7 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.

6.8.8 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.

6.9 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
6.9.1	VALUE	Code value	NUMBER(2)
6.9.2	ABBR	Code abbreviation	VARCHAR2(22)
6.9.3	MEANING	Code meaning	VARCHAR2(617)
6.9.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCNR_PK	VALUE	N/A

6.9.1 VALUE

Code value. The value of the code.

Codes: VALUE (COND_NONSAMPLE_REASN_CD)

Code	Description
1	**Outside U.S. boundary** - Condition class is outside the U.S. border.
2	**Denied access area** - 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	**Hazardous situation** - 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	**Lost data** - 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	**Lost plot** - Entire plot cannot be found. Used for the single condition that is required for this plot.
7	**Wrong location** - 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	**Skipped visit** - 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	**Dropped intensified plot** - 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	**Other** - Condition class not sampled due to a reason other than one of the specific reasons listed.
11	**Ocean** - Condition class falls in ocean water below mean high tide line.

6.9.2 ABBR

Code abbreviation. The abbreviation for the code.

6.9.3 MEANING

Code meaning. A brief summary description of the meaning of the code.

6.9.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.

6.10 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
6.10.1	VALUE	Code value	NUMBER(1)
6.10.2	ABBR	Code abbreviation	VARCHAR2(15)
6.10.3	MEANING	Code meaning	VARCHAR2(1449)
6.10.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCSS_PK	VALUE	N/A

6.10.1 VALUE

Code value. The value of the code.

Codes: VALUE (COND_STATUS_CD)

Code	Description
1	**Accessible forest land** - 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	**Accessible nonforest land** - 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 criteria under ID_COND.FIA_LANDUSE. Nonforest includes areas that have sufficient cover or live stems to meet the forest land definition, but do not meet the dimensional requirements. 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 ≥5 percent and <10 percent canopy cover at present, or evidence of such in the past, and ID_COND.FIA_LANDUSE = 200, 400, 420, 430, and 450.
3	**Noncensus water** - 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	**Census water** - 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	**Nonsampled** - Any portion of a plot within accessible forest land 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.

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 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_BOUNDARY.COUNTYCD
- ID_BUILDING_INTERACTION.COUNTYCD
- ID_CLOSED_BOUNDARY.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
6.11.1	STATECD	State code	NUMBER(4)
6.11.2	UNITCD	Survey unit code	NUMBER(2)
6.11.3	COUNTYCD	County code	NUMBER(3)
6.11.4	COUNTYNM	County name	VARCHAR2(50)
6.11.5	CN	County sequence number	VARCHAR2(34)
6.11.6	CREATED_BY	Created by	VARCHAR2(30)
6.11.7	CREATED_DATE	Created date	DATE
6.11.8	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.11.9	MODIFIED_BY	Modified by	VARCHAR2(30)
6.11.10	MODIFIED_DATE	Modified date	DATE
6.11.11	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCTY_PK	STATECD, UNITCD, COUNTYCD	N/A

6.11.1 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.

6.11.2 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

6.11.3 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

6.11.4 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.

6.11.5 CN

County sequence number. A unique sequence number used to identify the county record (in REF_COUNTY).

6.11.6 CREATED_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.11.7 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.11.8 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.

6.11.9 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.

6.11.10 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.

6.11.11 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.

6.12 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. 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
6.12.1	VALUE	Code value	NUMBER(2)
6.12.2	ABBR	Code abbreviation	VARCHAR2(29)
6.12.3	MEANING	Code meaning	VARCHAR2(576)
6.12.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCC_PK	VALUE	N/A

6.12.1 VALUE

Code value. The value of the code.

Codes: VALUE (COVER_CLASS - codes that are ≥10% live vegetative cover)

Code	Description
1	**Tree Cover:** 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 FIA Master Tree Species List (available at web address: https://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php) 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 FIA Master Tree Species List are considered shrub cover. Example areas include forests, forest plantations, reverting fields with ≥10% tree canopy cover, clearcuts with ≥10% tree canopy cover. This category includes cypress swamps and mangroves (not to be confused with aquatic vegetation).

Code	Description
2	**Shrub Cover:** 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	**Herbaceous Cover:** 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	**Non-vascular Vegetation Cover:** 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	**Mixed Vegetation Cover:** 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	**Barren:** 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	**Impervious:** 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	**Water:** 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.
12	**Unknown:** No classification was possible.

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 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
6.13.1	VALUE	Code value	NUMBER(1)
6.13.2	ABBR	Code abbreviation	VARCHAR2(12)
6.13.3	MEANING	Code meaning	VARCHAR2(510)
6.13.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCC2_PK	VALUE	N/A

6.13.1 VALUE

Code value. The value of the code.

Codes: VALUE (CROWN_CLASS_CD)

Code	Description
1	**Open Grown** - 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	**Dominant** - 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	**Co-dominant** - 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	**Intermediate** - 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	**Overtopped** - Trees with crowns entirely below the general level of the crown canopy that receive no direct sunlight either from above or the sides.

6.13.2 ABBR

Code abbreviation. The abbreviation for the code.

6.13.3 MEANING

Code meaning. A brief summary description of the meaning of the code.

6.13.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.

6.14 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
- ID_TREE.CROWN_LIGHT_EXPOSURE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.14.1	VALUE	Code value	NUMBER(1)
6.14.2	ABBR	Code abbreviation	VARCHAR2(15)
6.14.3	MEANING	Code meaning	VARCHAR2(138)
6.14.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RCLE_PK	VALUE	N/A

6.14.1 VALUE

Code value. The value of the code.

Codes: VALUE (CROWN_LIGHT_EXPOSURE)

Code	Description
0	The tree receives no full light because it is shaded by trees, vines, or other vegetation; the tree has no crown by definition.
1	The tree receives full light from the top or 1 quarter.
2	The tree receives full light from the top and 1 quarter (or 2 quarters without the top).
3	The tree receives full light from the top and 2 quarters (or 3 quarters without the top).
4	The tree receives full light from the top and 3 quarters.
5	The tree receives full light from the top and 4 quarters.

6.14.2 ABBR

Code abbreviation. The abbreviation for the code.

6.14.3 MEANING

Code meaning. A brief summary description of the meaning of the code.

6.14.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.

6.15 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 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
6.15.1	CODE	Damage agent code	NUMBER(5)
6.15.2	COMMON_NAME	Common name of damage agent	VARCHAR2(80)
6.15.3	SCIENTIFIC_NAME	Scientific name of damage agent	VARCHAR2(80)
6.15.4	THRESHOLD	Threshold for damage agent	VARCHAR2(2000)
6.15.5	CREATED_BY	Created by	VARCHAR2(30)
6.15.6	CREATED_DATE	Created date	DATE
6.15.7	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.15.8	MODIFIED_BY	Modified by	VARCHAR2(30)
6.15.9	MODIFIED_DATE	Modified date	DATE
6.15.10	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)
6.15.11	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

6.15.1 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 (FHAAST) 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 Codes and Thresholds) for a complete list of damage codes and thresholds.

6.15.2 COMMON_NAME

Common name of damage agent. The common name assigned to the tree damage agent.

6.15.3 SCIENTIFIC_NAME

Scientific name of damage agent. The scientific name assigned to the tree damage agent.

6.15.4 THRESHOLD

Threshold for damage agent. The threshold required for a tree damage agent to be recorded.

6.15.5 CREATED_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.15.6 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.15.7 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.

6.15.8 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.

6.15.9 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.

6.15.10 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.

6.15.11 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

6.16 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 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
6.16.1	CODE	Damage agent group code	NUMBER(5)
6.16.2	DESCRIPTION	Damage agent group description	VARCHAR2(80)
6.16.3	CREATED_BY	Created by	VARCHAR2(30)
6.16.4	CREATED_DATE	Created date	DATE
6.16.5	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.16.6	MODIFIED_BY	Modified by	VARCHAR2(30)
6.16.7	MODIFIED_DATE	Modified date	DATE
6.16.8	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDAG_PK	CODE	N/A

6.16.1 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 (FHAAST) 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 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.

6.16.2 DESCRIPTION

Damage agent group description. The general title assigned to the damage agent group (e.g., Bark Beetles, Cankers, Defoliators, Fire).

6.16.3 CREATED_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.16.4 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.16.5 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.

6.16.6 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.

6.16.7 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.

6.16.8 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.

6.17 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
6.17.1	VALUE	Code value	NUMBER(1)
6.17.2	ABBR	Code abbreviation	VARCHAR2(1)
6.17.3	MEANING	Code meaning	VARCHAR2(376)
6.17.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDC_PK	VALUE	N/A

6.17.1 VALUE

Code value. The value of the code.

Codes: VALUE (DECAYCD)

Code	Description
1	All limbs and branches are present. 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	Few limbs and no fine branches. 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	Limbs stubs only. 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.

Code	Description
4	Few or no limb stubs present. 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	No limbs or branches. 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.

6.17.2 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 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
6.18.1	VALUE	Code value	NUMBER(1)
6.18.2	ABBR	Code abbreviation	VARCHAR2(23)
6.18.3	MEANING	Code meaning	VARCHAR2(103)
6.18.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RDC2_PK	VALUE	N/A

6.18.1 VALUE

Code value. The value of the code.

Codes: VALUE (DIACHECK)

Code	Description
0	Diameter measured accurately.
1	Diameter estimated.
2	Diameter measured at different location than previous measurement (remeasurement trees only).

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 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
6.19.1	VALUE	Code value	NUMBER(2)
6.19.2	ABBR	Code abbreviation	VARCHAR2(10)
6.19.3	MEANING	Code meaning	VARCHAR2(265)
6.19.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RD_PK	VALUE	N/A

6.19.1 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.
12	Insect damage to trees, including seedlings and saplings.
20	Disease damage (to both understory vegetation and trees).
21	Disease damage to understory vegetation.
22	Disease damage to trees, including seedlings and saplings.
30	Fire damage (from crown and ground fire, either prescribed or natural).
31	Ground fire damage.
32	Crown fire damage.
40	Animal damage (other than listed below).
41	Beaver (includes flooding caused by beaver).
42	Porcupine.

Code	Description
43	Deer/ungulate.
44	Bear (*core optional*).
45	Rabbit (*core optional*).
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 significant 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.

6.19.2 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 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
6.20.1	VALUE	Code value	NUMBER(3)
6.20.2	ABBR	Code abbreviation	VARCHAR2(19)
6.20.3	MEANING	Code meaning	VARCHAR2(1483)
6.20.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RFL_PK	VALUE	N/A

6.20.1 VALUE

Code value. The value of the code.

Codes: VALUE (FIA_LANDUSE)

Code	Description
1	**Forest land** - 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	**Agricultural land** - 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	**Cropland** - Land utilized for agricultural crops including silage and feed grains; and bare farm fields resulting from cultivation or harvest.
120	**Pasture (improved through cultural practices)** - 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.

Code	Description
130	**Idle farmland** - 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	**Orchard/Nursery** - Land utilized for orchards and nursery stock.
150	**Christmas tree plantation.**
160	**Maintained wildlife opening** - 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	**Windbreak/Shelterbelt** - 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	**Rangeland** - 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	**Developed** - 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	**Cultural** - 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	**Residential** - 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 presences 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.
312	**Multi-family residential** - 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.

Code	Description
313	**Institutional** - Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).
314	**Commercial/Industrial** - 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	**Unused** - This category includes land with no clear intended use. **RETIRED** (this code was retired starting with the FIA National Urban Field Guide version 6.1 [ID_PLOT.MANUAL_NATIONAL]; it is still a valid code for the FIA National Urban Field Guide version 6.0).
316	**Cemetery** - 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	**Rights-of-way** - Improved roads, maintained canal. The 320 code is only used for cases not better described by sub-codes 321 or 322.
321	**Transportation** - Limited access roadway (highways with on-off ramps) and associated green space/hardscape (maintained or unmaintained) such as rest areas, railway or airport.
322	**Utility** - Power lines, pipelines, maintained levees, and flood control channels.
330	**Recreation** - 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	**Park** - 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	**Golf courses** - 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	**Mining and wasteland** - Surface mining, gravel pits, dumps, landfills or reclaimed mining areas that are at least 1.0 acre and 120.0 feet in width.
400	**Other** - 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	**Nonvegetated.**

Code	Description
420	**Wetland** - 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: • 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. • 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. • Drained beaver ponds that are not stocked are included in this category.
430	**Beach** - Sandy or pebbly shore associated with an ocean or lake.
450	**Nonforest-Chaparral.**
900	**Water** - Noncensus and census water conditions (ID_COND.COND_STATUS_CD = 3, 4).
910	**Nonsampled** - Nonsampled (ID_COND.COND_STATUS_CD = 5) and has the potential to be forest land.

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 FLDTYPCD 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.FLDTYPCD

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 manual (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 a forest type code (VALUE) is valid for assignment in the field. This is a yes/no (Y/N) field. Specifically, forest type group codes are not allowed in the field guide nor is the code for a nonstocked forest type (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

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 (SPECIES_SYMBOL) as assigned by the Natural Resources Conservation Service (NRCS) for the PLANTS database (https://plants.sc.egov.usda.gov/java/) 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 the 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 (https://plants.sc.egov.usda.gov/java/) 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 might represent 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 to list, why 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 Land Use for i-Tree Urban Inventory System 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 inventory program.

Referencing column(s):

- ID_COND.ITREE_LANDUSE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.25.1	VALUE	Code value	NUMBER(2)
6.25.2	ABBR	Code abbreviation	VARCHAR2(14)
6.25.3	MEANING	Code meaning	VARCHAR2(1305)
6.25.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RIL_PK	VALUE	N/A

6.25.1 VALUE

Code value. The value of the code.

Codes: VALUE (ITREE_LANDUSE)

Code	Description
10	**Agriculture** - 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	**Residential -** 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 presences 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.
21	**Multi-family Residential -** 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).
22	**Institutional -** Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).
23	**Commercial/Industrial** - 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.
24	**Unused** - 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.
25	**Cemetery -** Includes associated access roads, buildings, and associated green space/hardscape (maintained & unmaintained), and forest land within the Cemetery boundary that is not being managed for wood products.
30	**Transportation -** 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.
31	**Utility -** 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).

Code	Description
40	**Park -** The ID_COND.ITREE_LANDUSE code for Park differs slightly from the ID_COND.FIA_LANDUSE code for Park in that the ID_COND.ITREE_LANDUSE 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 ID_COND.ITREE_LANDUSE code for Park is based on the condition's urban nonforest land use, not the actual park boundary. For example, a wetland (ID_COND.FIA_LANDUSE = 420) within the park boundaries would receive an ID_COND.ITREE_LANDUSE code of 50 not 40.
41	**Golf Course -** 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	**Water/Wetland -** 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 REF_CONDITION_SAMPLING_STATUS table) or areas meeting the definition of ID_COND.FIA_LANDUSE = 420 (see REF_FIA_LANDUSE 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	**Other -** 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.

6.25.2 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 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 ≥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. 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
6.26.1	VALUE	Code value	NUMBER(2)
6.26.2	ABBR	Code abbreviation	VARCHAR2(23)
6.26.3	MEANING	Code meaning	VARCHAR2(1197)
6.26.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RLCC_PK	VALUE	N/A

6.26.1 VALUE

Code value. The value of the code.

Codes: VALUE (LAND_COVER_CLASS_CD - codes that are ≥10% vegetative cover)

Code	Description
1	**Treeland:** 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 ≥10% tree canopy cover, clearcuts with ≥10% tree canopy cover. This category includes cypress swamps and mangroves.
2	**Shrubland:** 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	**Grassland:** 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	**Non-vascular Vegetation:** 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	**Mixed Vegetation:** 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	**Agricultural Vegetation:** 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	**Developed, Vegetated:** 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	**Barren:** 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.

Code	Description
9	**Developed:** 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	**Water:** 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.

6.26.2 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 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
6.27.1	VALUE	Code value	NUMBER(1)
6.27.2	ABBR	Code abbreviation	VARCHAR2(30)
6.27.3	MEANING	Code meaning	VARCHAR2(120)
6.27.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RLM_PK	VALUE	N/A

6.27.1 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.

6.27.2 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 Nonforest Land Use Table

Oracle table name: REF_NONFOREST_LANDUSE

The **REF_NONFOREST_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. This reference table is limited to descriptions for nonforest land uses.

Referencing column(s):

- ID_COND.FIA_LANDUSE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.28.1	VALUE	Code value	NUMBER(3)
6.28.2	ABBR	Code abbreviation	VARCHAR2(19)
6.28.3	MEANING	Code meaning	VARCHAR2(1483)
6.28.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RNL_PK	VALUE	N/A

6.28.1 VALUE

Code value. The value of the code.

Codes: VALUE (FIA_LANDUSE - nonforest land use codes)

Code	Description
100	**Agricultural land** - 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	**Cropland** - Land utilized for agricultural crops including silage and feed grains; and bare farm fields resulting from cultivation or harvest.
120	**Pasture (improved through cultural practices)** - 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	**Idle farmland** - 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	**Orchard/Nursery** - Land utilized for orchards and nursery stock.

Code	Description
150	**Christmas tree plantation.**
160	**Maintained wildlife opening** - 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	**Windbreak/Shelterbelt** - 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	**Rangeland** - 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	**Developed** - 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	**Cultural** - 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	**Residential** - 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 presences 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.
312	**Multi-family residential** - 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	**Institutional** - Schools, hospitals/medical complexes, colleges, religious buildings, government buildings, etc., and associated green space/hardscape (maintained or unmaintained).

Code	Description
314	**Commercial/Industrial** - 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	**Unused** - This category includes land with no clear intended use. **RETIRED** (this code was retired starting with the FIA National Urban Field Guide version 6.1 [ID_PLOT.MANUAL_NATIONAL]; it is still a valid code for the FIA National Urban Field Guide version 6.0).
316	**Cemetery** - 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	**Rights-of-way** - Improved roads, maintained canal. The 320 code is only used for cases not better described by sub-codes 321 or 322.
321	**Transportation** - Limited access roadway (highways with on-off ramps) and associated green space/hardscape (maintained or unmaintained) such as rest areas, railway or airport.
322	**Utility** - Power lines, pipelines, maintained levees, and flood control channels.
330	**Recreation** - 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	**Park** - 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	**Golf courses** - 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	**Mining and wasteland** - Surface mining, gravel pits, dumps, landfills or reclaimed mining areas that are at least 1.0 acre and 120.0 feet in width.
400	**Other** - 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	**Nonvegetated.**

Code	Description
420	**Wetland** - 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: • 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. • 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. • Drained beaver ponds that are not stocked are included in this category.
430	**Beach** - Sandy or pebbly shore associated with an ocean or lake.
450	**Nonforest-Chaparral.**
900	**Water** - Noncensus and census water conditions (ID_COND.COND_STATUS_CD = 3, 4).
910	**Nonsampled** - Nonsampled (ID_COND.COND_STATUS_CD = 5) and has the potential to be forest land.

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 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.IS_MAINTAINED_AREA
- ID_MOTHER_TREE.IS_RIPARIAN
- ID_MOTHER_TREE.IS_STREET_TREE
- ID_TREE.IS_MAINTAINED_AREA
- ID_TREE.IS_RIPARIAN
- ID_TREE.IS_STREET_TREE
- ID_TREE.MORTALITY_CD
- ID_TREE.STANDING_DEAD_CD

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.29.1	VALUE	Code value	NUMBER(1)
6.29.2	ABBR	Code abbreviation	VARCHAR2(3)
6.29.3	MEANING	Code meaning	VARCHAR2(13)
6.29.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RNY_PK	VALUE	N/A

6.29.1 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.

6.29.2 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 Offset Point Table

Oracle table name: REF_OFFSET_POINT

The **REF_OFFSET_POINT** 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.

Referencing column(s):

- ID_BOUNDARY.OFFSET_POINT
- ID_CLOSED_BOUNDARY.OFFSET_POINT
- ID_SITETREE.OFFSET_POINT
- ID_TREE.OFFSET_POINT

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.30.1	VALUE	Code value	NUMBER(3)
6.30.2	ABBR	Code abbreviation	VARCHAR2(28)
6.30.3	MEANING	Code meaning	VARCHAR2(54)
6.30.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	ROP_PK	VALUE	N/A

6.30.1 VALUE

Code value. The value of the code.

Codes: VALUE (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.

Code	Description
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.

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.

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) group by following the instructions provided at: https://www.fia.fs.fed.us/tools-data/spatial/.

Codes: VALUE (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.
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
- ID_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%

Code	Description
70	66-70%
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(17)
6.34.3	MEANING	Code meaning	VARCHAR2(372)
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
-	**Xeric** sites (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.
-	**Mesic** sites (normally moderate but adequate available moisture)
21	Flatwoods - Flat or fairly level sites outside of flood plains. 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 flood plains.
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.

Code	Description
24	Narrow flood plains/Bottomlands - Flood plains 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.
-	**Hydric** sites (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.
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 (https://plants.sc.egov.usda.gov/java/). 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 (SPECIES_SYMBOL) as assigned by NRCS for the PLANTS database (https://plants.sc.egov.usda.gov/java/) 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	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 (Latin)	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

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 (https://plants.sc.egov.usda.gov/java/) symbol code assigned to a specific plant taxon.

6.35.4 SCIENTIFIC_NAME

Scientific name. The NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/) 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 (https://plants.sc.egov.usda.gov/java/) accepted code that has been reclassified from the old synonym symbol.

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 (https://plants.sc.egov.usda.gov/java/) accepted scientific name that has been reclassified from the old synonym scientific name.

6.35.7 COMMON_NAME

Common name. The NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/) common name associated with the taxon SYMBOL.

6.35.8 CATEGORY

Category. Indicates the broad taxonomic category for the symbol. This attribute is null (blank) 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 Lycopdiophyta; Class Lycopodiopsida; Order Lycopodiales (clubmoss).
Monocot	Division Magnoliophyta; Class Liliopsida.
Psilophyte	Division Psilophyta (whisk-ferns).
Quillwort	Division Lycopdiophyta; Class Lycopodiopsida; Order Isoetales.

6.35.9 FAMILY

Family. The NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/) 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 (https://plants.sc.egov.usda.gov/java/).

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 (https://plants.sc.egov.usda.gov/java/). 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.
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.

Status code	Description
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 (https://plants.sc.egov.usda.gov/java/).

6.35.14 STATE_AND_PROVINCE

State and province. State and province distribution of the plant according to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/).

6.35.15 SCIENTIFIC_NAME_W_AUTHOR

Scientific name with author. Scientific name with author of the plant according to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/).

6.35.16 GENERA_BINOMIAL_AUTHOR

Genera binomial author. Genera binomial author of the plant according to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/).

6.35.17 TRINOMIAL_AUTHOR

Trinomial author. Trinomial author of the plant according to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/).

6.35.18 QUADRINOMIAL_AUTHOR

Quadrinomial author. Quadrinomial author of the plant according to the NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/).

6.35.19 XGENUS

Cross genus. The cross-genus hybridization indicator.

6.35.20 GENUS

Genus. The NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/) genus name.

6.35.21 XSPECIES

Cross species. The cross-species hybridization indicator.

6.35.22 SPECIES

Species (Latin). The NRCS PLANTS database (https://plants.sc.egov.usda.gov/java/) 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 (https://plants.sc.egov.usda.gov/java/). 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 (https://plants.sc.egov.usda.gov/java/) 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 (https://plants.sc.egov.usda.gov/java/). 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 (https://plants.sc.egov.usda.gov/java/) 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 (https://plants.sc.egov.usda.gov/java/). 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 (https://plants.sc.egov.usda.gov/java/).

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 (https://plants.sc.egov.usda.gov/java/). 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 (https://plants.sc.egov.usda.gov/java/).

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_REASN

The **REF_PLOT_NONSAMPLE_REASN** 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(364)
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	**Outside U.S. boundary** - Entire plot is outside of the U.S. border.
2	**Denied access** - Access to the entire plot is denied by the legal owner, or by the owner of the only reasonable route to the plot.
3	**Hazardous situation** - Entire plot cannot be accessed because of a hazard or danger.
5	**Lost data** - This code is for office use only.
6	**Lost plot** - Entire plot cannot be found.
7	**Wrong location** - Previous plot can be found, but its placement is beyond the tolerance limits for plot location.
8	**Skipped visit** - This code is for office use only.
9	**Dropped intensified plot** - This code is for office use only.
10	**Other** - Entire plot not sampled due to a reason other than one of the specific reasons already listed.
11	**Ocean** - 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(144)
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 Plot Type Table

Oracle table name: REF_PLOT_TYPE

The **REF_PLOT_TYPE** 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.

Referencing column(s):

- ID_BOUNDARY.SUBP_TYPE
- ID_CLOSED_BOUNDARY.SUBP_TYPE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.38.1	VALUE	Code value	NUMBER(1)
6.38.2	ABBR	Code abbreviation	VARCHAR2(9)
6.38.3	MEANING	Code meaning	VARCHAR2(28)
6.38.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPT_PK	VALUE	N/A

6.38.1 VALUE

Code value. The value of the code.

Codes: VALUE (SUBP_TYPE)

Code	Description
1	Subplot boundary.
2	Microplot boundary.

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 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
6.39.1	VALUE	Code value	NUMBER(1)
6.39.2	ABBR	Code abbreviation	VARCHAR2(4)
6.39.3	MEANING	Code meaning	VARCHAR2(66)
6.39.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPTS_PK	VALUE	N/A

6.39.1 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.

6.39.2 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 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
6.40.1	VALUE	Code value	NUMBER(1)
6.40.2	ABBR	Code abbreviation	VARCHAR2(12)
6.40.3	MEANING	Code meaning	VARCHAR2(394)
6.40.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RPS2_PK	VALUE	N/A

6.40.1 VALUE

Code value. The value of the code.

Codes: VALUE (PRODUCTIVITY_STATUS)

Code	Description
0	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	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.

6.40.2 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 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
6.41.1	VALUE	Code value	NUMBER(1)
6.41.2	ABBR	Code abbreviation	VARCHAR2(17)
6.41.3	MEANING	Code meaning	VARCHAR2(387)
6.41.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RR_PK	VALUE	N/A

6.41.1 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	**Ingrowth** - A new tally tree not qualifying as through growth.
2	**Through growth** - 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	**RETIRED code** - 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. *Missed live - A live tree missed at previous inventory and that is live or dead now. Includes currently tallied trees on previously nonsampled conditions.*
4	**RETIRED code** - 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. *Missed dead - A dead tree missed at previous inventory and that is dead now. Includes currently tallied trees on previously nonsampled conditions.*
5	**Shrank** - 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	**Physical movement** - 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	**Cruiser error** - Either (a) tree was erroneously tallied (added tree), or (b) tree was erroneously not tallied (missed tree) at the previous inventory.
8	**Procedural change** - 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.
9	**Nonsampled area** - 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.

6.41.2 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 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
6.42.1	VALUE	Code value	NUMBER(1)
6.42.2	ABBR	Code abbreviation	VARCHAR2(10)
6.42.3	MEANING	Code meaning	VARCHAR2(124)
6.42.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RRS_PK	VALUE	N/A

6.42.1 VALUE

Code value. The value of the code.

Codes: VALUE (STDORGCD)

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

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 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
6.43.1	VALUE	Code value	NUMBER(1)
6.43.2	ABBR	Code abbreviation	VARCHAR2(12)
6.43.3	MEANING	Code meaning	VARCHAR2(22)
6.43.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RRS2_PK	VALUE	N/A

6.43.1 VALUE

Code value. The value of the code.

Codes: VALUE (RESERVCD)

Code	Description
0	Not reserved.
1	Reserved.

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 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
6.44.1	VALUE	Code value	NUMBER(1)
6.44.2	ABBR	Code abbreviation	VARCHAR2(20)
6.44.3	MEANING	Code meaning	VARCHAR2(497)
6.44.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSK_PK	VALUE	N/A

6.44.1 VALUE

Code value. The value of the code.

Codes: VALUE (KINDCD)

Code	Description
1	Initial plot establishment.
2	Remeasurement - remeasurement of a national design plot that was sampled at the previous inventory.
3	Replacement plot - a replacement plot for a previously established plot.

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.

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	Planted - At least half of the seedling count for an individual species appear to have been planted at some point in the past.
2	Natural - At least half of the seedling count for an individual species appear to be of a natural origin.
3	Not Sure - 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 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.sc.egov.usda.gov/java/) 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	SPCD	Species code	NUMBER
6.48.2	COMMON_NAME	Common name	VARCHAR2(100)
6.48.3	GENUS	Genus	VARCHAR2(40)
6.48.4	SPECIES	Species (Latin)	VARCHAR2(50)
6.48.5	VARIETY	Variety	VARCHAR2(50)
6.48.6	SUBSPECIES	Subspecies	VARCHAR2(50)
6.48.7	SPECIES_SYMBOL	Species symbol	VARCHAR2(8)
6.48.8	E_SPGRPCD	Eastern species group code	NUMBER(2)
6.48.9	W_SPGRPCD	Western species group code	NUMBER(2)
6.48.10	C_SPGRPCD	Caribbean Islands species group code	NUMBER(2)
6.48.11	P_SPGRPCD	Pacific Islands species group code	NUMBER(2)
6.48.12	MAJOR_SPGRPCD	Major species group code	NUMBER(1)
6.48.13	STOCKING_SPGRPCD	Stocking species group code	NUMBER(3)
6.48.14	FOREST_TYPE_SPGRPCD	Forest type species group code	NUMBER(3)
6.48.15	EXISTS_IN_NCRS	Exists in the North Central Research Station region	VARCHAR2(1)
6.48.16	EXISTS_IN_NERS	Exists in the Northeastern Research Station region	VARCHAR2(1)
6.48.17	EXISTS_IN_PNWRS	Exists in the Pacific Northwest Research Station region	VARCHAR2(1)
6.48.18	EXISTS_IN_RMRS	Exists in the Rocky Mountain Research Station region	VARCHAR2(1)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.48.19	EXISTS_IN_SRS	Exists in the Southern Research Station region	VARCHAR2(1)
6.48.20	SITETREE	Site tree	VARCHAR2(1)
6.48.21	SFTWD_HRDWD	Softwood or hardwood	VARCHAR2(1)
6.48.22	ST_EXISTS_IN_NCRS	Site tree exists in North Central Research Station region	VARCHAR2(1)
6.48.23	ST_EXISTS_IN_NERS	Site tree exists in Northeastern Research Station region	VARCHAR2(1)
6.48.24	ST_EXISTS_IN_PNWRS	Site tree exists in Pacific Northwest Research Station region	VARCHAR2(1)
6.48.25	ST_EXISTS_IN_RMRS	Site tree exists in Rocky Mountain Research Station region	VARCHAR2(1)
6.48.26	ST_EXISTS_IN_SRS	Site tree exists in Southern Research Station region	VARCHAR2(1)
6.48.27	CORE	Core	VARCHAR2(1)
6.48.28	EAST	Eastern species	VARCHAR2(1)
6.48.29	WEST	Western species	VARCHAR2(1)
6.48.30	CARIBBEAN	Caribbean Islands species	VARCHAR2(1)
6.48.31	PACIFIC	Pacific Islands species	VARCHAR2(1)
6.48.32	WOODLAND	Woodland species	VARCHAR2(1)
6.48.33	MANUAL_START	Manual start	NUMBER(3,1)
6.48.34	MANUAL_END	Manual end	NUMBER(3,1)
6.48.35	JENKINS_SPGRPCD	Jenkins species group code	NUMBER(2)
6.48.36	JENKINS_TOTAL_B1	Jenkins total B1	NUMBER(8,5)
6.48.37	JENKINS_TOTAL_B2	Jenkins total B2	NUMBER(8,5)
6.48.38	JENKINS_STEM_WOOD_RATIO_B1	Jenkins stem wood ratio B1	NUMBER(8,5)
6.48.39	JENKINS_STEM_WOOD_RATIO_B2	Jenkins stem wood ratio B2	NUMBER(8,5)
6.48.40	JENKINS_STEM_BARK_RATIO_B1	Jenkins stem bark ratio B1	NUMBER(8,5)
6.48.41	JENKINS_STEM_BARK_RATIO_B2	Jenkins stem bark ratio B2	NUMBER(8,5)
6.48.42	JENKINS_FOLIAGE_RATIO_B1	Jenkins foliage ratio B1	NUMBER(8,5)
6.48.43	JENKINS_FOLIAGE_RATIO_B2	Jenkins foliage ratio B2	NUMBER(8,5)
6.48.44	JENKINS_ROOT_RATIO_B1	Jenkins root ratio B1	NUMBER(8,5)
6.48.45	JENKINS_ROOT_RATIO_B2	Jenkins root ratio B2	NUMBER(8,5)
6.48.46	JENKINS_SAPLING_ADJUSTMENT	Jenkins sapling adjustment factor	NUMBER(8,5)
6.48.47	WOOD_SPGR_GREENVOL_DRYWT	Green specific gravity of wood (green volume and oven-dry weight)	NUMBER(8,5)
6.48.48	WOOD_SPGR_GREENVOL_DRYWT_CIT	Citation for WOOD_SPGR_GREENVOL_DRYWT	NUMBER(7)
6.48.49	BARK_SPGR_GREENVOL_DRYWT	Green specific gravity of bark (green volume and oven-dry weight)	NUMBER(8,5)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.48.50	BARK_SPGR_GREENVOL_DRYWT_CIT	Citation for BARK_SPGR_GREENVOL_DRYWT	NUMBER(7)
6.48.51	MC_PCT_GREEN_BARK	Moisture content of green bark as a percent of oven-dry weight	NUMBER(8,5)
6.48.52	MC_PCT_GREEN_BARK_CIT	Citation for MC_PCT_GREEN_BARK	NUMBER(7)
6.48.53	MC_PCT_GREEN_WOOD	Moisture content of green wood as a percent of oven-dry weight	NUMBER(8,5)
6.48.54	MC_PCT_GREEN_WOOD_CIT	Citation for MC_PCT_GREEN_WOOD	NUMBER(7)
6.48.55	WOOD_SPGR_MC12VOL_DRYWT	Wood specific gravity (12 percent moisture content volume and oven-dry weight)	NUMBER(8,5)
6.48.56	WOOD_SPGR_MC12VOL_DRYWT_CIT	Citation for WOOD_SPGR_MC12VOL_DRYWT	NUMBER(7)
6.48.57	BARK_VOL_PCT	Bark volume as a percent of wood volume	NUMBER(8,5)
6.48.58	BARK_VOL_PCT_CIT	Citation for BARK_VOL_PCT	NUMBER(7)
6.48.59	RAILE_STUMP_DOB_B1	Raile stump diameter outside bark equation coefficient B1	NUMBER(8,5)
6.48.60	RAILE_STUMP_DIB_B1	Raile stump diameter inside bark equation coefficient B1	NUMBER(8,5)
6.48.61	RAILE_STUMP_DIB_B2	Raile stump diameter inside bark equation coefficient B2	NUMBER(8,5)
6.48.62	CWD_DECAY_RATIO1	Coarse woody debris decay ratio 1	NUMBER(6,5)
6.48.63	CWD_DECAY_RATIO2	Coarse woody debris decay ratio 2	NUMBER(6,5)
6.48.64	CWD_DECAY_RATIO3	Coarse woody debris decay ratio 3	NUMBER(6,5)
6.48.65	CWD_DECAY_RATIO4	Coarse woody debris decay ratio 4	NUMBER(6,5)
6.48.66	CWD_DECAY_RATIO5	Coarse woody debris decay ratio 5	NUMBER(6,5)
6.48.67	DWM_CARBON_RATIO	Down woody debris carbon ratio	NUMBER(6,5)
6.48.68	STANDING_DEAD_DECAY_RATIO1	Standing dead decay ratio 1	NUMBER(6,5)
6.48.69	STANDING_DEAD_DECAY_RATIO2	Standing dead decay ratio 2	NUMBER(6,5)
6.48.70	STANDING_DEAD_DECAY_RATIO3	Standing dead decay ratio 3	NUMBER(6,5)
6.48.71	STANDING_DEAD_DECAY_RATIO4	Standing dead decay ratio 4	NUMBER(6,5)
6.48.72	STANDING_DEAD_DECAY_RATIO5	Standing dead decay ratio 5	NUMBER(6,5)
6.48.73	CREATED_BY	Created by	VARCHAR2(30)
6.48.74	CREATED_DATE	Created date	DATE
6.48.75	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.48.76	MODIFIED_BY	Modified by	VARCHAR2(30)
6.48.77	MODIFIED_DATE	Modified date	DATE

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.48.78	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)
6.48.79	DRYWT_TO_GREENWT_CONVERSION	Dry weight to green weight conversion	NUMBER

Key type	Alias	Constraint column(s)	Table joins
Primary	RS_PK	SPCD	N/A
Unique	RS_UK	SPECIES_SYMBOL	N/A
Foreign	RS_RSG_FK1	E_SPGRPCD	REF_SPECIES.E_SPGRPCD = REF_SPECIES_GROUP.SPGRPCD
Foreign	RS_RSG_FK2	W_SPGRPCD	REF_SPECIES.W_SPGRPCD = REF_SPECIES_GROUP.SPGRPCD
Foreign	RS_RSG_FK3	C_SPGRPCD	REF_SPECIES.C_SPGRPCD = REF_SPECIES_GROUP.SPGRPCD
Foreign	RS_RSG_FK4	P_SPGRPCD	REF_SPECIES.P_SPGRPCD = REF_SPECIES_GROUP.SPGRPCD

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 GENUS

Genus. The genus name associated with the FIA species code (SPCD). Refer to appendix D (Tree Species Codes, Names, and Occurrences).

6.48.4 SPECIES

Species (Latin). The species name associated with the FIA species code (SPCD). Refer appendix D (Tree Species Codes, Names, and Occurrences).

6.48.5 VARIETY

Variety. The variety name associated with the FIA species code (SPCD), if applicable.

6.48.6 SUBSPECIES

Subspecies. The subspecies name associated with the FIA species code (SPCD), if applicable.

6.48.7 SPECIES_SYMBOL

Species symbol. The Natural Resources Conservation Service (NRCS) PLANTS database (https://plants.sc.egov.usda.gov/java/) symbol code assigned to the specific plant taxon and associated with the FIA species code (SPCD).

6.48.8 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 is a foreign key linking 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.

6.48.9 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 is a foreign key linking 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.

6.48.10 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 is a foreign key linking 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.

6.48.11 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 is a foreign key linking 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.

6.48.12 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.

6.48.13 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.
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.

6.48.14 FOREST_TYPE_SPGRPCD

Forest type species group code. An FIA code used during processing to assign a forest type to a condition. These processing codes differ from the forest type group codes listed in REF_FOREST_TYPE_GROUP.VALUE.

6.48.15 EXISTS_IN_NCRS

Exists in North Central Research Station region. This attribute indicates which species are valid for States in the North Central Research Station region. Valid tree species are marked with an 'X' in this column.

6.48.16 EXISTS_IN_NERS

Exists in Northeastern Research Station region. This attribute indicates which tree species are valid for States in the Northeastern Research Station region. Valid tree species are marked with an 'X' in this column.

6.48.17 EXISTS_IN_PNWRS

Exists in Pacific Northwest Research Station region. This attribute indicates which species are valid for States in the Pacific Northwest Research Station region. Valid tree species are marked with an 'X' in this column.

6.48.18 EXISTS_IN_RMRS

Exists in Rocky Mountain Research Station region. This attribute indicates which species are valid for States in the Rocky Mountain Research Station region. Valid tree species are marked with an 'X' in this column.

6.48.19 EXISTS_IN_SRS

Exists in Southern Research Station region. This attribute indicates which species are valid for States in the Southern Research Station region. Valid tree species are marked with an 'X' in this column.

6.48.20 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.

6.48.21 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.

6.48.22 ST_EXISTS_IN_NCRS

Site tree exists in North Central Research Station region. This attribute indicates whether or not the tree species is valid as a site tree for States in the North Central Research Station region. Tree species that are applicable to have site data collected are marked with an 'X' in this column.

6.48.23 ST_EXISTS_IN_NERS

Site tree exists in Northeastern Research Station region. This attribute indicates whether or not the tree species is valid as a site tree for States in the Northeastern Research Station region. Tree species that are applicable to have site data collected are marked with an 'X' in this column.

6.48.24 ST_EXISTS_IN_PNWRS

Site tree exists in Pacific Northwest Research Station region. This attribute indicates whether or not the tree species is valid as a site tree for States in the Pacific Northwest Research Station region. Tree species that are applicable to have site data collected are marked with an 'X' in this column.

6.48.25 ST_EXISTS_IN_RMRS

Site tree exists in Rocky Mountain Research Station region. This attribute indicates whether or not the tree species is valid as a site tree for States in the Rocky Mountain Research Station region. Tree species that are applicable to have site data collected are marked with an 'X' in this column.

6.48.26 ST_EXISTS_IN_SRS

Site tree exists in Southern Research Station region. This attribute indicates whether or not the tree species is valid as a site tree for States in the Southern Research Station region. Tree species that are applicable to have site data collected are marked with an 'X' in this column.

6.48.27 CORE

Core. A code indicating whether or not the plant taxon has been designated to be an FIA *core* tree species. *Core* tree species must be tallied (measured) by all FIA work units.

Codes: CORE

Code	Description
Y	*Core* tree species.
N	*Core optional* tree species.

6.48.28 EAST

Eastern species. This attribute indicates if the tree species can occur in the Eastern United States. Valid eastern species are marked with an 'E' in this column.

6.48.29 WEST

Western species. This attribute indicates if the tree species can occur in the Western United States. Valid western species are marked with a 'W' in this column.

6.48.30 CARIBBEAN

Caribbean Islands species. This attribute indicates if the tree species can occur in the Caribbean Islands. Valid species for the Caribbean Islands are marked with a 'C' in this column.

6.48.31 PACIFIC

Pacific Islands species. This attribute indicates if the tree species can occur in the Pacific Islands. Valid species for the Pacific Islands are marked with a 'P' in this column.

6.48.32 WOODLAND

Woodland species. This attribute indicates if the tree species is classified as a woodland species, meaning that the diameter is measured as root collar. Woodland species are marked with an 'X' in this column.

6.48.33 MANUAL_START

Manual start. The version of the first field guide (ID_PLOT.MANUAL_NATIONAL) that the FIA species code (SPCD) was used.

6.48.34 MANUAL_END

Manual end. The version of the last field guide (ID_PLOT.MANUAL_NATIONAL) that the FIA species code (SPCD) was used. When MANUAL_END is blank (null), the species code is still valid.

6.48.35 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.

Codes: JENKINS_SPGRPCD

Code	Description
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.

6.48.36 JENKINS_TOTAL_B1

Jenkins total B1. Jenkins B1 coefficient used to estimate total aboveground oven-dry biomass, in pounds. This is coefficient B_0 from table 4 in Jenkins and others (2003).

Use JENKINS_TOTAL_B1 along with JENKINS_TOTAL_B2 to estimate total aboveground biomass (includes stem wood [bole], stump, bark, top, limbs, and foliage) with the equation below:

Total_agb = (Exp(JENKINS_TOTAL_B1 + JENKINS_TOTAL_B2 * ln(DIA*2.54)) * 2.2046)

Codes: JENKINS_TOTAL_B1

JENKINS_SPGRPCD	JENKINS_TOTAL_B1
1	-2.03360
2	-2.23040

JENKINS_SPGRPCD	JENKINS_TOTAL_B1
3	-2.53840
4	-2.53560
5	-2.07730
6	-2.20940
7	-1.91230
8	-2.48000
9	-2.01270
10	-0.71520

6.48.37 JENKINS_TOTAL_B2

Jenkins total B2. Jenkins B2 coefficient used to estimate total aboveground oven-dry biomass, in pounds. This is coefficient B_1 from table 4 in Jenkins and others (2003).

Use JENKINS_TOTAL_B2 along with JENKINS_TOTAL_B1 to estimate total aboveground biomass (includes stem wood [bole], stump, bark, top, limbs, and foliage) with the equation below:

Total_agb = (Exp(JENKINS_TOTAL_B1 + JENKINS_TOTAL_B2 * ln(DIA*2.54)) * 2.2046)

Codes: JENKINS_TOTAL_B2

JENKINS_SPGRPCD	JENKINS_TOTAL_B2
1	2.25920
2	2.44350
3	2.48140
4	2.43490
5	2.33230
6	2.38670
7	2.36510
8	2.48350
9	2.43420
10	1.70290

6.48.38 JENKINS_STEM_WOOD_RATIO_B1

Jenkins stem wood ratio B1. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_0 for stem wood from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD). The stem is defined as that portion of the tree from a 1-foot stump to a 4-inch DOB top (i.e., the merchantable bole).

The average proportion of aboveground biomass in stem wood is calculated using this equation:

stem_ratio = Exp(JENKINS_STEM_WOOD_RATIO_B1 +
JENKINS_STEM_WOOD_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_STEM_WOOD_RATIO_B1

Species category	JENKINS_STEM_WOOD_RATIO_B1
Softwood (S)	-0.3737
Hardwood (H)	-0.3065

6.48.39 JENKINS_STEM_WOOD_RATIO_B2

Jenkins stem wood ratio B2. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_1 for stem wood from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD). The stem is defined as that portion of the tree from a 1-foot stump to a 4-inch DOB top (i.e., the merchantable bole).

The average proportion of aboveground biomass in stem wood is calculated using this equation:

stem_ratio = Exp(JENKINS_STEM_WOOD_RATIO_B1 +
JENKINS_STEM_WOOD_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_STEM_WOOD_RATIO_B2

Species category	JENKINS_STEM_WOOD_RATIO_B2
Softwood (S)	-1.8055
Hardwood (H)	-5.4240

6.48.40 JENKINS_STEM_BARK_RATIO_B1

Jenkins stem bark ratio B1. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_0 for stem bark from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD). This ratio estimates bark biomass on the stem, defined as that portion of the tree from a 1-foot stump to a 4-inch DOB top (i.e., the merchantable bole).

The average proportion of aboveground biomass in stem bark is calculated using this equation:

bark_ratio = Exp(JENKINS_STEM_BARK_RATIO_B1 +
JENKINS_STEM_BARK_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_STEM_BARK_RATIO_B1

Species category	JENKINS_STEM_BARK_RATIO_B1
Softwood (S)	-2.0980
Hardwood (H)	-2.0129

6.48.41 JENKINS_STEM_BARK_RATIO_B2

Jenkins stem bark ratio B2. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_1 for stem bark from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD). This ratio estimates bark biomass on the stem, defined as that portion of the tree from a 1-foot stump to a 4-inch DOB top (i.e., the merchantable bole).

The average proportion of aboveground biomass in stem bark is calculated using this equation:

bark_ratio = Exp(JENKINS_STEM_BARK_RATIO_B1 + JENKINS_STEM_BARK_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_STEM_BARK_RATIO_B2

Species category	JENKINS_STEM_BARK_RATIO_B2
Softwood (S)	-1.1432
Hardwood (H)	-1.6805

6.48.42 JENKINS_FOLIAGE_RATIO_B1

Jenkins foliage ratio B1. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_0 for foliage from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD).

The average proportion of aboveground biomass in foliage is calculated using this equation:

foliage_ratio = Exp(JENKINS_FOLIAGE_RATIO_B1 + JENKINS_FOLIAGE_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_FOLIAGE_RATIO_B1

Species category	JENKINS_FOLIAGE_RATIO_B1
Softwood (S)	-2.9584
Hardwood (H)	-4.0813

6.48.43 JENKINS_FOLIAGE_RATIO_B2

Jenkins foliage ratio B2. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_1 for foliage from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD).

The average proportion of aboveground biomass in foliage is calculated using this equation:

foliage_ratio = Exp(JENKINS_FOLIAGE_RATIO_B1 + JENKINS_FOLIAGE_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_FOLIAGE_RATIO_B2

Species category	JENKINS_FOLIAGE_RATIO_B2
Softwood (S)	4.4766
Hardwood (H)	5.8816

6.48.44 JENKINS_ROOT_RATIO_B1

Jenkins root ratio B1. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_0 for coarse roots from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD).

The average proportion of coarse roots to total aboveground biomass is calculated using this equation:

root_ratio = Exp(JENKINS_ROOT_RATIO_B1 +
JENKINS_ROOT_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_ROOT_RATIO_B1

Species category	JENKINS_ROOT_RATIO_B1
Softwood (S)	-1.5619
Hardwood (H)	-1.6911

6.48.45 JENKINS_ROOT_RATIO_B2

Jenkins root ratio B2. A coefficient used in computing component ratio biomass. This is equivalent to coefficient B_1 for coarse roots from table 6 in Jenkins and others (2003). The appropriate coefficient to use is based on the species category (SFTWD_HRDWD).

The average proportion of coarse roots to total aboveground biomass is calculated using this equation:

root_ratio = Exp(JENKINS_ROOT_RATIO_B1 +
JENKINS_ROOT_RATIO_B2 / (DIA*2.54))

Codes: JENKINS_ROOT_RATIO_B2

Species category	JENKINS_ROOT_RATIO_B2
Softwood (S)	0.6614
Hardwood (H)	0.8160

6.48.46 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 ID_TREE.DRY_TOT_BIOMASS (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.

6.48.47 WOOD_SPGR_GREENVOL_DRYWT

Green specific gravity of wood (green volume and oven-dry weight). This attribute is used to determine the oven-dry weight, in pounds, of live and dead trees based on volume attributes in the ID_TREE table (CF_SND_VOLUME, CF_GROSS_VOLUME, CF_NET_VOLUME). These volumes are assumed to be green wood volumes. For example, oven-dry biomass for the sound volume in a tree can be calculated using this equation:

B_{odw} = CF_SND_VOLUME * WOOD_SPGR_GREENVOL_DRYWT * 62.4

where:

B_{odw} = sound oven-dry biomass of a tree in pounds

CF_SND_VOLUME = sound volume of a tree in cubic feet

6.48.48 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

6.48.49 BARK_SPGR_GREENVOL_DRYWT

Green specific gravity of bark (green volume and oven-dry weight). There is some shrinkage in bark volume when a live tree is cut and dried. In FIADB, this specific gravity is used on live and dead trees to convert green volume to oven-dry weight in pounds. Oven-dry biomass for bark can be calculated using the volume of a tree using this equation:

B_{odw} = BARK_VOLUME * BARK_SPGR_GREENVOL_DRYWT * 62.4

where:

B_{odw} = oven-dry biomass of bark on a tree in pounds

BARK_VOLUME = volume of the bark on a tree bole, in cubic feet. Note that bark volume is often estimated by subtracting volume of the bole inside bark from volume of the bole outside bark. Or an estimate of bark volume can be obtained using any tree volume column along with BARK_VOL_PCT found in this table as follows:

BARK_VOLUME = TREE_VOLUME * (BARK_VOL_PCT / 100)

6.48.50 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

6.48.51 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. To estimate the biomass of green bark, use the following formula for each biomass component:

Biomass in pounds = ((1 + [MC_PCT_GREEN_BARK] / 100) *
(1 - ([BARK_VOL_PCT] / (100 + [BARK_VOL_PCT])) *
[BARK_SPGR_GREENVOL_DRYWT])) *
[a biomass component: DRYBIO_BOLE, DRYBIO_TOP,
DRYBIO_STUMP, DRYBIO_SAPLING, or DRYBIO_WDLD_SPP]

Note: The biomass must be multiplied by TPA_UNADJ and the appropriate adjustment factor to develop a per-acre estimate.

6.48.52 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

6.48.53 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. To estimate the biomass of green wood, use the following formula for each biomass component:

Biomass in pounds = ((1 + [MC_PCT_GREEN_WOOD] / 100) *
([BARK_VOL_PCT] / (100 + [BARK_VOL_PCT]) *
[WOOD_SPGR_GREENVOL_DRYWT])) *
[a biomass component: BOLE_BIOMASS, TOP_BIOMASS,
STUMP_BIOMASS, SAPLING_BIOMASS, or WDLD_BIOMASS]

Note: The biomass must be multiplied by TPA_UNADJ and the appropriate adjustment factor to develop a per-acre estimate.

6.48.54 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

6.48.55 WOOD_SPGR_MC12VOL_DRYWT

Wood specific gravity (12 percent moisture content volume and oven-dry weight). A value used in biomass estimation of forest products (e.g., lumber, veneer).

6.48.56 WOOD_SPGR_MC12VOL_DRYWT_CIT

Citation for WOOD_SPGR_MC12VOL_DRYWT. A unique number identifying the citation for the WOOD_SPGR_MC12VOL_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

6.48.57 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.

6.48.58 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

6.48.59 RAILE_STUMP_DOB_B1

Raile stump diameter outside bark equation coefficient B1. This is equivalent to coefficient B from table 1 in Raile (1982). This coefficient is used in an equation to estimate diameter outside bark at any point on the stump from ground to 1 foot high. From this, volume outside bark is estimated for the selected height along the stump. Volume inside bark is subtracted from volume outside bark to estimate bark volume. Both volumes are converted to biomass using either wood or bark specific gravities. (DOB and DIA are in inches, HT is in feet.)

DOB = DIA + (DIA * RAILE_STUMP_DOB_B1 * (4.5-HT) / (HT+1))

6.48.60 RAILE_STUMP_DIB_B1

Raile stump diameter inside bark equation coefficient B1. This is equivalent to coefficient A from table 2 in Raile (1982). This coefficient is used along with RAILE_STUMP_DIB_B2 in an equation to estimate diameter inside bark at any point on the stump from ground to 1 foot high. From this, volume inside bark is estimated for the selected height along the stump. Volume inside bark is subtracted from volume outside bark to estimate bark volume. Both volumes are converted to biomass using either wood or bark specific gravities. (DIB and DIA are in inches, HT is in feet.)

DIB = (DIA * RAILE_STUMP_DIB_B1) +
(DIA * RAILE_STUMP_DIB_B2 * (4.5-HT) / (HT+1))

6.48.61 RAILE_STUMP_DIB_B2

Raile stump diameter inside bark equation coefficient B2. This is equivalent to coefficient B from table 2 in Raile (1982). This coefficient is used along with RAILE_STUMP_DIB_B1 in an equation to estimate diameter inside bark at any point on the stump from ground to 1 foot high. From this, volume inside bark is estimated for the selected height along the stump. Volume inside bark is subtracted from volume outside bark to estimate bark volume. Both volumes are converted to biomass using either wood or bark specific gravities. (DIB and DIA are in inches, HT is in feet.)

DIB = (DIA * RAILE_STUMP_DIB_B1) +
(DIA * RAILE_STUMP_DIB_B2 * (4.5-HT) / (HT+1))

6.48.62 CWD_DECAY_RATIO1

Coarse woody debris decay ratio 1. Ratio of decayed to sound wood weight of CWD indicated by decay class 1.

6.48.63 CWD_DECAY_RATIO2

Coarse woody debris decay ratio 2. Ratio of decayed to sound wood weight of CWD indicated by decay class 2.

6.48.64 CWD_DECAY_RATIO3

Coarse woody debris decay ratio 3. Ratio of decayed to sound wood weight of CWD indicated by decay class 3.

6.48.65 CWD_DECAY_RATIO4

Coarse woody debris decay ratio 4. Ratio of decayed to sound wood weight of CWD indicated by decay class 4.

6.48.66 CWD_DECAY_RATIO5

Coarse woody debris decay ratio 5. Ratio of decayed to sound wood weight of CWD indicated by decay class 5.

6.48.67 DWM_CARBON_RATIO

Down woody debris carbon ratio. Ratio of carbon to dry wood weight.

6.48.68 STANDING_DEAD_DECAY_RATIO1

Standing dead decay ratio 1. Ratio of decayed wood density to undecayed wood density as indicated by decay class 1.

6.48.69 STANDING_DEAD_DECAY_RATIO2

Standing dead decay ratio 2. Ratio of decayed wood density to undecayed wood density as indicated by decay class 2.

6.48.70 STANDING_DEAD_DECAY_RATIO3

Standing dead decay ratio 3. Ratio of decayed wood density to undecayed wood density as indicated by decay class 3.

6.48.71 STANDING_DEAD_DECAY_RATIO4

Standing dead decay ratio 4. Ratio of decayed wood density to undecayed wood density as indicated by decay class 4.

6.48.72 STANDING_DEAD_DECAY_RATIO5

Standing dead decay ratio 5. Ratio of decayed wood density to undecayed wood density as indicated by decay class 5.

6.48.73 CREATED_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.48.74 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.48.75 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.

6.48.76 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.

6.48.77 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.

6.48.78 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.

6.48.79 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.BOLE_BIOMASS 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))

6.49 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	SPGRPCD	Species group code	NUMBER(2)
6.49.2	NAME	Species group name	VARCHAR2(40)
6.49.3	REGION	Region	VARCHAR2(20)
6.49.4	CLASS	Class	VARCHAR2(8)
6.49.5	CREATED_BY	Created by	VARCHAR2(30)
6.49.6	CREATED_DATE	Created date	DATE
6.49.7	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.49.8	MODIFIED_BY	Modified by	VARCHAR2(30)
6.49.9	MODIFIED_DATE	Modified date	DATE
6.49.10	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RSG_PK	SPGRPCD	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.
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_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.49.6 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.49.7 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.

6.49.8 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.

6.49.9 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.

6.49.10 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.

6.50 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	VALUE	Code value	NUMBER(1)
6.50.2	ABBR	Code abbreviation	VARCHAR2(18)
6.50.3	MEANING	Code meaning	VARCHAR2(472)
6.50.4	RETIRED	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 (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) / 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) / 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.

Code	Description
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(617)
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	**Outside U.S. boundary** - Condition classes beyond the U.S. border.
2	**Denied access area** - 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	**Hazardous situation** - Any area within the sampled area on plot that cannot be accessed because of a hazard or danger.
4	**Time limitation** - Subplot cannot be sampled due to time restriction.
5	**Lost data** - This code is for office use only.
6	**Lost plot** - Entire plot cannot be found.
7	**Wrong location** - 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	**Skipped visit** - This code is for office use only.
9	**Dropped intensified plot** - This code is for office use only.
10	**Other** - Condition class is not sampled due to a reason other than one of the specific reasons listed.
11	**Ocean** - 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(408)
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	**None** - No observable treatment.
10	**Cutting** - The removal of one or more trees from a stand.
20	**Site preparation** - Clearing, slash burning, chopping, disking, bedding, or other practices clearly intended to prepare a site for either natural or artificial regeneration.
30	**Artificial regeneration** - 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	**Natural regeneration** - 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	**Other silvicultural treatment** - 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 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
6.54.1	VALUE	Code value	NUMBER(1)
6.54.2	ABBR	Code abbreviation	VARCHAR2(13)
6.54.3	MEANING	Code meaning	VARCHAR2(386)
6.54.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTC_PK	VALUE	N/A

6.54.1 VALUE

Code value. The value of the code.

Codes: VALUE (TREECLCD)

Code	Description
2	**Growing stock** - 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	**Rough cull** - 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	**Rotten cull** - 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.

6.54.2 ABBR

Code abbreviation. The abbreviation for the code.

6.54.3 MEANING

Code meaning. A brief summary description of the meaning of the code.

6.54.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.

6.55 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
6.55.1	VALUE	Code value	NUMBER(1)
6.55.2	ABBR	Code abbreviation	VARCHAR2(21)
6.55.3	MEANING	Code meaning	VARCHAR2(58)
6.55.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTD_PK	VALUE	N/A

6.55.1 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.

6.55.2 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 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.

Referencing column(s):

- ID_MOTHER_TREE.IS_PLANTED
- ID_TREE.IS_PLANTED

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.56.1	VALUE	Code value	NUMBER(1)
6.56.2	ABBR	Code abbreviation	VARCHAR2(8)
6.56.3	MEANING	Code meaning	VARCHAR2(72)
6.56.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTP_PK	VALUE	N/A

6.56.1 VALUE

Code value. The value of the code.

Codes: VALUE (IS_PLANTED)

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

6.56.2 ABBR

Code abbreviation. The abbreviation for the code.

6.56.3 MEANING

Code meaning. A brief summary description of the meaning of the code.

6.56.4 RETIRED

Code retired. A yes/no (Y/N) value indicating whether or not the code is retired.

6.57 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
6.57.1	VALUE	Code value	NUMBER(1)
6.57.2	ABBR	Code abbreviation	VARCHAR2(14)
6.57.3	MEANING	Code meaning	VARCHAR2(444)
6.57.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RTS_PK	VALUE	N/A

6.57.1 VALUE

Code value. The value of the code.

Codes: VALUE (STATUSCD)

Code	Description
0	**No status** - 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	**Live tree** - Any live tree (new, remeasured, or ingrowth).
2	**Dead tree** - 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.

Code	Description
3	**Cut & Utilized** - Collected on remeasurement trees only. A tree that occupied a forested condition in the previous inventory only. A tree that has been cut and removed by direct human activity related to harvesting, silviculture, or land clearing. The tree is assumed to have been utilized for commercial purposes, such as timber, chips, or firewood, and noncommercial purposes such as domestic firewood, landscaping, and fence posts.
4	**Removed** - Collected on remeasurement trees only. A tree that has been removed by direct human activity but not likely utilized for a commercial product, such as timber, chips, or firewood, and noncommercial purposes such as domestic firewood, landscaping, and fence posts.

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 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_BOUNDARY.UNITCD
- ID_BUILDING_INTERACTION.UNITCD
- ID_CLOSED_BOUNDARY.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
6.58.1	STATECD	State code	NUMBER(4)
6.58.2	VALUE	Code value	NUMBER(2)
6.58.3	MEANING	Code meaning	VARCHAR2(80)
6.58.4	CREATED_BY	Created by	VARCHAR2(30)
6.58.5	CREATED_DATE	Created date	DATE
6.58.6	CREATED_IN_INSTANCE	Created in instance	VARCHAR2(6)
6.58.7	MODIFIED_BY	Modified by	VARCHAR2(30)

Subsection	Column name (attribute)	Descriptive name	Oracle data type
6.58.8	MODIFIED_DATE	Modified date	DATE
6.58.9	MODIFIED_IN_INSTANCE	Modified in instance	VARCHAR2(6)

Key type	Alias	Constraint column(s)	Table joins
Primary	RUNT_PK	STATECD, UNITCD	N/A

6.58.1 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.

6.58.2 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

6.58.3 MEANING

Code meaning. The name of the survey unit within a given State.

6.58.4 CREATED_BY

Created by. The employee (or user profile) who created the record. This attribute is intentionally left blank in download files.

6.58.5 CREATED_DATE

Created date. The date the record was created, which is typically in the format of MM/DD/YYYY for download files.

6.58.6 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.

6.58.7 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.

6.58.8 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.

6.58.9 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.

6.59 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
6.59.1	VALUE	Code value	NUMBER(1)
6.59.2	ABBR	Code abbreviation	VARCHAR2(15)
6.59.3	MEANING	Code meaning	VARCHAR2(221)
6.59.4	RETIRED	Code retired	CHAR(1)

Key type	Alias	Constraint column(s)	Table joins
Primary	RWOP_PK	VALUE	N/A

6.59.1 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).

6.59.2 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.

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	Database Version History Table	ADMIN_DB_VERSION
7.2	Entity Short Name Table	ADMIN_ENTITY_SHORTNAME
7.3	Publication Data Standard Table	ADMIN_PUB_DATA_STANDARD
7.4	Publication Summary Report Table	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' 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. This column identifies the status for the database version. It is populated with 'Y' when the database version is active. It is blank (null) when the database version has been retired.

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.

Table 7-1: Entity short names (alias).

ENTITY_NAME	ENTITY_SHORTNAME
ADMIN_DB_VERSION	ADBVER
ADMIN_ENTITY_SHORTNAME	AES
ADMIN_PUB_DATA_STANDARD	PDS
ADMIN_PUB_SUMMARY_RPT	APSR
ID_BOUNDARY	BND
ID_BUILDING_INTERACTION	BINTA
ID_CLOSED_BOUNDARY	CBND
ID_COND	CND
ID_ENERGY_EFFECT	EE
ID_INVASIVE_SUBP_COND	ISPCND
ID_MOTHER_TREE	MTRE
ID_PLOT	PLT
ID_PLOT_FLDSAMP_ASSGN	PFSA

ENTITY_NAME	ENTITY_SHORTNAME
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_STAT_SAMP	PSS
POP_STAT_SAMP_ATTRIBUTE_ASSGN	PSSAA
POP_STAT_SAMP_CONSTR_ASSGN	PSSCA
POP_STAT_SAMP_DOMAIN_ASSGN	PSSDA
POP_STRATUM_CALC	PSC
REF_ABNORMAL_TERMINATION	RAT
REF_ABSENT_PRESENT	RAP
REF_BOLE_STUMP_REMOVED	RBSR
REF_BOUNDARY_CHANGE	RBC
REF_BUILDING_DISTANCE	RBD
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_FOREST_TYPE	RFT
REF_FOREST_TYPE_GROUP	RFTG
REF_HORIZ_DIST_IMPRVD_ROAD	RHDIR
REF_INVASIVE_SPECIES	RIS
REF_ITREE_LANDUSE	RIL
REF_LAND_COVER_CLASS	RLCC
REF_LENGTH_METHOD	RLM
REF_NONFOREST_LANDUSE	RNL
REF_NO_YES	RNY
REF_OFFSET_POINT	ROP
REF_OWNER_CLASS	ROC
REF_OWNER_GROUP	ROG
REF_PERCENT_CLASS_CODE	RPCC
REF_PHYSIOGRAPHIC_CLASS	RPC
REF_PLANT_DICTIONARY	RPD
REF_PLOT_NONSAMPLE_REASN	RPNR
REF_PLOT_STATUS	RPS
REF_PLOT_TYPE	RPT
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_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

ENTITY_NAME	ENTITY_SHORTNAME
REF_TREE_CLASS	RTC
REF_TREE_DENSITY	RTD
REF_TREE_PLANTED	RTP
REF_TREE_STATUS	RTS
REF_UNIT	RUNT
REF_WATER_ON_PLOT	RWOP
SO_FIELD_SAMPLE	FLDSMP
SO_POP_STRUCT_ELMT	PSTREL
SO_PROJECT	PRJ
SO_RESEARCH_ORGANIZATION	RESORG
SO_SAMPLE_RULE	SMPRL

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)

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. This column identifies the status for the compiled data standard. It is populated with 'Y' when the standard is active. It is blank (null) when the standard has been retired.

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

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 NAME) and the CDS version number (see VERSION) (e.g., UFIA-3.0).

7.4.7 RECORDS_LOADED

Records loaded. The number of records loaded for the project and load type.

Literature Cited

Daubenmire, R. 1959. A canopy-coverage method of vegetational analysis. Northwest Science. 33: 43-64.

Federal Geographic Data Committee Vegetation Subcommittee. 2008. National vegetation classification standard, version 2. FGDC Document number FGDC-STD-005-2008. Washington D.C.: Federal Geographic Data Committee. 119 p. https://www.fgdc.gov/standards/projects/vegetation/NVCS_V2_FINAL_2008-02.pdf

Jenkins, J.C.; Chojnacky, D.C.; Heath, L.S.; Birdsey, R.A. 2003. National scale biomass estimators for United States tree species. Forest Science. 49: 12-35.

McPherson, E.G.; Simpson, J.R. 1999. Carbon dioxide reduction through urban forestry: guidelines for professional and volunteer tree planters. Gen. Tech. Rep. PSW-GTR-171. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 237 p.

Raile, G.K. 1982. Estimating stump volume. Res. Paper NC-224. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station. 4 p.

Tiner, R.W. 1997. Technical aspects of wetlands: wetland definitions and classifications in the United States. United States Geological Survey Water Supply Paper 2425. https://water.usgs.gov/nwsum/WSP2425/definitions.html

Urban Forest Inventory and Analysis Database (Urban FIADB) User Guides series. Available at web address: https://www.fia.fs.fed.us/library/database-documentation/.

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 *statistical sample* and a *stratification* 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 context of a project. It organizes information identifying projects, the populations they target, the structure of the target population, and the sampling rules for the project.

Section	Oracle table name	Table name	Description
	ADMIN_		
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.
	ID_		
3.1	ID_BOUNDARY	Boundary Table	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. **Table joins:** • ID_BOUNDARY.PLT_CN = ID_PLOT.CN links the boundary record to the plot visit record. • ID_BOUNDARY.SBP_CN = ID_SUBPLOT.CN links the boundary record to the subplot record. • ID_BOUNDARY.CONTRAST_CND_CN = ID_COND.CN links the boundary record to the contrasting condition record. • ID_BOUNDARY.MAPPED_CND_CN = ID_COND.CN links the boundary record to the mapped condition record. • ID_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN links the boundary record to the previous plot visit record.

Section	Oracle table name	Table name	Description
3.2	ID_BUILDING_INTERACTION	Building Interaction Table	This table stores data for one or more interactions between a tree and a building within a short distance of the tree. **Table joins:** • ID_BUILDING_INTERACTION.PLT_CN = ID_PLOT.CN links the building interaction record to the plot visit record. • ID_BUILDING_INTERACTION.SBP_CN = ID_SUBPLOT.CN links the building interaction record to the subplot record. • ID_BUILDING_INTERACTION.CND_CN = ID_COND.CN links the building interaction record to the condition record. • ID_BUILDING_INTERACTION.MTRE_CN = ID_MOTHER_TREE.CN links the building interaction record to the mother tree record. • ID_BUILDING_INTERACTION.PREV_PLT_CN = ID_PLOT.CN links the building interaction record to the previous plot visit record.
3.3	ID_CLOSED_BOUNDARY	Closed Boundary Table	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. **Table joins:** • ID_CLOSED_BOUNDARY.PLT_CN=ID_PLOT.CN links the closed boundary record the plot visit record. • ID_CLOSED_BOUNDARY.SBP_CN = ID_SUBPLOT.CN links the closed boundary record to the subplot record. • ID_CLOSED_BOUNDARY.CND_CN = ID_COND.CN links the closed boundary record to the condition record. • ID_CLOSED_BOUNDARY.PREV_PLT_CN = ID_PLOT.CN links the closed boundary record to the previous plot visit record.
3.4	ID_COND	Condition Table	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. **Table joins:** • ID_COND.PLT_CN = ID_PLOT.CN links the condition record to the plot visit record. • ID_COND.PREV_PLT_CN = ID_PLOT.CN links the condition record to the previous plot visit record.

Section	Oracle table name	Table name	Description
3.5	ID_ENERGY_EFFECT	Energy Effect Table	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). These effects are broken down by energy use and energy influence type. Estimates quantify the amount of energy use avoided as well as an estimated dollar value of energy consumption avoided. **Table joins:** • ID_ENERGY_EFFECT.BINTA_CN = ID_BUILDING_INTERACTION.CN links the energy effect record to the building interaction record. • ID_ENERGY_EFFECT.PLT_CN = ID_PLOT.CN links the energy effect record to the plot visit record. • ID_ENERGY_EFFECT.SBP_CN = ID_SUBPLOT.CN links the energy effect record to the subplot record. • ID_ENERGY_EFFECT.CND_CN = ID_COND.CN links the energy effect record to the condition record. • ID_ENERGY_EFFECT.MTRE_CN = ID_MOTHER_TREE.CN links the energy effect record to the mother tree record. • ID_ENERGY_EFFECT.PREV_PLT_CN = ID_PLOT.CN links the energy effect record to the previous plot visit record.
3.6	ID_INVASIVE_SUBP_COND	Invasive Species Subplot Condition Table	This table stores information for the invasive species indicator for all accessible conditions on a subplot. Every record represents the unique intersection of an invasive species, a subplot, and a condition. T**able joins:** • ID_INVASIVE_SUBP_COND.PLT_CN = ID_PLOT.CN links the invasive species subplot condition record to the plot visit record. • ID_INVASIVE_SUBP_COND.SBP_CN = ID_SUBPLOT.CN links the invasive species subplot condition record to the subplot record. • ID_INVASIVE_SUBP_COND.CND_CN = ID_COND.CN links the invasive species subplot condition record to the condition record. • ID_INVASIVE_SUBP_COND.PREV_PLT_CN = ID_PLOT.CN links the invasive species subplot condition record to the previous plot visit record.

Section	Oracle table name	Table name	Description
3.7	ID_MOTHER_TREE	Mother Tree Table	This table stores information for trees, live and standing dead ≥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. **Table joins:** • ID_MOTHER_TREE.PLT_CN = ID_PLOT.CN links the mother tree record to the plot visit record. • ID_MOTHER_TREE.SBP_CN = ID_SUBPLOT.CN links the mother tree record to the subplot record. • ID_MOTHER_TREE.CND_CN = ID_COND.CN links the mother tree record to the condition record. • ID_MOTHER_TREE.PREV_PLOT_CN = ID_PLOT.CN links the mother tree record to the previous plot visit record. • ID_MOTHER_TREE.PREV_MTRE_CN = ID_MOTHER_TREE.CN links the mother tree record to the previous mother tree record.
3.8	ID_PLOT	Plot Table	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. **Table joins:** This table links to most other tables, and the linkage is made using ID_PLOT.CN = *TABLE_NAME*.PLT_CN (*TABLE_NAME* is the name of any table containing the column name PLT_CN). Below are some examples linking the ID_PLOT table to other tables. **Examples:** • ID_PLOT.CN = ID_MOTHER_TREE.PLT_CN links the plot visit record to the mother tree record. • ID_PLOT.CN = ID_TREE.PLT_CN links the plot visit record to the tree record. • ID_PLOT.CN = ID_SUBPLOT.PLT_CN links the plot visit record to the subplot record. • ID_PLOT.CN = ID_COND.PLT_CN links the plot visit record to the condition record. **Previous plot visit link:** • ID_PLOT.PREV_PLT_CN = ID_PLOT.CN links the plot visit record to the previous plot visit record.

Section	Oracle table name	Table name	Description
3.9	ID_PLOT_FLDSAMP_ASSGN	Plot Field Sample Assignment Table	This table stores the linkage between plots (see ID_PLOT table) and field samples (see SO_FIELD_SAMPLE table). This relationship is modeled as many-to-many. This means a given field sample can be associated with many plots and a given plot can be associated with many field samples. **Table joins:** • ID_PLOT_FLDSAMP_ASSGN.PLT_CN = ID_PLOT.CN links the plot field sample assignment record to the plot visit record. • ID_PLOT_FLDSAMP_ASSGN.FLDSMP_CN = SO_FIELD_SAMPLE.FLDSMP_CN links the plot field sample assignment record to the field sample record.
3.10	ID_PLOT_STAT_SAMP_ASSGN	Plot Statistical Sample Assignment Table	This table stores 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. **Table joins:** • ID_PLOT_STAT_SAMP_ASSGN.PLT_CN = ID_PLOT.CN links the plot statistical sample assignment record to the plot visit record. • ID_PLOT_STAT_SAMP_ASSGN.PSS_CN = POP_STAT_SAMP.CN links the plot statistical sample assignment record to the population statistical sample record.
3.11	ID_PLOT_STRAT_CALC_ASSGN	Plot Stratum Calculation Assignment Table	This table stores 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. **Table joins:** • ID_PLOT_STRAT_CALC_ASSGN.PLT_CN = ID_PLOT.CN links the plot stratum calculation assignment record to the plot visit record. • ID_PLOT_STRAT_CALC_ASSGN.PSC_CN = POP_STRATUM_CALC.CN links the plot stratum calculation assignment record to the population stratum calculation record.

Section	Oracle table name	Table name	Description
3.12	ID_SEEDLING	Seedling Table	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. **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. **Table joins:** • ID_SEEDLING.PLT_CN = ID_PLOT.CN links the seedling record to the plot visit record. • ID_SEEDLING.SBP_CN = ID_SUBPLOT.CN links the seedling record to the subplot record. • ID_SEEDLING.CND_CN = ID_COND.CN links the seedling record to the condition record. • ID_SEEDLING.PREV_PLT_CN = ID_PLOT.CN links the seedling record to the previous plot visit record.
3.13	ID_SITETREE	Site Tree Table	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. **Table joins:** • ID_SITETREE.PLT_CN = ID_PLOT.CN links the site tree record to the plot visit record. • ID_SITETREE.SBP_CN = ID_SUBPLOT.CN links the site tree record to the subplot record. • ID_SITETREE.CND_CN = ID_COND.CN links the site tree record to the condition record. • ID_SITETREE.PREV_PLT_CN = ID_PLOT.CN links the site tree record to the previous plot visit record.
3.15	ID_SUBP_COND	Subplot Condition Table	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 the boundary data. These proportions can be expanded to the population level and expressed in areal units (e.g., acres or hectares). **Table joins:** • ID_SUBP_COND.PLT_CN = ID_PLOT.CN links the subplot condition record to the plot visit record. • ID_SUBP_COND.SBP_CN = ID_SUBPLOT.CN links the subplot condition record to the subplot record. • ID_SUBP_COND.CND_CN = ID_COND.CN links the subplot condition record to the condition record. • ID_SUBP_COND.PREV_PLT_CN = ID_PLOT.CN links the subplot condition record to the previous plot visit record.

Section	Oracle table name	Table name	Description
3.14	ID_SUBPLOT	Subplot Table	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. **Table joins:** • ID_SUBPLOT.PLT_CN = ID_PLOT.CN links the subplot record to the plot visit record. • ID_SUBPLOT.CENTER_CND_CN = ID_COND.CN links the subplot record to the center condition record. • ID_SUBPLOT.REMAINING_CND_CN = ID_COND.CN links the subplot record to the remaining condition record. • ID_SUBPLOT.PREV_PLT_CN = ID_PLOT.CN links the subplot record to the previous plot visit record.
3.16	ID_TREE	Tree Table	This table stores information describing live and standing dead trees ≥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. **Table joins:** • ID_TREE.PLT_CN = ID_PLOT.CN links the tree record to the plot visit record. • ID_TREE.SBP_CN = ID_SUBPLOT.CN links the tree record to the subplot record. • ID_TREE.CND_CN = ID_COND.CN links the tree record to the condition record. • ID_TREE.MTRE_CN = ID_MOTHER_TREE.CN links the tree record to the mother tree record. • ID_TREE.PREV_PLT_CN = ID_PLOT.CN links the tree record to the previous plot visit record. • ID_TREE.PREV_TRE_CN = ID_TREE.CN links the tree record to the previous tree record.

Section	Oracle table name	Table name	Description
3.17	ID_WOODLAND_STEM	Woodland Stem Table	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 ID_TREE record. **Table joins:** • ID_WOODLAND_STEM.PLT_CN = ID_PLOT.CN links the woodland stem record to the plot visit record. • ID_WOODLAND_STEM.SBP_CN = ID_SUBPLOT.CN links the woodland stem record to the subplot record. • ID_WOODLAND_STEM.CND_CN = ID_COND.CN links the woodland stem record to the condition record. • ID_WOODLAND_STEM.MTRE_CN = ID_MOTHER_TREE.CN links the woodland stem record to the mother tree record. • ID_WOODLAND_STEM.TRE_CN = ID_TREE.CN links the woodland stem record to the tree record. • ID_WOODLAND_STEM.PREV_PLT_CN = ID_PLOT.CN links the woodland stem record to the previous plot visit record.
	MOD_		
5.1	MOD_POLLUTION_HEALTH_FCTR	Model Pollution Health Factor Table	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 (NO2), sulfur dioxide (SO2), ozone (O3), and particulate matter ≤2.5 micrometers (PM25). **Table joins:** • MOD_POLLUTION_HEALTH_FCTR.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the pollution health factor record to the population structure element record.
5.2	MOD_POLLUTION_REMOVAL	Model Pollution Removal Table	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 (NO2), sulfur dioxide (SO2), ozone (O3), and particulate matter ≤2.5 micrometers (PM25). **Table joins:** • MOD_POLLUTION_REMOVAL.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the pollution removal record to the population structure element record.

Section	Oracle table name	Table name	Description
5.3	MOD_RAINFALL	Model Rainfall Table	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. **Table joins:** • MOD_RAINFALL.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the rainfall record to the population structure element record.
5.4	MOD_VOC_EMISSION	Model Volatile Organic Compound (VOC) Emissions Table	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. **Table joins:** • MOD_VOC_EMISSION.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the VOC emissions record to the population structure element record.
	POP_		
4.1	POP_ATTRIBUTE	Population Attribute Table	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. **Table joins:** • POP_ATTRIBUTE.PCALC_CN = POP_CALCULATION.CN links the population attribute record to the population calculation record.
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_STAT_SAMP	Population Statistical Sample Table	This table stores the identity of statistical samples. Statistical samples are used, in combination with a stratification, to produce population-attribute estimates. This table also provides the ability to define samples that may be used by non-stratified estimators.
4.6	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population Statistical Sample Attribute Assignment Table	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 POP_ATTRIBUTE table. **Table joins:** • 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. • POP_STAT_SAMP_ATTRIBUTE_ASSGN.PATTR_CN = REF_POP_ATTRIBUTE.ATTRIBUTE_ID links the population statistical sample attribute assignment record to the population attribute record.
4.7	POP_STAT_SAMP_CONSTR_ASSGN	Population Statistical Sample Constraint Assignment Table	This table stores the assignment of sample constraints to statistical samples. Each statistical sample is formed from a pool of all available plots selected for a given project and time period. Samples are formed to support specific analytical goals. This table stores the constraints used to form a given sample. The full list of sample constraints can be found in the POP_SAMPLE_CONSTRAINT table. **Table joins:** • POP_STAT_SAMP_CONSTR_ASSGN.PSS_CN = POP_STAT_SAMP.CN links the population statistical sample constraint assignment record to the population statistical sample record. • POP_STAT_SAMP_CONSTR_ASSGN.PSCON_CN = POP_SAMPLE_CONSTRAINT.CN links the population statistical sample constraint assignment record to the population sample constraint record.

Section	Oracle table name	Table name	Description
4.8	POP_STAT_SAMP_DOMAIN_ASSGN	Population Statistical Sample Domain Assignment Table	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 POP_DOMAIN table. **Table joins:** • 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. • POP_STAT_SAMP_DOMAIN_ASSGN.PDOM_CN = POP_DOMAIN.CN links the population statistical sample domain assignment record to the population domain record.
4.9	POP_STRATUM_CALC	Population Stratum Calculation Table	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. **Table joins:** • POP_STRATUM_CALC.PSS_CN = POP_STAT_SAMP.CN links the population stratum calculation record to the population statistical sample record. • POP_STRATUM_CALC.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the population stratum calculation record to the population structure element record.
	REF_		
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.

Section	Oracle table name	Table name	Description
6.4	REF_BOUNDARY_CHANGE	Reference Boundary Change Table	This table stores reference data for the BNDCHG attribute. Code for this attribute indicates if a boundary has changed since the previous measurement.
6.5	REF_BUILDING_DISTANCE	Reference Building Distance Table	This table stores reference data for the DISTANCE_CD attribute. Code for this attribute indicates the distance between a sampled tree and a building.
6.6	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.
6.7	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.
6.8	REF_CITATION	Reference Citation Table	This table stores reference data for attributes that identify publication citations, which support values or methods employed by FIA.
6.9	REF_CONDITION_NONSAMPLE_REASON	Reference Condition Nonsampled Reason Table	This table stores reference data for the COND_NONSAMPLE_REASN_CD attribute. Code for this attribute identifies the reason a condition was not sampled.
6.10	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.
6.11	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.
6.12	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.
6.13	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.
6.14	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.
6.15	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.
6.16	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.

Section	Oracle table name	Table name	Description
6.17	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.
6.18	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.
6.19	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.
6.20	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.
6.21	REF_FOREST_TYPE	Reference Forest Type Table	This table stores reference data for the FLDTYPCD attribute. Code for this attribute identifies the forest type assigned by the field crew.
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	This table stores the species symbol code and other information for invasive species that are sampled in the annualized urban inventory.
6.25	REF_ITREE_LANDUSE	Reference Land Use for i-Tree Urban Inventory System Table	Thia 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 inventory program.
6.26	REF_LAND_COVER_CLASS **RETIRED**	Reference Land Cover Class Table	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. **Note:** The LAND_COVER_CLASS_CD attribute is retired when ID_PLOT.MANUAL_NATIONAL ≥8.0 and replaced by a newer cover class version (see REF_COVER_CLASS).
6.27	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.
6.29	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).

Section	Oracle table name	Table name	Description
6.28	REF_NONFOREST_LANDUSE	Reference Nonforest 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. This reference table is limited to descriptions for nonforest land uses.
6.30	REF_OFFSET_POINT	Reference Offset Point Table	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.
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.
6.35	REF_PLANT_DICTIONARY	Reference Plant Dictionary	This table contains information about plant species as defined by the Natural Resources Conservation Service (NRCS) for the PLANTS database (https://plants.sc.egov.usda.gov/java/). 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 (SPECIES_SYMBOL) as assigned by NRCS for the PLANTS database (https://plants.sc.egov.usda.gov/java/) on a periodic basis. The most recent NRCS download for the FIA program was September 15, 2017.
6.36	REF_PLOT_NONSAMPLE_REASN	Reference Plot Nonsampled Reason Table	This table stores reference data for the PLOT_NONSAMPLE_REASN_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_PLOT_TYPE	Reference Plot Type Table	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.
6.39	REF_PREV_TREE_STATUS	Reference Previous Tree Status Table	This 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.

Section	Oracle table name	Table name	Description
6.40	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.
6.41	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.
6.42	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.
6.43	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.
6.44	REF_SAMPLE_KIND	Reference Sample Kind Table	This 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.
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 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.

Section	Oracle table name	Table name	Description
6.51	REF_SUBPLOT_NONSAMPLE_REASON	Reference Subplot Nonsampled Reason Table	This table stores reference data for the SUBP_NONSAMPLE_REASN_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_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.
6.55	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.
6.56	REF_TREE_PLANTED	Reference Tree Planted Table	This 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.
6.57	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.
6.58	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.
6.59	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.
	SO_		
2.1	SO_FIELD_SAMPLE	Field Sample Table	This table stores information describing distinct field samples supporting a series within a project. Thus, this table includes several different concepts consolidated into a single table. This consolidation was done to provide more information to the user with a minimum of table joins. The following concepts are consolidated into this table: (1) project, (2) series, and (3) field sample. **Table joins:** • SO_FIELD_SAMPLE.PRJ_CN = SO_PROJECT.CN links the field sample record to the project record.

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	This table stores a record of each project. Each project is uniquely assigned to a research organization, which has stewardship over that project. Each project targets one population for study. **Table joins:** • SO_PROJECT.RESORG_CN = SO_RESEARCH_ORGANIZATION.CN links the project record to the research organization record.
2.4	SO_RESEARCH_ORGANIZATION	Research Organization Table	This table stores information describing individual research organizations.
2.5	SO_SAMPLE_RULE	Sample Rule Table	This table has two main functions. First, it provides the linkage between the field sample (from the SO_FIELD_SAMPLE table) and the population structure element information (from the SO_POP_STRUCT_ELMT table). Second, it provides detailed information describing how a given field sample was selected for a given inventory.l **Table joins:** • SO_SAMPLE_RULE.FLDSMP_CN = SO_FIELD_SAMPLE.CN links the sample rule record to the field sample record. • SO_SAMPLE_RULE.PSTREL_CN = SO_POP_STRUCT_ELMT.CN links the sample rule record to the population structure element record. • SO_SAMPLE_RULE.PRJ_CN = SO_PROJECT.CN links the sample rule record to the project record.

Index of Column Names

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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
	A		
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_BOUNDARY_CHANGE	Code abbreviation
6.5.2	ABBR	REF_BUILDING_DISTANCE	Code abbreviation
6.6.2	ABBR	REF_CANOPY_COVER_SAMPLE_METHOD	Code abbreviation
6.7.2	ABBR	REF_CAUSE_OF_DEATH	Code abbreviation
6.9.2	ABBR	REF_CONDITION_NONSAMPLE_REASON	Code abbreviation
6.10.2	ABBR	REF_CONDITION_SAMPLING_STATUS	Code abbreviation
6.12.2	ABBR	REF_COVER_CLASS	Code abbreviation
6.13.2	ABBR	REF_CROWN_CLASS	Code abbreviation
6.14.2	ABBR	REF_CROWN_LIGHT_EXPOSURE	Code abbreviation
6.17.2	ABBR	REF_DECAY_CLASS	Code abbreviation
6.18.2	ABBR	REF_DIA_CHECK	Code abbreviation
6.19.2	ABBR	REF_DISTURBANCE	Code abbreviation
6.20.2	ABBR	REF_FIA_LANDUSE	Code abbreviation
6.22.3	ABBR	REF_FOREST_TYPE_GROUP	Code abbreviation

Section	Column name (attribute)	Oracle table name	Descriptive name
6.23.2	ABBR	REF_HORIZ_DIST_IMPRVD_ROAD	Code abbreviation
6.25.2	ABBR	REF_ITREE_LANDUSE	Code abbreviation
6.26.2	ABBR	REF_LAND_COVER_CLASS	Code abbreviation
6.27.2	ABBR	REF_LENGTH_METHOD	Code abbreviation
6.29.2	ABBR	REF_NO_YES	Code abbreviation
6.28.2	ABBR	REF_NONFOREST_LANDUSE	Code abbreviation
6.30.2	ABBR	REF_OFFSET_POINT	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_REASN	Code abbreviation
6.37.2	ABBR	REF_PLOT_STATUS	Code abbreviation
6.38.2	ABBR	REF_PLOT_TYPE	Code abbreviation
6.39.2	ABBR	REF_PREV_TREE_STATUS	Code abbreviation
6.40.2	ABBR	REF_PRODUCTIVITY_STATUS	Code abbreviation
6.41.2	ABBR	REF_RECONCILE	Code abbreviation
6.42.2	ABBR	REF_REGENERATION_STATUS	Code abbreviation
6.43.2	ABBR	REF_RESERVED_STATUS	Code abbreviation
6.44.2	ABBR	REF_SAMPLE_KIND	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
6.54.2	ABBR	REF_TREE_CLASS	Code abbreviation
6.55.2	ABBR	REF_TREE_DENSITY	Code abbreviation
6.56.2	ABBR	REF_TREE_PLANTED	Code abbreviation
6.57.2	ABBR	REF_TREE_STATUS	Code abbreviation
6.59.2	ABBR	REF_WATER_ON_PLOT	Code abbreviation
3.16.28	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
3.16.26	ACTUAL_LENGTH	ID_TREE	Actual length
4.1.4	ADJUSTMENT_EXPRESSION	POP_ATTRIBUTE	Adjustment expression

Section	Column name (attribute)	Oracle table name	Descriptive name
4.6.5	ADJUSTMENT_EXPRESSION	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Adjustment expression
3.4.26	AFFORESTATION_CD	ID_COND	Current afforestation code
3.16.95	AG_BIOMASS	ID_TREE	Aboveground dry biomass
3.16.85	AG_CARBON	ID_TREE	Aboveground carbon storage
3.13.14	AGEDIA	ID_SITETREE	Age at diameter
6.21.6	ALLOWED_IN_FIELD	REF_FOREST_TYPE	Allowed in field
3.14.15	ASPECT	ID_SUBPLOT	Subplot aspect
4.6.3	ATTRIBUTE_NAME	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population attribute name
3.2.12	AZIMUTH	ID_BUILDING_INTERACTION	Azimuth
3.13.16	AZIMUTH	ID_SITETREE	Azimuth
3.16.13	AZIMUTH	ID_TREE	Azimuth
3.3.12	AZIMUTH_NODE_1	ID_CLOSED_BOUNDARY	Azimuth to node 1
3.3.14	AZIMUTH_NODE_2	ID_CLOSED_BOUNDARY	Azimuth to node 2
3.3.16	AZIMUTH_NODE_3	ID_CLOSED_BOUNDARY	Azimuth to node 3
3.3.18	AZIMUTH_NODE_4	ID_CLOSED_BOUNDARY	Azimuth to node 4
3.3.20	AZIMUTH_NODE_5	ID_CLOSED_BOUNDARY	Azimuth to node 5
3.1.14	AZMCORNER	ID_BOUNDARY	Corner azimuth
3.1.12	AZMLEFT	ID_BOUNDARY	Left azimuth
3.1.13	AZMRIGHT	ID_BOUNDARY	Right azimuth
	B		
3.4.54	BALIVE	ID_COND	Basal area per acre of live trees
6.48.49	BARK_SPGR_GREENVOL_DRYWT	REF_SPECIES	Green specific gravity of bark (green volume and oven-dry weight)
6.48.50	BARK_SPGR_GREENVOL_DRYWT_CIT	REF_SPECIES	Citation for BARK_SPGR_GREENVOL_DRYWT
6.48.57	BARK_VOL_PCT	REF_SPECIES	Bark volume as a percent of wood volume
6.48.58	BARK_VOL_PCT_CIT	REF_SPECIES	Citation for BARK_VOL_PCT
3.7.28	BASAL_AREA	ID_MOTHER_TREE	Basal area
3.16.67	BASAL_AREA	ID_TREE	Basal area
2.5.6	BEGIN_INTENSITY	SO_SAMPLE_RULE	Begin intensity
7.4.3	BEGIN_INVYR_LOADED	ADMIN_PUB_SUMMARY_RPT	Begin inventory year loaded
2.5.8	BEGIN_PANEL70	SO_SAMPLE_RULE	Begin panel-70
3.16.68	BF_GROSS_SAWLOG_VOLUME	ID_TREE	Gross board-foot volume in the sawlog portion of the bole
3.16.69	BF_NET_SAWLOG_VOLUME	ID_TREE	Net board-foot volume in the sawlog portion of the bole
3.16.84	BG_BIOMASS	ID_TREE	Belowground dry biomass

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.86	BG_CARBON	ID_TREE	Belowground carbon storage
3.5.17	BINTA_CN	ID_ENERGY_EFFECT	Building interaction sequence number
3.2.10	BLDG_INTERACTION_ID	ID_BUILDING_INTERACTION	Building interaction identifier
3.5.10	BLDG_INTERACTION_ID	ID_ENERGY_EFFECT	Building interaction identifier
3.1.11	BNDCHG	ID_BOUNDARY	Boundary change code
3.3.10	BNDCHG	ID_CLOSED_BOUNDARY	Boundary change code
3.16.78	BOLE_BIOMASS	ID_TREE	Dry biomass in the merchantable bole
3.16.30	BOLE_STUMP_REMOVED	ID_TREE	Bole and stump removed
	C		
6.48.10	C_SPGRPCD	REF_SPECIES	Caribbean Islands species group code
4.1.2	CALCULATION_NAME	POP_ATTRIBUTE	Calculation name
4.6.4	CALCULATION_NAME	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Calculation name
3.4.22	CANOPY_CVR_SAMPLE_METHOD_CD	ID_COND	Canopy cover sample method code
3.2.18	CARBON_AVOID_SUM	ID_BUILDING_INTERACTION	Carbon emissions avoided quantity
3.2.17	CARBON_AVOID_VALUE_SUM	ID_BUILDING_INTERACTION	Carbon emissions avoided value
3.7.31	CARBON_STORAGE_ITREE	ID_MOTHER_TREE	Whole-tree carbon storage (i-Tree ECO system)
6.48.30	CARIBBEAN	REF_SPECIES	Caribbean Islands species
6.35.8	CATEGORY	REF_PLANT_DICTIONARY	Category
3.16.58	CAUSE_OF_DEATH	ID_TREE	Cause of death
3.14.19	CENTER_CND_CN	ID_SUBPLOT	Center condition sequence number
3.14.8	CENTER_CONDID	ID_SUBPLOT	Condition class identifier for center condition
3.16.70	CF_GROSS_SAWLOG_VOLUME	ID_TREE	Gross cubic-foot volume in the sawlog portion of the bole
3.16.71	CF_GROSS_VOLUME	ID_TREE	Gross cubic-foot volume in the bole
3.16.72	CF_NET_SAWLOG_VOLUME	ID_TREE	Net cubic-foot volume in the sawlog portion of the bole
3.16.73	CF_NET_VOLUME	ID_TREE	Net cubic-foot volume in the bole
3.16.74	CF_SND_SAWLOG_VOLUME	ID_TREE	Sound cubic-foot volume in the sawlog portion of the bole
3.16.75	CF_SND_VOLUME	ID_TREE	Sound cubic-foot volume in the bole
3.4.28	CHAINING_CD	ID_COND	Chaining code

Section	Column name (attribute)	Oracle table name	Descriptive name
6.8.2	CITATION	REF_CITATION	Citation
6.8.1	CITATION_NBR	REF_CITATION	Citation number
6.49.4	CLASS	REF_SPECIES_GROUP	Class
3.1.22	CN	ID_BOUNDARY	Boundary sequence number
3.2.35	CN	ID_BUILDING_INTERACTION	Building interaction sequence number
3.3.27	CN	ID_CLOSED_BOUNDARY	Boundary sequence number
3.4.45	CN	ID_COND	Condition sequence number
3.6.15	CN	ID_INVASIVE_SUBP_COND	Invasive species subplot condition sequence number
3.7.39	CN	ID_MOTHER_TREE	Mother tree sequence number
3.8.21	CN	ID_PLOT	Plot sequence number
3.9.1	CN	ID_PLOT_FLDSAMP_ASSGN	Plot field sample assignment sequence number
3.10.1	CN	ID_PLOT_STAT_SAMP_ASSGN	Plot statistical sample assignment sequence number
3.11.1	CN	ID_PLOT_STRAT_CALC_ASSGN	Plot stratum calculation assignment sequence number
3.12.15	CN	ID_SEEDLING	Seedling sequence number
3.13.19	CN	ID_SITETREE	Site tree sequence number
3.15.18	CN	ID_SUBP_COND	Subplot condition sequence number
3.14.17	CN	ID_SUBPLOT	Subplot sequence number
3.16.87	CN	ID_TREE	Tree sequence number
3.17.13	CN	ID_WOODLAND_STEM	Woodland stem sequence number
5.1.10	CN	MOD_POLLUTION_HEALTH_FCTR	Pollution health factor sequence number
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
4.3.5	CN	POP_DOMAIN	Population domain sequence number
4.4.4	CN	POP_SAMPLE_CONSTRAINT	Population sample constraint sequence number
4.5.6	CN	POP_STAT_SAMP	Population statistical sample sequence number

Section	Column name (attribute)	Oracle table name	Descriptive name
4.6.8	CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population statistical sample attribute assignment sequence number
4.7.5	CN	POP_STAT_SAMP_CONSTR_ASSGN	Population statistical sample constraint assignment sequence number
4.8.6	CN	POP_STAT_SAMP_DOMAIN_ASSGN	Population statistical sample domain assignment sequence number
4.9.31	CN	POP_STRATUM_CALC	Population stratum calculation sequence number
6.11.5	CN	REF_COUNTY	County sequence number
6.24.1	CN	REF_INVASIVE_SPECIES	Invasive species sequence number
6.35.1	CN	REF_PLANT_DICTIONARY	Sequence number
2.1.7	CN	SO_FIELD_SAMPLE	Field sample 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
2.5.12	CN	SO_SAMPLE_RULE	Sample rule sequence number
3.2.38	CND_CN	ID_BUILDING_INTERACTION	Condition sequence number
3.3.30	CND_CN	ID_CLOSED_BOUNDARY	Condition sequence number
3.5.20	CND_CN	ID_ENERGY_EFFECT	Condition sequence number
3.6.19	CND_CN	ID_INVASIVE_SUBP_COND	Condition sequence number
3.7.42	CND_CN	ID_MOTHER_TREE	Condition sequence number
3.12.18	CND_CN	ID_SEEDLING	Condition sequence number
3.13.22	CND_CN	ID_SITETREE	Condition sequence number
3.16.90	CND_CN	ID_TREE	Condition sequence number
3.17.16	CND_CN	ID_WOODLAND_STEM	Condition sequence number
6.15.1	CODE	REF_DAMAGE_AGENT	Damage agent code
6.16.1	CODE	REF_DAMAGE_AGENT_GROUP	Damage agent group code
2.4.2	CODE	SO_RESEARCH_ORGANIZATION	Research organization code
6.15.2	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
3.16.41	COMP_CROWN_RATIO	ID_TREE	Compacted crown ratio
3.7.38	COMPENSATORY_VALUE_ITREE	ID_MOTHER_TREE	Compensatory value (i-Tree ECO system)
3.4.10	COND_NONSAMPLE_REASN_CD	ID_COND	Condition nonsampled reason code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.4.32	COND_SITECLASS_FLD	ID_COND	Field site productivity class code
3.4.9	COND_STATUS_CD	ID_COND	Condition class status code
3.2.8	CONDID	ID_BUILDING_INTERACTION	Condition class identifier
3.3.9	CONDID	ID_CLOSED_BOUNDARY	Condition class identifier
3.4.7	CONDID	ID_COND	Condition class identifier
3.5.8	CONDID	ID_ENERGY_EFFECT	Condition class identifier
3.6.8	CONDID	ID_INVASIVE_SUBP_COND	Condition class identifier
3.7.8	CONDID	ID_MOTHER_TREE	Condition class identifier
3.12.8	CONDID	ID_SEEDLING	Condition class identifier
3.13.8	CONDID	ID_SITETREE	Condition class identifier
3.15.8	CONDID	ID_SUBP_COND	Condition class identifier
3.16.8	CONDID	ID_TREE	Condition class identifier
3.17.8	CONDID	ID_WOODLAND_STEM	Condition class identifier
3.15.9	CONDPROP_UNADJ	ID_SUBP_COND	Condition proportion unadjusted
3.1.9	CONTRAST	ID_BOUNDARY	Contrasting condition class
3.1.26	CONTRAST_CND_CN	ID_BOUNDARY	Contrasting condition sequence number
3.2.19	COOLING_CLIMATE_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling climate electricity-based carbon emissions avoided quantity
3.2.20	COOLING_CLIMATE_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling climate electricity avoided quantity
3.2.21	COOLING_SHADING_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling shading electricity-based carbon emissions avoided quantity
3.2.22	COOLING_SHADING_ELEC_AVOID	ID_BUILDING_INTERACTION	Cooling shading electricity avoided quantity
6.48.27	CORE	REF_SPECIES	Core
3.1.5	COUNTYCD	ID_BOUNDARY	County code
3.2.5	COUNTYCD	ID_BUILDING_INTERACTION	County code
3.3.5	COUNTYCD	ID_CLOSED_BOUNDARY	County code
3.4.5	COUNTYCD	ID_COND	County code
3.5.5	COUNTYCD	ID_ENERGY_EFFECT	County code
3.6.5	COUNTYCD	ID_INVASIVE_SUBP_COND	County code
3.7.5	COUNTYCD	ID_MOTHER_TREE	County code
3.8.5	COUNTYCD	ID_PLOT	County code
3.12.5	COUNTYCD	ID_SEEDLING	County code
3.13.5	COUNTYCD	ID_SITETREE	County code
3.15.5	COUNTYCD	ID_SUBP_COND	County code
3.14.5	COUNTYCD	ID_SUBPLOT	County code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.5	COUNTYCD	ID_TREE	County code
3.17.5	COUNTYCD	ID_WOODLAND_STEM	County code
6.11.3	COUNTYCD	REF_COUNTY	County code
6.11.4	COUNTYNM	REF_COUNTY	County name
3.4.55	COVER_CLASS	ID_COND	Cover class
3.6.13	COVER_PCT	ID_INVASIVE_SUBP_COND	Cover percent
6.8.3	CREATED_BY	REF_CITATION	Created by
6.11.6	CREATED_BY	REF_COUNTY	Created by
6.15.5	CREATED_BY	REF_DAMAGE_AGENT	Created by
6.16.3	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
6.48.73	CREATED_BY	REF_SPECIES	Created by
6.49.5	CREATED_BY	REF_SPECIES_GROUP	Created by
6.58.4	CREATED_BY	REF_UNIT	Created by
6.8.4	CREATED_DATE	REF_CITATION	Created date
6.11.7	CREATED_DATE	REF_COUNTY	Created date
6.15.6	CREATED_DATE	REF_DAMAGE_AGENT	Created date
6.16.4	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
6.48.74	CREATED_DATE	REF_SPECIES	Created date
6.49.6	CREATED_DATE	REF_SPECIES_GROUP	Created date
6.58.5	CREATED_DATE	REF_UNIT	Created date
6.8.5	CREATED_IN_INSTANCE	REF_CITATION	Created in instance
6.11.8	CREATED_IN_INSTANCE	REF_COUNTY	Created in instance
6.15.7	CREATED_IN_INSTANCE	REF_DAMAGE_AGENT	Created in instance
6.16.5	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
6.48.75	CREATED_IN_INSTANCE	REF_SPECIES	Created in instance
6.49.7	CREATED_IN_INSTANCE	REF_SPECIES_GROUP	Created in instance
6.58.6	CREATED_IN_INSTANCE	REF_UNIT	Created in instance
3.3.25	CROSSES_SUBPLOT_BOUNDARY	ID_CLOSED_BOUNDARY	Crosses subplot boundary

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.40	CROWN_CLASS_CD	ID_TREE	Crown class code
3.7.21	CROWN_DIA_90	ID_MOTHER_TREE	Crown diameter at 90 degrees to widest point
3.16.38	CROWN_DIA_90	ID_TREE	Crown diameter at 90 degrees to widest point
3.7.20	CROWN_DIA_WIDE	ID_MOTHER_TREE	Crown diameter at widest point
3.16.37	CROWN_DIA_WIDE	ID_TREE	Crown diameter at widest point
3.7.17	CROWN_DIEBACK_CD	ID_MOTHER_TREE	Crown dieback code
3.16.34	CROWN_DIEBACK_CD	ID_TREE	Crown dieback code
3.7.35	CROWN_GROUND_AREA_ITREE	ID_MOTHER_TREE	Crown ground area (i-Tree ECO system)
3.7.18	CROWN_LIGHT_EXPOSURE	ID_MOTHER_TREE	Crown light exposure
3.16.35	CROWN_LIGHT_EXPOSURE	ID_TREE	Crown light exposure
3.16.57	CULL_FLD	ID_TREE	Rotten/missing cull, field recorded
7.4.6	CURRENT_CDS	ADMIN_PUB_SUMMARY_RPT	Current compiled data standard
6.48.62	CWD_DECAY_RATIO1	REF_SPECIES	Coarse woody debris decay ratio 1
6.48.63	CWD_DECAY_RATIO2	REF_SPECIES	Coarse woody debris decay ratio 2
6.48.64	CWD_DECAY_RATIO3	REF_SPECIES	Coarse woody debris decay ratio 3
6.48.65	CWD_DECAY_RATIO4	REF_SPECIES	Coarse woody debris decay ratio 4
6.48.66	CWD_DECAY_RATIO5	REF_SPECIES	Coarse woody debris decay ratio 5
2.1.4	CYCLE	SO_FIELD_SAMPLE	Inventory cycle iterator
2.5.4	CYCLE	SO_SAMPLE_RULE	Inventory cycle iterator
	D		
6.15.11	DAG_CODE	REF_DAMAGE_AGENT	Damage agent group code
3.16.53	DAMAGE_AGENT_1	ID_TREE	Damage agent 1
3.16.54	DAMAGE_AGENT_2	ID_TREE	Damage agent 2
3.16.55	DAMAGE_AGENT_3	ID_TREE	Damage agent 3
7.1.1	DB_VERSION	ADMIN_DB_VERSION	Database version number
3.16.59	DECAYCD	ID_TREE	Decay class code
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

Section	Column name (attribute)	Oracle table name	Descriptive name
4.5.5	DESCRIPTION	POP_STAT_SAMP	Statistical sample description
6.16.2	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
3.7.14	DIA	ID_MOTHER_TREE	Current diameter
3.13.12	DIA	ID_SITETREE	Diameter
3.16.21	DIA	ID_TREE	Current diameter
3.17.12	DIA	ID_WOODLAND_STEM	Woodland stem diameter
3.7.15	DIACHECK	ID_MOTHER_TREE	Diameter check code
3.16.22	DIACHECK	ID_TREE	Diameter check code
3.7.16	DIAHTCD	ID_MOTHER_TREE	Diameter height code
3.16.23	DIAHTCD	ID_TREE	Diameter height code
3.13.15	DIST	ID_SITETREE	Horizontal distance
3.16.12	DIST	ID_TREE	Horizontal distance
3.2.11	DISTANCE_CD	ID_BUILDING_INTERACTION	Distance code
3.3.13	DISTANCE_NODE_1	ID_CLOSED_BOUNDARY	Distance to node 1
3.3.15	DISTANCE_NODE_2	ID_CLOSED_BOUNDARY	Distance to node 2
3.3.17	DISTANCE_NODE_3	ID_CLOSED_BOUNDARY	Distance to node 3
3.3.19	DISTANCE_NODE_4	ID_CLOSED_BOUNDARY	Distance to node 4
3.3.21	DISTANCE_NODE_5	ID_CLOSED_BOUNDARY	Distance to node 5
3.1.15	DISTCORN	ID_BOUNDARY	Corner distance
3.4.33	DISTURBANCE_CD1	ID_COND	Disturbance code 1
3.4.34	DISTURBANCE_CD2	ID_COND	Disturbance code 2
3.4.35	DISTURBANCE_CD3	ID_COND	Disturbance code 3
3.4.36	DISTURBANCE_YEAR1	ID_COND	Disturbance year 1
3.4.37	DISTURBANCE_YEAR2	ID_COND	Disturbance year 2
3.4.38	DISTURBANCE_YEAR3	ID_COND	Disturbance year 3
3.16.49	DMG_EXCESS_MULCH	ID_TREE	Urban specific damage - excessive mulch
3.16.52	DMG_IMPROPER_PLANTING	ID_TREE	Urban specific damage - improper planting
3.16.51	DMG_OVERHEAD_WIRES	ID_TREE	Urban specific damage - conflict with crowns and overhead wires
3.16.46	DMG_ROOT_STEM_GIRDLING	ID_TREE	Urban specific damage - stem girdling from roots
3.16.50	DMG_SIDEWALK_ROOT_CONFLICT	ID_TREE	Urban specific damage - conflict with roots and sidewalks
3.16.48	DMG_TOPPING_PRUNING	ID_TREE	Urban specific damage - severe topping or poor pruning

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.47	DMG_TRUNK_BARK_INCLUSION	ID_TREE	Urban specific damage - trunk-bark inclusion
4.8.3	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
4.6.7	DOMAIN_TYPE	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population domain type
4.8.4	DOMAIN_TYPE	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain type
3.16.77	DRY_MERCH_BIOMASS	ID_TREE	Aboveground dry biomass in the merchantable bole (regional)
3.16.76	DRY_TOT_BIOMASS	ID_TREE	Aboveground dry biomass total (regional)
3.7.30	DRY_TOT_BIOMASS_ITREE	ID_MOTHER_TREE	Whole-tree dry biomass (i-Tree ECO system)
6.48.79	DRYWT_TO_GREENWT_CONVERSION	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
6.48.67	DWM_CARBON_RATIO	REF_SPECIES	Down woody debris carbon ratio
	E		
6.48.8	E_SPGRPCD	REF_SPECIES	Eastern species group code
6.48.28	EAST	REF_SPECIES	Eastern species
3.2.14	ELEC_AVOID_SUM	ID_BUILDING_INTERACTION	Electricity avoided quantity
3.2.13	ELEC_AVOID_VALUE_SUM	ID_BUILDING_INTERACTION	Electricity avoided value
3.5.14	ELEC_AVOIDED	ID_ENERGY_EFFECT	Electricity avoided quantity
3.5.13	ELEC_C_AVOIDED	ID_ENERGY_EFFECT	Electricity-based carbon emissions avoided quantity
6.24.7	END_DATE	REF_INVASIVE_SPECIES	End date
2.5.7	END_INTENSITY	SO_SAMPLE_RULE	End intensity
7.4.4	END_INVYR_LOADED	ADMIN_PUB_SUMMARY_RPT	End inventory year loaded
2.5.9	END_PANEL70	SO_SAMPLE_RULE	End panel-70
3.5.12	ENERGY_INFLUENCE	ID_ENERGY_EFFECT	Energy influence
3.5.11	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
4.9.11	ESTN_UNIT_ACRES	POP_STRATUM_CALC	Estimation unit acres
4.9.10	ESTN_UNIT_NAME	POP_STRATUM_CALC	Estimation unit name
4.9.13	ESTN_UNIT_PLOT_COUNT	POP_STRATUM_CALC	Estimation unit plot count

Section	Column name (attribute)	Oracle table name	Descriptive name
4.9.12	ESTN_UNIT_POINT_COUNT	POP_STRATUM_CALC	Estimation unit point count
4.9.24	EVAL_DESCRIPTION	POP_STRATUM_CALC	Evaluation description
4.9.32	EVAL_GRP_ID	POP_STRATUM_CALC	Evaluation group identifier
4.9.34	EVAL_GRP_LABEL	POP_STRATUM_CALC	Evaluation group label
4.9.33	EVAL_GRP_NAME	POP_STRATUM_CALC	Evaluation group name
4.9.3	EVAL_LABEL	POP_STRATUM_CALC	Evaluation label
4.9.2	EVAL_NAME	POP_STRATUM_CALC	Evaluation name
4.9.1	EVALID	POP_STRATUM_CALC	Evaluation identifier
2.5.10	EXCEPTION_TYPE	SO_SAMPLE_RULE	Exception type
6.48.15	EXISTS_IN_NCRS	REF_SPECIES	Exists in the North Central Research Station region
6.48.16	EXISTS_IN_NERS	REF_SPECIES	Exists in the Northeastern Research Station region
6.48.17	EXISTS_IN_PNWRS	REF_SPECIES	Exists in the Pacific Northwest Research Station region
6.48.18	EXISTS_IN_RMRS	REF_SPECIES	Exists in the Rocky Mountain Research Station region
6.48.19	EXISTS_IN_SRS	REF_SPECIES	Exists in the Southern Research Station region
4.9.19	EXPNS	POP_STRATUM_CALC	Stratum expansion factor
4.2.3	EXPRESSION	POP_CALCULATION	Calculation expression
4.3.4	EXPRESSION	POP_DOMAIN	Population domain expression
4.4.3	EXPRESSION	POP_SAMPLE_CONSTRAINT	Sample constraint expression
4.7.4	EXPRESSION	POP_STAT_SAMP_CONSTR_ASSGN	Sample constraint expression
4.8.5	EXPRESSION	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain expression
	F		
6.35.31	F	REF_PLANT_DICTIONARY	Forma indicator
6.35.9	FAMILY	REF_PLANT_DICTIONARY	Family
3.4.11	FIA_LANDUSE	ID_COND	Land use code (FIA)
3.4.8	FIA_VOLUME_LOCATION_GROUP	ID_COND	Volume location group (FIA)
3.1.16	FIELD_PERCENT_AREA	ID_BOUNDARY	Field percent area
3.3.24	FIELD_PERCENT_AREA	ID_CLOSED_BOUNDARY	Field percent area
3.16.31	FIELD_PREV_DIA	ID_TREE	Field previous tree diameter
3.16.33	FIELD_PREV_NBR_STEMS	ID_TREE	Field previous number of stems
3.16.32	FIELD_PREV_STATUS_CD	ID_TREE	Field previous tree status code
2.1.6	FIELD_SAMPLE_NOTES	SO_FIELD_SAMPLE	Field sample notes
3.4.20	FLDAGE	ID_COND	Field-recorded stand age
3.9.3	FLDSMP_CN	ID_PLOT_FLDSAMP_ASSGN	Field sample sequence number
2.5.13	FLDSMP_CN	SO_SAMPLE_RULE	Field sample sequence number
3.4.19	FLDSZCD	ID_COND	Field stand-size class code
3.4.18	FLDTYPCD	ID_COND	Field forest type code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.7.22	FOLIAGE_ABSENT	ID_MOTHER_TREE	Percent foliage absent
3.16.39	FOLIAGE_ABSENT	ID_TREE	Percent foliage absent
6.48.14	FOREST_TYPE_SPGRPCD	REF_SPECIES	Forest type species group code
6.35.32	FORMA	REF_PLANT_DICTIONARY	Forma
3.2.16	FUEL_AVOID_SUM	ID_BUILDING_INTERACTION	Fuel avoided quantity
3.2.15	FUEL_AVOID_VALUE_SUM	ID_BUILDING_INTERACTION	Fuel avoided value
3.5.16	FUEL_AVOIDED	ID_ENERGY_EFFECT	Fuel avoided quantity
3.5.15	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
	G		
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
6.48.3	GENUS	REF_SPECIES	Genus
3.15.13	GR_COV_PCT_BLDG	ID_SUBP_COND	Percent ground surface cover - building
3.15.16	GR_COV_PCT_HERBACEOUS	ID_SUBP_COND	Percent ground surface cover - herbaceous
3.15.14	GR_COV_PCT_IMPERVIOUS	ID_SUBP_COND	Percent ground surface cover - impervious
3.15.15	GR_COV_PCT_PERMEABLE	ID_SUBP_COND	Percent ground surface cover - permeable
3.15.17	GR_COV_PCT_WATER	ID_SUBP_COND	Percent ground surface cover - water
3.7.32	GROSS_C_SEQUESTRATION_ITREE	ID_MOTHER_TREE	Whole-tree gross carbon sequestration (i-Tree ECO system)
3.7.29	GROSS_CARBON_SEQUESTRATION	ID_MOTHER_TREE	Whole-tree gross carbon sequestration
3.6.12	GROWTH_HABIT	ID_INVASIVE_SUBP_COND	Growth habit
6.35.10	GROWTH_HABIT	REF_PLANT_DICTIONARY	Growth habit
	H		
5.1.6	HEALTH_FACTOR	MOD_POLLUTION_HEALTH_FCTR	Health factor

Section	Column name (attribute)	Oracle table name	Descriptive name
3.2.25	HEATING_CLIMATE_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating climate electricity-based carbon emissions avoided quantity
3.2.24	HEATING_CLIMATE_C_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating climate fuel-based carbon emissions avoided quantity
3.2.26	HEATING_CLIMATE_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating climate electricity avoided quantity
3.2.23	HEATING_CLIMATE_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating climate fuel avoided quantity
3.2.29	HEATING_SHADING_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating shading electricity-based carbon emissions avoided quantity
3.2.28	HEATING_SHADING_C_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating shading fuel-based carbon emissions avoided quantity
3.2.30	HEATING_SHADING_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating shading electricity avoided quantity
3.2.27	HEATING_SHADING_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating shading fuel avoided quantity
3.2.33	HEATING_WINDBREAK_C_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating windbreak electricity-based carbon emissions avoided quantity
3.2.32	HEATING_WINDBREAK_C_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating windbreak fuel-based carbon emissions avoided quantity
3.2.34	HEATING_WINDBREAK_ELEC_AVOID	ID_BUILDING_INTERACTION	Heating windbreak electricity avoided quantity
3.2.31	HEATING_WINDBREAK_FUEL_AVOID	ID_BUILDING_INTERACTION	Heating windbreak fuel avoided quantity
3.13.13	HT	ID_SITETREE	Total height
3.16.27	HTCD	ID_TREE	Height method code
	I		
5.1.8	INCIDENCE	MOD_POLLUTION_HEALTH_FCTR	Incidence
3.8.7	INTENSITY	ID_PLOT	Intensity
2.1.10	INV_CN	SO_FIELD_SAMPLE	Inventory sequence number
2.5.15	INV_CN	SO_SAMPLE_RULE	Inventory sequence number
6.24.4	INV_GROUP_CD	REF_INVASIVE_SPECIES	Invasive group code
3.14.13	INVASIVE_NONSAMPLE_REASN_CD	ID_SUBPLOT	Invasive species nonsampled reason code
3.4.49	INVASIVE_NONSAMPLE_REASON_CD	ID_COND	Invasive species nonsampled reason code
3.4.48	INVASIVE_STATUS_CD	ID_COND	Invasive species status code
3.14.12	INVASIVE_STATUS_CD	ID_SUBPLOT	Invasive species status code
2.3.3	INVENTORY_TYPE	SO_PROJECT	Inventory type

Section	Column name (attribute)	Oracle table name	Descriptive name
3.6.16	INVS_CN	ID_INVASIVE_SUBP_COND	Invasive species sequence number
2.1.3	INVYR	SO_FIELD_SAMPLE	Inventory year
2.5.3	INVYR	SO_SAMPLE_RULE	Inventory year
7.1.5	IS_ACTIVE	ADMIN_DB_VERSION	Is version active
7.3.6	IS_ACTIVE	ADMIN_PUB_DATA_STANDARD	Is standard active
3.6.14	IS_MAINTAINED_AREA	ID_INVASIVE_SUBP_COND	Is invasive in maintained area
3.7.23	IS_MAINTAINED_AREA	ID_MOTHER_TREE	Is tree in maintained area
3.12.13	IS_MAINTAINED_AREA	ID_SEEDLING	Is tree in maintained area
3.16.42	IS_MAINTAINED_AREA	ID_TREE	Is tree in maintained area
3.7.26	IS_PLANTED	ID_MOTHER_TREE	Is tree planted
3.12.14	IS_PLANTED	ID_SEEDLING	Is tree planted
3.16.45	IS_PLANTED	ID_TREE	Is tree planted
3.7.24	IS_RIPARIAN	ID_MOTHER_TREE	Is tree a riparian tree
3.16.43	IS_RIPARIAN	ID_TREE	Is tree a riparian tree
3.7.25	IS_STREET_TREE	ID_MOTHER_TREE	Is tree a street tree
3.16.44	IS_STREET_TREE	ID_TREE	Is tree a street tree
5.4.7	ISOPRENE_EMITTED	MOD_VOC_EMISSION	Isoprene emitted
3.4.29	ITREE_LANDUSE	ID_COND	Land use code (i-Tree urban inventory system)
	J		
6.48.42	JENKINS_FOLIAGE_RATIO_B1	REF_SPECIES	Jenkins foliage ratio B1
6.48.43	JENKINS_FOLIAGE_RATIO_B2	REF_SPECIES	Jenkins foliage ratio B2
6.48.44	JENKINS_ROOT_RATIO_B1	REF_SPECIES	Jenkins root ratio B1
6.48.45	JENKINS_ROOT_RATIO_B2	REF_SPECIES	Jenkins root ratio B2
6.48.46	JENKINS_SAPLING_ADJUSTMENT	REF_SPECIES	Jenkins sapling adjustment factor
6.48.35	JENKINS_SPGRPCD	REF_SPECIES	Jenkins species group code
6.48.40	JENKINS_STEM_BARK_RATIO_B1	REF_SPECIES	Jenkins stem bark ratio B1
6.48.41	JENKINS_STEM_BARK_RATIO_B2	REF_SPECIES	Jenkins stem bark ratio B2
6.48.38	JENKINS_STEM_WOOD_RATIO_B1	REF_SPECIES	Jenkins stem wood ratio B1
6.48.39	JENKINS_STEM_WOOD_RATIO_B2	REF_SPECIES	Jenkins stem wood ratio B2
6.48.36	JENKINS_TOTAL_B1	REF_SPECIES	Jenkins total B1
6.48.37	JENKINS_TOTAL_B2	REF_SPECIES	Jenkins total B2
	K		
3.8.11	KINDCD	ID_PLOT	Sample kind code
	L		
3.4.30	LAND_COVER_CLASS_CD	ID_COND	Land cover class **RETIRED**
3.8.16	LAT	ID_PLOT	Latitude

Section	Column name (attribute)	Oracle table name	Descriptive name
7.4.5	LATEST_LOAD_DATE	ADMIN_PUB_SUMMARY_RPT	Latest load date
3.7.36	LEAF_AREA_INDEX_ITREE	ID_MOTHER_TREE	Leaf area index value (i-Tree ECO system)
3.7.33	LEAF_AREA_ITREE	ID_MOTHER_TREE	Leaf area (i-Tree ECO system)
3.7.37	LEAF_BIOMASS_INDEX_ITREE	ID_MOTHER_TREE	Leaf biomass index value (i-Tree ECO system)
3.7.34	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
3.4.23	LIVE_CANOPY_CVR_PCT	ID_COND	Live canopy cover percent
3.4.24	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
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
3.8.17	LON	ID_PLOT	Longitude
3.16.24	LTDMP	ID_TREE	Length to diameter measurement point
	M		
6.48.12	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
6.48.34	MANUAL_END	REF_SPECIES	Manual end
3.8.14	MANUAL_NATIONAL	ID_PLOT	National urban manual (field guide) version
3.8.15	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
6.48.33	MANUAL_START	REF_SPECIES	Manual start
3.4.21	MAPDEN	ID_COND	Mapping density code
3.1.27	MAPPED_CND_CN	ID_BOUNDARY	Mapped condition sequence number
3.1.10	MAPPED_CONDITION	ID_BOUNDARY	Mapped condition class
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
6.48.51	MC_PCT_GREEN_BARK	REF_SPECIES	Moisture content of green bark as a percent of oven-dry weight

Section	Column name (attribute)	Oracle table name	Descriptive name
6.48.52	MC_PCT_GREEN_BARK_CIT	REF_SPECIES	Citation for MC_PCT_GREEN_BARK
6.48.53	MC_PCT_GREEN_WOOD	REF_SPECIES	Moisture content of green wood as a percent of oven-dry weight
6.48.54	MC_PCT_GREEN_WOOD_CIT	REF_SPECIES	Citation for MC_PCT_GREEN_WOOD
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_BOUNDARY_CHANGE	Code meaning
6.5.3	MEANING	REF_BUILDING_DISTANCE	Code meaning
6.6.3	MEANING	REF_CANOPY_COVER_SAMPLE_METHOD	Code meaning
6.7.3	MEANING	REF_CAUSE_OF_DEATH	Code meaning
6.9.3	MEANING	REF_CONDITION_NONSAMPLE_REASON	Code meaning
6.10.3	MEANING	REF_CONDITION_SAMPLING_STATUS	Code meaning
6.12.3	MEANING	REF_COVER_CLASS	Code meaning
6.13.3	MEANING	REF_CROWN_CLASS	Code meaning
6.14.3	MEANING	REF_CROWN_LIGHT_EXPOSURE	Code meaning
6.17.3	MEANING	REF_DECAY_CLASS	Code meaning
6.18.3	MEANING	REF_DIA_CHECK	Code meaning
6.19.3	MEANING	REF_DISTURBANCE	Code meaning
6.20.3	MEANING	REF_FIA_LANDUSE	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_ITREE_LANDUSE	Code meaning
6.26.3	MEANING	REF_LAND_COVER_CLASS	Code meaning
6.27.3	MEANING	REF_LENGTH_METHOD	Code meaning
6.29.3	MEANING	REF_NO_YES	Code meaning
6.28.3	MEANING	REF_NONFOREST_LANDUSE	Code meaning
6.30.3	MEANING	REF_OFFSET_POINT	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_REASN	Code meaning
6.37.3	MEANING	REF_PLOT_STATUS	Code meaning
6.38.3	MEANING	REF_PLOT_TYPE	Code meaning

Section	Column name (attribute)	Oracle table name	Descriptive name
6.39.3	MEANING	REF_PREV_TREE_STATUS	Code meaning
6.40.3	MEANING	REF_PRODUCTIVITY_STATUS	Code meaning
6.41.3	MEANING	REF_RECONCILE	Code meaning
6.42.3	MEANING	REF_REGENERATION_STATUS	Code meaning
6.43.3	MEANING	REF_RESERVED_STATUS	Code meaning
6.44.3	MEANING	REF_SAMPLE_KIND	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
6.54.3	MEANING	REF_TREE_CLASS	Code meaning
6.55.3	MEANING	REF_TREE_DENSITY	Code meaning
6.56.3	MEANING	REF_TREE_PLANTED	Code meaning
6.57.3	MEANING	REF_TREE_STATUS	Code meaning
6.58.3	MEANING	REF_UNIT	Code meaning
6.59.3	MEANING	REF_WATER_ON_PLOT	Code meaning
3.8.10	MEAS_DAY	ID_PLOT	Measurement day
3.8.9	MEAS_MONTH	ID_PLOT	Measurement month
3.8.8	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
6.8.6	MODIFIED_BY	REF_CITATION	Modified by
6.11.9	MODIFIED_BY	REF_COUNTY	Modified by
6.15.8	MODIFIED_BY	REF_DAMAGE_AGENT	Modified by
6.16.6	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
6.48.76	MODIFIED_BY	REF_SPECIES	Modified by
6.49.8	MODIFIED_BY	REF_SPECIES_GROUP	Modified by
6.58.7	MODIFIED_BY	REF_UNIT	Modified by
6.8.7	MODIFIED_DATE	REF_CITATION	Modified date
6.11.10	MODIFIED_DATE	REF_COUNTY	Modified date
6.15.9	MODIFIED_DATE	REF_DAMAGE_AGENT	Modified date

Section	Column name (attribute)	Oracle table name	Descriptive name
6.16.7	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
6.48.77	MODIFIED_DATE	REF_SPECIES	Modified date
6.49.9	MODIFIED_DATE	REF_SPECIES_GROUP	Modified date
6.58.8	MODIFIED_DATE	REF_UNIT	Modified date
6.8.8	MODIFIED_IN_INSTANCE	REF_CITATION	Modified in instance
6.11.11	MODIFIED_IN_INSTANCE	REF_COUNTY	Modified in instance
6.15.10	MODIFIED_IN_INSTANCE	REF_DAMAGE_AGENT	Modified in instance
6.16.8	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
6.48.78	MODIFIED_IN_INSTANCE	REF_SPECIES	Modified in instance
6.49.10	MODIFIED_IN_INSTANCE	REF_SPECIES_GROUP	Modified in instance
6.58.9	MODIFIED_IN_INSTANCE	REF_UNIT	Modified in instance
5.4.8	MONOTERPENE_EMITTED	MOD_VOC_EMISSION	Monoterpene emitted
3.16.60	MORTALITY_CD	ID_TREE	Mortality code
3.16.20	MORTYR	ID_TREE	Mortality year
3.16.66	MOTHER_TREE	ID_TREE	Mother tree identifier
3.2.39	MTRE_CN	ID_BUILDING_INTERACTION	Mother tree sequence number
3.5.21	MTRE_CN	ID_ENERGY_EFFECT	Mother tree sequence number
3.15.21	MTRE_CN	ID_SUBP_COND	Condition sequence number
3.16.91	MTRE_CN	ID_TREE	Mother tree sequence number
3.17.17	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
4.4.1	NAME	POP_SAMPLE_CONSTRAINT	Sample constraint 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
3.4.25	NBR_LIVE_STEMS	ID_COND	Number of live stems
3.7.27	NBR_STEMS	ID_MOTHER_TREE	Number of stems

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.56	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
6.24.10	NOTES	REF_INVASIVE_SPECIES	Invasive species notes
6.35.33	NOTES	REF_PLANT_DICTIONARY	Plant dictionary notes
2.5.11	NOTES	SO_SAMPLE_RULE	Sample rule notes
3.3.26	NUMBER_OF_NODES	ID_CLOSED_BOUNDARY	Number of nodes
	O		
3.13.18	OFFSET_AZIMUTH	ID_SITETREE	Azimuth from offset point
3.3.22	OFFSET_AZIMUTH_NODE_1	ID_CLOSED_BOUNDARY	Offset azimuth to node 1
3.1.20	OFFSET_AZMCORN	ID_BOUNDARY	Offset corner azimuth
3.1.18	OFFSET_AZMLEFT	ID_BOUNDARY	Offset left azimuth
3.1.19	OFFSET_AZMRIGHT	ID_BOUNDARY	Offset right azimuth
3.13.17	OFFSET_DIST	ID_SITETREE	Horizontal distance from offset point
3.3.23	OFFSET_DISTANCE_NODE_1	ID_CLOSED_BOUNDARY	Offset distance to node 1
3.1.21	OFFSET_DISTCORN	ID_BOUNDARY	Offset corner distance
3.1.17	OFFSET_POINT	ID_BOUNDARY	Offset point
3.3.11	OFFSET_POINT	ID_CLOSED_BOUNDARY	Offset point
3.13.9	OFFSET_POINT	ID_SITETREE	Offset point
3.16.11	OFFSET_POINT	ID_TREE	Offset point
5.4.9	OTHER_VOCS_EMITTED	MOD_VOC_EMISSION	Other VOCs emitted
3.4.14	OWNCD	ID_COND	Owner class code
3.4.13	OWNGRPCD	ID_COND	Owner group code
	P		
6.48.11	P_SPGRPCD	REF_SPECIES	Pacific Islands species group code
6.48.31	PACIFIC	REF_SPECIES	Pacific Islands species
4.6.10	PATTR_CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population attribute sequence number
4.1.8	PCALC_CN	POP_ATTRIBUTE	Population calculation sequence number
3.15.10	PCT_MAINTAINED	ID_SUBP_COND	Percent area - maintained
3.15.12	PCT_SHRUB_SEED_COVER	ID_SUBP_COND	Percent vegetation cover - shrub/seeding
3.15.11	PCT_TREE_COVER	ID_SUBP_COND	Percent vegetation cover - tree
4.8.8	PDOM_CN	POP_STAT_SAMP_DOMAIN_ASSGN	Population domain sequence number
4.9.26	PE_CN	POP_STRATUM_CALC	Population statistical evaluation sequence number
4.9.35	PEG_CN	POP_STRATUM_CALC	Evaluation group sequence number

Section	Column name (attribute)	Oracle table name	Descriptive name
4.9.28	PEU_CN	POP_STRATUM_CALC	Population estimation unit sequence number
3.4.15	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
3.8.13	PLOT_NONSAMPLE_REASN_CD	ID_PLOT	Plot nonsampled reason code
3.8.12	PLOT_STATUS_CD	ID_PLOT	Plot status code
3.1.1	PLOTID	ID_BOUNDARY	Plot identifier
3.2.1	PLOTID	ID_BUILDING_INTERACTION	Plot identifier
3.3.1	PLOTID	ID_CLOSED_BOUNDARY	Plot identifier
3.4.1	PLOTID	ID_COND	Plot identifier
3.5.1	PLOTID	ID_ENERGY_EFFECT	Plot identifier
3.6.1	PLOTID	ID_INVASIVE_SUBP_COND	Plot identifier
3.7.1	PLOTID	ID_MOTHER_TREE	Plot identifier
3.8.1	PLOTID	ID_PLOT	Plot identifier
3.12.1	PLOTID	ID_SEEDLING	Plot identifier
3.13.1	PLOTID	ID_SITETREE	Plot identifier
3.15.1	PLOTID	ID_SUBP_COND	Plot identifier
3.14.1	PLOTID	ID_SUBPLOT	Plot identifier
3.16.1	PLOTID	ID_TREE	Plot identifier
3.17.1	PLOTID	ID_WOODLAND_STEM	Plot identifier
3.1.23	PLT_CN	ID_BOUNDARY	Plot sequence number
3.2.36	PLT_CN	ID_BUILDING_INTERACTION	Plot sequence number
3.3.28	PLT_CN	ID_CLOSED_BOUNDARY	Plot sequence number
3.4.46	PLT_CN	ID_COND	Plot sequence number
3.5.18	PLT_CN	ID_ENERGY_EFFECT	Plot sequence number
3.6.17	PLT_CN	ID_INVASIVE_SUBP_COND	Plot sequence number
3.7.40	PLT_CN	ID_MOTHER_TREE	Plot sequence number
3.9.2	PLT_CN	ID_PLOT_FLDSAMP_ASSGN	Plot sequence number
3.10.2	PLT_CN	ID_PLOT_STAT_SAMP_ASSGN	Plot sequence number
3.11.2	PLT_CN	ID_PLOT_STRAT_CALC_ASSGN	Plot sequence number
3.12.16	PLT_CN	ID_SEEDLING	Plot sequence number
3.13.20	PLT_CN	ID_SITETREE	Plot sequence number
3.15.19	PLT_CN	ID_SUBP_COND	Plot sequence number
3.14.18	PLT_CN	ID_SUBPLOT	Plot sequence number
3.16.88	PLT_CN	ID_TREE	Plot sequence number
3.17.14	PLT_CN	ID_WOODLAND_STEM	Plot sequence number
5.1.7	POLLUTANT	MOD_POLLUTION_HEALTH_FCTR	Pollutant
5.2.6	POLLUTANT	MOD_POLLUTION_REMOVAL	Pollutant

Section	Column name (attribute)	Oracle table name	Descriptive name
5.2.10	POLLUTION_REMOVAL	MOD_POLLUTION_REMOVAL	Pollutant removal
4.9.7	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
4.5.3	POPULATION_NAME	POP_STAT_SAMP	Population name
4.9.5	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
4.9.9	POPULATION_PLOT_COUNT	POP_STRATUM_CALC	Population plot count
4.9.8	POPULATION_POINT_COUNT	POP_STRATUM_CALC	Population point count
2.2.5	POPULATION_STRUCTURE_ACRES	SO_POP_STRUCT_ELMT	Population structure acres
2.2.4	POPULATION_STRUCTURE_LEVEL	SO_POP_STRUCT_ELMT	Population structure level
2.2.3	POPULATION_STRUCTURE_NAME	SO_POP_STRUCT_ELMT	Population structure name
2.2.6	POPULATION_STRUCTURE_NOTES	SO_POP_STRUCT_ELMT	Population structure notes
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
5.3.2	POPULATION_STRUCTURE_VERSION	MOD_RAINFALL	Population structure version
5.4.2	POPULATION_STRUCTURE_VERSION	MOD_VOC_EMISSION	Population structure version
4.5.4	POPULATION_STRUCTURE_VERSION	POP_STAT_SAMP	Population structure version
4.9.6	POPULATION_STRUCTURE_VERSION	POP_STRATUM_CALC	Population structure version
2.2.2	POPULATION_STRUCTURE_VERSION	SO_POP_STRUCT_ELMT	Population structure version
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
2.1.9	PPN_CN	SO_FIELD_SAMPLE	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
3.4.27	PREV_AFFORESTATION_CD	ID_COND	Previous afforestation code
3.7.44	PREV_MTRE_CN	ID_MOTHER_TREE	Previous mother tree sequence number
3.1.25	PREV_PLT_CN	ID_BOUNDARY	Previous plot sequence number
3.2.40	PREV_PLT_CN	ID_BUILDING_INTERACTION	Previous plot sequence number
3.3.31	PREV_PLT_CN	ID_CLOSED_BOUNDARY	Previous plot sequence number
3.4.47	PREV_PLT_CN	ID_COND	Previous plot sequence number
3.5.22	PREV_PLT_CN	ID_ENERGY_EFFECT	Previous plot sequence number
3.6.20	PREV_PLT_CN	ID_INVASIVE_SUBP_COND	Previous plot sequence number
3.7.43	PREV_PLT_CN	ID_MOTHER_TREE	Previous plot sequence number

Section	Column name (attribute)	Oracle table name	Descriptive name
3.8.22	PREV_PLT_CN	ID_PLOT	Previous plot sequence number
3.12.19	PREV_PLT_CN	ID_SEEDLING	Previous plot sequence number
3.13.23	PREV_PLT_CN	ID_SITETREE	Previous plot sequence number
3.15.22	PREV_PLT_CN	ID_SUBP_COND	Previous plot sequence number
3.14.21	PREV_PLT_CN	ID_SUBPLOT	Previous plot sequence number
3.16.92	PREV_PLT_CN	ID_TREE	Previous plot sequence number
3.17.19	PREV_PLT_CN	ID_WOODLAND_STEM	Previous plot sequence number
3.16.93	PREV_TRE_CN	ID_TREE	Previous tree sequence number
2.1.8	PRJ_CN	SO_FIELD_SAMPLE	Project sequence number
2.5.16	PRJ_CN	SO_SAMPLE_RULE	Project sequence number
3.4.31	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_FIELD_SAMPLE	Project name
2.5.1	PROJECT_NAME	SO_SAMPLE_RULE	Project name
4.9.30	PS_CN	POP_STRATUM_CALC	Population stratum sequence number
3.11.3	PSC_CN	ID_PLOT_STRAT_CALC_ASSGN	Population stratum calculation sequence number
4.7.7	PSCON_CN	POP_STAT_SAMP_CONSTR_ASSGN	Population sample constraint sequence number
3.10.3	PSS_CN	ID_PLOT_STAT_SAMP_ASSGN	Population statistical sample sequence number
4.6.9	PSS_CN	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Population statistical sample sequence number
4.7.6	PSS_CN	POP_STAT_SAMP_CONSTR_ASSGN	Population statistical sample sequence number
4.8.7	PSS_CN	POP_STAT_SAMP_DOMAIN_ASSGN	Population statistical sample sequence number
4.9.27	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
4.5.7	PSTR_CN	POP_STAT_SAMP	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

Section	Column name (attribute)	Oracle table name	Descriptive name
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
4.9.29	PSTREL_CN	POP_STRATUM_CALC	Population structure element sequence number
2.5.14	PSTREL_CN	SO_SAMPLE_RULE	Population structure element sequence number
	Q		
6.35.18	QUADRINOMIAL_AUTHOR	REF_PLANT_DICTIONARY	Quadrinomial author
	R		
6.48.60	RAILE_STUMP_DIB_B1	REF_SPECIES	Raile stump diameter inside bark equation coefficient B1
6.48.61	RAILE_STUMP_DIB_B2	REF_SPECIES	Raile stump diameter inside bark equation coefficient B2
6.48.59	RAILE_STUMP_DOB_B1	REF_SPECIES	Raile stump diameter outside bark equation coefficient B1
5.3.6	RAINFALL	MOD_RAINFALL	Rainfall
3.16.29	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
3.14.20	REMAINING_CND_CN	ID_SUBPLOT	Remaining condition sequence number
3.14.9	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
4.5.2	REPORT_YEAR	POP_STAT_SAMP	Reporting year
4.6.2	REPORT_YEAR	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Reporting year
4.7.2	REPORT_YEAR	POP_STAT_SAMP_CONSTR_ASSGN	Reporting year
4.8.2	REPORT_YEAR	POP_STAT_SAMP_DOMAIN_ASSGN	Reporting year
4.9.4	REPORT_YEAR	POP_STRATUM_CALC	Reporting year
4.1.5	REQUIRED_SAMPLE_CONSTRAINT	POP_ATTRIBUTE	Required sample constraint
4.6.6	REQUIRED_SAMPLE_CONSTRAINT	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Required sample constraint
3.4.12	RESERVCD	ID_COND	Reserved status code

Section	Column name (attribute)	Oracle table name	Descriptive name
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_BOUNDARY_CHANGE	Code retired
6.5.4	RETIRED	REF_BUILDING_DISTANCE	Code retired
6.6.4	RETIRED	REF_CANOPY_COVER_SAMPLE_METHOD	Code retired
6.7.4	RETIRED	REF_CAUSE_OF_DEATH	Code retired
6.9.4	RETIRED	REF_CONDITION_NONSAMPLE_REASON	Code retired
6.10.4	RETIRED	REF_CONDITION_SAMPLING_STATUS	Code retired
6.12.4	RETIRED	REF_COVER_CLASS	Code retired
6.13.4	RETIRED	REF_CROWN_CLASS	Code retired
6.14.4	RETIRED	REF_CROWN_LIGHT_EXPOSURE	Code retired
6.17.4	RETIRED	REF_DECAY_CLASS	Code retired
6.18.4	RETIRED	REF_DIA_CHECK	Code retired
6.19.4	RETIRED	REF_DISTURBANCE	Code retired
6.20.4	RETIRED	REF_FIA_LANDUSE	Code retired
6.23.4	RETIRED	REF_HORIZ_DIST_IMPRVD_ROAD	Code retired
6.25.4	RETIRED	REF_ITREE_LANDUSE	Code retired
6.26.4	RETIRED	REF_LAND_COVER_CLASS	Code retired
6.27.4	RETIRED	REF_LENGTH_METHOD	Code retired
6.29.4	RETIRED	REF_NO_YES	Code retired
6.28.4	RETIRED	REF_NONFOREST_LANDUSE	Code retired
6.30.4	RETIRED	REF_OFFSET_POINT	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_REASN	Code retired
6.37.4	RETIRED	REF_PLOT_STATUS	Code retired
6.38.4	RETIRED	REF_PLOT_TYPE	Code retired
6.39.4	RETIRED	REF_PREV_TREE_STATUS	Code retired
6.40.4	RETIRED	REF_PRODUCTIVITY_STATUS	Code retired
6.41.4	RETIRED	REF_RECONCILE	Code retired
6.42.4	RETIRED	REF_REGENERATION_STATUS	Code retired
6.43.4	RETIRED	REF_RESERVED_STATUS	Code retired

Section	Column name (attribute)	Oracle table name	Descriptive name
6.44.4	RETIRED	REF_SAMPLE_KIND	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
6.54.4	RETIRED	REF_TREE_CLASS	Code retired
6.55.4	RETIRED	REF_TREE_DENSITY	Code retired
6.56.4	RETIRED	REF_TREE_PLANTED	Code retired
6.57.4	RETIRED	REF_TREE_STATUS	Code retired
6.59.4	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_BOUNDARY	Retired plot number
3.2.6	RETIRED_PLOT	ID_BUILDING_INTERACTION	Retired plot number
3.3.6	RETIRED_PLOT	ID_CLOSED_BOUNDARY	Retired plot number
3.4.6	RETIRED_PLOT	ID_COND	Retired plot number
3.5.6	RETIRED_PLOT	ID_ENERGY_EFFECT	Retired plot number
3.6.6	RETIRED_PLOT	ID_INVASIVE_SUBP_COND	Retired plot number
3.7.6	RETIRED_PLOT	ID_MOTHER_TREE	Retired plot number
3.8.6	RETIRED_PLOT	ID_PLOT	Retired plot number
3.12.6	RETIRED_PLOT	ID_SEEDLING	Retired plot number
3.13.6	RETIRED_PLOT	ID_SITETREE	Retired plot number
3.15.6	RETIRED_PLOT	ID_SUBP_COND	Retired plot number
3.14.6	RETIRED_PLOT	ID_SUBPLOT	Retired plot number
3.16.6	RETIRED_PLOT	ID_TREE	Retired plot number
3.17.6	RETIRED_PLOT	ID_WOODLAND_STEM	Retired plot number
3.8.18	ROAD_DIST_CD	ID_PLOT	Horizontal distance to improved road code
5.3.8	RUNOFF_AVOIDED	MOD_RAINFALL	Runoff avoided
	S		
4.7.3	SAMP_CONSTR_NAME	POP_STAT_SAMP_CONSTR_ASSGN	Sample constraint name
4.5.1	SAMPLE_NAME	POP_STAT_SAMP	Statistical sample name
4.6.1	SAMPLE_NAME	POP_STAT_SAMP_ATTRIBUTE_ASSGN	Statistical sample name
4.7.1	SAMPLE_NAME	POP_STAT_SAMP_CONSTR_ASSGN	Statistical sample name
4.8.1	SAMPLE_NAME	POP_STAT_SAMP_DOMAIN_ASSGN	Statistical sample name

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.82	SAPLING_BIOMASS	ID_TREE	Aboveground dry biomass of saplings
3.16.81	SAWLOG_BIOMASS	ID_TREE	Dry biomass in the sawlog portion of the bole
3.1.24	SBP_CN	ID_BOUNDARY	Subplot sequence number
3.2.37	SBP_CN	ID_BUILDING_INTERACTION	Subplot sequence number
3.3.29	SBP_CN	ID_CLOSED_BOUNDARY	Subplot sequence number
3.5.19	SBP_CN	ID_ENERGY_EFFECT	Subplot sequence number
3.6.18	SBP_CN	ID_INVASIVE_SUBP_COND	Subplot sequence number
3.7.41	SBP_CN	ID_MOTHER_TREE	Subplot sequence number
3.12.17	SBP_CN	ID_SEEDLING	Subplot sequence number
3.13.21	SBP_CN	ID_SITETREE	Subplot sequence number
3.15.20	SBP_CN	ID_SUBP_COND	Subplot sequence number
3.16.89	SBP_CN	ID_TREE	Subplot sequence number
3.17.15	SBP_CN	ID_WOODLAND_STEM	Subplot sequence number
6.15.3	SCIENTIFIC_NAME	REF_DAMAGE_AGENT	Scientific name of damage agent
6.35.4	SCIENTIFIC_NAME	REF_PLANT_DICTIONARY	Scientific name
6.35.15	SCIENTIFIC_NAME_W_AUTHOR	REF_PLANT_DICTIONARY	Scientific name with author
3.12.11	SEEDLING_COUNT	ID_SEEDLING	Seedling count
2.1.2	SERIES_NAME	SO_FIELD_SAMPLE	Series name
2.5.2	SERIES_NAME	SO_SAMPLE_RULE	Series name
6.48.21	SFTWD_HRDWD	REF_SPECIES	Softwood or hardwood
3.4.50	SITE_CLASS_CD	ID_COND	Site productivity class code
3.4.51	SITE_CLASS_METHOD	ID_COND	Site productivity class method code
3.4.52	SITE_CLASS_SIT_CN	ID_COND	Site productivity class site tree sequence number
3.4.53	SITE_INDEX	ID_COND	Site index for the condition
3.13.24	SITE_INDEX	ID_SITETREE	Site index for the site tree
3.13.25	SITE_INDEX_METHOD_CD	ID_SITETREE	Site index method code
6.48.20	SITETREE	REF_SPECIES	Site tree
3.14.14	SLOPE	ID_SUBPLOT	Subplot percent slope
3.7.12	SPCD	ID_MOTHER_TREE	Species code
3.12.9	SPCD	ID_SEEDLING	Species code
3.13.11	SPCD	ID_SITETREE	Species code
3.16.17	SPCD	ID_TREE	Species code
6.48.1	SPCD	REF_SPECIES	Species code
6.35.22	SPECIES	REF_PLANT_DICTIONARY	Species (Latin)
6.48.4	SPECIES	REF_SPECIES	Species (Latin)
3.6.11	SPECIES_SYMBOL	ID_INVASIVE_SUBP_COND	Species symbol

Section	Column name (attribute)	Oracle table name	Descriptive name
6.48.7	SPECIES_SYMBOL	REF_SPECIES	Species symbol
3.6.9	SPECIES_SYMBOL_FLD	ID_INVASIVE_SUBP_COND	Field species symbol
3.7.13	SPGRPCD	ID_MOTHER_TREE	Species group code
3.12.10	SPGRPCD	ID_SEEDLING	Species group code
3.16.18	SPGRPCD	ID_TREE	Species group code
6.49.1	SPGRPCD	REF_SPECIES_GROUP	Species group code
2.1.11	SR_CN	SO_FIELD_SAMPLE	Series sequence number
6.35.23	SSP	REF_PLANT_DICTIONARY	Subspecies indicator
6.48.22	ST_EXISTS_IN_NCRS	REF_SPECIES	Site tree exists in North Central Research Station region
6.48.23	ST_EXISTS_IN_NERS	REF_SPECIES	Site tree exists in Northeastern Research Station region
6.48.24	ST_EXISTS_IN_PNWRS	REF_SPECIES	Site tree exists in Pacific Northwest Research Station region
6.48.25	ST_EXISTS_IN_RMRS	REF_SPECIES	Site tree exists in Rocky Mountain Research Station region
6.48.26	ST_EXISTS_IN_SRS	REF_SPECIES	Site tree exists in Southern Research Station region
3.16.19	STANDING_DEAD_CD	ID_TREE	Standing dead code
6.48.68	STANDING_DEAD_DECAY_RATIO1	REF_SPECIES	Standing dead decay ratio 1
6.48.69	STANDING_DEAD_DECAY_RATIO2	REF_SPECIES	Standing dead decay ratio 2
6.48.70	STANDING_DEAD_DECAY_RATIO3	REF_SPECIES	Standing dead decay ratio 3
6.48.71	STANDING_DEAD_DECAY_RATIO4	REF_SPECIES	Standing dead decay ratio 4
6.48.72	STANDING_DEAD_DECAY_RATIO5	REF_SPECIES	Standing dead decay ratio 5
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_BOUNDARY	State code
3.2.3	STATECD	ID_BUILDING_INTERACTION	State code
3.3.3	STATECD	ID_CLOSED_BOUNDARY	State code
3.4.3	STATECD	ID_COND	State code
3.5.3	STATECD	ID_ENERGY_EFFECT	State code
3.6.3	STATECD	ID_INVASIVE_SUBP_COND	State code
3.7.3	STATECD	ID_MOTHER_TREE	State code
3.8.3	STATECD	ID_PLOT	State code
3.12.3	STATECD	ID_SEEDLING	State code
3.13.3	STATECD	ID_SITETREE	State code
3.15.3	STATECD	ID_SUBP_COND	State code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.14.3	STATECD	ID_SUBPLOT	State code
3.16.3	STATECD	ID_TREE	State code
3.17.3	STATECD	ID_WOODLAND_STEM	State code
6.11.1	STATECD	REF_COUNTY	State code
6.24.2	STATECD	REF_INVASIVE_SPECIES	State code
6.58.1	STATECD	REF_UNIT	State code
3.7.10	STATUSCD	ID_MOTHER_TREE	Mother tree status code
3.16.14	STATUSCD	ID_TREE	Tree status code
3.17.11	STATUSCD	ID_WOODLAND_STEM	Woodland stem status code
3.4.16	STDORGCD	ID_COND	Stand origin code
3.4.17	STDORGSP	ID_COND	Stand origin species code
3.16.10	STEM	ID_TREE	Stem identifier
3.17.10	STEM_NBR	ID_WOODLAND_STEM	Woodland stem number
6.48.13	STOCKING_SPGRPCD	REF_SPECIES	Stocking species group code
4.9.16	STRATUM_ACRES	POP_STRATUM_CALC	Stratum acres
4.9.25	STRATUM_DESCRIPTION	POP_STRATUM_CALC	Stratum description
4.9.15	STRATUM_LABEL	POP_STRATUM_CALC	Stratum label
4.9.23	STRATUM_MICROPLOT_ADJ_FACTOR	POP_STRATUM_CALC	Stratum microplot adjustment factor
4.9.14	STRATUM_NAME	POP_STRATUM_CALC	Stratum name
4.9.18	STRATUM_PLOT_COUNT	POP_STRATUM_CALC	Stratum plot count
4.9.17	STRATUM_POINT_COUNT	POP_STRATUM_CALC	Stratum point count
4.9.21	STRATUM_SOURCE	POP_STRATUM_CALC	Stratum source
4.9.22	STRATUM_SUBPLOT_ADJ_FACTOR	POP_STRATUM_CALC	Stratum subplot adjustment factor
4.9.20	STRATUM_WEIGHT	POP_STRATUM_CALC	Stratum weight
3.16.79	STUMP_BIOMASS	ID_TREE	Dry biomass in the stump
2.1.5	SUBCYCLE	SO_FIELD_SAMPLE	Inventory subcycle iterator
2.5.5	SUBCYCLE	SO_SAMPLE_RULE	Inventory subcycle iterator
3.1.7	SUBP	ID_BOUNDARY	Subplot/microplot identifier
3.2.7	SUBP	ID_BUILDING_INTERACTION	Subplot/microplot identifier
3.3.7	SUBP	ID_CLOSED_BOUNDARY	Subplot identifier
3.5.7	SUBP	ID_ENERGY_EFFECT	Subplot/microplot identifier
3.6.7	SUBP	ID_INVASIVE_SUBP_COND	Subplot identifier
3.7.7	SUBP	ID_MOTHER_TREE	Subplot/microplot identifier
3.12.7	SUBP	ID_SEEDLING	Subplot/microplot identifier
3.13.7	SUBP	ID_SITETREE	Subplot identifier
3.15.7	SUBP	ID_SUBP_COND	Subplot/microplot identifier
3.14.7	SUBP	ID_SUBPLOT	Subplot/microplot identifier
3.16.7	SUBP	ID_TREE	Subplot/microplot identifier

Section	Column name (attribute)	Oracle table name	Descriptive name
3.17.7	SUBP	ID_WOODLAND_STEM	Subplot/microplot identifier
3.8.20	SUBP_EXAMINE_CD	ID_PLOT	Subplots examined code
3.14.11	SUBP_NONSAMPLE_REASN_CD	ID_SUBPLOT	Subplot nonsampled reason code
3.14.10	SUBP_STATUS_CD	ID_SUBPLOT	Subplot status code
3.1.8	SUBP_TYPE	ID_BOUNDARY	Subplot/microplot type code
3.3.8	SUBP_TYPE	ID_CLOSED_BOUNDARY	Subplot/microplot type code
6.35.25	SUBSPECIES	REF_PLANT_DICTIONARY	Subspecies
6.48.6	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		
6.15.4	THRESHOLD	REF_DAMAGE_AGENT	Threshold for damage agent
3.16.80	TOP_BIOMASS	ID_TREE	Dry biomass in the top and limbs
3.16.25	TOTAL_LENGTH	ID_TREE	Total length
3.7.11	TPA_UNADJ	ID_MOTHER_TREE	Mother trees per acre unadjusted
3.12.12	TPA_UNADJ	ID_SEEDLING	Trees per acre unadjusted
3.16.16	TPA_UNADJ	ID_TREE	Trees per acre unadjusted
3.17.18	TRE_CN	ID_WOODLAND_STEM	Tree sequence number
3.4.39	TREATMENT_CD1	ID_COND	Treatment code 1
3.4.40	TREATMENT_CD2	ID_COND	Treatment code 2
3.4.41	TREATMENT_CD3	ID_COND	Treatment code 3
3.4.42	TREATMENT_YEAR1	ID_COND	Treatment year 1
3.4.43	TREATMENT_YEAR2	ID_COND	Treatment year 2
3.4.44	TREATMENT_YEAR3	ID_COND	Treatment year 3
3.2.9	TREE	ID_BUILDING_INTERACTION	Tree identifier
3.5.9	TREE	ID_ENERGY_EFFECT	Tree identifier
3.7.9	TREE	ID_MOTHER_TREE	Tree identifier
3.13.10	TREE	ID_SITETREE	Site tree identifier
3.16.9	TREE	ID_TREE	Tree identifier
3.17.9	TREE	ID_WOODLAND_STEM	Woodland tree identifier
3.16.65	TREE_GRADE	ID_TREE	Tree grade
5.3.7	TREE_INTERCEPTION	MOD_RAINFALL	Tree interception
3.16.94	TREE_SITE_INDEX	ID_TREE	Site index for the tree
3.16.15	TREECLCD	ID_TREE	Tree class code

Section	Column name (attribute)	Oracle table name	Descriptive name
3.16.61	TREECLCD_NRS	ID_TREE	Tree class code, Northern Research Station
3.16.63	TREECLCD_PNWRS	ID_TREE	Tree class code, Pacific Northwest Research Station
3.16.64	TREECLCD_RMRS	ID_TREE	Tree class code, Rocky Mountain Research Station
3.16.62	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
	U		
3.7.19	UNCOMP_CROWN_RATIO	ID_MOTHER_TREE	Uncompacted live crown ratio
3.16.36	UNCOMP_CROWN_RATIO	ID_TREE	Uncompacted live crown ratio
3.6.10	UNIQUE_SP_NBR	ID_INVASIVE_SUBP_COND	Unique species number
3.1.4	UNITCD	ID_BOUNDARY	Survey unit code
3.2.4	UNITCD	ID_BUILDING_INTERACTION	Survey unit code
3.3.4	UNITCD	ID_CLOSED_BOUNDARY	Survey unit code
3.4.4	UNITCD	ID_COND	Survey unit code
3.5.4	UNITCD	ID_ENERGY_EFFECT	Survey unit code
3.6.4	UNITCD	ID_INVASIVE_SUBP_COND	Survey unit code
3.7.4	UNITCD	ID_MOTHER_TREE	Survey unit code
3.8.4	UNITCD	ID_PLOT	Survey unit code
3.12.4	UNITCD	ID_SEEDLING	Survey unit code
3.13.4	UNITCD	ID_SITETREE	Survey unit code
3.15.4	UNITCD	ID_SUBP_COND	Survey unit code
3.14.4	UNITCD	ID_SUBPLOT	Survey unit code
3.16.4	UNITCD	ID_TREE	Survey unit code
3.17.4	UNITCD	ID_WOODLAND_STEM	Survey unit code
6.11.2	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
	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_BOUNDARY_CHANGE	Code value
6.5.1	VALUE	REF_BUILDING_DISTANCE	Code value
6.6.1	VALUE	REF_CANOPY_COVER_SAMPLE_METHOD	Code value

Section	Column name (attribute)	Oracle table name	Descriptive name
6.7.1	VALUE	REF_CAUSE_OF_DEATH	Code value
6.9.1	VALUE	REF_CONDITION_NONSAMPLE_REASON	Code value
6.10.1	VALUE	REF_CONDITION_SAMPLING_STATUS	Code value
6.12.1	VALUE	REF_COVER_CLASS	Code value
6.13.1	VALUE	REF_CROWN_CLASS	Code value
6.14.1	VALUE	REF_CROWN_LIGHT_EXPOSURE	Code value
6.17.1	VALUE	REF_DECAY_CLASS	Code value
6.18.1	VALUE	REF_DIA_CHECK	Code value
6.19.1	VALUE	REF_DISTURBANCE	Code value
6.20.1	VALUE	REF_FIA_LANDUSE	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_ITREE_LANDUSE	Code value
6.26.1	VALUE	REF_LAND_COVER_CLASS	Code value
6.27.1	VALUE	REF_LENGTH_METHOD	Code value
6.29.1	VALUE	REF_NO_YES	Code value
6.28.1	VALUE	REF_NONFOREST_LANDUSE	Code value
6.30.1	VALUE	REF_OFFSET_POINT	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_REASN	Code value
6.37.1	VALUE	REF_PLOT_STATUS	Code value
6.38.1	VALUE	REF_PLOT_TYPE	Code value
6.39.1	VALUE	REF_PREV_TREE_STATUS	Code value
6.40.1	VALUE	REF_PRODUCTIVITY_STATUS	Code value
6.41.1	VALUE	REF_RECONCILE	Code value
6.42.1	VALUE	REF_REGENERATION_STATUS	Code value
6.43.1	VALUE	REF_RESERVED_STATUS	Code value
6.44.1	VALUE	REF_SAMPLE_KIND	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

Section	Column name (attribute)	Oracle table name	Descriptive name
6.53.1	VALUE	REF_TREATMENT	Code value
6.54.1	VALUE	REF_TREE_CLASS	Code value
6.55.1	VALUE	REF_TREE_DENSITY	Code value
6.56.1	VALUE	REF_TREE_PLANTED	Code value
6.57.1	VALUE	REF_TREE_STATUS	Code value
6.58.2	VALUE	REF_UNIT	Code value
6.59.1	VALUE	REF_WATER_ON_PLOT	Code value
6.35.26	VAR	REF_PLANT_DICTIONARY	Variety indicator
6.35.28	VARIETY	REF_PLANT_DICTIONARY	Variety
6.48.5	VARIETY	REF_SPECIES	Variety
7.3.2	VERSION	ADMIN_PUB_DATA_STANDARD	Compiled data standard version number
3.1.2	VISIT_NBR	ID_BOUNDARY	Visit number
3.2.2	VISIT_NBR	ID_BUILDING_INTERACTION	Visit number
3.3.2	VISIT_NBR	ID_CLOSED_BOUNDARY	Visit number
3.4.2	VISIT_NBR	ID_COND	Visit number
3.5.2	VISIT_NBR	ID_ENERGY_EFFECT	Visit number
3.6.2	VISIT_NBR	ID_INVASIVE_SUBP_COND	Visit number
3.7.2	VISIT_NBR	ID_MOTHER_TREE	Visit number
3.8.2	VISIT_NBR	ID_PLOT	Visit number
3.12.2	VISIT_NBR	ID_SEEDLING	Visit number
3.13.2	VISIT_NBR	ID_SITETREE	Visit number
3.15.2	VISIT_NBR	ID_SUBP_COND	Visit number
3.14.2	VISIT_NBR	ID_SUBPLOT	Visit number
3.16.2	VISIT_NBR	ID_TREE	Visit number
3.17.2	VISIT_NBR	ID_WOODLAND_STEM	Visit number
	W		
6.48.9	W_SPGRPCD	REF_SPECIES	Western species group code
3.8.19	WATER_CD	ID_PLOT	Water on plot code
3.14.16	WATER_DEPTH	ID_SUBPLOT	Water/snow depth
3.16.83	WDLD_BIOMASS	ID_TREE	Aboveground dry biomass of woodland species
6.48.29	WEST	REF_SPECIES	Western species
4.2.4	WHERE_CLAUSE	POP_CALCULATION	Where clause
6.48.47	WOOD_SPGR_GREENVOL_DRYWT	REF_SPECIES	Green specific gravity of wood (green volume and oven-dry weight)
6.48.48	WOOD_SPGR_GREENVOL_DRYWT_CIT	REF_SPECIES	Citation for WOOD_SPGR_GREENVOL_DRYWT

Section	Column name (attribute)	Oracle table name	Descriptive name
6.48.55	WOOD_SPGR_MC12VOL_DRYWT	REF_SPECIES	Wood specific gravity (12 percent moisture content volume and oven-dry weight)
6.48.56	WOOD_SPGR_MC12VOL_DRYWT_CIT	REF_SPECIES	Citation for WOOD_SPGR_MC12VOL_DRYWT
6.48.32	WOODLAND	REF_SPECIES	Woodland species
	X		
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
	Y		
	Z		

Appendix A: Quick Links

Appendix Contents:

Quick Links
Urban: Forest Inventory and Analysis (FIA)
Urban: i-Tree Software Suite
Urban: Other
National: Forest Inventory and Analysis (FIA)
FIA: Research Stations
USDA Forest Service
Other

Urban: Forest Inventory and Analysis (FIA)

Description	Website (URL address)
Urban FIA - Program	https://www.fia.fs.fed.us/program-features/urban/
Urban FIA - Urban Data Mart	https://www.fia.fs.fed.us/tools-data/
Urban FIA - Urban Field Guides	https://www.fia.fs.fed.us/program-features/urban/
Urban FIA - Urban FIADB User Guides	https://www.fia.fs.fed.us/library/database-documentation/
Urban FIA - Research & Development	https://www.fs.fed.us/research/urban/fia.php

Urban: i-Tree Software Suite

Description	Website (URL address)
i-Tree Program (home page)	https://www.itreetools.org/
i-Tree - Tools	https://www.itreetools.org/tools
i-Tree - Climate Change Resource Center	https://www.fs.usda.gov/ccrc/tools/i-tree

Urban: Other

Description	Website (URL address)
USDA Forest Service - Urban Research	https://www.fs.fed.us/research/urban/
Urban and Community Forestry Program	https://www.fs.usda.gov/managing-land/urban-forests/ucf
My City's Trees	https://mct.tfs.tamu.edu/

National: Forest Inventory and Analysis (FIA)

Description	Website (URL address)
FIA - National Program	https://www.fia.fs.fed.us/
FIA - Data and Tools	https://www.fia.fs.fed.us/tools-data/
FIA - Library	https://www.fia.fs.fed.us/library/
FIA - Field Guides, Methods, and Procedures	https://www.fia.fs.fed.us/library/field-guides-methods-proc/
FIA - FIADB User Guides	https://www.fia.fs.fed.us/library/database-documentation/
FIA - Spatial Data Services (SDS)	https://www.fia.fs.fed.us/tools-data/spatial/

FIA: Research Stations

Description	Website (URL address)
FIA - Northern Research Station	https://www.nrs.fs.fed.us/fia/
FIA - Southern Research Station	https://www.fs.usda.gov/srsfia/
FIA - Rocky Mountain Research Station (Interior West)	https://www.fs.fed.us/rm/ogden/
FIA - Pacific Northwest Research Station	https://www.fs.usda.gov/pnw/program/rma

USDA Forest Service

Description	Website (URL address)
USDA Forest Service	https://www.fs.usda.gov/
USDA Forest Service - Contact Us	https://www.fs.usda.gov/about-agency/contact-us
USDA Forest Service - FSGeodata Clearinghouse	https://data.fs.usda.gov/geodata/
USDA Forest Service - National Program and Offices	https://www.fs.usda.gov/about-agency/contact-us/national-programs-offices
USDA Forest Service - Our Organization	https://www.fs.usda.gov/organization
USDA Forest Service - Research & Development	https://www.fs.fed.us/research/
USDA Forest Service - State and Private Forestry	https://www.fs.usda.gov/about-agency/state-private-forestry
USDA Forest Service - Urban Research	https://www.fs.fed.us/research/urban/

Other

Description	Website (URL address)
Natural Resource Conservation Service (NRCS) - PLANTS database - home page	https://plants.sc.egov.usda.gov/java/
U.S. Geological Survey - Mission Areas, Water Resources	https://www.usgs.gov/mission-areas/water-resources
U.S. Geological Survey - National Water Information System (NWIS)	https://waterdata.usgs.gov/nwis

Appendix B: State, Survey Unit, and County Codes

Appendix Contents:

Description
Ordered by state code
Pacific Islands
Caribbean Islands

Ordered by state code

State	State code	State abbrev.	FIA - Research organization region	FIA - Research organization code
Alabama	1	AL	SRS	33
Alaska	2	AK	PNWRS-AK	27
Arizona	4	AZ	RMRS	22
Arkansas	5	AR	SRS	33
California	6	CA	PNWRS	26
Colorado	8	CO	RMRS	22
Connecticut	9	CT	NRS	24
Delaware	10	DE	NRS	24
District of Columbia	11	DC	NRS	24
Florida	12	FL	SRS	33
Georgia	13	GA	SRS	33
Hawaii	15	HI	PNWRS	26
Idaho	16	ID	RMRS	22
Illinois	17	IL	NRS	24
Indiana	18	IN	NRS	24
Iowa	19	IA	NRS	24
Kansas	20	KS	NRS	24
Kentucky	21	KY	SRS	33
Louisiana	22	LA	SRS	33
Maine	23	ME	NRS	24
Maryland	24	MD	NRS	24
Massachusetts	25	MA	NRS	24
Michigan	26	MI	NRS	24
Minnesota	27	MN	NRS	24
Mississippi	28	MS	SRS	33

State	State code	State abbrev.	FIA - Research organization region	FIA - Research organization code
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.

State	State code	State abbrev.	FIA - Research organization region	FIA - Research organization code
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.

State	State code	State abbrev.	FIA - Research organization region	FIA - Research organization code
Puerto Rico	72	PR	SRS	33
U.S. Virgin Islands	78	VI	SRS	33

Alabama

State Name: Alabama		
State Code: 1	**State Abbreviation:** AL	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Southwest-South

Code	County	Code	County	Code	County	Code	County
3	Baldwin	53	Escambia	129	Washington		
39	Covington	97	Mobile				

Survey Unit Code: 2 **Survey Unit Name:** Southwest-North

Code	County	Code	County	Code	County	Code	County
23	Choctaw	35	Conecuh	99	Monroe	131	Wilcox
25	Clarke	91	Marengo	119	Sumter		

Survey Unit Code: 3 **Survey Unit Name:** Southeast

Code	County	Code	County	Code	County	Code	County
1	Autauga	31	Coffee	67	Henry	109	Pike
5	Barbour	41	Crenshaw	69	Houston	113	Russell
11	Bullock	45	Dale	81	Lee	123	Tallapoosa
13	Butler	47	Dallas	85	Lowndes		
17	Chambers	51	Elmore	87	Macon		
21	Chilton	61	Geneva	101	Montgomery		

Survey Unit Code: 4 **Survey Unit Name:** West Central

Code	County	Code	County	Code	County	Code	County
7	Bibb	65	Hale	105	Perry		
57	Fayette	75	Lamar	107	Pickens		
63	Greene	93	Marion	125	Tuscaloosa		

Survey Unit Code: 5 **Survey Unit Name:** North Central

Code	County	Code	County	Code	County	Code	County
9	Blount	29	Cleburne	73	Jefferson	121	Talladega
15	Calhoun	37	Coosa	111	Randolph	127	Walker
19	Cherokee	43	Cullman	115	St. Clair	133	Winston
27	Clay	55	Etowah	117	Shelby		

Survey Unit Code: 6 **Survey Unit Name:** North

Code	County	Code	County	Code	County	Code	County
33	Colbert	71	Jackson	83	Limestone	103	Morgan
49	DeKalb	77	Lauderdale	89	Madison		
59	Franklin	79	Lawrence	95	Marshall		

Alaska

State Name: Alaska		
State Code: 2	**State Abbreviation:** AK	**Region/Station Code:** 27

Survey Unit Code: 1 **Survey Unit Name:** Alaska

Code	County	Code	County
13	Aleutians East Borough	170	Matanuska-Susitna Borough
16	Aleutians West Census Area	180	Nome Census Area
20	Anchorage Borough	185	North Slope Borough
50	Bethel Census Area	188	Northwest Arctic Borough
60	Bristol Bay Borough	201	Prince of Wales-Outer Ketchikan Census Area
68	Denali Borough	220	Sitka Borough
70	Dillingham Census Area	232	Skagway-Hoonah-Angoon Census Area
90	Fairbanks North Star Borough	240	Southeast Fairbanks Census Area
100	Haines Borough	261	Valdez-Cordova Census Area
110	Juneau Borough	270	Wade Hampton Census Area
122	Kenai Peninsula Borough	280	Wrangell-Petersburg Census Area
130	Ketchikan Gateway Borough	282	Yakutat Borough
150	Kodiak Island Borough	290	Yukon-Koyukuk Census Area
164	Lake and Peninsula Borough		

Arizona

State Name: Arizona		
State Code: 4	**State Abbreviation:** AZ	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
3	Cochise	12	La Paz	21	Pinal		
9	Graham	13	Maricopa	23	Santa Cruz		
11	Greenlee	19	Pima	27	Yuma		

Survey Unit Code: 2 **Survey Unit Name:** Northern

Code	County	Code	County	Code	County	Code	County
1	Apache	7	Gila	17	Navajo		
5	Coconino	15	Mohave	25	Yavapai		

Arkansas

State Name: Arkansas		
State Code: 5	**State Abbreviation:** AR	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** South Delta

Code	County	Code	County	Code	County	Code	County
1	Arkansas	69	Jefferson	85	Lonoke	117	Prairie
17	Chicot	77	Lee	95	Monroe		
41	Desha	79	Lincoln	107	Phillips		

Survey Unit Code: 2 **Survey Unit Name:** North Delta

Code	County	Code	County	Code	County	Code	County
21	Clay	37	Cross	75	Lawrence	123	St. Francis
31	Craighead	55	Greene	93	Mississippi	147	Woodruff
35	Crittenden	67	Jackson	111	Poinsett		

Survey Unit Code: 3 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
3	Ashley	27	Columbia	59	Hot Spring	99	Nevada
11	Bradley	39	Dallas	61	Howard	103	Ouachita
13	Calhoun	43	Drew	73	Lafayette	109	Pike
19	Clark	53	Grant	81	Little River	133	Sevier
25	Cleveland	57	Hempstead	91	Miller	139	Union

Survey Unit Code: 4 **Survey Unit Name:** Ouachita

Code	County	Code	County	Code	County	Code	County
51	Garland	105	Perry	125	Saline	149	Yell
83	Logan	113	Polk	127	Scott		
97	Montgomery	119	Pulaski	131	Sebastian		

Survey Unit Code: 5 **Survey Unit Name:** Ozark

Code	County	Code	County	Code	County	Code	County
5	Baxter	33	Crawford	71	Johnson	129	Searcy
7	Benton	45	Faulkner	87	Madison	135	Sharp
9	Boone	47	Franklin	89	Marion	137	Stone
15	Carroll	49	Fulton	101	Newton	141	Van Buren
23	Cleburne	63	Independence	115	Pope	143	Washington
29	Conway	65	Izard	121	Randolph	145	White

California

State Name: California		
State Code: 6	**State Abbreviation:** CA	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** North Coast

Code	County	Code	County	Code	County	Code	County
15	Del Norte	23	Humboldt	45	Mendocino	97	Sonoma

Survey Unit Code: 2 **Survey Unit Name:** North Interior

Code	County	Code	County	Code	County	Code	County
35	Lassen	89	Shasta	105	Trinity		
49	Modoc	93	Siskiyou				

Survey Unit Code: 3 **Survey Unit Name:** Sacramento

Code	County	Code	County	Code	County	Code	County
7	Butte	33	Lake	63	Plumas	103	Tehama
11	Colusa	55	Napa	67	Sacramento	113	Yolo
17	El Dorado	57	Nevada	91	Sierra	115	Yuba
21	Glenn	61	Placer	101	Sutter		

Survey Unit Code: 4 **Survey Unit Name:** Central Coast

Code	County	Code	County	Code	County	Code	County
1	Alameda	69	San Benito	83	Santa Barbara	111	Ventura
13	Contra Costa	75	San Francisco	85	Santa Clara		
41	Marin	79	San Luis Obispo	87	Santa Cruz		
53	Monterey	81	San Mateo	95	Solano		

Survey Unit Code: 5 **Survey Unit Name:** San Joaquin

Code	County	Code	County	Code	County	Code	County
3	Alpine	29	Kern	47	Merced	107	Tulare
5	Amador	31	Kings	51	Mono	109	Tuolumne
9	Calaveras	39	Madera	77	San Joaquin		
19	Fresno	43	Mariposa	99	Stanislaus		

Survey Unit Code: 6 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
25	Imperial	37	Los Angeles	65	Riverside	73	San Diego
27	Inyo	59	Orange	71	San Bernardino		

Colorado

State Name: Colorado		
State Code: 8	**State Abbreviation:** CO	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Northern Front Range

Code	County	Code	County	Code	County	Code	County
13	Boulder	35	Douglas	47	Gilpin	69	Larimer
14	Broomfield[a]	39	Elbert	59	Jefferson	93	Park
19	Clear Creek	41	El Paso	65	Lake	119	Teller

Survey Unit Code: 2 **Survey Unit Name:** Southern Front Range

Code	County	Code	County	Code	County	Code	County
15	Chaffee	27	Custer	55	Huerfano	101	Pueblo
23	Costilla	43	Fremont	71	Las Animas		

Survey Unit Code: 3 **Survey Unit Name:** West Central

Code	County	Code	County	Code	County	Code	County
3	Alamosa	51	Gunnison	97	Pitkin	111	San Juan
21	Conejos	53	Hinsdale	105	Rio Grande	117	Summit
37	Eagle	57	Jackson	107	Routt		
49	Grand	79	Mineral	109	Saguache		

Survey Unit Code: 4 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
7	Archuleta	45	Garfield	81	Moffat	91	Ouray
29	Delta	67	La Plata	83	Montezuma	103	Rio Blanco
33	Dolores	77	Mesa	85	Montrose	113	San Miguel

Survey Unit Code: 5 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
1	Adams	25	Crowley	75	Logan	115	Sedgwick
5	Arapahoe	31	Denver	87	Morgan	121	Washington
9	Baca	61	Kiowa	89	Otero	123	Weld
11	Bent	63	Kit Carson	95	Phillips	125	Yuma
17	Cheyenne	73	Lincoln	99	Prowers		

[a] This is a new county in the 2010 census, but is not currently added to the REF_COUNTY table.

Connecticut

State Name: Connecticut		
State Code: 9	**State Abbreviation:** CT	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** Connecticut

Code	County	Code	County	Code	County	Code	County
1	Fairfield	5	Litchfield	9	New Haven	13	Tolland
3	Hartford	7	Middlesex	11	New London	15	Windham

Delaware

State Name: Delaware		
State Code: 10	**State Abbreviation:** DE	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** Delaware

Code	County	Code	County	Code	County	Code	County
1	Kent	3	New Castle	5	Sussex		

District of Columbia

State Name: District of Columbia		
State Code: 11	**State Abbreviation:** DC	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** District of Columbia

Florida

State Name: Florida		
State Code: 12	**State Abbreviation:** FL	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Northeast

Code	County	Code	County	Code	County	Code	County
1	Alachua	31	Duval	79	Madison	123	Taylor
3	Baker	35	Flagler	83	Marion	125	Union
7	Bradford	41	Gilchrist	89	Nassau	127	Volusia
19	Clay	47	Hamilton	107	Putnam		
23	Columbia	67	Lafayette	109	St. Johns		
29	Dixie	75	Levy	121	Suwannee		

Survey Unit Code: 2 **Survey Unit Name:** Northwest

Code	County	Code	County	Code	County	Code	County
5	Bay	39	Gadsden	65	Jefferson	113	Santa Rosa
13	Calhoun	45	Gulf	73	Leon	129	Wakulla
33	Escambia	59	Holmes	77	Liberty	131	Walton
37	Franklin	63	Jackson	91	Okaloosa	133	Washington

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
9	Brevard	55	Highlands	93	Okeechobee	105	Polk
17	Citrus	57	Hillsborough	95	Orange	111	St. Lucie
27	DeSoto	61	Indian River	97	Osceola	115	Sarasota
49	Hardee	69	Lake	101	Pasco	117	Seminole
53	Hernando	81	Manatee	103	Pinellas	119	Sumter

Survey Unit Code: 4 **Survey Unit Name:** South

Code	County	Code	County	Code	County	Code	County
11	Broward	25	Dade	71	Lee	99	Palm Beach
15	Charlotte	43	Glades	85	Martin		
21	Collier	51	Hendry	87	Monroe		

Georgia

State Name: Georgia		
State Code: 13	**State Abbreviation:** GA	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Southeast

Code	County	Code	County	Code	County	Code	County
1	Appling	51	Chatham	161	Jeff Davis	251	Screven
3	Atkinson	65	Clinch	165	Jenkins	267	Tattnall
5	Bacon	69	Coffee	167	Johnson	271	Telfair
25	Brantley	91	Dodge	175	Laurens	279	Toombs
29	Bryan	101	Echols	179	Liberty	283	Treutlen
31	Bulloch	103	Effingham	183	Long	299	Ware
39	Camden	107	Emanuel	191	McIntosh	305	Wayne
43	Candler	109	Evans	209	Montgomery	309	Wheeler
49	Charlton	127	Glynn	229	Pierce		

Survey Unit Code: 2 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
7	Baker	81	Crisp	173	Lanier	277	Tift
17	Ben Hill	87	Decatur	185	Lowndes	287	Turner
19	Berrien	93	Dooly	201	Miller	315	Wilcox
27	Brooks	99	Early	205	Mitchell	321	Worth
71	Colquitt	131	Grady	253	Seminole		
75	Cook	155	Irwin	275	Thomas		

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
9	Baldwin	141	Hancock	211	Morgan	265	Taliaferro
21	Bibb	145	Harris	215	Muscogee	269	Taylor
23	Bleckley	153	Houston	225	Peach	273	Terrell
33	Burke	159	Jasper	231	Pike	289	Twiggs
35	Butts	163	Jefferson	235	Pulaski	293	Upson
37	Calhoun	169	Jones	237	Putnam	301	Warren
53	Chattahoochee	171	Lamar	239	Quitman	303	Washington
61	Clay	177	Lee	243	Randolph	307	Webster
73	Columbia	181	Lincoln	245	Richmond	317	Wilkes
79	Crawford	189	McDuffie	249	Schley	319	Wilkinson
95	Dougherty	193	Macon	259	Stewart		
125	Glascock	197	Marion	261	Sumter		
133	Greene	207	Monroe	263	Talbot		

Survey Unit Code: 4 **Survey Unit Name:** North Central

Code	County	Code	County	Code	County	Code	County
11	Banks	97	Douglas	143	Haralson	219	Oconee
13	Barrow	105	Elbert	147	Hart	221	Oglethorpe
45	Carroll	113	Fayette	149	Heard	223	Paulding
59	Clarke	117	Forsyth	151	Henry	233	Polk
63	Clayton	119	Franklin	157	Jackson	247	Rockdale
67	Cobb	121	Fulton	195	Madison	255	Spalding
77	Coweta	135	Gwinnett	199	Meriwether	285	Troup
89	DeKalb	139	Hall	217	Newton	297	Walton

Georgia - continued on next page

State Name: Georgia		
State Code: 13	**State Abbreviation:** GA	**Region/Station Code:** 33

Survey Unit Code: 5 **Survey Unit Name:** North

Code	County	Code	County	Code	County	Code	County
15	Bartow	111	Fannin	213	Murray	295	Walker
47	Catoosa	115	Floyd	227	Pickens	311	White
55	Chattooga	123	Gilmer	241	Rabun	313	Whitfield
57	Cherokee	129	Gordon	257	Stephens		
83	Dade	137	Habersham	281	Towns		
85	Dawson	187	Lumpkin	291	Union		

Hawaii

State Name: Hawaii		
State Code: 15	**State Abbreviation:** HI	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** Hawaii

Code	County	Code	County	Code	County	Code	County
1	Hawaii	5	Kalawao	9	Maui		
3	Honolulu	7	Kauai				

Idaho

State Name: Idaho		
State Code: 16	**State Abbreviation:** ID	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Northern

Code	County	Code	County	Code	County	Code	County
9	Benewah	35	Clearwater	57	Latah	79	Shoshone
17	Bonner	49	Idaho	61	Lewis		
21	Boundary	55	Kootenai	69	Nez Perce		

Survey Unit Code: 2 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
1	Ada	27	Canyon	73	Owyhee	87	Washington
3	Adams	39	Elmore	75	Payette		
15	Boise	45	Gem	85	Valley		

Survey Unit Code: 3 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
5	Bannock	25	Camas	43	Fremont	65	Madison
7	Bear Lake	29	Caribou	47	Gooding	67	Minidoka
11	Bingham	31	Cassia	51	Jefferson	71	Oneida
13	Blaine	33	Clark	53	Jerome	77	Power
19	Bonneville	37	Custer	59	Lemhi	81	Teton
23	Butte	41	Franklin	63	Lincoln	83	Twin Falls

Illinois

State Name: Illinois		
State Code: 17	**State Abbreviation:** IL	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
3	Alexander	69	Hardin	145	Perry	165	Saline
55	Franklin	77	Jackson	151	Pope	181	Union
59	Gallatin	87	Johnson	153	Pulaski	193	White
65	Hamilton	127	Massac	157	Randolph	199	Williamson

Survey Unit Code: 2 **Survey Unit Name:** Claypan

Code	County	Code	County	Code	County	Code	County
5	Bond	47	Edwards	101	Lawrence	163	St. Clair
13	Calhoun	49	Effingham	117	Macoupin	173	Shelby
23	Clark	51	Fayette	119	Madison	185	Wabash
25	Clay	61	Greene	121	Marion	189	Washington
27	Clinton	79	Jasper	133	Monroe	191	Wayne
33	Crawford	81	Jefferson	135	Montgomery		
35	Cumberland	83	Jersey	159	Richland		

Survey Unit Code: 3 **Survey Unit Name:** Prairie

Code	County	Code	County	Code	County	Code	County
1	Adams	53	Ford	105	Livingston	149	Pike
7	Boone	57	Fulton	107	Logan	155	Putnam
9	Brown	63	Grundy	109	McDonough	161	Rock Island
11	Bureau	67	Hancock	111	McHenry	167	Sangamon
15	Carroll	71	Henderson	113	McLean	169	Schuyler
17	Cass	73	Henry	115	Macon	171	Scott
19	Champaign	75	Iroquois	123	Marshall	175	Stark
21	Christian	85	Jo Daviess	125	Mason	177	Stephenson
29	Coles	89	Kane	129	Menard	179	Tazewell
31	Cook	91	Kankakee	131	Mercer	183	Vermilion
37	DeKalb	93	Kendall	137	Morgan	187	Warren
39	De Witt	95	Knox	139	Moultrie	195	Whiteside
41	Douglas	97	Lake	141	Ogle	197	Will
43	DuPage	99	La Salle	143	Peoria	201	Winnebago
45	Edgar	103	Lee	147	Piatt	203	Woodford

Indiana

State Name: Indiana		
State Code: 18	**State Abbreviation:** IN	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Lower Wabash

Code	County	Code	County	Code	County	Code	County
21	Clay	83	Knox	129	Posey	165	Vermillion
27	Daviess	101	Martin	133	Putnam	167	Vigo
51	Gibson	121	Parke	153	Sullivan		
55	Greene	125	Pike	163	Vanderburgh		

Survey Unit Code: 2 **Survey Unit Name:** Knobs

Code	County	Code	County	Code	County	Code	County
13	Brown	61	Harrison	117	Orange	173	Warrick
19	Clark	71	Jackson	119	Owen	175	Washington
25	Crawford	93	Lawrence	123	Perry		
37	Dubois	105	Monroe	143	Scott		
43	Floyd	109	Morgan	147	Spencer		

Survey Unit Code: 3 **Survey Unit Name:** Upland Flats

Code	County	Code	County	Code	County	Code	County
29	Dearborn	77	Jefferson	137	Ripley		
41	Fayette	79	Jennings	155	Switzerland		
47	Franklin	115	Ohio	161	Union		

Survey Unit Code: 4 **Survey Unit Name:** Northern

Code	County	Code	County	Code	County	Code	County
1	Adams	45	Fountain	87	Lagrange	139	Rush
3	Allen	49	Fulton	89	Lake	141	St. Joseph
5	Bartholomew	53	Grant	91	La Porte	145	Shelby
7	Benton	57	Hamilton	95	Madison	149	Starke
9	Blackford	59	Hancock	97	Marion	151	Steuben
11	Boone	63	Hendricks	99	Marshall	157	Tippecanoe
15	Carroll	65	Henry	103	Miami	159	Tipton
17	Cass	67	Howard	107	Montgomery	169	Wabash
23	Clinton	69	Huntington	111	Newton	171	Warren
31	Decatur	73	Jasper	113	Noble	177	Wayne
33	De Kalb	75	Jay	127	Porter	179	Wells
35	Delaware	81	Johnson	131	Pulaski	181	White
39	Elkhart	85	Kosciusko	135	Randolph	183	Whitley

Iowa

State Name: Iowa		
State Code: 19	**State Abbreviation:** IA	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
5	Allamakee	31	Cedar	65	Fayette	105	Jones
11	Benton	37	Chickasaw	67	Floyd	113	Linn
13	Black Hawk	43	Clayton	75	Grundy	131	Mitchell
17	Bremer	45	Clinton	89	Howard	163	Scott
19	Buchanan	55	Delaware	97	Jackson	171	Tama
23	Butler	61	Dubuque	103	Johnson	191	Winneshiek

Survey Unit Code: 2 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
7	Appanoose	83	Hardin	121	Madison	177	Van Buren
15	Boone	87	Henry	123	Mahaska	179	Wapello
39	Clarke	95	Iowa	125	Marion	181	Warren
49	Dallas	99	Jasper	127	Marshall	183	Washington
51	Davis	101	Jefferson	135	Monroe	185	Wayne
53	Decatur	107	Keokuk	139	Muscatine	187	Webster
57	Des Moines	111	Lee	153	Polk		
77	Guthrie	115	Louisa	157	Poweshiek		
79	Hamilton	117	Lucas	169	Story		

Survey Unit Code: 3 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
1	Adair	47	Crawford	133	Monona	165	Shelby
3	Adams	71	Fremont	137	Montgomery	173	Taylor
9	Audubon	73	Greene	145	Page	175	Union
27	Carroll	85	Harrison	155	Pottawattamie	193	Woodbury
29	Cass	129	Mills	159	Ringgold		

Survey Unit Code: 4 **Survey Unit Name:** Northwestern

Code	County	Code	County	Code	County	Code	County
21	Buena Vista	63	Emmet	119	Lyon	161	Sac
25	Calhoun	69	Franklin	141	O'Brien	167	Sioux
33	Cerro Gordo	81	Hancock	143	Osceola	189	Winnebago
35	Cherokee	91	Humboldt	147	Palo Alto	195	Worth
41	Clay	93	Ida	149	Plymouth	197	Wright
59	Dickinson	109	Kossuth	151	Pocahontas		

Kansas

State Name: Kansas		
State Code: 20	**State Abbreviation:** KS	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
5	Atchison	59	Franklin	117	Marshall	177	Shawnee
13	Brown	61	Geary	121	Miami	197	Wabaunsee
27	Clay	85	Jackson	131	Nemaha	201	Washington
41	Dickinson	87	Jefferson	139	Osage	209	Wyandotte
43	Doniphan	91	Johnson	149	Pottawatomie		
45	Douglas	103	Leavenworth	161	Riley		

Survey Unit Code: 2 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
1	Allen	21	Cherokee	99	Labette	133	Neosho
3	Anderson	31	Coffey	107	Linn	205	Wilson
11	Bourbon	35	Cowley	111	Lyon	207	Woodson
15	Butler	37	Crawford	115	Marion		
17	Chase	49	Elk	125	Montgomery		
19	Chautauqua	73	Greenwood	127	Morris		

Survey Unit Code: 3 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
7	Barber	71	Greeley	129	Morton	171	Scott
9	Barton	75	Hamilton	135	Ness	173	Sedgwick
23	Cheyenne	77	Harper	137	Norton	175	Seward
25	Clark	79	Harvey	141	Osborne	179	Sheridan
29	Cloud	81	Haskell	143	Ottawa	181	Sherman
33	Comanche	83	Hodgeman	145	Pawnee	183	Smith
39	Decatur	89	Jewell	147	Phillips	185	Stafford
47	Edwards	93	Kearny	151	Pratt	187	Stanton
51	Ellis	95	Kingman	153	Rawlins	189	Stevens
53	Ellsworth	97	Kiowa	155	Reno	191	Sumner
55	Finney	101	Lane	157	Republic	193	Thomas
57	Ford	105	Lincoln	159	Rice	195	Trego
63	Gove	109	Logan	163	Rooks	199	Wallace
65	Graham	113	McPherson	165	Rush	203	Wichita
67	Grant	119	Meade	167	Russell		
69	Gray	123	Mitchell	169	Saline		

Kentucky

State Name: Kentucky		
State Code: 21	**State Abbreviation:** KY	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
71	Floyd	119	Knott	133	Letcher	193	Perry
95	Harlan	131	Leslie	159	Martin	195	Pike

Survey Unit Code: 2 **Survey Unit Name:** Northern Cumberland

Code	County	Code	County	Code	County	Code	County
19	Boyd	115	Johnson	165	Menifee	237	Wolfe
43	Carter	127	Lawrence	175	Morgan		
63	Elliott	135	Lewis	197	Powell		
89	Greenup	153	Magoffin	205	Rowan		

Survey Unit Code: 3 **Survey Unit Name:** Southern Cumberland

Code	County	Code	County	Code	County	Code	County
13	Bell	65	Estill	125	Laurel	189	Owsley
25	Breathitt	109	Jackson	129	Lee	203	Rockcastle
51	Clay	121	Knox	147	McCreary	235	Whitley

Survey Unit Code: 4 **Survey Unit Name:** Bluegrass

Code	County	Code	County	Code	County	Code	County
5	Anderson	67	Fayette	113	Jessamine	187	Owen
11	Bath	69	Fleming	117	Kenton	191	Pendleton
15	Boone	73	Franklin	137	Lincoln	201	Robertson
17	Bourbon	77	Gallatin	151	Madison	209	Scott
21	Boyle	79	Garrard	161	Mason	211	Shelby
23	Bracken	81	Grant	167	Mercer	215	Spencer
37	Campbell	97	Harrison	173	Montgomery	223	Trimble
41	Carroll	103	Henry	181	Nicholas	229	Washington
49	Clark	111	Jefferson	185	Oldham	239	Woodford

Survey Unit Code: 5 **Survey Unit Name:** Pennyroyal

Code	County	Code	County	Code	County	Code	County
1	Adair	57	Cumberland	99	Hart	179	Nelson
27	Breckinridge	85	Grayson	123	Larue	199	Pulaski
29	Bullitt	87	Green	155	Marion	207	Russell
45	Casey	91	Hancock	163	Meade	217	Taylor
53	Clinton	93	Hardin	169	Metcalfe	231	Wayne

Survey Unit Code: 6 **Survey Unit Name:** Western Coalfield

Code	County	Code	County	Code	County	Code	County
3	Allen	55	Crittenden	141	Logan	213	Simpson
9	Barren	59	Daviess	149	McLean	219	Todd
31	Butler	61	Edmonson	171	Monroe	225	Union
33	Caldwell	101	Henderson	177	Muhlenberg	227	Warren
47	Christian	107	Hopkins	183	Ohio	233	Webster

Kentucky - continued on next page

State Name: Kentucky		
State Code: 21	**State Abbreviation:** KY	**Region/Station Code:** 33

Survey Unit Code: 7 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
7	Ballard	75	Fulton	139	Livingston	157	Marshall
35	Calloway	83	Graves	143	Lyon	221	Trigg
39	Carlisle	105	Hickman	145	McCracken		

Louisiana

State Name: Louisiana		
State Code: 22	**State Abbreviation:** LA	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** North Delta

Code	County	Code	County	Code	County	Code	County
25	Catahoula	41	Franklin	83	Richland		
29	Concordia	65	Madison	107	Tensas		
35	East Carroll	67	Morehouse	123	West Carroll		

Survey Unit Code: 2 **Survey Unit Name:** South Delta

Code	County	Code	County	Code	County	Code	County
1	Acadia	47	Iberville	77	Pointe Coupee	99	St. Martin
5	Ascension	51	Jefferson	87	St. Bernard	101	St. Mary
7	Assumption	55	Lafayette	89	St. Charles	109	Terrebonne
9	Avoyelles	57	Lafourche	93	St. James	113	Vermilion
23	Cameron	71	Orleans	95	St. John the Baptist	121	West Baton Rouge
45	Iberia	75	Plaquemines	97	St. Landry	125	West Feliciana

Survey Unit Code: 3 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
3	Allen	39	Evangeline	59	La Salle	85	Sabine
11	Beauregard	43	Grant	69	Natchitoches	115	Vernon
19	Calcasieu	53	Jefferson Davis	79	Rapides		

Survey Unit Code: 4 **Survey Unit Name:** Southeast

Code	County	Code	County	Code	County	Code	County
33	East Baton Rouge	63	Livingston	103	St. Tammany	117	Washington
37	East Feliciana	91	St. Helena	105	Tangipahoa		

Survey Unit Code: 5 **Survey Unit Name:** Northwest

Code	County	Code	County	Code	County	Code	County
13	Bienville	27	Claiborne	73	Ouachita	127	Winn
15	Bossier	31	De Soto	81	Red River		
17	Caddo	49	Jackson	111	Union		
21	Caldwell	61	Lincoln	119	Webster		

Maine

State Name: Maine		
State Code: 23	**State Abbreviation:** ME	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** Washington

Code	County	Code	County	Code	County	Code	County
29	Washington						

Survey Unit Code: 2 **Survey Unit Name:** Aroostook

Code	County	Code	County	Code	County	Code	County
3	Aroostook						

Survey Unit Code: 3 **Survey Unit Name:** Penobscot

Code	County	Code	County	Code	County	Code	County
19	Penobscot						

Survey Unit Code: 4 **Survey Unit Name:** Hancock

Code	County	Code	County	Code	County	Code	County
9	Hancock						

Survey Unit Code: 5 **Survey Unit Name:** Piscataquis

Code	County	Code	County	Code	County	Code	County
21	Piscataquis						

Survey Unit Code: 6 **Survey Unit Name:** Capitol Region

Code	County	Code	County	Code	County	Code	County
11	Kennebec	13	Knox	15	Lincoln	27	Waldo

Survey Unit Code: 7 **Survey Unit Name:** Somerset

Code	County	Code	County	Code	County	Code	County
25	Somerset						

Survey Unit Code: 8 **Survey Unit Name:** Casco Bay

Code	County	Code	County	Code	County	Code	County
1	Androscoggin	5	Cumberland	23	Sagadahoc	31	York

Survey Unit Code: 9 **Survey Unit Name:** Western Maine

Code	County	Code	County	Code	County	Code	County
7	Franklin	17	Oxford				

Maryland

State Name: Maryland		
State Code: 24	**State Abbreviation:** MD	**Region/Station Code:** 24

Survey Unit Code: 2 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
3	Anne Arundel	15	Cecil	29	Kent	41	Talbot
5	Baltimore	21	Frederick	31	Montgomery	43	Washington
11	Caroline	25	Harford	33	Prince George's	510	Baltimore city
13	Carroll	27	Howard	35	Queen Anne's		

Survey Unit Code: 3 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
9	Calvert	17	Charles	37	St. Mary's		

Survey Unit Code: 4 **Survey Unit Name:** Lower Eastern Shore

Code	County	Code	County	Code	County	Code	County
19	Dorchester	39	Somerset	45	Wicomico	47	Worcester

Survey Unit Code: 5 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
1	Allegany	23	Garrett				

Massachusetts

State Name: Massachusetts		
State Code: 25	**State Abbreviation:** MA	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** Massachusetts

Code	County	Code	County	Code	County	Code	County
1	Barnstable	9	Essex	17	Middlesex	25	Suffolk
3	Berkshire	11	Franklin	19	Nantucket	27	Worcester
5	Bristol	13	Hampden	21	Norfolk		
7	Dukes	15	Hampshire	23	Plymouth		

Michigan

State Name: Michigan		
State Code: 26	**State Abbreviation:** MI	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Eastern Upper Peninsula

Code	County	Code	County	Code	County	Code	County
3	Alger	41	Delta	97	Mackinac	153	Schoolcraft
33	Chippewa	95	Luce	109	Menominee		

Survey Unit Code: 2 **Survey Unit Name:** Western Upper Peninsula

Code	County	Code	County	Code	County	Code	County
13	Baraga	53	Gogebic	71	Iron	103	Marquette
43	Dickinson	61	Houghton	83	Keweenaw	131	Ontonagon

Survey Unit Code: 3 **Survey Unit Name:** Northern Lower Peninsula

Code	County	Code	County	Code	County	Code	County
1	Alcona	39	Crawford	101	Manistee	133	Osceola
7	Alpena	47	Emmet	105	Mason	135	Oscoda
9	Antrim	51	Gladwin	107	Mecosta	137	Otsego
11	Arenac	55	Grand Traverse	111	Midland	141	Presque Isle
17	Bay	69	Iosco	113	Missaukee	143	Roscommon
19	Benzie	73	Isabella	119	Montmorency	165	Wexford
29	Charlevoix	79	Kalkaska	123	Newaygo		
31	Cheboygan	85	Lake	127	Oceana		
35	Clare	89	Leelanau	129	Ogemaw		

Survey Unit Code: 4 **Survey Unit Name:** Southern Lower Peninsula

Code	County	Code	County	Code	County	Code	County
5	Allegan	57	Gratiot	91	Lenawee	147	St. Clair
15	Barry	59	Hillsdale	93	Livingston	149	St. Joseph
21	Berrien	63	Huron	99	Macomb	151	Sanilac
23	Branch	65	Ingham	115	Monroe	155	Shiawassee
25	Calhoun	67	Ionia	117	Montcalm	157	Tuscola
27	Cass	75	Jackson	121	Muskegon	159	Van Buren
37	Clinton	77	Kalamazoo	125	Oakland	161	Washtenaw
45	Eaton	81	Kent	139	Ottawa	163	Wayne
49	Genesee	87	Lapeer	145	Saginaw		

Minnesota

State Name: Minnesota		
State Code: 27	**State Abbreviation:** MN	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Aspen-Birch

Code	County	Code	County	Code	County	Code	County
17	Carlton	71	Koochiching	137	St. Louis		
31	Cook	75	Lake				

Survey Unit Code: 2 **Survey Unit Name:** Northern Pine

Code	County	Code	County	Code	County	Code	County
1	Aitkin	21	Cass	57	Hubbard	87	Mahnomen
5	Becker	29	Clearwater	61	Itasca	135	Roseau
7	Beltrami	35	Crow Wing	77	Lake of the Woods	159	Wadena

Survey Unit Code: 3 **Survey Unit Name:** Central Hardwood

Code	County	Code	County	Code	County	Code	County
3	Anoka	49	Goodhue	97	Morrison	141	Sherburne
9	Benton	53	Hennepin	109	Olmsted	145	Stearns
19	Carver	55	Houston	111	Otter Tail	153	Todd
25	Chisago	59	Isanti	115	Pine	157	Wabasha
37	Dakota	65	Kanabec	123	Ramsey	163	Washington
41	Douglas	79	Le Sueur	131	Rice	169	Winona
45	Fillmore	95	Mille Lacs	139	Scott	171	Wright

Survey Unit Code: 4 **Survey Unit Name:** Prairie

Code	County	Code	County	Code	County	Code	County
11	Big Stone	67	Kandiyohi	103	Nicollet	143	Sibley
13	Blue Earth	69	Kittson	105	Nobles	147	Steele
15	Brown	73	Lac qui Parle	107	Norman	149	Stevens
23	Chippewa	81	Lincoln	113	Pennington	151	Swift
27	Clay	83	Lyon	117	Pipestone	155	Traverse
33	Cottonwood	85	McLeod	119	Polk	161	Waseca
39	Dodge	89	Marshall	121	Pope	165	Watonwan
43	Faribault	91	Martin	125	Red Lake	167	Wilkin
47	Freeborn	93	Meeker	127	Redwood	173	Yellow Medicine
51	Grant	99	Mower	129	Renville		
63	Jackson	101	Murray	133	Rock		

Mississippi

State Name: Mississippi		
State Code: 28	**State Abbreviation:** MS	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Delta

Code	County	Code	County	Code	County	Code	County
11	Bolivar	55	Issaquena	133	Sunflower	151	Washington
27	Coahoma	83	Leflore	135	Tallahatchie	163	Yazoo
51	Holmes	119	Quitman	143	Tunica		
53	Humphreys	125	Sharkey	149	Warren		

Survey Unit Code: 2 **Survey Unit Name:** North

Code	County	Code	County	Code	County	Code	County
3	Alcorn	33	DeSoto	95	Monroe	139	Tippah
9	Benton	43	Grenada	97	Montgomery	141	Tishomingo
13	Calhoun	57	Itawamba	105	Oktibbeha	145	Union
15	Carroll	71	Lafayette	107	Panola	155	Webster
17	Chickasaw	81	Lee	115	Pontotoc	161	Yalobusha
19	Choctaw	87	Lowndes	117	Prentiss		
25	Clay	93	Marshall	137	Tate		

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
7	Attala	75	Lauderdale	103	Noxubee	129	Smith
23	Clarke	79	Leake	121	Rankin	159	Winston
61	Jasper	99	Neshoba	123	Scott		
69	Kemper	101	Newton	127	Simpson		

Survey Unit Code: 4 **Survey Unit Name:** South

Code	County	Code	County	Code	County	Code	County
31	Covington	47	Harrison	77	Lawrence	147	Walthall
35	Forrest	59	Jackson	91	Marion	153	Wayne
39	George	65	Jefferson Davis	109	Pearl River		
41	Greene	67	Jones	111	Perry		
45	Hancock	73	Lamar	131	Stone		

Survey Unit Code: 5 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
1	Adams	29	Copiah	63	Jefferson	113	Pike
5	Amite	37	Franklin	85	Lincoln	157	Wilkinson
21	Claiborne	49	Hinds	89	Madison		

Missouri

State Name: Missouri		
State Code: 29	**State Abbreviation:** MO	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Eastern Ozarks

Code	County	Code	County	Code	County	Code	County
17	Bollinger	65	Dent	179	Reynolds	221	Washington
23	Butler	93	Iron	181	Ripley	223	Wayne
35	Carter	123	Madison	187	St. Francois		
55	Crawford	149	Oregon	203	Shannon		

Survey Unit Code: 2 **Survey Unit Name:** Southwestern Ozarks

Code	County	Code	County	Code	County	Code	County
9	Barry	91	Howell	153	Ozark	215	Texas
43	Christian	119	McDonald	209	Stone	225	Webster
67	Douglas	145	Newton	213	Taney	229	Wright

Survey Unit Code: 3 **Survey Unit Name:** Northwestern Ozarks

Code	County	Code	County	Code	County	Code	County
15	Benton	85	Hickory	141	Morgan	185	St. Clair
29	Camden	105	Laclede	161	Phelps		
39	Cedar	125	Maries	167	Polk		
59	Dallas	131	Miller	169	Pulaski		

Survey Unit Code: 4 **Survey Unit Name:** Prairie

Code	County	Code	County	Code	County	Code	County
1	Adair	53	Cooper	107	Lafayette	171	Putnam
3	Andrew	57	Dade	109	Lawrence	173	Ralls
5	Atchison	61	Daviess	111	Lewis	175	Randolph
7	Audrain	63	DeKalb	113	Lincoln	177	Ray
11	Barton	75	Gentry	115	Linn	195	Saline
13	Bates	77	Greene	117	Livingston	197	Schuyler
21	Buchanan	79	Grundy	121	Macon	199	Scotland
25	Caldwell	81	Harrison	127	Marion	205	Shelby
33	Carroll	83	Henry	129	Mercer	211	Sullivan
37	Cass	87	Holt	137	Monroe	217	Vernon
41	Chariton	95	Jackson	147	Nodaway	227	Worth
45	Clark	97	Jasper	159	Pettis		
47	Clay	101	Johnson	163	Pike		
49	Clinton	103	Knox	165	Platte		

Survey Unit Code: 5 **Survey Unit Name:** Riverborder

Code	County	Code	County	Code	County	Code	County
19	Boone	73	Gasconade	143	New Madrid	189	St. Louis
27	Callaway	89	Howard	151	Osage	201	Scott
31	Cape Girardeau	99	Jefferson	155	Pemiscot	207	Stoddard
51	Cole	133	Mississippi	157	Perry	219	Warren
69	Dunklin	135	Moniteau	183	St. Charles	510	St. Louis city
71	Franklin	139	Montgomery	186	Ste. Genevieve		

Montana

State Name: Montana		
State Code: 30	**State Abbreviation:** MT	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Northwestern

Code	County	Code	County	Code	County	Code	County
29	Flathead	47	Lake	53	Lincoln	89	Sanders

Survey Unit Code: 2 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
3	Big Horn	27	Fergus	71	Phillips	95	Stillwater
5	Blaine	33	Garfield	73	Pondera	97	Sweet Grass
9	Carbon	35	Glacier	75	Powder River	99	Teton
11	Carter	37	Golden Valley	79	Prairie	101	Toole
15	Chouteau	41	Hill	83	Richland	103	Treasure
17	Custer	51	Liberty	85	Roosevelt	105	Valley
19	Daniels	55	McCone	87	Rosebud	109	Wibaux
21	Dawson	65	Musselshell	91	Sheridan	111	Yellowstone
25	Fallon	69	Petroleum				

Survey Unit Code: 3 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
39	Granite	61	Mineral	63	Missoula	81	Ravalli

Survey Unit Code: 4 **Survey Unit Name:** West Central

Code	County	Code	County	Code	County	Code	County
7	Broadwater	43	Jefferson	49	Lewis and Clark	77	Powell
13	Cascade	45	Judith Basin	59	Meagher	107	Wheatland

Survey Unit Code: 5 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
1	Beaverhead	31	Gallatin	67	Park		
23	Deer Lodge	57	Madison	93	Silver Bow		

Nebraska

State Name: Nebraska		
State Code: 31	**State Abbreviation:** NE	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
1	Adams	55	Douglas	99	Kearney	151	Saline
11	Boone	59	Fillmore	109	Lancaster	153	Sarpy
19	Buffalo	61	Franklin	119	Madison	155	Saunders
21	Burt	63	Frontier	121	Merrick	159	Seward
23	Butler	65	Furnas	125	Nance	163	Sherman
25	Cass	67	Gage	127	Nemaha	167	Stanton
27	Cedar	73	Gosper	129	Nuckolls	169	Thayer
35	Clay	77	Greeley	131	Otoe	173	Thurston
37	Colfax	79	Hall	133	Pawnee	175	Valley
39	Cuming	81	Hamilton	137	Phelps	177	Washington
41	Custer	83	Harlan	139	Pierce	179	Wayne
43	Dakota	87	Hitchcock	141	Platte	181	Webster
47	Dawson	93	Howard	143	Polk	185	York
51	Dixon	95	Jefferson	145	Red Willow		
53	Dodge	97	Johnson	147	Richardson		

Survey Unit Code: 2 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
3	Antelope	33	Cheyenne	91	Hooker	123	Morrill
5	Arthur	45	Dawes	101	Keith	135	Perkins
7	Banner	49	Deuel	103	Keya Paha	149	Rock
9	Blaine	57	Dundy	105	Kimball	157	Scotts Bluff
13	Box Butte	69	Garden	107	Knox	161	Sheridan
15	Boyd	71	Garfield	111	Lincoln	165	Sioux
17	Brown	75	Grant	113	Logan	171	Thomas
29	Chase	85	Hayes	115	Loup	183	Wheeler
31	Cherry	89	Holt	117	McPherson		

Nevada

State Name: Nevada		
State Code: 32	**State Abbreviation:** NV	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Nevada

Code	County	Code	County	Code	County	Code	County
1	Churchill	11	Eureka	21	Mineral	33	White Pine
3	Clark	13	Humboldt	23	Nye	510	Carson City
5	Douglas	15	Lander	27	Pershing		
7	Elko	17	Lincoln	29	Storey		
9	Esmeralda	19	Lyon	31	Washoe		

New Hampshire

State Name: New Hampshire		
State Code: 33	**State Abbreviation:** NH	**Region/Station Code:** 24

Survey Unit Code: 2 **Survey Unit Name:** Northern

Code	County	Code	County	Code	County	Code	County
3	Carroll	7	Coos	9	Grafton		

Survey Unit Code: 3 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
1	Belknap	11	Hillsborough	15	Rockingham	19	Sullivan
5	Cheshire	13	Merrimack	17	Strafford		

New Jersey

State Name: New Jersey		
State Code: 34	**State Abbreviation:** NJ	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** New Jersey

Code	County	Code	County	Code	County	Code	County
1	Atlantic	13	Essex	25	Monmouth	37	Sussex
3	Bergen	15	Gloucester	27	Morris	39	Union
5	Burlington	17	Hudson	29	Ocean	41	Warren
7	Camden	19	Hunterdon	31	Passaic		
9	Cape May	21	Mercer	33	Salem		
11	Cumberland	23	Middlesex	35	Somerset		

New Mexico

State Name: New Mexico		
State Code: 35	**State Abbreviation:** NM	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Northwestern

Code	County	Code	County	Code	County	Code	County
1	Bernalillo	31	McKinley	45	San Juan	61	Valencia
6	Cibola	39	Rio Arriba	49	Santa Fe		
28	Los Alamos	43	Sandoval	55	Taos		

Survey Unit Code: 2 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
7	Colfax	21	Harding	37	Quay	57	Torrance
19	Guadalupe	33	Mora	47	San Miguel	59	Union

Survey Unit Code: 3 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
3	Catron	17	Grant	29	Luna	53	Socorro
13	Dona Ana	23	Hidalgo	51	Sierra		

Survey Unit Code: 4 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
5	Chaves	11	De Baca	25	Lea	35	Otero
9	Curry	15	Eddy	27	Lincoln	41	Roosevelt

New York

State Name: New York

State Code: 36 | **State Abbreviation:** NY | **Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** Adirondack

Code	County	Code	County	Code	County	Code	County
19	Clinton	33	Franklin	45	Jefferson	89	St. Lawrence

Survey Unit Code: 2 **Survey Unit Name:** Lake Plain

Code	County	Code	County	Code	County	Code	County
11	Cayuga	53	Madison	69	Ontario	117	Wayne
29	Erie	55	Monroe	73	Orleans	121	Wyoming
37	Genesee	63	Niagara	75	Oswego	123	Yates
51	Livingston	67	Onondaga	99	Seneca		

Survey Unit Code: 3 **Survey Unit Name:** Western Adirondack

Code	County	Code	County	Code	County	Code	County
35	Fulton	43	Herkimer	49	Lewis	65	Oneida

Survey Unit Code: 4 **Survey Unit Name:** Eastern Adirondack

Code	County	Code	County	Code	County	Code	County
31	Essex	41	Hamilton	113	Warren		

Survey Unit Code: 5 **Survey Unit Name:** Southwest Highlands

Code	County	Code	County	Code	County	Code	County
3	Allegany	9	Cattaraugus	13	Chautauqua	101	Steuben

Survey Unit Code: 6 **Survey Unit Name:** South-Central Highlands

Code	County	Code	County	Code	County	Code	County
7	Broome	23	Cortland	97	Schuyler		
15	Chemung	25	Delaware	107	Tioga		
17	Chenango	77	Otsego	109	Tompkins		

Survey Unit Code: 7 **Survey Unit Name:** Capitol District

Code	County	Code	County	Code	County	Code	County
1	Albany	57	Montgomery	91	Saratoga	115	Washington
21	Columbia	83	Rensselaer	93	Schenectady		

Survey Unit Code: 8 **Survey Unit Name:** Catskill-Lower Hudson

Code	County	Code	County	Code	County	Code	County
5	Bronx	59	Nassau	81	Queens	103	Suffolk
27	Dutchess	61	New York	85	Richmond	105	Sullivan
39	Greene	71	Orange	87	Rockland	111	Ulster
47	Kings	79	Putnam	95	Schoharie	119	Westchester

North Carolina

State Name: North Carolina		
State Code: 37	**State Abbreviation:** NC	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Southern Coastal Plain

Code	County	Code	County	Code	County	Code	County
17	Bladen	85	Harnett	125	Moore	163	Sampson
19	Brunswick	93	Hoke	129	New Hanover	165	Scotland
47	Columbus	101	Johnston	133	Onslow	191	Wayne
51	Cumberland	103	Jones	141	Pender		
61	Duplin	105	Lee	153	Richmond		
79	Greene	107	Lenoir	155	Robeson		

Survey Unit Code: 2 **Survey Unit Name:** Northern Coastal Plain

Code	County	Code	County	Code	County	Code	County
13	Beaufort	53	Currituck	95	Hyde	143	Perquimans
15	Bertie	55	Dare	117	Martin	147	Pitt
29	Camden	65	Edgecombe	127	Nash	177	Tyrrell
31	Carteret	73	Gates	131	Northampton	187	Washington
41	Chowan	83	Halifax	137	Pamlico	195	Wilson
49	Craven	91	Hertford	139	Pasquotank		

Survey Unit Code: 3 **Survey Unit Name:** Piedmont

Code	County	Code	County	Code	County	Code	County
1	Alamance	59	Davie	119	Mecklenburg	167	Stanly
3	Alexander	63	Durham	123	Montgomery	169	Stokes
7	Anson	67	Forsyth	135	Orange	171	Surry
25	Cabarrus	69	Franklin	145	Person	179	Union
33	Caswell	71	Gaston	149	Polk	181	Vance
35	Catawba	77	Granville	151	Randolph	183	Wake
37	Chatham	81	Guilford	157	Rockingham	185	Warren
45	Cleveland	97	Iredell	159	Rowan	197	Yadkin
57	Davidson	109	Lincoln	161	Rutherford		

Survey Unit Code: 4 **Survey Unit Name:** Mountains

Code	County	Code	County	Code	County	Code	County
5	Alleghany	39	Cherokee	111	McDowell	189	Watauga
9	Ashe	43	Clay	113	Macon	193	Wilkes
11	Avery	75	Graham	115	Madison	199	Yancey
21	Buncombe	87	Haywood	121	Mitchell		
23	Burke	89	Henderson	173	Swain		
27	Caldwell	99	Jackson	175	Transylvania		

North Dakota

State Name: North Dakota		
State Code: 38	**State Abbreviation:** ND	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
1	Adams	29	Emmons	57	Mercer	85	Sioux
3	Barnes	31	Foster	59	Morton	87	Slope
5	Benson	33	Golden Valley	61	Mountrail	89	Stark
7	Billings	35	Grand Forks	63	Nelson	91	Steele
9	Bottineau	37	Grant	65	Oliver	93	Stutsman
11	Bowman	39	Griggs	67	Pembina	95	Towner
13	Burke	41	Hettinger	69	Pierce	97	Traill
15	Burleigh	43	Kidder	71	Ramsey	99	Walsh
17	Cass	45	LaMoure	73	Ransom	101	Ward
19	Cavalier	47	Logan	75	Renville	103	Wells
21	Dickey	49	McHenry	77	Richland	105	Williams
23	Divide	51	McIntosh	79	Rolette		
25	Dunn	53	McKenzie	81	Sargent		
27	Eddy	55	McLean	83	Sheridan		

Ohio

State Name: Ohio		
State Code: 39	**State Abbreviation:** OH	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** South-Central

Code	County	Code	County	Code	County	Code	County
1	Adams	53	Gallia	87	Lawrence	145	Scioto
15	Brown	71	Highland	131	Pike		
25	Clermont	79	Jackson	141	Ross		

Survey Unit Code: 2 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
9	Athens	105	Meigs	127	Perry	167	Washington
73	Hocking	115	Morgan	163	Vinton		

Survey Unit Code: 3 **Survey Unit Name:** East-Central

Code	County	Code	County	Code	County	Code	County
13	Belmont	59	Guernsey	81	Jefferson	121	Noble
19	Carroll	67	Harrison	111	Monroe	157	Tuscarawas
31	Coshocton	75	Holmes	119	Muskingum		

Survey Unit Code: 4 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
5	Ashland	55	Geauga	103	Medina	155	Trumbull
7	Ashtabula	77	Huron	133	Portage	169	Wayne
29	Columbiana	85	Lake	139	Richland		
35	Cuyahoga	93	Lorain	151	Stark		
43	Erie	99	Mahoning	153	Summit		

Survey Unit Code: 5 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
17	Butler	45	Fairfield	61	Hamilton	113	Montgomery
23	Clark	47	Fayette	89	Licking	129	Pickaway
27	Clinton	49	Franklin	97	Madison	135	Preble
37	Darke	57	Greene	109	Miami	165	Warren

Survey Unit Code: 6 **Survey Unit Name:** Northwestern

Code	County	Code	County	Code	County	Code	County
3	Allen	63	Hancock	107	Mercer	149	Shelby
11	Auglaize	65	Hardin	117	Morrow	159	Union
21	Champaign	69	Henry	123	Ottawa	161	Van Wert
33	Crawford	83	Knox	125	Paulding	171	Williams
39	Defiance	91	Logan	137	Putnam	173	Wood
41	Delaware	95	Lucas	143	Sandusky	175	Wyandot
51	Fulton	101	Marion	147	Seneca		

Oklahoma

State Name: Oklahoma		
State Code: 40	**State Abbreviation:** OK	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Southeast

Code	County	Code	County	Code	County	Code	County
5	Atoka	29	Coal	79	Le Flore	127	Pushmataha
13	Bryan	61	Haskell	89	McCurtain		
23	Choctaw	77	Latimer	121	Pittsburg		

Survey Unit Code: 2 **Survey Unit Name:** Northeast

Code	County	Code	County	Code	County	Code	County
1	Adair	41	Delaware	97	Mayes	115	Ottawa
21	Cherokee	91	McIntosh	101	Muskogee	135	Sequoyah

Survey Unit Code: 3 **Survey Unit Name:** North Central

Code	County	Code	County	Code	County	Code	County
35	Craig	113	Osage	131	Rogers	145	Wagoner
37	Creek	117	Pawnee	143	Tulsa	147	Washington
105	Nowata	119	Payne				

Survey Unit Code: 4 **Survey Unit Name:** South Central

Code	County	Code	County	Code	County	Code	County
19	Carter	81	Lincoln	95	Marshall	111	Okmulgee
27	Cleveland	83	Logan	99	Murray	123	Pontotoc
49	Garvin	85	Love	107	Okfuskee	125	Pottawatomie
63	Hughes	87	McClain	109	Oklahoma	133	Seminole
69	Johnston						

Survey Unit Code: 5 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
9	Beckham	33	Cotton	57	Harmon	129	Roger Mills
11	Blaine	39	Custer	65	Jackson	137	Stephens
15	Caddo	43	Dewey	67	Jefferson	141	Tillman
17	Canadian	51	Grady	73	Kingfisher	149	Washita
31	Comanche	55	Greer	75	Kiowa		

Survey Unit Code: 6 **Survey Unit Name:** High Plains

Code	County	Code	County	Code	County	Code	County
7	Beaver	45	Ellis	59	Harper	139	Texas
25	Cimarron						

Survey Unit Code: 7 **Survey Unit Name:** Great Plains

Code	County	Code	County	Code	County	Code	County
3	Alfalfa	53	Grant	93	Major	151	Woods
47	Garfield	71	Kay	103	Noble	153	Woodward

Oregon

State Name: Oregon		
State Code: 41	**State Abbreviation:** OR	**Region/Station Code:** 26

Survey Unit Code: 0 **Survey Unit Name:** Northwest

Code	County	Code	County	Code	County	Code	County
5	Clackamas	27	Hood River	53	Polk	71	Yamhill
7	Clatsop	47	Marion	57	Tillamook		
9	Columbia	51	Multnomah	67	Washington		

Survey Unit Code: 1 **Survey Unit Name:** West Central

Code	County	Code	County	Code	County	Code	County
3	Benton	39	Lane	41	Lincoln	43	Linn

Survey Unit Code: 2 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
11	Coos	19	Douglas	33	Josephine		
15	Curry	29	Jackson				

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
13	Crook	31	Jefferson	55	Sherman		
17	Deschutes	35	Klamath	65	Wasco		
21	Gilliam	37	Lake	69	Wheeler		

Survey Unit Code: 4 **Survey Unit Name:** Blue Mountains

Code	County	Code	County	Code	County	Code	County
1	Baker	25	Harney	49	Morrow	61	Union
23	Grant	45	Malheur	59	Umatilla	63	Wallowa

Pennsylvania

State Name: Pennsylvania

State Code: 42 | **State Abbreviation:** PA | **Region/Station Code:** 24

Survey Unit Code: 0 **Survey Unit Name:** South Central

Code	County	Code	County	Code	County	Code	County
43	Dauphin	61	Huntingdon	99	Perry		
55	Franklin	67	Juniata	109	Snyder		
57	Fulton	87	Mifflin	119	Union		

Survey Unit Code: 5 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
3	Allegheny	19	Butler	59	Greene	85	Mercer
5	Armstrong	39	Crawford	63	Indiana	125	Washington
7	Beaver	49	Erie	73	Lawrence	129	Westmoreland

Survey Unit Code: 6 **Survey Unit Name:** North Central/Allegheny

Code	County	Code	County	Code	County	Code	County
23	Cameron	35	Clinton	81	Lycoming	117	Tioga
27	Centre	47	Elk	83	McKean	121	Venango
31	Clarion	53	Forest	105	Potter	123	Warren
33	Clearfield	65	Jefferson	113	Sullivan		

Survey Unit Code: 7 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
9	Bedford	21	Cambria	111	Somerset		
13	Blair	51	Fayette				

Survey Unit Code: 8 **Survey Unit Name:** Northeastern/Pocono

Code	County	Code	County	Code	County	Code	County
15	Bradford	79	Luzerne	103	Pike	131	Wyoming
25	Carbon	89	Monroe	107	Schuylkill		
37	Columbia	93	Montour	115	Susquehanna		
69	Lackawanna	97	Northumberland	127	Wayne		

Survey Unit Code: 9 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
1	Adams	41	Cumberland	77	Lehigh	133	York
11	Berks	45	Delaware	91	Montgomery		
17	Bucks	71	Lancaster	95	Northampton		
29	Chester	75	Lebanon	101	Philadelphia		

Rhode Island

State Name: Rhode Island		
State Code: 44	**State Abbreviation:** RI	**Region/Station Code:** 24

Survey Unit Code: 1 **Survey Unit Name:** Rhode Island

Code	County	Code	County	Code	County	Code	County
1	Bristol	5	Newport	9	Washington		
3	Kent	7	Providence				

South Carolina

State Name: South Carolina		
State Code: 45	**State Abbreviation:** SC	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Southern Coastal Plain

Code	County	Code	County	Code	County	Code	County
3	Aiken	11	Barnwell	29	Colleton	53	Jasper
5	Allendale	13	Beaufort	35	Dorchester	63	Lexington
9	Bamberg	17	Calhoun	49	Hampton	75	Orangeburg

Survey Unit Code: 2 **Survey Unit Name:** Northern Coastal Plain

Code	County	Code	County	Code	County	Code	County
15	Berkeley	31	Darlington	51	Horry	69	Marlboro
19	Charleston	33	Dillon	55	Kershaw	79	Richland
25	Chesterfield	41	Florence	61	Lee	85	Sumter
27	Clarendon	43	Georgetown	67	Marion	89	Williamsburg

Survey Unit Code: 3 **Survey Unit Name:** Piedmont

Code	County	Code	County	Code	County	Code	County
1	Abbeville	39	Fairfield	65	McCormick	83	Spartanburg
7	Anderson	45	Greenville	71	Newberry	87	Union
21	Cherokee	47	Greenwood	73	Oconee	91	York
23	Chester	57	Lancaster	77	Pickens		
37	Edgefield	59	Laurens	81	Saluda		

South Dakota

State Name: South Dakota		
State Code: 46	**State Abbreviation:** SD	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
3	Aurora	37	Day	71	Jackson	107	Potter
5	Beadle	39	Deuel	73	Jerauld	109	Roberts
7	Bennett	41	Dewey	75	Jones	111	Sanborn
9	Bon Homme	43	Douglas	77	Kingsbury	115	Spink
11	Brookings	45	Edmunds	79	Lake	117	Stanley
13	Brown	49	Faulk	83	Lincoln	119	Sully
15	Brule	51	Grant	85	Lyman	121	Todd
17	Buffalo	53	Gregory	87	McCook	123	Tripp
21	Campbell	55	Haakon	89	McPherson	125	Turner
23	Charles Mix	57	Hamlin	91	Marshall	127	Union
25	Clark	59	Hand	95	Mellette	129	Walworth
27	Clay	61	Hanson	97	Miner	135	Yankton
29	Codington	65	Hughes	99	Minnehaha	137	Ziebach
31	Corson	67	Hutchinson	101	Moody		
35	Davison	69	Hyde	105	Perkins		

Survey Unit Code: 2 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
19	Butte	47	Fall River	81	Lawrence	103	Pennington
33	Custer	63	Harding	93	Meade	113	Shannon

Tennessee

State Name: Tennessee		
State Code: 47	**State Abbreviation:** TN	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** West

Code	County	Code	County	Code	County	Code	County
17	Carroll	53	Gibson	95	Lake	157	Shelby
23	Chester	69	Hardeman	97	Lauderdale	167	Tipton
33	Crockett	75	Haywood	109	McNairy	183	Weakley
45	Dyer	77	Henderson	113	Madison		
47	Fayette	79	Henry	131	Obion		

Survey Unit Code: 2 **Survey Unit Name:** West Central

Code	County	Code	County	Code	County	Code	County
5	Benton	81	Hickman	99	Lawrence	161	Stewart
39	Decatur	83	Houston	101	Lewis	181	Wayne
71	Hardin	85	Humphreys	135	Perry		

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
3	Bedford	41	DeKalb	117	Marshall	159	Smith
15	Cannon	43	Dickson	119	Maury	165	Sumner
21	Cheatham	55	Giles	125	Montgomery	169	Trousdale
27	Clay	87	Jackson	127	Moore	187	Williamson
31	Coffee	103	Lincoln	147	Robertson	189	Wilson
37	Davidson	111	Macon	149	Rutherford		

Survey Unit Code: 4 **Survey Unit Name:** Plateau

Code	County	Code	County	Code	County	Code	County
7	Bledsoe	51	Franklin	133	Overton	153	Sequatchie
13	Campbell	61	Grundy	137	Pickett	175	Van Buren
35	Cumberland	115	Marion	141	Putnam	177	Warren
49	Fentress	129	Morgan	151	Scott	185	White

Survey Unit Code: 5 **Survey Unit Name:** East

Code	County	Code	County	Code	County	Code	County
1	Anderson	59	Greene	93	Knox	145	Roane
9	Blount	63	Hamblen	105	Loudon	155	Sevier
11	Bradley	65	Hamilton	107	McMinn	163	Sullivan
19	Carter	67	Hancock	121	Meigs	171	Unicoi
25	Claiborne	73	Hawkins	123	Monroe	173	Union
29	Cocke	89	Jefferson	139	Polk	179	Washington
57	Grainger	91	Johnson	143	Rhea		

Texas

State Name: Texas		
State Code: 48	**State Abbreviation:** TX	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Southeast

Code	County	Code	County	Code	County	Code	County
5	Angelina	241	Jasper	351	Newton	455	Trinity
71	Chambers	245	Jefferson	361	Orange	457	Tyler
185	Grimes	289	Leon	373	Polk	471	Walker
199	Hardin	291	Liberty	403	Sabine	473	Waller
201	Harris	313	Madison	405	San Augustine		
225	Houston	339	Montgomery	407	San Jacinto		

Survey Unit Code: 2 **Survey Unit Name:** Northeast

Code	County	Code	County	Code	County	Code	County
1	Anderson	183	Gregg	365	Panola	459	Upshur
37	Bowie	203	Harrison	387	Red River	467	Van Zandt
63	Camp	213	Henderson	401	Rusk	499	Wood
67	Cass	315	Marion	419	Shelby		
73	Cherokee	343	Morris	423	Smith		
159	Franklin	347	Nacogdoches	449	Titus		

Survey Unit Code: 3 **Survey Unit Name:** North Central

Code	County	Code	County	Code	County	Code	County
15	Austin	121	Denton	217	Hill	337	Montague
21	Bastrop	123	De Witt	223	Hopkins	349	Navarro
41	Brazos	139	Ellis	231	Hunt	367	Parker
51	Burleson	145	Falls	237	Jack	379	Rains
55	Caldwell	147	Fannin	251	Johnson	395	Robertson
77	Clay	149	Fayette	257	Kaufman	397	Rockwall
85	Collin	161	Freestone	277	Lamar	439	Tarrant
89	Colorado	175	Goliad	285	Lavaca	477	Washington
97	Cooke	177	Gonzales	287	Lee	497	Wise
113	Dallas	181	Grayson	293	Limestone	503	Young
119	Delta	187	Guadalupe	331	Milam		

Survey Unit Code: 4 **Survey Unit Name:** South

Code	County	Code	County	Code	County	Code	County
7	Aransas	157	Fort Bend	273	Kleberg	427	Starr
13	Atascosa	163	Frio	283	La Salle	469	Victoria
25	Bee	167	Galveston	297	Live Oak	479	Webb
39	Brazoria	215	Hidalgo	311	McMullen	481	Wharton
47	Brooks	239	Jackson	321	Matagorda	489	Willacy
57	Calhoun	247	Jim Hogg	323	Maverick	493	Wilson
61	Cameron	249	Jim Wells	355	Nueces	505	Zapata
127	Dimmit	255	Karnes	391	Refugio	507	Zavala
131	Duval	261	Kenedy	409	San Patricio		

Texas - continued on next page

State Name: Texas

State Code: 48 | **State Abbreviation:** TX | **Region/Station Code:** 33

Survey Unit Code: 5 **Survey Unit Name:** West Central

Code	County	Code	County	Code	County	Code	County
19	Bandera	99	Coryell	267	Kimble	385	Real
27	Bell	105	Crockett	271	Kinney	399	Runnels
29	Bexar	133	Eastland	281	Lampasas	411	San Saba
31	Blanco	137	Edwards	299	Llano	413	Schleicher
35	Bosque	143	Erath	307	McCulloch	425	Somervell
49	Brown	171	Gillespie	309	McLennan	429	Stephens
53	Burnet	193	Hamilton	319	Mason	435	Sutton
59	Callahan	209	Hays	325	Medina	453	Travis
83	Coleman	221	Hood	327	Menard	463	Uvalde
91	Comal	259	Kendall	333	Mills	465	Val Verde
93	Comanche	265	Kerr	363	Palo Pinto	491	Williamson
95	Concho						

Survey Unit Code: 6 **Survey Unit Name:** Northwest

Code	County	Code	County	Code	County	Code	County
3	Andrews	129	Donley	235	Irion	375	Potter
9	Archer	151	Fisher	253	Jones	381	Randall
11	Armstrong	153	Floyd	263	Kent	383	Reagan
17	Bailey	155	Foard	269	King	393	Roberts
23	Baylor	165	Gaines	275	Knox	415	Scurry
33	Borden	169	Garza	279	Lamb	417	Shackelford
45	Briscoe	173	Glasscock	295	Lipscomb	421	Sherman
65	Carson	179	Gray	303	Lubbock	431	Sterling
69	Castro	189	Hale	305	Lynn	433	Stonewall
75	Childress	191	Hall	317	Martin	437	Swisher
79	Cochran	195	Hansford	329	Midland	441	Taylor
81	Coke	197	Hardeman	335	Mitchell	445	Terry
87	Collingsworth	205	Hartley	341	Moore	447	Throckmorton
101	Cottle	207	Haskell	345	Motley	451	Tom Green
107	Crosby	211	Hemphill	353	Nolan	483	Wheeler
111	Dallam	219	Hockley	357	Ochiltree	485	Wichita
115	Dawson	227	Howard	359	Oldham	487	Wilbarger
117	Deaf Smith	233	Hutchinson	369	Parmer	501	Yoakum
125	Dickens						

Survey Unit Code: 7 **Survey Unit Name:** West

Code	County	Code	County	Code	County	Code	County
43	Brewster	141	El Paso	371	Pecos	461	Upton
103	Crane	229	Hudsbeth	377	Presidio	475	Ward
109	Culberson	243	Jeff Davis	389	Reeves	495	Winkler
135	Ector	301	Loving	443	Terrell		

Utah

State Name: Utah		
State Code: 49	**State Abbreviation:** UT	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Northern

Code	County	Code	County	Code	County	Code	County
3	Box Elder	29	Morgan	43	Summit	51	Wasatch
5	Cache	33	Rich	45	Tooele	57	Weber
11	Davis	35	Salt Lake	49	Utah		

Survey Unit Code: 2 **Survey Unit Name:** Uinta

Code	County	Code	County	Code	County	Code	County
9	Daggett	13	Duchesne	47	Uintah		

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
23	Juab	31	Piute	41	Sevier		
27	Millard	39	Sanpete	55	Wayne		

Survey Unit Code: 4 **Survey Unit Name:** Eastern

Code	County	Code	County	Code	County	Code	County
7	Carbon	15	Emery	19	Grand	37	San Juan

Survey Unit Code: 5 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
1	Beaver	21	Iron	53	Washington		
17	Garfield	25	Kane				

Vermont

State Name: Vermont		
State Code: 50	**State Abbreviation:** VT	**Region/Station Code:** 24

Survey Unit Code: 2 **Survey Unit Name:** Northern

Code	County	Code	County	Code	County	Code	County
5	Caledonia	11	Franklin	15	Lamoille	19	Orleans
9	Essex	13	Grand Isle	17	Orange	23	Washington

Survey Unit Code: 3 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
1	Addison	7	Chittenden	25	Windham		
3	Bennington	21	Rutland	27	Windsor		

Virginia

State Name: Virginia		
State Code: 51	**State Abbreviation:** VA	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Coastal Plain

Code	County	Code	County	Code	County	Code	County
1	Accomack	85	Hanover	119	Middlesex	193	Westmoreland
25	Brunswick	87	Henrico	127	New Kent	199	York
33	Caroline	93	Isle Of Wight	131	Northampton	550	Chesapeake city
36	Charles City	95	James City	133	Northumberland	650	Hampton city
41	Chesterfield	97	King And Queen	149	Prince George	700	Newport News city
53	Dinwiddie	99	King George	159	Richmond	800	Suffolk city
57	Essex	101	King William	175	Southampton	810	Virginia Beach city
73	Gloucester	103	Lancaster	181	Surry		
81	Greensville	115	Mathews	183	Sussex		

Survey Unit Code: 2 **Survey Unit Name:** Southern Piedmont

Code	County	Code	County	Code	County	Code	County
7	Amelia	37	Charlotte	111	Lunenburg	145	Powhatan
11	Appomattox	49	Cumberland	117	Mecklenburg	147	Prince Edward
19	Bedford	67	Franklin	135	Nottoway		
29	Buckingham	83	Halifax	141	Patrick		
31	Campbell	89	Henry	143	Pittsylvania		

Survey Unit Code: 3 **Survey Unit Name:** Northern Piedmont

Code	County	Code	County	Code	County	Code	County
3	Albemarle	61	Fauquier	109	Louisa	157	Rappahannock
9	Amherst	65	Fluvanna	113	Madison	177	Spotsylvania
13	Arlington	75	Goochland	125	Nelson	179	Stafford
47	Culpeper	79	Greene	137	Orange		
59	Fairfax	107	Loudoun	153	Prince William		

Survey Unit Code: 4 **Survey Unit Name:** Northern Mountains

Code	County	Code	County	Code	County	Code	County
5	Alleghany	43	Clarke	139	Page	171	Shenandoah
15	Augusta	45	Craig	161	Roanoke	187	Warren
17	Bath	69	Frederick	163	Rockbridge		
23	Botetourt	91	Highland	165	Rockingham		

Survey Unit Code: 5 **Survey Unit Name:** Southern Mountains

Code	County	Code	County	Code	County	Code	County
21	Bland	71	Giles	167	Russell	195	Wise
27	Buchanan	77	Grayson	169	Scott	197	Wythe
35	Carroll	105	Lee	173	Smyth		
51	Dickenson	121	Montgomery	185	Tazewell		
63	Floyd	155	Pulaski	191	Washington		

Virginia - continued on next page

State Name: Virginia		
State Code: 51	**State Abbreviation:** VA	**Region/Station Code:** 33

Cities aggregated into other counties

City:		Associated county:		City:		Associated county:	
Code	Name	Code	Name	Code	Name	Code	Name
510	Alexandria city	59	Fairfax	683	Manassas city	153	Prince William
515	Bedford city	19	Bedford	685	Manassas Park city	153	Prince William
520	Bristol city	191	Washington	690	Martinsville city	89	Henry
530	Buena Vista city	163	Rockbridge	710	Norfolk city	550	Chesapeake City
540	Charlottesville city	3	Albemarle	720	Norton city	195	Wise
560	Clifton Forge city	5	Allegheny	730	Petersburg city	53	Dinwiddie
570	Colonial Heights city	41	Chesterfield	730	Petersburg city	149	Prince George
580	Covington city	5	Allegheny	735	Poquoson city	199	York
590	Danville city	143	Pittsylvania	740	Portsmouth city	550	Chesapeake City
595	Emporia city	81	Greensville	750	Radford city	121	Montgomery
600	Fairfax city	59	Fairfax	760	Richmond city	41	Chesterfield
610	Falls Church city	59	Fairfax	760	Richmond city	87	Henrico
620	Franklin city	175	Southampton	770	Roanoke city	161	Roanoke
630	Fredericksburg city	177	Spotsylvania	775	Salem city	161	Roanoke
640	Galax city	35	Carroll	780	South Boston city	83	Halifax
640	Galax city	77	Grayson	790	Staunton city	15	Augusta
660	Harrisonburg city	165	Rockingham	820	Waynesboro city	15	Augusta
670	Hopewell city	149	Prince George	830	Williamsburg city	95	County of James City
678	Lexington city	163	Rockbridge	840	Winchester city	69	Frederick
680	Lynchburg city	31	Campbell				

Washington

State Name: Washington		
State Code: 53	**State Abbreviation:** WA	**Region/Station Code:** 26

Survey Unit Code: 5 **Survey Unit Name:** Puget Sound

Code	County	Code	County	Code	County	Code	County
29	Island	35	Kitsap	55	San Juan	61	Snohomish
33	King	53	Pierce	57	Skagit	73	Whatcom

Survey Unit Code: 6 **Survey Unit Name:** Olympic Peninsula

Code	County	Code	County	Code	County	Code	County
9	Clallam	31	Jefferson	67	Thurston		
27	Grays Harbor	45	Mason				

Survey Unit Code: 7 **Survey Unit Name:** Southwest

Code	County	Code	County	Code	County	Code	County
11	Clark	41	Lewis	59	Skamania		
15	Cowlitz	49	Pacific	69	Wahkiakum		

Survey Unit Code: 8 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
7	Chelan	37	Kittitas	47	Okanogan		
17	Douglas	39	Klickitat	77	Yakima		

Survey Unit Code: 9 **Survey Unit Name:** Inland Empire

Code	County	Code	County	Code	County	Code	County
1	Adams	19	Ferry	43	Lincoln	71	Walla Walla
3	Asotin	21	Franklin	51	Pend Oreille	75	Whitman
5	Benton	23	Garfield	63	Spokane		
13	Columbia	25	Grant	65	Stevens		

West Virginia

State Name: West Virginia		
State Code: 54	**State Abbreviation:** WV	**Region/Station Code:** 24

Survey Unit Code: 2 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
1	Barbour	31	Hardy	65	Morgan	91	Taylor
3	Berkeley	33	Harrison	71	Pendleton	93	Tucker
7	Braxton	37	Jefferson	75	Pocahontas	97	Upshur
23	Grant	41	Lewis	77	Preston	101	Webster
27	Hampshire	57	Mineral	83	Randolph		

Survey Unit Code: 3 **Survey Unit Name:** Southern

Code	County	Code	County	Code	County	Code	County
5	Boone	39	Kanawha	59	Mingo	89	Summers
15	Clay	45	Logan	63	Monroe	109	Wyoming
19	Fayette	47	McDowell	67	Nicholas		
25	Greenbrier	55	Mercer	81	Raleigh		

Survey Unit Code: 4 **Survey Unit Name:** Northwestern

Code	County	Code	County	Code	County	Code	County
9	Brooke	35	Jackson	69	Ohio	99	Wayne
11	Cabell	43	Lincoln	73	Pleasants	103	Wetzel
13	Calhoun	49	Marion	79	Putnam	105	Wirt
17	Doddridge	51	Marshall	85	Ritchie	107	Wood
21	Gilmer	53	Mason	87	Roane		
29	Hancock	61	Monongalia	95	Tyler		

Wisconsin

State Name: Wisconsin		
State Code: 55	**State Abbreviation:** WI	**Region/Station Code:** 23

Survey Unit Code: 1 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
37	Florence	69	Lincoln	83	Oconto	125	Vilas
41	Forest	75	Marinette	85	Oneida		
67	Langlade	78	Menominee	115	Shawano		

Survey Unit Code: 2 **Survey Unit Name:** Northwestern

Code	County	Code	County	Code	County	Code	County
3	Ashland	13	Burnett	95	Polk	113	Sawyer
5	Barron	31	Douglas	99	Price	119	Taylor
7	Bayfield	51	Iron	107	Rusk	129	Washburn

Survey Unit Code: 3 **Survey Unit Name:** Central

Code	County	Code	County	Code	County	Code	County
1	Adams	53	Jackson	81	Monroe	141	Wood
17	Chippewa	57	Juneau	97	Portage		
19	Clark	73	Marathon	135	Waupaca		
35	Eau Claire	77	Marquette	137	Waushara		

Survey Unit Code: 4 **Survey Unit Name:** Southwestern

Code	County	Code	County	Code	County	Code	County
11	Buffalo	49	Iowa	93	Pierce	121	Trempealeau
23	Crawford	63	La Crosse	103	Richland	123	Vernon
33	Dunn	65	Lafayette	109	St. Croix		
43	Grant	91	Pepin	111	Sauk		

Survey Unit Code: 5 **Survey Unit Name:** Southeastern

Code	County	Code	County	Code	County	Code	County
9	Brown	39	Fond du Lac	71	Manitowoc	117	Sheboygan
15	Calumet	45	Green	79	Milwaukee	127	Walworth
21	Columbia	47	Green Lake	87	Outagamie	131	Washington
25	Dane	55	Jefferson	89	Ozaukee	133	Waukesha
27	Dodge	59	Kenosha	101	Racine	139	Winnebago
29	Door	61	Kewaunee	105	Rock		

Wyoming

State Name: Wyoming		
State Code: 56	**State Abbreviation:** WY	**Region/Station Code:** 22

Survey Unit Code: 1 **Survey Unit Name:** Western

Code	County	Code	County	Code	County	Code	County
13	Fremont	23	Lincoln	35	Sublette	39	Teton
17	Hot Springs	29	Park	37	Sweetwater	41	Uinta

Survey Unit Code: 2 **Survey Unit Name:** Central and Southeastern

Code	County	Code	County	Code	County	Code	County
1	Albany	9	Converse	21	Laramie	31	Platte
3	Big Horn	15	Goshen	25	Natrona	33	Sheridan
7	Carbon	19	Johnson	27	Niobrara	43	Washakie

Survey Unit Code: 3 **Survey Unit Name:** Northeastern

Code	County	Code	County	Code	County	Code	County
5	Campbell	11	Crook	45	Weston		

American Samoa

State Name: American Samoa		
State Code: 60	**State Abbreviation:** AS	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** American Samoa

Code	County	Code	County	Code	County	Code	County
10	Tutuila East	30	Rose	50	Tutuila West		
20	Manu'a	40	Swains				

Federated States of Micronesia

State Name: Federated States of Micronesia		
State Code: 64	**State Abbreviation:** FM	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** Federated States of Micronesia

Code	County	Code	County	Code	County	Code	County
2	Chuuk	5	Kosrae	40	Pohnpei	60	Yap

Guam

State Name: Guam		
State Code: 66	**State Abbreviation:** GU	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** Guam

Code	County	Code	County	Code	County	Code	County
10	Guam						

Marshall Islands

State Name: Marshall Islands		
State Code: 68	**State Abbreviation:** MH	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** Marshall Islands

Code	County	Code	County	Code	County	Code	County
7	Ailinginae	90	Enewetak	170	Lib	350	Rongelap
10	Ailinglaplap	100	Erikub	180	Likiep	360	Rongrik
30	Ailuk	110	Jabat	190	Majuro	385	Toke
40	Arno	120	Jaluit	300	Maloelap	390	Ujae
50	Aur	130	Jemo	310	Mejit	400	Ujelang
60	Bikar	140	Kili	320	Mili	410	Utrik
70	Bikini	150	Kwajalein	330	Namorik	420	Wotho
73	Bokak	160	Lae	340	Namu	430	Wotje
80	Ebon						

Northern Mariana Islands

State Name: Northern Mariana Islands		
State Code: 69	**State Abbreviation:** MP	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** Northern Mariana Islands

Code	County	Code	County	Code	County	Code	County
85	Northern Islands	100	Rota	110	Saipan	120	Tinian

Palau

State Name: Palau		
State Code: 70	**State Abbreviation:** PW	**Region/Station Code:** 26

Survey Unit Code: 1 **Survey Unit Name:** Palau

Code	County	Code	County	Code	County	Code	County
2	Aimeliik	100	Kayangel	218	Ngarchelong	227	Ngernmlengui
4	Airai	150	Koror	222	Ngardmau	228	Ngiwal
10	Angaur	212	Melekeok	224	Ngatpang	350	Peleliu
50	Hatoboheit	214	Ngaraard	226	Ngchesar	370	Sonsorol

Puerto Rico

State Name: Puerto Rico		
State Code: 72[a]	**State Abbreviation:** PR	**Region/Station Code:** 33

Survey Unit Code: 1 **Survey Unit Name:** Mainland Puerto Rico

Code	County	Code	County	Code	County	Code	County
1	Adjuntas	39	Ciales	77	Juncos	115	Quebradillas
3	Aguada	41	Cidra	79	Lajas	117	Rincón
5	Aguadilla	43	Coamo	81	Lares	119	Río Grande
7	Aguas Buenas	45	Comerío	83	Las Marías	121	Sabana Grande
9	Aibonito	47	Corozal	85	Las Piedras	123	Salinas
11	Añasco	51	Dorado	87	Loiza	125	San Germán
13	Arecibo	53	Fajardo	89	Luquillo	127	San Juan
15	Arroyo	54	Florida	91	Manatí	129	San Lorenzo
17	Barceloneta	55	Guánica	93	Maricao	131	San Sebastián
19	Barranquitas	57	Guayama	95	Maunabo	133	Santa Isabel
21	Bayamón	59	Guayanilla	97	Mayagüez[b]	135	Toa Alta
23	Cabo Rojo	61	Guaynabo	99	Moca	137	Toa Baja
25	Caguas	63	Gurabo	101	Morovis	139	Trujillo Alto
27	Camuy	65	Hatillo	103	Naguabo	141	Utuado
29	Canóvanas	67	Hormigueros	105	Naranjito	143	Vega Alta
31	Carolina	69	Humacao	107	Orocovis	145	Vega Baja
33	Cataño	71	Isabela Municipio	109	Patillas	149	Villalba
35	Cayey	73	Jayuya	111	Peñuelas	151	Yabucoa
37	Ceiba	75	Juana Díaz	113	Ponce	153	Yauco

Survey Unit Code: 2 **Survey Unit Name:** Vieques

Code	County	Code	County	Code	County	Code	County
147	Vieques						

Survey Unit Code: 3 **Survey Unit Name:** Culebra

Code	County	Code	County	Code	County	Code	County
49	Culebra						

[a] FIA estimates of Puerto Rico do not include the small outlying islands such as Desecheo, Caja de Muertos, etc.

[b] 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

State Name: U.S. Virgin Islands		
State Code: 78	**State Abbreviation:** VI	**Region/Station Code:** 33

Survey Unit Code: 1	**Survey Unit Name:** St. Croix Island						
Code	**County**	**Code**	**County**	**Code**	**County**	**Code**	**County**
10	St. Croix Island						

Survey Unit Code: 2	**Survey Unit Name:** St. John Island						
Code	**County**	**Code**	**County**	**Code**	**County**	**Code**	**County**
20	St. John Island						

Survey Unit Code: 3	**Survey Unit Name:** St. Thomas Island						
Code	**County**	**Code**	**County**	**Code**	**County**	**Code**	**County**
30	St. Thomas Island						

Appendix C: Tree Species Group Codes

Appendix Contents:

Description
Urban species groups
Softwood species groups
Hardwood species groups
Tropical and subtropical species groups

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
20	Softwood	Western	Incense-cedar

Code	Class	Region	Species group name
21	Softwood	Western	Lodgepole pine
22	Softwood	Western	Western redcedar
23	Softwood	All	Woodland softwoods
24	Softwood	Western	Other western softwoods

Hardwood species groups

Code	Class	Region	Species group name
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

Code	Class	Region	Species group name
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

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://www.fia.fs.fed.us/library/field-guides-methods-proc/index.php) - This list contains all tree species tallied in the continental U.S. as well as both the Caribbean and Pacific Islands, including Hawaii. After taking into account the three exclusion areas (Non-urban exclusions [NUE], National Forest System [NFS] exclusions, and Mainland exclusions [MLE]), 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. See below for exclusion area species lists.
- Changes to FIA Master Tree Species List (https://www.fia.fs.fed.us/program-features/urban/index.php) - This list, located in the FIA National Urban 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 FIA National Field Guide, version 9.0.

Table downloads:

- FIA Urban Data Mart (https://www.fia.fs.fed.us/tools-data/) - The **REF_SPECIES** table, which is downloadable at the FIA Urban Data Mart, contains the species code, species group code, descriptive common name, scientific name, and many other attributes for each species.

Exclusion area species lists:

The following lists summarize species that are not tally trees on FIA plots located in an exclusion area. There are three exclusion area categories: (1) Non-urban exclusions (NUE), (2) National Forest System (NFS) exclusions, and (3) Mainland exclusions (MLE). For exclusion areas, these species are defined as shrubs and they are not used to define FIA forest land.

1. **Non-urban exclusions (NUE)** - The following species are not tally trees on plots located in non-urban areas. Urban zones are census-defined areas with a population density of 500 people per square mile associated with a town or city with a population of at least 2,500. **Note:** These species are valid as tally trees in urban zones.

Table D-1: Species excluded as tally trees in non-urban areas.

Woodland	FIA code	Common name	Genus	Species
-	299	unknown dead conifer	Tree	evergreen
w	300	acacia spp.	Acacia	spp.
-	508	oneseed hawthorn	Crataegus	monogyna

Woodland	FIA code	Common name	Genus	Species
-	772	sour cherry	Prunus	cerasus
w	902	New Mexico locust	Robinia	neomexicana
-	928	Scouler's willow	Salix	scouleriana
-	998	unknown dead hardwood	Tree	broadlef
-	5188	gray alder	Alnus	incana
-	5192	green alder	Alnus	viridis
-	5436	California redbud	Cercis	orbiculata
-	6524	Chinese fringetree	Chionanthus	retusus
-	7469	yaupon	Ilex	vomitoria
w	7577	Japanese privet	Ligustrum	japonicum
w	7578	glossy privet	Ligustrum	lucidum
w	7579	California privet	Ligustrum	ovalifolium
-	7637	Oyama magnolia	Magnolia	sieboldii
-	8112	paloverde	Parkinsonia	spp.
-	8345	Carolina laurelcherry	Prunus	caroliniana
-	8504	arroyo willow	Salix	lasiolepis

2. **National Forest System (NFS) exclusions** - The following species are not tally trees on plots located in non-urban areas within National Forest System (NFS) lands for the regions specified below (Regions 1, 2, 3, 4, 5, 6, 8, 9, and/or 10). **Note:** These species are valid as tally trees in urban zones.

NFS Regions:

Number	Region name
1	Northern
2	Rocky Mountain
3	Southwestern
4	Intermountain
5	Pacific Southwest
6	Pacific Northwest
8	Southern
9	Eastern
10	Alaska

Table D-2: Species excluded as tally trees on National Forest System lands.

NFS region	Woodland	FIA code	Common name	Genus	Species
3	w	303	sweet acacia	Acacia	farnesiana
5, 6, 10	-	356	serviceberry spp.	Amelanchier	spp.

NFS region	Woodland	FIA code	Common name	Genus	Species
5, 6	w	475	curlleaf mountain-mahogany	Cercocarpus	ledifolius
5, 6, 10	-	500	hawthorn spp.	Crataegus	spp.
5, 6, 10	-	660	apple spp.	Malus	spp.
3, 4	-	763	chokecherry	Prunus	virginiana
3, 4	-	768	bitter cherry	Prunus	emarginata
3	-	805	canyon live oak	Quercus	chrysolepis
5, 6, 10	-	5146	vine maple	Acer	circinatum
3	-	6961	golden dewdrops	Duranta	erecta
3	-	7262	Creole cotton	Gossypium	barbadense
3	-	7264	Gossypium hirsutum	Gossypium	hirsutum
3	-	8111	Jerusalem thorn	Parkinsonia	aculeata
5, 6, 10	-	8420	pear spp.	Pyrus	spp.
3	-	8472	castorbean	Ricinus	communis

3. **Mainland exclusions (MLE)** - The following species are not tally trees on plots located in non-urban areas within the United States mainland (the continental United States). These species codes are valid for tally trees in the Caribbean and Pacific Islands, including Hawaii.

Table D-3: Species excluded as tally trees in the United States mainland.

Woodland	FIA code	Common name	Genus	Species
-	999	other or unknown live tree	Tree	unknown
-	6862	swamp titi	Cyrilla	racemiflora

Appendix E: Damage 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 Codes and Thresholds

(**Note: PNWRS** = All of the Pacific Northwest Research Station region, including Alaska. **PNWRS-AK** = Alaska only.)

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
00000	**-**	**-**	**No Damage**	-	-	**All**
10000	**10**	**000**	**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.	**All**
10001	10	001	thrips	-	-	**-**
10002	10	002	Pine tip moth	-	-	**-**
10003	10	003	wasp	-	-	**-**
10004	10	004	Chinese rose beetle	*Adoretus sinicus*	-	**-**
10005	10	005	rose beetle	*Adoretus versutus*	-	**-**
10006	10	006	coconut hispid beetle	*Brontispa longissima*	-	**-**
10007	10	007	clerid beetle	*Cleridae*	-	**-**
10008	10	008	weevil	*Curculionidae*	-	**-**
10009	10	009	green rose chafer	*Dichelonyx backi*	-	**-**
10010	10	010	Allegheny mound ant	*Formica exsectoides*	-	**-**
10011	10	011	ant	*Formicidae*	-	**-**
10012	10	012	stick insect	*Graeffea crovanii*	-	**-**
10013	10	013	Hulodes cranea	*Hulodes cranea*	-	**-**
10014	10	014	conifer swift moth	*Korsheltellus gracilis*	-	**-**
10015	10	015	Caroline shortnosed weevil	*Lophothetes* spp.	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
10016	10	016	coconut rhinoceros beetle	*Oryctes rhinoceros*	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**
10017	10	017	bagworm moth	*Psychidae*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
10018	10	018	coconut palm weevil	*Rhobdoscelus asperipennis*	-	**-**
10019	10	019	scarab	*Scarabaeidae*	-	**-**
10020	10	020	ash white fly	*Siphoninus phillyreae*	-	**-**
10021	10	021	conifer seedling weevil	*Steremnius carinatus*	-	**-**
10022	10	022	pyralid moth	*Thliptoceras octoquttale*	-	**-**
10023	10	023	wood wasps	*Siricidae* spp.	-	**-**
11000	**11**	**000**	**Bark Beetles**	-	Any evidence of a successful attack (successful attacks generally exhibit boring dust, many pitch tubes and/or fading crowns).	**All**
11001	11	001	roundheaded pine beetle	*Dendroctonus adjunctus*	-	**-**
11002	11	002	western pine beetle	*Dendroctonus brevicomis*	-	**-**
11003	11	003	southern pine beetle	*Dendroctonus frontalis*	-	**-**
11004	11	004	Jeffery pine beetle	*Dendroctonus jeffreyi*	-	**-**
11005	11	005	lodgepole pine beetle	*Dendroctonus murrayanae*	-	**-**
11006	11	006	mountain pine beetle	*Dendroctonus ponderosae*	Any evidence of a successful attack.	**NRS; RMRS**
11007	11	007	Douglas-fir beetle	*Dendroctonus pseudotsugae*	-	**-**
11008	11	008	Allegheny spruce beetle	*Dendroctonus punctatus*	-	**-**
11009	11	009	spruce beetle	*Dendroctonus rufipennis*	Any evidence of a successful attack.	**PNWRS; RMRS**
11010	11	010	eastern larch beetle	*Dendroctonus simplex*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
11011	11	011	black turpentine beetle	*Dendroctonus terebrans*	-	**-**
11012	11	012	red turpentine beetle	*Dendroctonus valens*	Any evidence of a successful attack.	**NRS**
11013	11	013	Dryocoetes affaber	*Dryocoetes affaber*	-	**-**
11014	11	014	Dryocoetes autographus	*Dryocoetes autographus*	-	**-**
11015	11	015	western balsam bark beetle	*Dryocoetes confusus*	-	**-**
11016	11	016	Dryocoetes sechelti	*Dryocoetes sechelti*	-	**-**
11017	11	017	ash bark beetles	*Hylesinus* spp.	-	**-**
11018	11	018	native elm bark beetle	*Hylurgopinus rufipes*	-	**-**
11019	11	019	pinon ips	*Ips confusus*	-	**-**
11020	11	020	small southern pine engraver	*Ips avulsus*	-	**-**
11021	11	021	sixspined ips	*Ips calligraphus*	-	**-**
11022	11	022	emarginate ips	*Ips emarginatus*	-	**-**
11023	11	023	southern pine engraver beetle	*Ips grandicollis*	-	**-**
11024	11	024	Orthotomicus latidens	*Orthotomicus latidens*	-	**-**
11025	11	025	Arizona five-spined ips	*Ips lecontei*	-	**-**
11026	11	026	Monterey pine ips	*Ips mexicanus*	-	**-**
11027	11	027	California fivespined ips	*Ips paraconfusus*	-	**-**
11028	11	028	northern spruce engraver beetle	*Ips perturbatus*	-	**-**
11029	11	029	pine engraver	*Ips pini*	-	**-**
11030	11	030	Ips engraver beetles	*Ips* spp.	Any evidence of a successful attack.	**NRS; PNWRS-AK; RMRS**
11031	11	031	Ips tridens	*Ips tridens*	-	**-**
11032	11	032	western ash bark beetle	*Leperisinus californicus*	-	**-**
11033	11	033	Oregon ash bark beetle	*Leperisinus oregonus*	-	**-**
11034	11	034	Orthotomicus caelatus	*Orthotomicus caelatus*	-	**-**
11035	11	035	cedar bark beetles	*Phloeosinus* spp.	-	**-**
11036	11	036	western cedar bark beetle	*Phloeosinus punctatus*	-	**-**
11037	11	037	tip beetles	*Pityogenes* spp.	-	**-**
11038	11	038	Douglas-fir twig beetle	*Pityophthorus pseudotsugae*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
11039	11	039	twig beetles	*Pityophthorus* spp.	-	-
11040	11	040	foureyed spruce bark beetle	*Polygraphus rufipennis*	-	-
11041	11	041	fir root bark beetle	*Pseudohylesinum granulatus*	-	-
11042	11	042	Pseudohylesinus dispar	*Pseudohylesinus dispar*	-	-
11043	11	043	Douglas-fir pole beetle	*Pseudohylesinus nebulosus*	-	-
11044	11	044	silver fir beetle	*Pseudohylesinus sericeus*	-	-
11045	11	045	small European elm bark beetle	*Scolytus multistriatus*	-	-
11046	11	046	spruce engraver	*Scolytus piceae*	-	-
11047	11	047	hickory bark beetle	*Scolytus quadrispinosus*	-	-
11048	11	048	true fir bark beetles	*Scolytus* spp.	-	-
11049	11	049	Douglas-fir engraver	*Scolytus unispinosus*	-	-
11050	11	050	fir engraver	*Scolytus ventralis*	-	-
11051	11	051	striped ambrosia beetle	*Tryachykele lineatum*	-	-
11052	11	052	Sitka spruce engraver beetle	*Ips conncinnus*	-	-
11053	11	053	four-eyed bark beetle	*Polygraphus* spp.	-	-
11054	11	054	hemlock beetle	*Pseudohylesinus tsugae*	-	-
11055	11	055	spruce ips	*Ips pilifrons*	-	-
11056	11	056	(smaller) Mexican pine beetle	*Dendroctonus mexicanus*	-	-
11057	11	057	banded elm bark beetle	*Scolytus schevyrewi*	-	-
11058	11	058	redbay ambrosia beetle	*Xyleborus glabratus*	-	-
11059	11	059	southern cypress beetle	*Phloeosinus taxodii*	-	-
11060	11	060	Mediterranean pine engraver	*Orthotomicus erosus*	-	-
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	-	-
12000	**12**	**000**	**Defoliators**	-	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	-	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
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	*Monocesta coryli*	-	**-**
12008	12	008	spanworm	-	-	**-**
12009	12	009	webworm	-	-	**-**
12010	12	010	pine false webworm	*Acantholyda erythrocephala*	-	**-**
12011	12	011	western blackheaded budworm	*Acleris gloverana*	-	**-**
12012	12	012	eastern blackheaded budworm	*Acleris variana*	-	**-**
12013	12	013	whitefly	*Aleyrodoidae*	-	**-**
12014	12	014	fall cankerworm	*Alsophila pometaria*	-	**-**
12015	12	015	alder flea beetle	*Altica ambiens*	-	**-**
12016	12	016	mountain mahogany looper	*Anacamptodes clivinaria profanata*	-	**-**
12017	12	017	birch leaffolder	*Ancylis disigerana*	-	**-**
12018	12	018	oak worms	*Anisota* spp.	-	**-**
12019	12	019	orange-striped oakworm	*Anisota senatoria*	-	**-**
12020	12	020	western larch sawfly	*Anoplonyx occidens*	-	**-**
12021	12	021	fruittree leafroller	*Archips argyrospila*	-	**-**
12022	12	022	uglynest caterpillar	*Archips cerasivorana*	-	**-**
12023	12	023	boxelder defoliator	*Archips negundanus*	-	**-**
12024	12	024	oak leafroller	*Archips semiferana*	-	**-**
12025	12	025	birch sawfly	*Arge pectoralis*	-	**-**
12026	12	026	arborvitae leafminer	*Argyresthia thuiella*	-	**-**
12027	12	027	coconut scale	*Aspidiotus destructor*	-	**-**
12028	12	028	texas leafcutting ant	*Atta texana*	-	**-**
12029	12	029	oak skeletonizer	*Bucculatrix ainsliella*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12030	12	030	pear sawfly	*Caliroa cerasi*	-	**-**
12031	12	031	scarlet oak sawfly	*Caliroa quercuscoccineae*	-	**-**
12032	12	032	elm calligrapha	*Calligrapha scalaris*	-	**-**
12033	12	033	boxelder leafroller	*Caloptilia negundella*	-	**-**
12034	12	034	maple petiole borer	*Caulocampus acericaulis*	-	**-**
12035	12	035	spruce webspinning sawfly	*Cephalcia fascipennis*	-	**-**
12036	12	036	two-year budworm	*Choristoneura biennis*	-	**-**
12037	12	037	large aspen tortrix	*Choristoneura conflictana*	-	**-**
12038	12	038	spruce budworm	*Choristoneura fumiferana*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12039	12	039	western pine budworm	*Choristoneura lambertiana*	-	**-**
12040	12	040	western spruce budworm	*Choristoneura occidentalis*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS; RMRS**
12041	12	041	jack pine budworm	*Choristoneura pinus*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12042	12	042	Modoc budworm	*Choristoneura retiniana*	-	**-**
12043	12	043	aspen leaf beetle	*Chrysomela crotchi*	-	**-**
12044	12	044	cottonwood leaf beetle	*Chrysomela scripta*	-	**-**
12045	12	045	leafhopper	*Cicadellidae*	-	**-**
12046	12	046	poplar tentmaker	*Clostera inclusa*	-	**-**
12047	12	047	larch casebearer	*Coleophora laricella*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12048	12	048	birch casebearer	*Coleophora serratella*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12049	12	049	lodgepole needleminer	*Coleotechnites milleri*	-	**-**
12050	12	050	Gelechiid moths / needleminers	*Coleotechnites* spp.	-	**-**
12051	12	051	Black Hills pandora moth	*Coloradia doris*	-	**-**
12052	12	052	pandora moth	*Coloradia pandora*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12053	12	053	sycamore lace bug	*Corythucha ciliata*	-	-
12054	12	054	lace bugs	*Corythucha* spp.	-	-
12055	12	055	oak leaftier	*Croesia semipurpurana*	-	-
12056	12	056	dusky birch sawfly	*Croesus latitarsus*	-	-
12057	12	057	walnut caterpillar	*Datana integerrima*	-	-
12058	12	058	yellownecked caterpillar	*Datana ministra*	-	-
12059	12	059	walkingstick	*Diapheromera femorata*	-	-
12060	12	060	spruce coneworm	*Dioryctria reniculelloides*	-	-
12061	12	061	introduced pine sawfly	*Diprion similis*	-	-
12062	12	062	greenstriped mapleworm	*Dryocampa rubicunda*	-	-
12063	12	063	spruce needleminer (east)	*Endothenia albolineana*	-	-
12064	12	064	elm spanworm	*Ennomos subsignaris*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12065	12	065	maple trumpet skeletonizer	*Epinotia aceriella*	-	-
12066	12	066	white fir needleminer	*Epinotia meritana*	-	-
12067	12	067	linden looper	*Erannis tiliaria*	-	-
12068	12	068	browntail moth	*Euproctis chrysorrhoea*	Any occurrence.	**NRS**
12069	12	069	pine needleminer	*Exoteleia pinifoliella*	-	-
12070	12	070	birch leafminer	*Fenusa pusilla*	-	-
12071	12	071	elm leafminer	*Fenusa ulmi*	-	-
12072	12	072	geometrid moth	*Geometridae*	-	-
12073	12	073	leafblotch miner	*Gracillariidae*	-	-
12074	12	074	spotted tussock moth	*Halisidota maculata*	-	-
12075	12	075	pale tussock moth	*Halysidota tessellaris*	-	-
12076	12	076	hesperiid moth	*Hasora choromus*	-	-
12077	12	077	brown day moth	*Hemileuca eglanterina*	-	-
12078	12	078	buck moth	*Hemileuca maia*	-	-
12079	12	079	saddled prominent	*Heterocampa guttivitta*	-	-
12080	12	080	variable oakleaf caterpillar	*Heterocampa manteo*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12081	12	081	cherry scallop shell moth	*Hydria prunivorata*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12082	12	082	fall webworm	*Hyphantria cunea*	-	**-**
12083	12	083	hemlock looper	*Lambdina fiscellaria*	-	**-**
12084	12	084	oak looper	*Lambdina punctat*	-	**-**
12085	12	085	tent caterpillar moth	*Lasiocampidae*	-	**-**
12086	12	086	satin moth	*Leucoma salicis*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12087	12	087	willow leafblotch miner	*Lithocolletis* spp.	-	**-**
12088	12	088	aspen blotchminer	*Lithocolletis tremuloidiella*	-	**-**
12089	12	089	gypsy moth	*Lymantria dispar*	Any occurrence.	**NRS**
12090	12	090	cottonwood leafminers	*Lyonetia* spp.	-	**-**
12091	12	091	dogwood sawfly	*Macremphytus tarsatus*	-	**-**
12092	12	092	rose chafer	*Macrodactylus subspinosus*	-	**-**
12093	12	093	eastern tent caterpillar	*Malacosoma americanum*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12094	12	094	western tent caterpillar	*Malacosoma californicum*	-	**-**
12095	12	095	Pacific tent caterpillar	*Malacosoma constrictum*	-	**-**
12096	12	096	forest tent caterpillar	*Malacosoma disstria*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12097	12	097	southwestern tent caterpillar	*Malacosoma incurvum*	-	**-**
12098	12	098	leafcutting bees	*Megachilidae*	-	**-**
12099	12	099	blister beetle	*Meloidae*	-	**-**
12100	12	100	early birch leaf edgeminer	*Messa nana*	-	**-**
12101	12	101	juniper sawfly	*Monoctenus fulvus*	-	**-**
12102	12	102	common sawflies	*Nematus* spp.	-	**-**
12103	12	103	balsam fir sawfly	*Neodiprion abietis*	-	**-**
12104	12	104	lodgepole sawfly	*Neodiprion burkei*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12105	12	105	blackheaded pine sawfly	*Neodiprion excitans*	-	-
12106	12	106	pine infesting sawflies	*Neodiprion fulviceps*	-	-
12107	12	107	redheaded pine sawfly	*Neodiprion lecontei*	-	-
12109	12	109	ponderosa pine sawfly	*Neodiprion mundus*	-	-
12110	12	110	white pine sawfly	*Neodiprion pinetum*	-	-
12111	12	111	jack pine sawfly	*Neodiprion pratti banksianae*	-	-
12112	12	112	Virginia pine sawfly	*Neodiprion pratti pratti*	-	-
12113	12	113	European pine sawfly	*Neodiprion sertifer*	-	-
12114	12	114	loblolly pine sawfly	*Neodiprion taedae linearis*	-	-
12115	12	115	hemlock sawfly	*Neodiprion tsugae*	-	-
12116	12	116	pine butterfly	*Neophasia menapia*	-	-
12117	12	117	false hemlock looper	*Nepytia canosaria*	-	-
12118	12	118	California tortoiseshell	*Nymphalis californica*	-	-
12119	12	119	locust leafminer	*Odontota dorsalis*	-	-
12120	12	120	Bruce spanworm	*Operophtera bruceata*	-	-
12121	12	121	rusty tussock moth	*Orgyia antiqua*	-	-
12122	12	122	whitemarked tussock moth	*Orgyia leucostigma*	-	-
12123	12	123	Douglas-fir tussock moth	*Orgyia pseudotsugata*	-	-
12124	12	124	western tussock moth	*Orgyia vetusta*	-	-
12125	12	125	spring cankerworm	*Paleacrita vernata*	-	-
12126	12	126	black citrus swallowtail butterfly	*Papilio polytes*	-	-
12127	12	127	maple leafcutter	*Paraclemensia acerifoliella*	-	-
12128	12	128	pine tussock moth	*Parorgyia grisefacta*	-	-
12129	12	129	poinciana looper	*Pericyma cruegeri*	-	-
12130	12	130	half-wing geometer	*Phigalia titea*	-	-
12131	12	131	Phoberia moth	*Phoberia atomaris*	-	-
12132	12	132	California oakworm	*Phryganidia californica*	-	-
12133	12	133	European snout beetle	*Phyllobius oblongus*	-	-
12134	12	134	citrus leafminer	*Phyllocnistis citrella*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12135	12	135	aspen leafminer	*Phyllocnistis populiella*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS-AK**
12136	12	136	yellowheaded spruce sawfly	*Pikonema alaskensis*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12137	12	137	tenlined June beetle	*Polyphylla decemlineata*	-	**-**
12138	12	138	Japanese beetle	*Popillia japonica*	-	**-**
12139	12	139	larch sawfly	*Pristiphora erichsonii*	-	**-**
12140	12	140	mountain-ash sawfly	*Pristiphora geniculata*	-	**-**
12141	12	141	elm leaf beetle	*Pyrrhalta luteola*	-	**-**
12142	12	142	spearmarked black moth	*Rheumaptera hastata*	-	**-**
12143	12	143	giant silkworm moth	*Saturniidae*	-	**-**
12144	12	144	redhumped caterpillar	*Schizura concinna*	-	**-**
12145	12	145	redbanded thrips	*Selenothrips rubrocinctus*	-	**-**
12146	12	146	green larch looper	*Semiothisa sexmaculata*	-	**-**
12147	12	147	maple leafroller	*Sparganothis acerivorana*	-	**-**
12148	12	148	redhumped oakworm	*Symmerista canicosta*	-	**-**
12149	12	149	orangehumped mapleworm	*Symmerista leucitys*	-	**-**
12150	12	150	spruce needleminer (west)	*Taniva albolineana*	-	**-**
12151	12	151	maple webworm	*Tetralopha asperatella*	-	**-**
12152	12	152	pine webworm	*Tetralopha robustella*	-	**-**
12153	12	153	introduced basswood thrips	*Thrips calcaratus*	-	**-**
12154	12	154	bagworm	*Thyridopteryx ephemeraeformis*	-	**-**
12155	12	155	leafroller/seed moth	*Tortricidae*	-	**-**
12156	12	156	willow defoliation	*Tortricidae*	-	**-**
12157	12	157	euonymus caterpillar	*Yponomeuta* spp.	-	**-**
12158	12	158	spruce bud moth	*Zeiraphera canadensis*	-	**-**
12159	12	159	larch bud moth	*Zeiraphera improbana*	-	**-**
12160	12	160	pine needle sheathminer	*Zelleria haimbachi*	-	**-**
12161	12	161	cypress looper	*Anacamptodes pergracilis*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12162	12	162	Chrysomela leaf beetle	*Chrysomela* spp.	-	-
12163	12	163	pine colaspis	*Colaspis pini*	-	-
12164	12	164	saddleback looper	*Ectropis crepuscularia*	-	-
12165	12	165	birch leaf roller	*Epinotia solandriana*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS-AK**
12166	12	166	New Mexico fir looper	*Galenara consimilis*	-	-
12167	12	167	striped alder sawfly	*Hemichroa crocea*	-	-
12168	12	168	greenstriped looper	*Melanoplophia imitata*	-	-
12169	12	169	willow leaf blotchminer	*Micrurapteryx salicifoliella*	-	-
12170	12	170	pine sawfly	*Neodiprion autmnalis*	-	-
12171	12	171	pinon sawfly	*Neodiprion edulicolus*	-	-
12172	12	172	Neodiprion gilletti	*Neodiprion gilletti*	-	-
12173	12	173	Neodiprion ventralis	*Neodiprion ventralis*	-	-
12174	12	174	pine looper	*Phaeoura mexicanaria*	-	-
12175	12	175	Zadiprion rohweri	*Zadiprion rohweri*	-	-
12176	12	176	bull pine sawfly	*Zadiprion townsendi*	-	-
12177	12	177	Douglas-fir budmoth	*Zeiraphera hesperiana*	-	-
12178	12	178	western oak looper	*Lambdina fiscellaria somniaria*	-	-
12179	12	179	phantom hemlock looper	*Nepytia phantasmaria*	-	-
12180	12	180	tent caterpillar	*Malacosoma* spp.	-	-
12181	12	181	Abbot's sawfly	*Neodiprion abbotii*	-	-
12182	12	182	slash pine sawfly	*Neodiprion merkeli*	-	-
12183	12	183	sand pine sawfly	*Neodiprion pratti*	-	-
12184	12	184	melalueca leaf weevil	*Oxyops vitiosa*	-	-
12185	12	185	cypress leaf beetle	*Systena marginalis*	-	-
12186	12	186	Nepytia janetae	*Nepytia janetae*	-	-
12187	12	187	agromyzid fly	*Agromyza viridula*	-	-
12188	12	188	elm sawfly	*Cimbex americana*	-	-
12189	12	189	june beetle	*Phyllophaga* spp.	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
12190	12	190	hickory tussock moth	*Halisidota caryae*	-	-
12191	12	191	pin oak sawfly	*Caliroa lineata*	-	-
12192	12	192	palmerworm	*Dichomeris ligulella*	-	-
12193	12	193	pitch pine looper	*Lambdina athasaria pellucidaria*	-	-
12194	12	194	red pine sawfly	*Neodiprion nanulus nanulus*	-	-
12195	12	195	pine tube moth	*Argyrotaenia pinatubana*	-	-
12196	12	196	baldcypress leafroller	*Archips goyerana*	-	-
12197	12	197	winter moth	*Operophtera brumata*	Any occurrence.	**NRS**
12198	12	198	basswood thrips	*Neohydatothrips tiliae*	-	-
12199	12	199	noctuid moth	*Xylomyges simplex* (Walker)	-	-
12200	12	200	pyralid moth	*Palpita magniferalis*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
12201	12	201	pacific silver fir budmoth	*Zeiraphera* spp.	-	-
12202	12	202	red pine needle midge	*Thecodiplosis piniresinosae*	-	-
12203	12	203	western hemlock looper	*Lambdina fiscellaria lugubrosa*	-	-
12204	12	204	lodgepole pine sawfly	*Neodiprion nanulus contortae*	-	-
12205	12	205	silverspotted tiger moth	*Lophocampa argentata*	-	-
12206	12	206	green alder sawfly	*Monsoma pulveratum*	-	-
12207	12	207	conifer sawflies	conifer sawflies	-	-
12208	12	208	ambermarked birch leafminer	*Profenusa thomsoni*	-	-
12209	12	209	cycad blue butterfly	*Chilades pandava*	-	-
12300	12	300	budworm	budworms	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS**
12800	12	800	other defloiater (known)	other defloiater (known)	-	-
12900	12	900	unknown defoliator	unknown defoliator	-	-
13000	**13**	**000**	**Chewing Insects**	-	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**RMRS; SRS**
13001	13	001	grasshopper	-	-	-
13002	13	002	shorthorn grasshoppers	*Acrididae*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
13003	13	003	black cutworm	*Agrotis ipsilon*	-	-
13004	13	004	Palau coconut beetle	*Brontispa palauenis*	-	-
13005	13	005	clearwinged grasshopper	*Camnula pellucida*	-	-
13006	13	006	cicadas	*Cicadidae*	-	-
13007	13	007	eurytomids	*Eurytoma* spp.	-	-
13008	13	008	cutworms	*Euxoa excellens*	-	-
13009	13	009	whitefringed beetles	*Graphognathus* spp.	-	-
13010	13	010	pales weevil	*Hylobius pales*	-	
13011	13	011	vegetable weevil	*Listroderes difficilis*	-	-
13012	13	012	periodical cicada	*Magicicada septendecim*	-	-
13013	13	013	migratory grasshopper	*Melanoplus sanguinipes*	-	-
13014	13	014	valley grasshopper	*Oedaleonotus enigma*	-	-
13015	13	015	strawberry root weevil	*Otiorhyhchus ovatus*	-	-
13016	13	016	black vine weevil	*Otiorhynchus sulcatus*	-	-
13017	13	017	pandanus beetle	*Oxycephala pandani*	-	-
13018	13	018	spaeth pandanus	*Oxycephala spaethi*	-	-
13019	13	019	agamemnon butterfly	*Papilio agememnon*	-	-
13020	13	020	northern pitch twig moth	*Petrova albicapitana*	-	-
13021	13	021	ponderosa pine tip moth	*Rhyacionia zozana*	-	-
13022	13	022	pine needle weevil	*Scythropus* spp.	-	-
13023	13	023	coconut longhorned grasshopper	*Segestes unicolor*	-	-
13024	13	024	clover root curculio	*Sitona hispidulus*	-	-
13025	13	025	Madron thrips	*Thrips madronii*	-	-
13026	13	026	ash plant bug	*Tropidosteptes amoenus*	-	-
13027	13	027	shorthorned grasshopper	*Valanga nigricornis*	-	-
13028	13	028	pitch-eating weevil	*Pachylobius picivorus*	-	-
13029	13	029	eastern pine weevil	*Pissodes nemorensis*	-	-
13030	13	030	adana tip moth	*Rhyacionia adana*	-	-
13800	13	800	other chewing insect (known)	other chewing insect (known)	-	-
13900	13	900	unknown chewing insect	unknown chewing insect	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
14000	**14**	**000**	**Sucking Insects**	-	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**All**
14001	14	001	scale insects	-	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
14002	14	002	western larch woolly aphid	*Adelges oregonensis*	-	**-**
14003	14	003	balsam woolly adelgid	*Adelges piceae*	Any occurrence.	**NRS; PNWRS; RMRS**
14004	14	004	hemlock woolly adelgid	*Adelges tsugae*	Any occurrence.	**NRS; RMRS**
14005	14	005	spiraling whitefly	*Aleurodicus dispersus*	-	**-**
14006	14	006	aphid	*Aphididae*	-	**-**
14007	14	007	pine spittlebug	*Aphrophora parallela*	-	**-**
14008	14	008	western pine spittlebug	*Aphrophora permutata*	-	**-**
14009	14	009	Saratoga spittlebug	*Aphrophora saratogensis*	-	**-**
14010	14	010	spittlebug	*Cercopidae*	-	**-**
14011	14	011	wax scale	*Ceroplastes* spp.	-	**-**
14012	14	012	pine needle scale	*Chionaspis pinifoliae*	-	**-**
14014	14	014	giant conifer aphids	*Cinara* spp.	-	**-**
14015	14	015	white pine aphid	*Cinara strobi*	-	**-**
14016	14	016	beech scale	*Cryptococcus fagisuga*	Any occurrence.	**NRS**
14017	14	017	spruce aphid	*Elatobium abietinum*	-	**-**
14018	14	018	woolly apple aphid	*Eriosoma lanigerum*	-	**-**
14019	14	019	striped mealybug	*Ferrisia vergata*	-	**-**
14020	14	020	elongate hemlock scale	*Fiorinia externa*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
14021	14	021	coconut red scale	*Furcaspis oceanica*	-	**-**
14022	14	022	pine thrips	*Gnophothrips* spp.	-	**-**
14023	14	023	leucaena psyllid	*Heteropsylla cubana*	-	**-**
14024	14	024	honeysuckle aphids	*Hyadaphis tataricae*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
14025	14	025	Egyptian fluted scale	*Icerya aegyptiaca*	-	-
14026	14	026	Lecanium scale	*Lecanium* spp.	-	-
14027	14	027	common falsepit scale	*Lecanodiaspis prosopidis*	-	-
14028	14	028	oystershell scale	*Lepidosaphes ulmi*	-	-
14029	14	029	pinyon needle scale	*Matsucoccus acalyptus*	-	-
14030	14	030	ponderosa pine twig scale	*Matsucoccus bisetosus*	-	-
14031	14	031	pine twig scale	*Matsucoccus californicus*	-	-
14032	14	032	ponderosa pine scale	*Matsucoccus degeneratus*	-	-
14033	14	033	red pine scale	*Matsucoccus resinosae*	Any occurrence.	**NRS**
14034	14	034	Prescott scale	*Matsucoccus vexillorum*	-	-
14035	14	035	treehoopers	*Membracidae*	-	-
14036	14	036	hibiscus psyllid	*Mesohomotoma hibisci*	-	-
14037	14	037	balsam twig aphid	*Mindarus abietinus*	-	-
14038	14	038	hibiscus mealybug	*Nipaecoccus vastator*	-	-
14039	14	039	black pineleaf scale	*Nuculaspis californica*	-	-
14040	14	040	spruce spider mite	*Oligonychus ununquis*	-	-
14041	14	041	twig girdler	*Oncideres cingulata*	-	-
14042	14	042	woolly alder aphid	*Paraprociphilus tessellatus*	-	-
14043	14	043	maple aphids	*Periphyllus* spp.	-	-
14044	14	044	spruce bud scale	*Physokermes piceae*	-	-
14045	14	045	red pine adelgid	*Pineus borneri*	-	-
14046	14	046	pine leaf adelgid	*Pineus pinifoliae*	-	-
14047	14	047	white pine adelgid	*Pineus* spp.	-	-
14048	14	048	pine bark adelgid	*Pineus strobi*	-	-
14049	14	049	root aphid	*Prociphilus americanus*	-	-
14050	14	050	mealybug	*Pseudococcidae*	-	-
14051	14	051	cottony maple scale	*Pulvinaria innumerabilis*	-	-
14052	14	052	fir mealybug	*Puto cupressi*	-	-
14053	14	053	Douglas-fir mealybug	*Puto profusus*	-	-
14054	14	054	spruce mealybug	*Puto sandini*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
14055	14	055	hemispherical scale	*Saissetia coffeae*	-	-
14056	14	056	woolly pine needle aphid	*Schizolachnus piniradiatae*	-	-
14057	14	057	steatococcus scale	*Steatococcus samaraius*	-	-
14058	14	058	pear thrips	*Taeniothrips inconsequens*	-	-
14059	14	059	mulberry whitefly	*Tetraleurodes mori*	-	-
14060	14	060	tuliptree scale	*Toumeyella liriodendri*	-	-
14061	14	061	pine tortoise scale	*Toumeyella parvicornis*	-	-
14062	14	062	citrus snow scale	*Unaspis citri*	-	-
14063	14	063	birch aphid	*Euceraphis betulae*	-	-
14064	14	064	Kermes scale	*Allokermes* spp.	-	-
14065	14	065	Casuarina spittlebug	*Clastoptera undulata*	-	-
14066	14	066	giant bark aphid	*Longistigma caryae*	-	-
14067	14	067	woolly pine scale	*Pseudophilippia quaintancii*	-	-
14068	14	068	european elm scale	*Gossyparia spuria*	-	-
14069	14	069	elm scurfy scale	*Chionaspis americana*	-	-
14070	14	070	magnolia scale	*Neolecanium cornuparvum*	-	-
14071	14	071	beech blight aphid	*Grylloprociphilus imbricator*	-	-
14072	14	072	beech woolly aphid	*Phyllaphis fagi*	-	-
14073	14	073	Asian cycad scale	*Aulacaspis yasumatsui*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS**
14074	14	074	European fruit lecanium scale	*Parthenolecanium corni*	-	-
14075	14	075	lobate lac scale	*Paratachardina lobata*	-	-
14800	14	800	other sucking insect (known)	other sucking insect (known)	-	-
14900	14	900	unknown sucking insect	unknown sucking insect	-	-
15000	**15**	**000**	**Boring Insects**	-	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	**All**
15001	15	001	shoot borer	-	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	**NRS**
15002	15	002	termite	-	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
15003	15	003	ponderosa pine bark borer	*Acanthocinus princeps*	-	**-**
15004	15	004	bronze birch borer	*Agrilus anxius*	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	**NRS**
15005	15	005	twolined chestnut borers	*Agrilus bilineatus*	-	**-**
15006	15	006	bronze poplar borer	*Agrilus liragus*	-	**-**
15007	15	007	carpenter bees	*Apidae*	-	**-**
15008	15	008	flatheaded borer	*Buprestidae*	-	**-**
15009	15	009	golden buprestid	*Buprestis aurulenta*	-	**-**
15010	15	010	carpenter ants	*Camponotus* spp.	-	**-**
15011	15	011	gouty pitch midge	*Cecidomyia piniinopis*	-	**-**
15012	15	012	shootboring sawflies	*Cephidae*	-	**-**
15013	15	013	roundheaded borer	*Cerambycidae*	-	**-**
15014	15	014	flatheaded apple tree borer	*Chrysobothris femorata*	-	**-**
15015	15	015	cranberry girdler	*Chrysoteuchia topiaria*	-	**-**
15016	15	016	Columbian timber beetle	*Corthylus columbianus*	-	**-**
15017	15	017	pitted ambrosia beetle	*Corthylus punctatissimus*	-	**-**
15018	15	018	carpenterworm moths	*Cossidae*	-	**-**
15019	15	019	poplar and willow borer	*Cryptorphynchus lapathi*	-	**-**
15020	15	020	pine reproduction weevil	*Cylindrocopturus eatoni*	-	**-**
15021	15	021	Douglas-fir twig weevil	*Cylindrocopturus furnissi*	-	**-**
15022	15	022	Zimmerman pine moth	*Dioryctria zimmermani*	-	**-**
15023	15	023	oak twig borers	*Elaphidionoides* spp.	-	**-**
15024	15	024	twig pruner	*Elaphidionoides villosus*	-	**-**
15025	15	025	lesser cornstalk borer	*Elasmopalpus lignosellus*	-	**-**
15026	15	026	red oak borer	*Enaphalodes rufulus*	Damage to ≥10% of the bole circumference.	**NRS**
15027	15	027	ponderous borer	*Ergates spiculatus*	-	**-**
15028	15	028	eastern pine shoot borer	*Eucosma gloriola*	-	**-**
15029	15	029	western pine shoot borer	*Eucosma sonomana*	-	**-**
15030	15	030	Eucosma shoot borers	*Eucosma* spp.	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
15031	15	031	sugar maple borer	*Glycobius speciosus*	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	**NRS**
15032	15	032	Goes borers	*Goes* spp.	-	-
15033	15	033	pine root collar weevil	*Hylobius radicis*	-	-
15034	15	034	Warren root collar weevil	*Hylobius warreni*	-	-
15035	15	035	powderpost beetle	*Lyctidae*	-	-
15036	15	036	tarnished plant bug	*Lygus lineolaris*	-	-
15037	15	037	bark weevils	*Magdalis* spp.	-	-
15038	15	038	white pine barkminer moth	*Marmara fasciella*	-	-
15039	15	039	locust borer	*Megacyllene robiniae*	-	-
15040	15	040	California flathead borer	*Melanophila californica*	-	-
15041	15	041	flatheaded fir borer	*Melanophila drummondi*	-	-
15042	15	042	whitespotted sawyer	*Monochamus scutellatus*	-	-
15043	15	043	redheaded ash borer	*Neoclytus acuminutus*	-	-
15044	15	044	western ash borer	*Neoclytus conjunctus*	-	-
15045	15	045	oberea shoot borers	*Oberea* spp.	-	-
15046	15	046	eucalyptus longhorned borer	*Phoracantha semipunctata*	-	-
15047	15	047	northern pine weevil	*Pissodes approximatus*	-	-
15048	15	048	balsam bark weevil	*Pissodes dubius*	-	-
15049	15	049	Monterey pine weevil	*Pissodes radiatae*	-	-
15050	15	050	Engelmann spruce weevil	*Pissodes strobi*	-	-
15051	15	051	lodgepole terminal weevil	*Pissodes terminalis*	-	-
15052	15	052	ambrosia beetles	*Platypus* spp.	-	-
15053	15	053	cottonwood borer	*Plectrodera scalator*	-	-
15054	15	054	balsam shootboring sawfly	*Pleroneura brunneicornis*	-	-
15055	15	055	pine gall weevil	*Podapion gallicola*	-	-
15056	15	056	ash borer	*Podesesia syringae fraxini*	-	-
15057	15	057	lilac borer	*Podosesia syringae*	-	-
15058	15	058	carpenterworm	*Prionoxystus robiniae*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
15059	15	059	maple shoot borers	*Proterteras* spp.	-	-
15060	15	060	western subterranean termite	*Reticulitermes hesperus*	-	-
15061	15	061	coconut trunk weevil	*Rhabdoscelus asperipennis*	-	-
15062	15	062	New Guinea sugarcane weevil	*Rhabdoscelus obscurus*	-	-
15063	15	063	European pine shoot moth	*Rhyacionia buoliana*	-	-
15064	15	064	western pine tip moth	*Rhyacionia bushnelli*	-	-
15065	15	065	Nantucket pine tip moth	*Rhyacionia frustrana*	-	-
15066	15	066	lodgepole pine tip moth	*Rhyacionia montana*	-	-
15067	15	067	southwestern pine tip moth	*Rhyacionia neomexicana*	-	-
15068	15	068	poplar borer	*Saperda calcarata*	-	-
15069	15	069	roundheaded appletree borer	*Saperda candida*	-	-
15070	15	070	Saperda shoot borer	*Saperda* spp.	-	-
15071	15	071	clearwing moths	*Sesiidae*	-	-
15072	15	072	dogwood borer	*Synanthedon scitula*	-	-
15073	15	073	roundheaded fir borer	*Tetropium abietis*	-	-
15074	15	074	western larch borer	*Tetropium velutinum*	-	-
15075	15	075	western cedar borer	*Trachykele blondeli*	-	-
15076	15	076	Douglas-fir pitch moth	*Vespamima novaroensis*	-	-
15077	15	077	sequoia pitch moth	*Vespamima sequoia*	-	-
15078	15	078	black twig borer	*Xylosandrus compactus*	-	-
15079	15	079	Pacific dampwood termite	*Zootermopsis angusticollis*	-	-
15080	15	080	subtropical pine tip moth	*Rhyacionia subtropica*	-	-
15081	15	081	Asian ambrosia beetle	*Xylosandrus crassiusculus*	-	-
15082	15	082	Asian longhorned beetle	*Anoplophora glabripennis*	-	-
15083	15	083	cottonwood twig borer	*Gypsonoma haimbachiana*	-	-
15084	15	084	southern pine sawyer	*Monochamus titillator*	-	-
15085	15	085	banded ash borer	*Neoclytus capraea*	-	-
15086	15	086	sitka spruce weevil	*Pissodes sitchensis*	-	-
15087	15	087	emerald ash borer	*Agrilus planipennis*	Any occurrence.	**NRS**

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15088	15	088	hemlock borer	*Melanophila fulvoguttata*	Any damage to the terminal leader; damage ≥20% of the roots, stems, or branches.	**NRS**
15089	15	089	Formosan subterranean termite	*Coptotermes formosanus*	-	-
15090	15	090	sirex woodwasp	*Sirex noctilio*	-	-
15091	15	091	Oregon fir sawyer	*Monochamus scutellatus oregonensis*	-	-
15092	15	092	cypress weevil	*Eudociminus mannerheimii*	-	-
15093	15	093	camphor shot borer	*Xylosandrus mutilatus*	-	-
15094	15	094	goldenspotted oak borer	*Agrilus coxalis*	-	-
15095	15	095	European oak borer	*Agrilus sulcicollis*	-	-
15096	15	096	X. germanus ambrosia beetle	*Xylosandrus germanus*	-	-
15097	15	097	Icosium tomentosum	*Icosium tomentosum*	-	-
15800	15	800	other boring insect (known)	other boring insect (known)	-	-
15900	15	900	unknown boring insect	unknown boring insect	-	-
16000	**16**	**000**	**Seed/Cone/Flower/Fruit Insects**	-	-	-
16001	16	001	Douglas-fir cone moth	*Barbara colfaxiana*	-	-
16002	16	002	lodgepole cone beetle	*Conophthorus contortae*	-	-
16003	16	003	limber pine cone beetle	*Conophthorus flexilis*	-	-
16004	16	004	mountain pine cone beetle	*Conophthorus monticolae*	-	-
16005	16	005	ponderosa pine cone beetle	*Conophthorus ponderosae*	-	-
16006	16	006	Monterey pine cone beetle	*Conophthorus radiatae*	-	-
16007	16	007	red pine cone beetle	*Conophthorus resinosae*	-	-
16008	16	008	white pine cone beetle	*Conopthorus coniperda*	-	-
16009	16	009	black walnut curculio	*Conotrachelus retentus*	-	-
16010	16	010	Douglas-fir cone gall midge	*Contarinia oregonensis*	-	-
16011	16	011	Douglas-fir cone scale midge	*Contarinia washingtonensis*	-	-
16012	16	012	acorn/nut weevils	*Curculio* spp.	-	-
16013	16	013	Caroline fruitfly	*Dacus frauenfeldi*	-	-
16014	16	014	spruce bud midge	*Dasineura swainei*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
16015	16	015	fir coneworm	*Dioryctria abietivorella*	-	-
16016	16	016	southern pine cone worm	*Dioryctria amatella*	-	-
16017	16	017	ponderosa pine coneworm	*Dioryctria auranticella*	-	-
16018	16	018	loblolly pine cone worm	*Dioryctria merkeli*	-	-
16019	16	019	ponderosa twig moth	*Dioryctria ponderosae*	-	-
16020	16	020	Dioryctria pseudotsugella	*Dioryctria pseudotsugella*	-	-
16021	16	021	Dioryctria moths	*Dioryctria* spp.	-	-
16022	16	022	lodgepole cone moth	*Eucosma rescissoriana*	-	-
16023	16	023	seed chalcid	*Eurytomidae*	-	-
16024	16	024	slash pine flower thrips	*Gnophothrips fuscus*	-	-
16025	16	025	spruce cone maggot	*Hylemya anthracina*	-	-
16026	16	026	longleaf pine seed worm or moth	*Laspeyresia ingens*	-	-
16027	16	027	ponderosa pine seed moth	*Laspeyresia piperana*	-	-
16028	16	028	spruce seed moth	*Laspeyresia youngana*	-	-
16029	16	029	boxelder bug	*Leptocoris trivittatus*	-	-
16030	16	030	leaffooted pine seed bug	*Leptoglossus corculus*	-	-
16031	16	031	western conifer seed bug	*Leptoglossus occidentalis*	-	-
16032	16	032	hollyhock thrips	*Liothrips varicornis*	-	-
16033	16	033	Magastigmus lasiocarpae	*Magastigmus lasiocarpae*	-	-
16034	16	034	spruce seed chalcid	*Magastigmus piceae*	-	-
16035	16	035	ponderosa pine seed chalcid	*Megastigmus albifrons*	-	-
16036	16	036	fir seed chalcid	*Megastigmus pinus*	-	-
16037	16	037	Douglas-fir seed chalcid	*Megastigmus spermotrophs*	-	-
16038	16	038	yellow poplar weevil	*Odontopus calceatus*	-	-
16039	16	039	fruitpiercing moth	*Othreis fullonia*	-	-
16040	16	040	roundheaded cone borer	*Paratimia conicola*	-	-
16041	16	041	mango shoot caterpillar	*Penicillaria jocosatrix*	-	-
16042	16	042	coneworm	*Phycitidae*	-	-
16043	16	043	harvester ants	*Pogonomyrmex* spp.	-	-
16044	16	044	citrus flower moth	*Prays citri*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
16045	16	045	fir cone maggot	*Strobilomyia abietis*	-	-
16046	16	046	spruce cone maggot	*Strobilomyia anthracina*	-	-
16047	16	047	shieldbacked pine seed bug	*Tetyra bipunctata*	-	-
16048	16	048	coneworm	*Hylemia* spp.	-	-
16049	16	049	prairie tent caterpillar	*Malacosoma lutescens*	-	-
16050	16	050	jack pine tip beetle	*Conophthorus banksianae*	-	-
16051	16	051	webbing coneworm	*Dioryctria disclusa*	-	-
16052	16	052	blister coneworm	*Dioryctria clarioralis*	-	-
16053	16	053	southern cone gall midge	*Cecidomyia bisetosa*	-	-
16054	16	054	seed bugs	*Lygaeidae* 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	-	-
17000	**17**	**000**	**Gallmaker Insects**	-	-	-
17001	17	001	birch budgall mite	*Aceria rudis*	-	-
17002	17	002	eastern spruce gall adelgid	*Adelges abietis*	-	-
17003	17	003	Cooley spruce gall adelgid	*Adelges cooleyi*	-	-
17004	17	004	horned oak gall	*Callirhytis cornigera*	-	-
17005	17	005	oak gall wasp	*Callirhytis quercuspunctata*	-	-
17006	17	006	gall midge	*Cecidomyiidae*	-	-
17007	17	007	Douglas-fir needle gall midge	*Contarinia pseudotsugae*	-	-
17008	17	008	gall mite	*Eriophyidae*	-	-
17009	17	009	spruce gall midge	*Mayetiola piceae*	-	-
17010	17	010	hackberry nipplegall maker	*Pachypsylla celtidismamma*	-	-
17011	17	011	balsam gall midge	*Paradiplosis tumifex*	Any damage to the terminal leader; damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
17012	17	012	hickory gall Phylloxera	*Phylloxera caryaecaulis*	-	-
17013	17	013	gall aphid	*Phylloxeridae*	-	-
17014	17	014	alder gall mite	*Phytoptus laevis*	-	-
17015	17	015	psyllid	*Psyllidae*	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
17016	17	016	sugarberry psyllid	*Tetragonocephela flava*	-	-
17017	17	017	mountain apple psyllid	*Trioza vitiensis*	-	-
17018	17	018	gouty pitch midge	*Cedidomyia piniinopsis*	-	-
17019	17	019	spider mites	*Oligonychus* spp.	-	-
17020	17	020	cypress gall midges	*Taxodiomyia* spp.	-	-
17021	17	021	jumping oak gall wasp	*Neuroterus saltatorius*	-	-
17022	17	022	erythrina gall wasp	*Quadrastichus erythrinae*	-	-
17800	17	800	other gallmaking insect (known)	other gallmaking insect (known)	-	-
17900	17	900	unknown gallmaking insect	unknown gallmaking insect	-	-
18000	**18**	**000**	**Insect Predators**	-	-	-
18001	18	001	lacewing	-	-	-
18002	18	002	blackbellied clerid	*Enoclerus lecontei*	-	-
18003	18	003	redbellied clerid	*Enoclerus sphegeus*	-	-
18004	18	004	red wood ant	*Formica rufa*	-	-
18005	18	005	western yellowjacket	*Vespula pennsylvanica*	-	-
19000	**19**	**000**	**General Diseases**	-	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**
20000	**20**	**000**	**Biotic Damage**	-	-	-
20001	20	001	damping off	-	-	-
20002	20	002	gray mold	*Botrytis cinerea*	-	-
20003	20	003	Cassytha	*Cassytha filiformis*	-	-
20004	20	004	hemlock fluting	-	-	-
21000	**21**	**000**	**Root/Butt Diseases**	-	Any occurrence.	**All**
21001	21	001	Armillaria root disease	*Armillaria* spp.	Any occurrence.	**NRS; PNWRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
21002	21	002	yellow stringy rot	*Corticium galactimum*	-	**-**
21003	21	003	Cylindrocladium root disease	*Cylindrocladium* spp.	-	**-**
21004	21	004	brown crumbly rot	*Fomitopsis pinicola*	-	**-**
21005	21	005	black root rot of pine	*Fusarium oxysporum*	-	**-**
21006	21	006	Fusarium root rot	*Fusarium* spp.	-	**-**
21007	21	007	white mottled rot	*Ganoderma applanatum*	Any visual evidence.	**PNWRS-AK**
21008	21	008	Ganoderma rot of hardwoods	*Ganoderma lucidum*	Any occurrence.	**PNWRS**
21009	21	009	Ganoderma rot of conifers	*Ganoderma tsugae*	Any visual evidence.	**PNWRS-AK**
21010	21	010	Heterobasidion root disease	*Heterobasidion annosum*	Any occurrence.	**NRS; PNWRS**
21011	21	011	circinatus root rot	*Inonotus circinatus*	-	**-**
21012	21	012	tomentosus root rot / false velvet top fungus	*Inonotus tomentosus*	-	**-**
21013	21	013	charcoal root rot	*Macrophomina phaseolina*	-	**-**
21014	21	014	black stain root disease	*Ophiostoma wageneri*	Any occurrence.	**PNWRS**
21015	21	015	Schweinitzii root and butt rot	*Phaeolus schweinitzii*	Any occurrence.	**PNWRS**
21016	21	016	flame tree root disease	*Phellinus noxious*	Any occurrence.	**PNWRS**
21017	21	017	laminated root rot	*Phellinus weirii*	Any occurrence.	**PNWRS**
21019	21	019	littleleaf disease / Phytophthora root rot	*Phytophthora cinnamomi*	-	**-**
21020	21	020	Port-Orford-Cedar root disease	*Phytophthora lateralis*	Any occurrence.	**PNWRS**
21022	21	022	Pythium root rot	*Pythium* spp.	-	**-**
21023	21	023	procera root disease of conifers	*Verticicladiella procera*	-	**-**
21024	21	024	crown gall	*Agrobacterium tumefaciens*	-	**-**
21025	21	025	borealis conk	*Climacocystis borealis*	-	**-**
21026	21	026	yellow pitted rot	*Hericium abietis*	-	**-**
21027	21	027	brown cubical rot	*Laetiporus sulphureus*	Any occurrence.	**PNWRS**
21028	21	028	sudden oak death	*Phytophthora ramorum*	Any occurrence.	**PNWRS**
21029	21	029	Rhizina root disease	*Rhizina undulata*	-	**-**
21030	21	030	yellow root rot	*Perenniporia subacida*	-	**-**
21031	21	031	brown top rot	*Fomitopsis cajanderi*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
21033	21	033	pocket dry rot	*Tyromyces amarus*	-	**-**
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	-	**-**
22000	**22**	**000**	**Cankers**	-	Any occurrence.	**All**
22005	22	005	viruses	-	-	**-**
22006	22	006	black knot of cherry	*Apiosporina morbosa*	Any occurrence on the bole or on branches ≤1 foot from bole; damage to ≥50% of branches.	**NRS**
22007	22	007	Atropellis canker	*Atropellis piniphila*	-	**-**
22008	22	008	Siberian elm canker	*Botryodiplodia hypodermia*	-	**-**
22009	22	009	Botryosphaeria canker	*Botryosphaeria ribis*	-	**-**
22011	22	011	Caliciopsis canker	*Caliciopsis pinea*	Any occurrence.	**NRS**
22012	22	012	black canker of aspen	*Ceratocystis fimbriata*	-	**-**
22013	22	013	sycamore canker stain	*Ceratocystis fimbriata f.sp. plataini*	-	**-**
22023	22	023	chestnut blight	*Cryphonectria parasitica*	Any occurrence.	**NRS**
22025	22	025	Cryptosphaeria canker of aspen	*Cryptosphaeria populina*	-	**-**
22026	22	026	Cytospora canker of fir	*Cytospora abietis*	-	**-**
22029	22	029	sooty-bark canker	*Encoelia pruinosa*	-	**-**
22030	22	030	Eutypella canker	*Eutypella parasitica*	Any occurrence.	**NRS**
22032	22	032	pitch canker of pines	*Fusarium subglutinans*	Any occurrence.	**PNWRS**
22033	22	033	Fusicoccum canker	*Fusicoccum* spp.	-	**-**
22034	22	034	Scleroderris canker	*Gremmeniella abietina*	-	**-**
22035	22	035	amelanchier rust	*Gymnosporangium harknessianum*	-	**-**
22036	22	036	cedar apple rust	*Gymnosporangium juniperi-virginianae*	-	**-**
22037	22	037	Hypoxylon canker of oak	*Hypoxylon atropunctatum*	-	**-**
22038	22	038	Hypoxylon canker of aspen	*Hypoxylon mammatum*	Any occurrence.	**NRS**
22041	22	041	European larch canker	*Lachnellula willkommii*	-	**-**
22042	22	042	beech bark disease	*Nectria coccinea*	Any occurrence.	**NRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
22043	22	043	Nectria canker	*Nectria galligena*	Any occurrence.	**NRS**
22050	22	050	Phomopsis canker	*Phomopsis occulta*	-	**-**
22051	22	051	Phomopsis canker	*Phomopsis* spp.	-	**-**
22052	22	052	cypress canker	*Seiridium cardinale*	-	**-**
22053	22	053	butternut canker	*Sirococcus clavigignenti-jugl.*	Any occurrence.	**NRS**
22054	22	054	maple canker	*Steganosporium* spp.	-	**-**
22055	22	055	Thyronectria canker	*Thyronectria austro-americana*	-	**-**
22056	22	056	citrus canker	*Xanthomonas citri*	-	**-**
22057	22	057	Cytospora canker of aspen	*Cytospora chrysosperma*	-	**-**
22058	22	058	Dothichiza canker	*Dothichiza populae*	-	**-**
22060	22	060	Leucocytospora canker of spruce	*Leucocytospora kunzei*	-	**-**
22073	22	073	hemlock canker	*Xenomeris abietis*	-	**-**
22075	22	075	Lachnellula canker	*Lachnellula flavovirens*	Any occurrence.	**NRS**
22076	22	076	strumella canker	*Strumella coryneoidea*	Any occurrence.	**NRS**
22077	22	077	phomopsis blight	*Phomopsis juniperovora*	-	**-**
22078	22	078	fusarium canker of yellow poplar	*Fusarium solani*	-	**-**
22079	22	079	sterile conk of maple and beech	*Inonotus glomeratus*	-	**-**
22080	22	080	canker of spruce	*Aleurodiscus* spp.	-	**-**
22082	22	082	Discocainia canker	*Discocainia treleasei*	-	**-**
22083	22	083	red ring rot canker	*Phellinus pini var. cancriformans*	-	**-**
22084	22	084	Douglas-fir cankers	Douglas-fir cankers	-	**-**
22085	22	085	Scleroderris canker of western firs	*Grovesiella abieticola*	-	**-**
22086	22	086	Thousand cankers disease	*Geosmithia morbida*	-	**-**
22087	22	087	nonrust canker	unknown	Damage ≥20% of bole circumference (in a running 3-foot section) at point of occurrence.	**PNWRS**
22300	22	300	other canker disease (known)	other canker disease (known)	-	**-**
22400	22	400	unknown canker disease	unknown canker disease	-	**-**
22500	**22**	**500**	**Stem Decay**	-	Any visual evidence (conks; fruiting bodies; rotten wood).	**All**
22001	22	001	heart rot	-	Any visual evidence.	**SRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
22002	22	002	stem rot	-	-	**-**
22003	22	003	sap rot	-	-	**-**
22004	22	004	slime flux	-	-	**-**
22010	22	010	black rot fungus	*Botryosphaeria stevensii*	-	**-**
22024	22	024	gray-brown sap rot	*Cryptoporus volvatus*	-	**-**
22027	22	027	western red rot	*Dichomitus squalens*	-	**-**
22028	22	028	Indian paint fungus	*Echinodontium tinctorium*	Any occurrence.	**PNWRS**
22031	22	031	Fusarium cortical stem rot	*Fusarium avenaceum*	-	**-**
22039	22	039	canker rot of oak	*Inonotus hispidus*	-	**-**
22040	22	040	sterile conk trunk rot of birch, chaga	*Inonotus obliquus*	Any visual evidence.	**PNWRS-AK**
22044	22	044	ash heart rot	*Pereniporia fraxinophila*	-	**-**
22047	22	047	red heart rot	*Phellinus pini*	Any occurrence.	**PNWRS**
22048	22	048	aspen trunk rot	*Phellinus tremulae*	Any visual evidence.	**PNWRS-AK**
22049	22	049	stem decay of black walnut	*Phellinus weirianus*	-	**-**
22059	22	059	red belt fungus / brown crumbly rot	*Fomitopsis pinicola*	Any visual evidence.	**PNWRS-AK**
22062	22	062	quinine fungus / brown trunk rot	*Fomitopsis officinalis*	Any visual evidence.	**PNWRS-AK**
22063	22	063	brown cubical decay	*Coniophora puteana*	-	**-**
22064	22	064	tinder fungus	*Fomes fomentarius*	Any visual evidence.	**PNWRS-AK**
22065	22	065	purple conk	*Hirschioporus abietinus*	-	**-**
22066	22	066	pinyon black stain	*Leptographium wagnerii*	-	**-**
22067	22	067	Phellinus hartigii	*Phellinus hartigii*	Any visual evidence.	**PNWRS-AK**
22068	22	068	false tinder fungus	*Phellinus igniarius*	Any visual evidence.	**PNWRS-AK**
22069	22	069	robustus conk	*Phellinus robustus*	-	**-**
22070	22	070	yellow cap fungus	*Pholiota* spp.	Any visual evidence.	**PNWRS-AK**
22071	22	071	oyster mushroom	*Pleurotus ostreatus*	-	**-**
22072	22	072	white ring rot	*Poria albipellucida*	-	**-**
22074	22	074	cedar brown pocket rot	*Poria sericeomollis*	-	**-**
22081	22	081	birch conk	*Piptoporus betulinus*	Any visual evidence.	**PNWRS-AK**
22800	22	800	other stem decay (known)	other stem decay (known)	-	**-**
22900	22	900	unknown stem decay	unknown stem decay	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
23000	**23**	**000**	**Parasitic/Epiphytic Plants**	-	Dwarf mistletoes with Hawksworth rating of ≥3; true mistletoes or vines covering ≥50% of crown.	**All**
23001	23	001	mistletoe	mistletoe	-	**-**
23002	23	002	parasitic plants	parasitic plants	-	**-**
23003	23	003	vine damage	vine damage	Vines covering ≥50% of crown.	**NRS; PNWRS**
23005	23	005	white fir dwarf mistletoe	*Arceuthobium abietinum f. sp. concoloris*	-	**-**
23006	23	006	lodgepole pine dwarf mistletoe	*Arceuthobium americanum*	-	**-**
23007	23	007	Apache dwarf mistletoe	*Arceuthobium apachecum*	-	**-**
23008	23	008	western dwarf mistletoe	*Arceuthobium campylopodum*	-	**-**
23009	23	009	limber pine dwarf mistletoe	*Arceuthobium cyanocarpum*	-	**-**
23010	23	010	pinyon dwarf mistletoe	*Arceuthobium divaricatum*	-	**-**
23011	23	011	Douglas-fir dwarf mistletoe	*Arceuthobium douglasii*	-	**-**
23012	23	012	Chihuahua pine dwarf mistletoe	*Arceuthobium gillii*	-	**-**
23013	23	013	larch dwarf mistletoe	*Arceuthobium laricis*	-	**-**
23014	23	014	western spruce dwarf mistletoe	*Arceuthobium microcarpum*	-	**-**
23015	23	015	eastern dwarf mistletoe	*Arceuthobium pusillum*	Any occurrence.	**NRS**
23016	23	016	hemlock dwarf mistletoe	*Arceuthobium tsugense*	Dwarf mistletoes with Hawksworth rating of ≥3; true mistletoes or vines covering ≥50% of crown.	**PNWRS-AK**
23017	23	017	southwestern dwarf mistletoe	*Arceuthobium vaginatum subsp. crytopodum*	-	**-**
23018	23	018	dodder	*Cuscuta* spp.	-	**-**
23019	23	019	white fir mistletoe	*Phoradendron bolleanum subsp. pauciflorum*	-	**-**
23020	23	020	true mistletoe (other)	-	True mistletoe covering ≥50% of crown.	**PNWRS; RMRS**
23021	23	021	red fir dwarf mistletoe	*Arceuthobium abietinum f. sp. magnificae*	-	**-**
23022	23	022	juniper true mistletoe	*Phoradendron juniperum*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
23023	23	023	dwarf mistletoe	*Arceuthobium* spp.	Hawksworth rating of ≥3.	**PNWRS; RMRS**
23024	23	024	Weins dwarf mistletoe	*Arceuthobium abietinum f. sp magnificae*	-	**-**
24000	**24**	**000**	**Decline Complexes/Dieback/Wilts**	-	Damage ≥20% dieback of crown area.	**All**
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.	**NRS**
24005	24	005	birch dieback	birch dieback	-	**-**
24006	24	006	coconut cadang-cadang viroid	*Cocadviroid coconut cadang-cadang viroid*	Damage ≥20% dieback of crown area.	**PNWRS**
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.	**PNWRS**
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	*Hypoxylon* spp.	-	**-**
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	*Bursaphelenchus xylophilus*	-	**-**
24020	24	020	sapstreak disease of sugar maple	*Ceratocystis coerulescens*	-	**-**
24021	24	021	oak wilt	*Ceratocystis fagacearum*	Damage ≥20% dieback of crown area.	**NRS**
24022	24	022	Dutch elm disease	*Ceratocystis ulmi*	Damage ≥20% dieback of crown area.	**NRS**
24023	24	023	bacterial wetwood	*Erwinia nimipressuralis*	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
24024	24	024	mimosa wilt	*Fusarium oxysporum f. sp. perniciosum*	-	-
24025	24	025	Verticillium wilt	*Verticilium albo-atrum*	-	-
24026	24	026	bacterial leaf scorch	*Xylella fastidiosa*	-	-
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	*Mycoplasma* spp.	-	-
24031	24	031	laurel wilt	*Raffaelea* 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	-	-
25000	**25**	**000**	**Foliage Diseases**	-	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**All**
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	-	-
25008	25	008	tobacco ringspot virus of ash	*Nepovirus* TRSV	-	-
25009	25	009	true fir needlecast	true fir needlecast	-	-
25010	25	010	sycamore anthracnose	*Apiognomonia veneta*	-	-
25011	25	011	Cercospora blight of juniper	*Cercospora sequoiae*	-	-
25013	25	013	large-spored spruce-laborador tea rust	*Chrysomyxa ledicola*	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS-AK**
25014	25	014	ink spot of aspen	*Ciborinia whetzelii*	-	-
25015	25	015	pine needle rust	*Coleosporium* spp.	-	-
25016	25	016	anthracnose on Russian olive	*Colletotrichum* spp.	-	-
25017	25	017	Coronado limb rust	*Cronartium arizonicum*	-	-
25018	25	018	leaf shothole	*Cylindrosporium* spp.	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
25019	25	019	cedar leaf blight	*Didymascella thujina*	-	-
25020	25	020	dogwood anthracnose	*Discula* spp.	-	-
25021	25	021	mango scab	*Elsinoe magiferae*	-	-
25022	25	022	Elytroderma needle blight	*Elytroderma deformans*	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS**
25023	25	023	fire blight	*Erwinia amylovora*	-	-
25024	25	024	walnut anthracnose	*Gnomonia leptostyla*	-	-
25025	25	025	anthracnose	*Gnomonia* spp.	-	-
25027	25	027	brown felt blight	*Herpotrichia juniperi*	-	-
25028	25	028	larch needle blight	*Hypodermella laricis*	-	-
25029	25	029	hardwood anthracnose	*Kabatiella apocrypta*	-	-
25030	25	030	Lasiodiplodia cone damage	*Lasiodiplodia* spp.	-	-
25031	25	031	spruce needle cast	*Lirula macrospora*	-	-
25032	25	032	fir needle cast	*Lirula* spp.	-	-
25033	25	033	white pine needle cast	*Lophodermella arcuata*	-	-
25034	25	034	Lophodermella needle cast	*Lophodermella* spp.	-	-
25036	25	036	Marssonina blight	*Marssonina populi*	-	-
25037	25	037	Douglas-fir rust	*Melampsora medusae*	-	-
25039	25	039	larch needle cast	*Meria laricis*	-	-
25040	25	040	Dothistroma needle blight	*Mycosphaerella pini*	-	-
25041	25	041	brown felt blight of pines	*Neopeckia coulteri*	-	-
25042	25	042	snow blight	*Phacidum abietis*	-	-
25043	25	043	Swiss needle cast	*Phaeocryptopus gaumannii*	-	-
25044	25	044	Phoma blight	*Phoma* spp.	-	-
25045	25	045	Phyllosticta leaf spot	*Phyllosticta* spp.	-	-
25046	25	046	bud rot	*Phytophthora palmivora*	-	-
25047	25	047	Ploioderma needle cast	*Ploioderma* spp.	-	-
25048	25	048	ash rust	*Puccinia sparganioides*	-	-
25049	25	049	fir and hemlock needle rusts	*Pucciniastrum* spp.	-	-
25050	25	050	Rhabdocline needle cast	*Rhabdocline* spp.	-	-

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
25051	25	051	Rhizoctonia needle blight	*Rhizoctonia* spp.	-	**-**
25052	25	052	Rhizophaeria needle cast	*Rhizophaeria* spp.	-	**-**
25053	25	053	Rhizopus rot	*Rhizopus artocarpi*	-	**-**
25054	25	054	brown spot needle blight	*Scirrhia acicola*	-	**-**
25055	25	055	Septoria leaf spot	*Septoria alnifolia*	-	**-**
25056	25	056	Septoria leaf spot and canker	*Septoria musiva*	-	**-**
25057	25	057	Sirococcus tip blight	*Sirococcus conigenus*	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
25058	25	058	Diplodia canker	*Sphaeropsis sapinea*	-	**-**
25059	25	059	leaf blister of oak	*Taphrina caerulescens*	-	**-**
25060	25	060	Venturia leaf blight of maple	*Venturia acerina*	-	**-**
25061	25	061	shepherd's crook	*Venturia tremulae*	-	**-**
25062	25	062	Dothistroma needle blight	*Dothistroma septospora*	-	**-**
25063	25	063	yellow-cedar shoot blight	*Apostrasseria* spp.	-	**-**
25065	25	065	spruce needle rust	*Chrysomyxa weirii*	-	**-**
25066	25	066	cedar leaf blight	*Gymnosporangium nootkatense*	-	**-**
25067	25	067	spruce needle cast	*Lophodermium picea*	-	**-**
25068	25	068	hardwood leaf rusts	*Melampsora* spp.	-	**-**
25070	25	070	hemlock needle rust	*Pucciniastrum vaccinii*	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**PNWRS-AK**
25071	25	071	spruce needle cast	*Rhizosphaera pini*	-	**-**
25072	25	072	sirococcus shoot blight	*Sirococcus strobilinus*	Damage ≥20% of the foliage with ≥50% of the leaf/needle affected.	**NRS**
25073	25	073	shepherds crook	*Venturia populina*	-	**-**
25074	25	074	Delphinella shoot blight	*Delphinella abietis*	-	**-**
25075	25	075	tar spot	*Rhytisma acerinum*	-	**-**
25076	25	076	birch leaf fungus	*Septoria betulae*	-	**-**
25077	25	077	Septoria leaf spot of maple	*Septoria aceris*	-	**-**
25800	25	800	other / shoot disease (known)	other / shoot disease (known)	-	**-**
25900	25	900	unknown foliage / shoot disease	Unknown foliage / shoot disease	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
26000	**26**	**000**	**Stem Rusts**	-	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.	**All**
26001	26	001	white pine blister rust	*Cronartium ribicola*	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.	**PNWRS; SRS**
26002	26	002	western gall rust	*Peridermium harknessii*	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.	**PNWRS**
26003	26	003	stalactiform blister rust	*Cronartium coleosporioides*	-	**-**
26004	26	004	comandra blister rust	*Cronartium comandrae*	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.	**SRS**
26005	26	005	pinyon rust	*Cronartium occidentale*	-	**-**
26006	26	006	eastern gall rust	*Cronartium quercuum*	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.	**SRS**
26007	26	007	gall rust of jack pine	*Cronartium quercuum f. sp. banksignae*	-	**-**
26008	26	008	gall rust of shortleaf pine	*Cronartium quercuum f. sp. echinatae*	-	**-**
26009	26	009	fusiform rust	*Cronartium quercuum f. sp. fusiforme*	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.	**SRS**
26010	26	010	gall rust of virginia pine	*Cronartium quercuum f. sp. virginianae*	-	**-**
26011	26	011	Bethuli rust	*Peridermium bethuli*	-	**-**
26012	26	012	limb rust	*Peridermium filamentosum*	-	**-**
26013	26	013	southern cone rust	*Cronartium strobilinum*	-	**-**
26800	26	800	other stem rust (known)	other stem rust (known)	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
26900	26	900	unknown stem rust	unknown stem rust	-	-
27000	**27**	**000**	**Broom Rusts**	-	≥50% of crown area affected.	**All**
27001	27	001	spruce broom rust	*Chrysomyxa arctostaphyli*	≥50% of crown area affected.	**PNWRS-AK**
27002	27	002	Incense cedar broom rust	*Gymnosporangium libocedri*	-	-
27003	27	003	juniper broom rust	*Gymnosporangium nidus-avis*	-	-
27004	27	004	fir broom rust	*Melampsorella caryophyllacearum*	-	-
27800	27	800	other broom rust (known)	other broom rust (known)	-	-
27900	27	900	unknown broom rust	unknown broom rust	-	-
30000	**30**	**000**	**Fire**	-	Damage ≥20% of bole circumference; >20% of stems on multi-stemmed woodland species affected; ≥20% of crown affected.	**All**
30001	30	001	wild fire	-	-	-
30002	30	002	human caused fire	-	-	-
30003	30	003	crown fire damage	-	-	-
30004	30	004	ground fire damage	-	-	-
41000	**41**	**000**	**Wild Animals**	-	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	*Ursus* 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**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
41002	41	002	beavers	*Castor canadensis*	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**
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.	**PNWRS**
41005	41	005	pocket gophers	*Geomyidae* 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; RMRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
41006	41	006	porcupines	*Erethizon dorsatum*	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**
41007	41	007	rabbits or hares	*Sylvilagus* 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**
41008	41	008	sapsuckers	*Sphyrapicus* 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-AK; RMRS; SRS**
41009	41	009	squirrels	*Sciuridae* 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**
41010	41	010	woodpeckers	*Piciformes* spp.	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
41011	41	011	moose	*Alces alces*	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**
41012	41	012	elk	*Cervus elaphus*	-	**-**
41013	41	013	deer	*Odocoileus* 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**
41014	41	014	feral pigs	*Sus scrofa*	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**
41015	41	015	mountain beaver	*Aplodontia rufa*	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**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
41017	41	017	earthworms	*Lumbricidae*	-	-
41800	41	800	other wild animals (known)	other wild animals (known)	-	-
41900	41	900	unknown wild animals	unknown wild animals	-	-
42000	**42**	**000**	**Domestic Animals**	-	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	*Bos taurus*	-	-
42002	42	002	goats	*Capra hircus*	-	-
42003	42	003	horses	*Equus caballus*	-	-
42004	42	004	sheep	*Ovis aries*	-	-
42800	42	800	other domestic animal (unknown)	other domestic animal (unknown)	-	-
42900	42	900	unknown domestic animals	unknown domestic animals	-	-
50000	**50**	**000**	**Abiotic 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**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
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.	**RMRS**
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.	**NRS**
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.	**NRS; RMRS**
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.	**NRS; PNWRS-AK; RMRS; SRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
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.	**RMRS**
50006	50	006	hail	-	-	**-**
50007	50	007	heat	-	-	**-**
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**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
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**
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	-	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
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	-	-
60000	**60**	**000**	**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.).	**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**
70000	**70**	**000**	**Human Activities**	-	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**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
70001	70	001	herbicides	-	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**
70003	70	003	imbedded objects	-	Any occurrence on the bole.	**NRS; SRS**
70004	70	004	improper planting technique	-	-	**-**
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	-	-	**-**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
70014	70	014	road salt	-	-	-
71000	**71**	**000**	**Harvest**	-	Removal of ≥10% cubic volume.	**All**
71001	71	001	Woodland cutting	-	Removal of ≥10% cubic volume.	**RMRS**
80000	**80**	**000**	**Multi-Damage (Insect/Disease)**	-	-	-
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	-	-	-
80004	80	004	pinyon pine mortality	-	-	-
85000	**85**	**000**	**Invasive Plants**	-	-	-
90000	**90**	**000**	**Other Damages and Symptoms**	-	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**
90001	90	001	broken top	Not recorded for multi-stemmed trees	When actual length is less than total length.	**NRS; PNWRS; RMRS**
90002	90	002	dead top		Any occurrence.	**NRS; PNWRS; RMRS**
90003	90	003	limby-wolf tree	Not recorded for non-sawlog trees	Damage when board-foot defect is ≥10%.	**RMRS**
90004	90	004	forked top	Not recorded for non-sawlog trees	Any occurrence.	**PNWRS**
90005	90	005	forked below merch top	Not recorded for non-sawlog trees	Damage when board-foot defect is ≥10%.	**PNWRS; RMRS**
90006	90	006	crook or sweep	Not recorded for non-sawlog trees	Damage when board-foot defect is ≥10%.	**PNWRS; RMRS**

Code	Category	Agent	Common Name	Scientific Name	Threshold	Region
90007	90	007	checks, bole cracks	Not recorded for non-sawlog trees	Damage when board-foot defect is ≥10%.	**PNWRS**
90008	90	008	foliage discoloration	-	Damage ≥20% of crown affected.	**NRS; PNWRS; RMRS**
90010	90	010	dieback	-	Damage ≥20% of crown affected.	**NRS; PNWRS; RMRS**
90011	90	011	open wound	-	Damage ≥20% of bole circumference (in a running 3-foot section) at point of occurrence.	**PNWRS; RMRS**
90012	90	012	resinosis	-	Damage ≥20% of bole circumference (in a running 3-foot section) at point of origin; ≥20% of branches affected.	**PNWRS**
90013	90	013	broken branches	-	Damage ≥20% of branches affected.	**PNWRS**
99000	**99**	**000**	**Unknown**	-	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**

Appendix F: Forest Type Codes and Names

Forest types are named for the predominant species (or group of species) on 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.

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Forest type groups

Code	Forest type group
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120	Spruce / fir group
140	Longleaf / slash pine group
150	Tropical softwoods group
160	Loblolly / shortleaf pine group
170	Other eastern softwoods group
180	Pinyon / juniper group
200	Douglas-fir group
220	Ponderosa pine group
240	Western white pine group
260	Fir / spruce / mountain hemlock group
280	Lodgepole pine group
300	Hemlock / Sitka spruce group
320	Western larch group
340	Redwood group
360	Other western softwoods group
370	California mixed conifer group
380	Exotic softwoods group
390	Other softwoods group

Code	Forest type 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.

East	West	Code	Forest type / type group
-	**-**	**100**	**White / red / jack pine group**
E	-	101	Jack pine
E	-	102	Red pine
E	-	103	Eastern white pine
E	-	104	Eastern white pine / eastern hemlock
E	-	105	Eastern hemlock
-	**-**	**120**	**Spruce / fir group**
E	-	121	Balsam fir
E	-	122	White spruce
E	-	123	Red spruce
E	-	124	Red spruce / balsam fir
E	W	125	Black spruce
E	-	126	Tamarack
E	-	127	Northern white-cedar
E	-	128	Fraser fir
E	-	129	Red spruce / Fraser fir

East	West	Code	Forest type / type group
	-	**140**	**Longleaf / slash pine group**
E	-	141	Longleaf pine
E	-	142	Slash pine
-	**-**	**150**	**Tropical softwoods group**
E	-	151	Tropical pines
-	**-**	**160**	**Loblolly / shortleaf pine group**
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
-	**-**	**170**	**Other eastern softwoods group**
E	-	171	Eastern redcedar
E	-	172	Florida softwoods
-	**-**	**180**	**Pinyon / juniper group**
E	W	182	Rocky Mountain juniper
E	W	184	Juniper woodland
E	W	185	Pinyon / juniper woodland
-	**-**	**200**	**Douglas-fir group**
E	W	201	Douglas-fir
-	W	202	Port-Orford-cedar
-	W	203	Bigcone Douglas-fir
-	**-**	**220**	**Ponderosa pine group**
E	W	221	Ponderosa pine
-	W	222	Incense-cedar
-	W	224	Sugar pine
-	W	225	Jeffrey pine
-	W	226	Coulter pine
-	**-**	**240**	**Western white pine group**
-	W	241	Western white pine
-	**-**	**260**	**Fir / spruce / mountain hemlock group**
-	W	261	White fir
-	W	262	Red fir
-	W	263	Noble fir

East	West	Code	Forest type / type group
-	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**	**Lodgepole pine group**
-	W	281	Lodgepole pine
-	**-**	**300**	**Hemlock / Sitka spruce group**
-	W	301	Western hemlock
-	W	304	Western redcedar
-	W	305	Sitka spruce
-	**-**	**320**	**Western larch group**
-	W	321	Western larch
-	**-**	**340**	**Redwood group**
-	W	341	Redwood
-	W	342	Giant sequoia
-	**-**	**360**	**Other western softwoods group**
-	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**	**California mixed conifer group**
-	W	371	California mixed conifer
-	**-**	**380**	**Exotic softwoods group**
E	-	381	Scotch pine
E	W	383	Other exotic softwoods
E	-	384	Norway spruce
E	-	385	Introduced larch
-	**-**	**390**	**Other softwoods group**

East	West	Code	Forest type / type group
E	-	391	Other softwoods
-	**-**	**400**	**Oak / pine group**
E	-	401	Eastern white pine / northern red oak / white ash
E	-	402	Eastern redcedar / hardwood
E	-	403	Longleaf pine / oak
E	-	404	Shortleaf pine / oak
E	-	405	Virginia pine / southern red oak
E	-	406	Loblolly pine / hardwood
E	-	407	Slash pine / hardwood
E	-	409	Other pine / hardwood
-	**-**	**500**	**Oak / hickory group**
E	-	501	Post oak / blackjack oak
E	-	502	Chestnut oak
E	-	503	White oak / red oak / hickory
E	-	504	White oak
E	-	505	Northern red oak
E	-	506	Yellow-poplar / white oak / northern red oak
E	-	507	Sassafras / persimmon
E	-	508	Sweetgum / yellow-poplar
E	-	509	Bur oak
E	-	510	Scarlet oak
E	-	511	Yellow-poplar
E	-	512	Black walnut
E	-	513	Black locust
E	-	514	Southern scrub oak
E	-	515	Chestnut oak / black oak / scarlet oak
E	-	516	Cherry / white ash / yellow-poplar
E	-	517	Elm / ash / black locust
E	-	519	Red maple / oak
E	-	520	Mixed upland hardwoods
-	**-**	**600**	**Oak / gum / cypress group**
E	-	601	Swamp chestnut oak / cherrybark oak
E	-	602	Sweetgum / Nuttall oak / willow oak
E	-	605	Overcup oak / water hickory
E	-	606	Atlantic white-cedar
E	-	607	Baldcypress / water tupelo
E	-	608	Sweetbay / swamp tupelo / red maple

East	West	Code	Forest type / type group
E	-	609	Baldcypress / pondcypress
-	**-**	**700**	**Elm / ash / cottonwood group**
E	-	701	Black ash / American elm / red maple
E	-	702	River birch / sycamore
E	W	703	Cottonwood
E	W	704	Willow
E	-	705	Sycamore / pecan / American elm
E	-	706	Sugarberry / hackberry / elm / green ash
E	-	707	Silver maple / American elm
E	-	708	Red maple / lowland
E	W	709	Cottonwood / willow
-	W	722	Oregon ash
-	**-**	**800**	**Maple / beech / birch group**
E	-	801	Sugar maple / beech / yellow birch
E	-	802	Black cherry
E	-	805	Hard maple / basswood
E	-	809	Red maple / upland
-	**-**	**900**	**Aspen / birch group**
E	W	901	Aspen
E	W	902	Paper birch
E	-	903	Gray birch
E	W	904	Balsam poplar
E	W	905	Pin cherry
-	**-**	**910**	**Alder / maple group**
-	W	911	Red alder
-	W	912	Bigleaf maple
-	**-**	**920**	**Western oak group**
-	W	921	Gray pine
-	W	922	California black oak
-	W	923	Oregon white oak
-	W	924	Blue oak
-	W	931	Coast live oak
-	W	933	Canyon live oak
-	W	934	Interior live oak
-	W	935	California white oak (valley oak)
-	**-**	**940**	**Tanoak / laurel group**
-	W	941	Tanoak

East	West	Code	Forest type / type group
-	W	942	California laurel
-	W	943	Giant chinkapin
-	**-**	**960**	**Other hardwoods group**
-	W	961	Pacific madrone
-	W	962	Other hardwoods
-	**-**	**970**	**Woodland hardwoods group**
-	W	971	Deciduous oak woodland
-	W	972	Evergreen oak woodland
-	W	973	Mesquite woodland
-	W	974	Cercocarpus (mountain brush) woodland
-	W	975	Intermountain maple woodland
-	W	976	Miscellaneous woodland hardwoods
-	**-**	**980**	**Tropical hardwoods group**
E	-	982	Mangrove
E	W	983	Palms
-	W	984	Dry forest
-	W	985	Moist forest
-	W	986	Wet and rain forest
-	W	987	Lower montane wet and rain forest
-	W	988	Cloud forest
-	W	989	Other tropical hardwoods
-	**-**	**990**	**Exotic hardwoods group**
E	-	991	Paulownia
E	-	992	Melaleuca
E	W	993	Eucalyptus
E	W	995	Other exotic hardwoods
-	**-**	**999**	**Nonstocked**

Forest type descriptions

Forest types are named for the predominant species (or group of species) on 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 (beginning with forest type code 401).

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, 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 cucumbertree. 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. SRS 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. SRS 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 caribea*). 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. caribea* 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. SRS 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 acres, 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. SRS 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, 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, 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, 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 SW 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, 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 comes in 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, 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 - a complex association of ponderosa pine, sugar pine, Douglas-fir, white fir, red fir, and incense-cedar. Generally, five or six conifer species are intermixed either as single trees or in small groups. Sites - Mixed conifer sites are often on east-facing slopes of the California Coast Range and on the west-facing and higher elevation east-facing slopes of the Oregon Cascades and Sierra Nevadas.

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. SRS 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, 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. SRS 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, 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, 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, cucumbertree, 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. SRS 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, cucumbertree, 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, green ash predominate. Found in North Central region, unknown in 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 flood plains 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, 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 flood plains 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 - North includes gray birch, pitch pine, hemlock, blackgum, and red maple. South 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, Ogechee 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 flood plains 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, hackberry, and boxelder. Sites - low ridges and flats in flood plains.

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, 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, 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, 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, red alder. Sites - Flat interior valleys, gently sloping stream bottoms, and moderate to steep slopes; favors moist, well-drained soils of river terraces and flood plains, 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, 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, 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, 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., and 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 hophornbeam, 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. SRS 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 royenii* (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 ricksecker 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 morototonii* (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 morototonii (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 garciniifolia* 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-leafed 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.