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Forest Service

North Central Research Station

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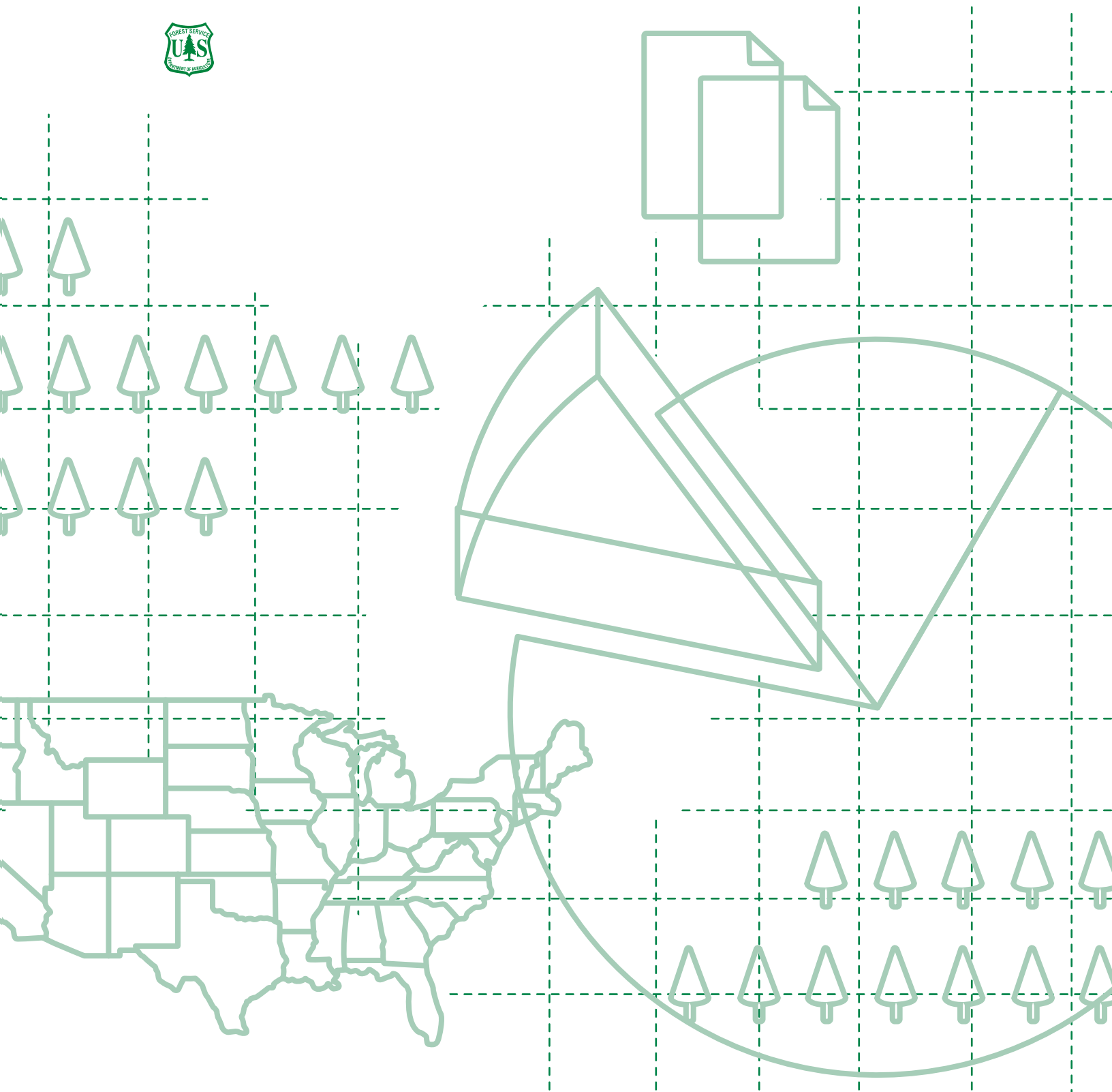
The 2002 RPA Plot Summary Database Users Manual

Patrick D. Miles, John S. Vissage, and W. Brad Smith



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Describes the structure of the RPA 2002 Plot Summary database and provides information on generating estimates of forest statistics from these data. The RPA 2002 Plot Summary database provides a consistent framework for storing forest inventory data across all ownerships across the entire United States. The data represents the best available data as of October 2001.

KEY WORDS: RPA, inventory, forest statistics, information management, data processing

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Foreword

Forest Inventory and Analysis (FIA) is a continuing endeavor mandated by Congress in the Forest and Rangeland Renewable Resources Planning Act (RPA) of 1974 and the McSweeney-McNary Forest Research Act of 1928. FIA's primary objective is to determine the extent, condition, volume, growth, and depletions of timber on the Nation's forest land. RPA reports are generated every 5 years. This manual describes the database used to produce the tables in the report entitled "Forest Resources of the United States, 2002" (Smith *et al.*).

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The 2002 RPA Plot Summary Database Users Manual

Patrick D. Miles, John S. Vissage, and W. Brad Smith

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Chapter 1 – The RPA Database

The original RPA Plot Summary database format was developed in 1987 to meet RPA reporting requirements (Waddell *et al.* 1989). At that time computer resources were at a premium and the cost of data storage was prohibitive. For these and other reasons, data were summarized and stored at the plot level rather than the tree level even though individual tree data existed for most of the forest area of the United States.

Beginning in 1995 the FIA program began collecting tree information on all forest land across the entire Nation. Once tree data are available for all States, the Forest Inventory and Analysis Database (FIADB) will be the primary database for reporting RPA statistics. The FIADB (Miles *et al.* 2001) contains all plot and tree measurements collected by the FIA program -— not just data summarized to the plot level. Although the RPA Summary Database is able to report the volume of softwoods, the FIADB, with its tree data, can report the volume of softwoods by individual tree characteristics such as species and diameter class. Although not as flexible as the FIADB, the RPA Plot Summary Database is much easier to work with and is the only format available for exploring long-term trends in the forest resources of the United States.

Data for the 2002 RPA were gathered from several different sources (appendix A). Tree data were available for the 48 coterminous States and southeast Alaska, but not for Hawaii or interior Alaska. Data were collected primarily by FIA units except for some of the lands administered by the National Forest System in California, Colorado, Idaho, Nevada, Oregon, Washington, and Wyoming.

Data in RPA Plot Summary Database format are available through the Internet at http://www.fia.fs.fed.us. This is the Internet address for the Forest Inventory and Analysis national program and should remain unchanged for the immediate future. On this page there is a link to "Online databases." Also available at this Web site will be instructions for obtaining a CD-ROM containing the RPA Plot Summary Database and a Windows™ based program called the RPA Data Wiz. The RPA Data Wiz program allows users to easily generate reports and graphics on the forest resources of the United States.

Chapter 2 provides detailed documentation of the database. Chapter 3 presents algorithms on how to compute estimates of area; current timber volume; biomass; number of trees; average annual growing-stock growth; and mortality. Timber removals estimates for the RPA are derived from timber product output studies (Johnson 2001).

Chapter 2 – Database Structure

There are two tables in the RPA Database (RPA_PLOT2002 and SPDBH_2002). The format of these tables is presented in the following pages. For each column or variable in a table, there is a section that describes the unabbreviated name and other details of the variable. Coded items also include a list of the codes and their meanings.

The RPA_PLOT2002 table provides information about a condition. In 95 percent of cases a sample plot will have one condition. Sample plots will have multiple conditions only when there is a discrete change in one of the following landscape attributes: land use, reserved status, ownership group, forest type, stand-size class, stand origin, and stand density.

Data for the 1987 and 1992 RPA Assessments were submitted in similar formats. Beginning with the 1997 RPA Assessment, data were usually converted to this format from tree-level databases such as the Eastwide (Hansen *et al.* 1992), Westwide (Woudenberg and Farrenkopf 1995), or FIADB. For the 2002 RPA Assessment, all of the data except for interior Alaska and Hawaii were derived from data in FIADB format (see appendix A). Appendix B contains information on state, survey unit, and county codes.

The SPDBH_2002 table contains tree species group volume information summarized at the State level by ownership and diameter classes. This table is used solely to produce reports on species group volumes by State, ownership class, and diameter class. Appendix C contains a listing of the species group names and how they were derived from the FIADB.

Plot Table (Oracle table name is RPAPLOT_2002)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	PID	NUMBER (8)	Number	
2.	RECNUM	NUMBER (13)	PLOT	X
3.	YEAR	NUMBER (4)	Year (YYYY)	
4.	RSID	NUMBER (2)	Coded	
5.	INVSOURCE	NUMBER(1)	Coded	
6.	SRCDATE	NUMBER (4)	Year (YYYY)	
7.	STATE	NUMBER (2)	Coded	
8.	STATEABB	VARCHAR (2)	Coded	
9.	SUBREGION	NUMBER (1)	Coded	
10.	RPA_REGION	NUMBER (1)	Coded	
11.	RPA_SUBREGION	NUMBER (1)	Coded	
12.	ADMINFOR	NUMBER (2)	Coded	
13.	ADMINFORU	NUMBER (4)	Coded	

(table continued on next page)

Plot Table (Oracle table name is RPAPLOT_2002) *continued*

	Column name	Oracle data type	Value or unit of measure	Key data item
14.	LANDCC	NUMBER (2)	Coded	
15.	RESERCLASS	NUMBER (1)	Coded	
16.	SPCLASS	NUMBER (2)	Coded	
17.	FORCODE	NUMBER (1)	Coded	
18.	OWNGROUP	NUMBER (2)	Coded	
19.	OWNER	NUMBER (2)	Coded	
20.	AEF	NUMBER (8)	Acres	
21.	VEF	NUMBER (7)	Number	
22.	FORTYPE	NUMBER (3)	Coded	
23.	LOCALTYPE	NUMBER (3)	Coded	
24.	STANDORIGIN	NUMBER (2)	Coded	
25.	SSCLASS	NUMBER (1)	Coded	
26.	STDIAM	NUMBER (5,2)	Coded	
27.	AGECLASS	NUMBER (3)	Years	
28.	STOCKPC	NUMBER (2)	Coded	
30.	LOCALINFO1	NUMBER (1)	Coded	
31.	LOCALINFO2	NUMBER (1)	Coded	
32.	LOCALINFO3	NUMBER (1)	Coded	
33.	LOCALINFO4	NUMBER (1)	Coded	
34.	LOCALINFO5	NUMBER (1)	Coded	
35.	LOCALINFO6	NUMBER (1)	Coded	
36.	BDFTSW	NUMBER (6)	Number	
37.	BDFTHW	NUMBER (6)	Number	
38.	BDFT	NUMBER (6)	Number	
39.	BDFTSW__LOCAL	NUMBER (6)	Number	
40.	BDFTHW__LOCAL	NUMBER (6)	Number	
41.	BDFT__LOCAL	NUMBER (6)	Number	
42.	LOCAL_RULE	NUMBER (2)	Coded	
43.	CUBICSW	NUMBER (5)	Number	
44.	CUBICHW	NUMBER (5)	Number	
45.	CUBIC	NUMBER (5)	Number	
46.	CULLSW	NUMBER (4)	Number	
47.	CULLHW	NUMBER (4)	Name	
48.	CULL	NUMBER (4)	Number	
49.	DEADSW	NUMBER (4)	Number	

(table continued on next page)

Plot Table (Oracle table name is RPAPLOT_2002) *continued*

	Column name	Oracle data type	Value or unit of measure	Key data item
50.	DEADHW	NUMBER (4)	Number	
51.	DEAD	NUMBER (4)	Number	
52.	MORTSW	NUMBER (4)	Number	
53.	MORTHW	NUMBER (4)	Number	
54.	MORT	NUMBER (4)	Number	
55.	GROWTHSW	NUMBER (4)	Number	
56.	GROWTHHW	NUMBER (4)	Number	
57.	GROWTH	NUMBER (4)	Number	
58.	COUNTY	NUMBER (3)	Coded	
59.	CONDITION	NUMBER (1)	Coded	
60.	TSOURCE	NUMBER (2)	Coded	
61.	BIOBOLESW	NUMBER (6)	Number	
62.	BIOBOLEHW	NUMBER (7)	Number	
63.	BIOBOLE	NUMBER (7)	Number	
64.	BIOSAPSSW	NUMBER (6)	Number	
65.	BIOSAPSHW	NUMBER (6)	Number	
66.	BIOSAPS	NUMBER (6)	Number	
67.	BALIVE	NUMBER (9,1)	Number	
68.	LAT	NUMBER (6,2)	Degrees	
69.	LON	NUMBER (6,2)	Degrees	
70.	CONDPROP	NUMBER (5,4)	Number	
71.	FHMHEXID	NUMBER (6)	Coded	
72.	BALIVE_5	NUMBER (9,1)	Number	
73.	TPA_5	NUMBER (9,3)	Number	
74.	DWD	NUMBER (9,3)	Number	
75.	TPA_1	NUMBER (9,3)	Number	
76.	STDIAM_1	NUMBER (5,2)	Number	
77.	ECOSUBCD	VARCHAR2 (6)	Coded	
78.	CONGCD	NUMBER (4)	Coded	
79.	BIOSTUMPTOPSW	NUMBER (6)	Number	
80.	BIOSTUMPTOPHW	NUMBER (7)	Number	
81.	BIOSTUMPTOP	NUMBER (7)	Number	
82.	BIOSALVDEADSW	NUMBER (6)	Number	
83.	BIOSALVDEADHW	NUMBER (6)	Number	
84.	BIOSALVDEAD	NUMBER (6)	Number	

1. PID — Plot ID. Only used in Hawaii. Used to tie plot back to original field plot data.

2. RECNUM — Record number. Unique plot identifier. Record numbers for the 48 contiguous States and southeast Alaska were generated by combining State, unit, county, plot, and condition information to form a unique identifier. RECNUM= (state*100000000000) + (unit*1000000000) + (county*1000000) + (plot*10) + condition.

3. YEAR — RPA Year. This is set to 2002 for all records in the 2002 RPA plot summary database.

4. RSID — Region or station identification number. This coded value identifies which of the 16 locations submitted the record.

Code	Region or Station	Code	Region or Station
1	Region 1	9	Region 9
2	Region 2	10	Region 10
3	Region 3	22	Rocky Mountain Research Station
4	Region 4	23	North Central Research Station
5	Region 5	24	Northeastern Research Station
6	Region 6	26	Pacific Northwest Research Station
7	Bureau of Land Management (Oregon)	27	Alaska – PNW Research Station
8	Region 8	33	Southern Research Station

5. INVSOURCE — Source of the inventory data. A coded value identifying the source of the data. Record sources include variations of original inventory data and inventory data updated by bookkeeping or projection. Code 1 is used for all State inventories in the 2002 RPA except for parts of Alaska and Hawaii.

Code	Description
1	PLOT LEVEL - Original Eastwide/Westwide or FIADB format
2	PLOT LEVEL - Updated Eastwide/Westwide standard format
3	PLOT LEVEL - Original inventory data
4	PLOT LEVEL - Updated inventory data
5	STAND LEVEL - Original inventory data
6	STAND LEVEL - Updated inventory data
7	STRATUM LEVEL - Original inventory data
8	STRATUM LEVEL - Updated inventory data

6. SRCDATE — Source date. The year the field plot was measured.

7. STATE — State code. The State in which the plot is located.

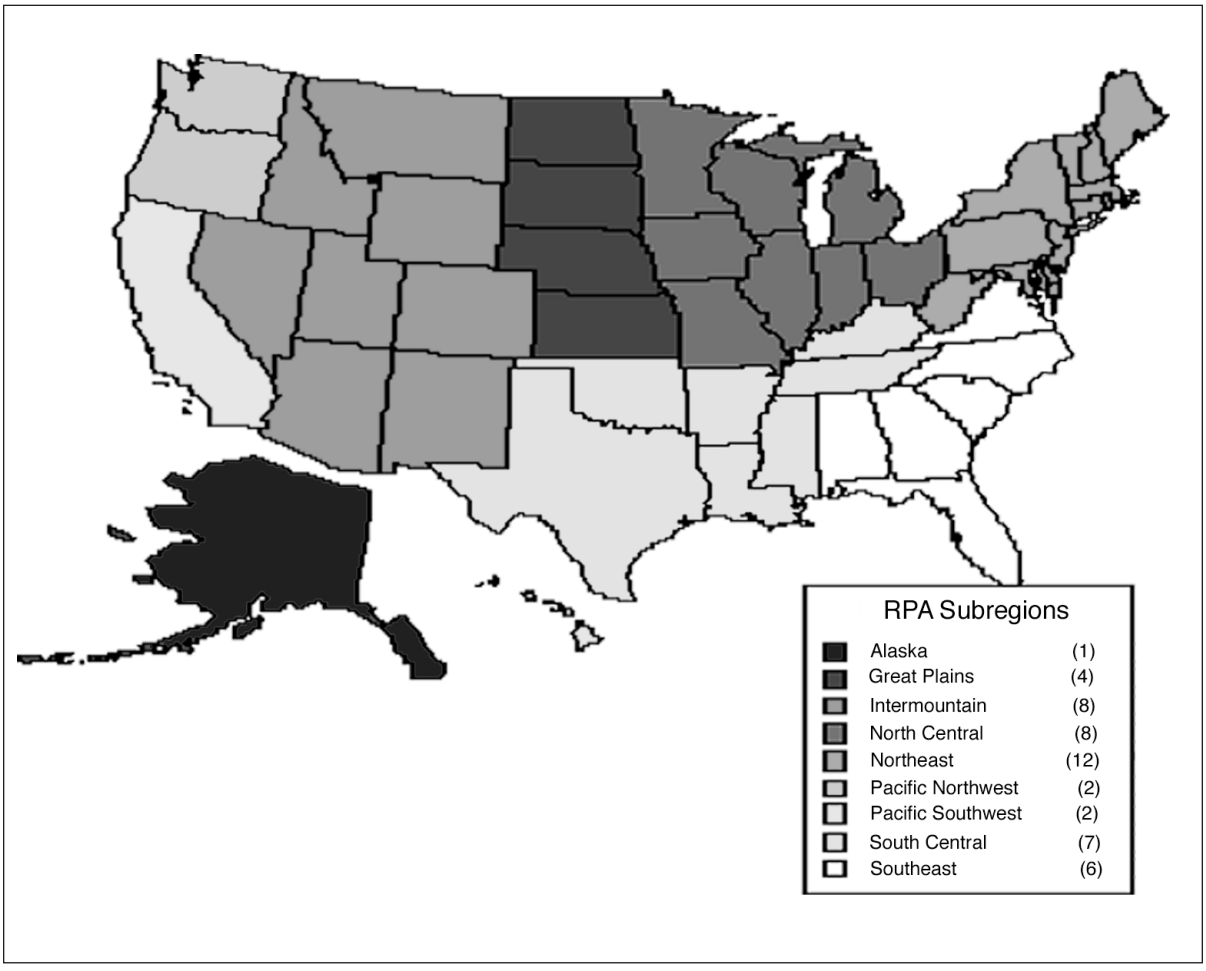
Code	Stateabb	State Name	Code	Stateabb	State Name
01	AL	Alabama	29	MO	Missouri
02	AK	Alaska	30	MT	Montana
04	AZ	Arizona	31	NE	Nebraska
05	AR	Arkansas	32	NV	Nevada
06	CA	California	33	NH	New Hampshire
08	CO	Colorado	34	NJ	New Jersey
09	CT	Connecticut	35	NM	New Mexico
10	DE	Delaware	36	NY	New York
11	DC	District of Columbia	37	NC	North Carolina
12	FL	Florida	38	ND	North Dakota
13	GA	Georgia	39	OH	Ohio
15	HI	Hawaii	40	OK	Oklahoma
16	ID	Idaho	41	OR	Oregon
17	IL	Illinois	42	PA	Pennsylvania
18	IN	Indiana	44	RI	Rhode Island
19	IA	Iowa	45	SC	South Carolina
20	KS	Kansas	46	SD	South Dakota
21	KY	Kentucky	47	TN	Tennessee
22	LA	Louisiana	48	TX	Texas
23	ME	Maine	49	UT	Utah
24	MD	Maryland	50	VT	Vermont
25	MA	Massachusetts	51	VA	Virginia
26	MI	Michigan	53	WA	Washington
27	MN	Minnesota	54	WV	West Virginia
28	MS	Mississippi	55	WI	Wisconsin
			56	WY	Wyoming

8. STATEABB — State abbreviation. Two-character identifier for each State (see above).

9. SUBREGION — Subregion code. The subregion code is always equal to 1 except in Alaska, Oregon, South Dakota, and Washington where values of 2 (East) and 3 (West) are used.

10. RPA_REGION — RPA Region. Grouping of States into four regions (Northern=1, Southern=2, Rocky Mountain=3, and Pacific Coast=4) for reporting purposes (see definition and map for RPA_SUBREGION below)

11. RPA_SUBREGION RPA Subregion. Grouping of States into nine subregions for reporting purposes. Subregions 1 and 2 belong in the Northern Region, subregions 3 and 4 belong in the Southern Region, subregions 5 and 6 belong in the Rocky Mountain Region, and Regions 7, 8, and 9 belong in the Pacific Coast Region.



12. ADMINFOR

Administrative forest. A two-digit code identifying the administrative forest within a region where the inventoried land is located.

Region	Adminfor	National Forest Name
0	00	Non-national forest
1	02	Beaverhead
1	03	Bitterroot
1	04	Idaho Panhandle
1	05	Clearwater
1	08	Custer
1	09	Deerlodge
1	10	Flathead
1	11	Gallatin
1	12	Helena
1	14	Kootenai
1	15	Lewis and Clark
1	16	Lolo
1	17	Nez Perce
1	20	Cedar River NGL
1	21	Little Missouri NGL
1	22	Sheyenne NGL
1	24	Grand River NGL
1	99	Other R1
2	02	Bighorn
2	03	Black Hills
2	04	Grand Mesa-Uncompahgre-Gunnison
2	06	Medicine Bow
2	07	Nebraska
2	09	Rio Grande
2	10	Arapaho-Roosevelt
2	11	Routt
2	12	Pike and San Isabel
2	13	San Juan
2	14	Shoshone
2	15	White River
2	17	Cimarron NGL
2	18	Commanche NGL
2	19	Pawnee NGL
2	20	Oglala NGL
2	21	Buffalo Gap NGL
2	22	Fort Pierre NGL
2	23	Thunder Basin NGL
2	99	Other R2
3	01	Apache-Sitgreaves
3	02	Carson
3	03	Cibola
3	04	Coconino
3	05	Coronado
3	06	Gila
3	07	Kaibab
3	08	Lincoln
3	09	Prescott
3	10	Santa Fe
3	12	Tonto
3	99	Other R3
4	01	Ashley
4	02	Boise
4	03	Bridger-Teton
4	05	Caribou
4	06	Challis
4	07	Dixie
4	08	Fishlake
4	09	Humboldt
4	10	Manti-La Sal
4	12	Payette
4	13	Salmon
4	14	Sawtooth
4	15	Targhee
4	17	Toiyabe
4	18	Uinta
4	19	Wasatch-Cache
4	20	Desert Range Exp St
4	99	Other R4
5	01	Angeles
5	02	Cleveland
5	03	Eldorado
5	04	Inyo
5	05	Klamath
5	06	Lassen
5	07	Los Padres
5	08	Mendocino
5	09	Modoc
5	10	Six Rivers
5	11	Plumas
5	12	San Bernadino
5	13	Sequoia
5	14	Shasta-Trinity
5	15	Sierra
5	16	Stanislaus
5	17	Tahoe
5	19	Lake Tahoe Basin

(table continued on next page)

Region	Adminfor	National Forest Name	Region	Adminfor	National Forest Name
5	99	Other R5	8	09	Ouachita
6	01	Deschutes	8	10	Ozark and St. Francis
6	02	Fremont	8	11	NFS in North Carolina
6	03	Gifford Pinchot	8	12	Francis Marion-Sumter
6	04	Malheur	8	13	NFS in Texas
6	05	Mt. Baker-Snoqualmie	8	14	Jefferson
6	06	Mt. Hood	8	16	Caribbean
6	07	Ochoco	8	99	Other R8
6	08	Okanogan	9	02	Chequamegon
6	09	Olympic	9	03	Chippewa
6	10	Rogue River	9	04	Huron-Manistee
6	11	Siskiyou	9	05	Mark Twain
6	12	Siuslaw	9	06	Nicolet
6	14	Umatilla	9	07	Ottawa
6	15	Umpqua	9	08	Shawnee
6	16	Wallowa-Whitman	9	09	Superior
6	17	Wenatchee	9	10	Hiawatha
6	18	Willamette	9	11	Hoosier
6	20	Winema	9	18	Wayne
6	21	Colville	9	19	Allegheny
6	99	Other R6	9	20	Green Mountain
8	01	NFS in Alabama	9	21	Monongahela
8	02	Daniel Boone	9	22	White Mountain
8	03	Chattahoochee-Oconee	9	99	Other R9
8	04	Cherokee	10	02	Tongass-Stikine
8	05	NFS in Florida	10	03	Tongass-Chatham
8	06	Kisatchie	10	04	Chugach
8	07	NFS in Mississippi	10	05	Tongass-Ketchikan
8	08	George Washington	10	99	Other R10

13. ADMINFORU — Administrative Unit. A four-digit code identifying the National Forest Service Region/Forest where the inventoried land is located. The first two digits are the region code and the second two digits are the forest code (for codes see ADMINFOR above).

14. LANDCC

Land Use Class. Indicates the basic land cover.

Code	Description
-1	Denied access/hazardous/not in sample.
20	Forest land: Forest land is defined as lands with at least a stocking of 10 (or at least 5 percent cover in chaparral type) of live forest trees of any size, or formerly having such tree cover, and not currently developed for nonforest use. The minimum area for classification of forest land is usually 1 acre with a minimum width of 120 feet stem-to-stem. Forested strips must be at least 120 feet wide for a continuous length of at least 363 feet to meet the acre threshold. Unimproved roads and trails as well as clearings in forest areas are classified as forest if less than 120 feet wide or smaller than 1 acre.
60	Nonforest land: Land that has never supported forests or land formerly forested but now developed for uses such as agriculture (including Christmas tree plantations, orchards, nurseries, and agroforestry), residences, commerce, industry, city parks, or improved roads. If located within forest areas, unimproved roads and nonforested strips must be more than 120 feet wide. Clearings and other openings in a forest area must be more than 1 acre to qualify as nonforest land.
91	Census water: Streams, sloughs, estuaries, and canals more than 200 feet wide, and lakes, reservoirs, and ponds more than 4.5 acres in size (1990 census definition).
92	Noncensus water: Streams, sloughs, estuaries, and canals between 30 and 200 feet, and lakes, reservoirs, and ponds between 1 and 4.5 acres in area. This definition was used in the 1990 census and applied when the data became available. Earlier inventories defined noncensus water differently.

15. RESERCLASS

Reserved class. Reserved land is land withdrawn by law(s) prohibiting the management of the land for wood products.

Code	Description
1	Unreserved forest land: All private forest lands; and public forest lands where the harvest of trees is not prohibited by statute or administrative regulation.
2	Non-National Forest System reserved forest land: Lands that have statutory or administrative restrictions prohibiting the harvest of trees. Examples include forest land within national parks, monuments, national wilderness preservation system areas outside the national forests, State parks.
3	National Forest System reserved forest land/non-wilderness: (Not used in 2002 RPA) In 1997, this code was used to identify all reserved or withdrawn National Forest System forest lands not within the national wilderness preservation system. Examples include primitive areas, scenic research areas, scenic areas, wild and scenic rivers, recreation areas, game refuges, monument areas, and historic areas.
4	National Forest System reserved forest land: National Forest System forest lands that have statutory or administrative restrictions prohibiting the harvest of trees. Examples include land within the national wilderness preservation system or State-designated wilderness areas.

16. SPCLASS

Site productivity class. A classification of forest land in terms of inherent capacity to grow crops of industrial wood. The class identifies the average potential growth in cubic feet/acre/year and is based on the culmination of mean annual increment of fully stocked natural stands.

Code	Description
1	225-999 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	< 20 Cubic feet/acre/year
8	Unproductive timberland

17. FORCODE

Forest land code. Used to differentiate between productive/unproductive and reserved/nonreserved forest land.

Code	Description
0	Nonforest
1	Productive non-reserved forest land (Timberland)
2	Productive reserved forest land
3	Unproductive non-reserved forest land
4	Unproductive reserved forest land

18. OWNGROUP

Ownership group. A broad grouping of ownership classes.

Code	Recreation Use
1	National forest land: Federal lands designated by Executive order or statute as national forests or purchase units, and other lands under the administration of the Forest Service including experimental areas and Bankhead-Jones Title III lands.
2	Other public land: Publicly owned lands other than national forest lands.
3	Forest industry land: Lands owned by companies or individuals operating wood-using plants (includes Indian lands if they qualify as industry).
4	Nonindustrial private land: All private lands except those owned by forest industry (includes nonindustrial Indian lands).
5	Unknown ownership: Owner group not recorded.

19. OWNER

Owner class code. Indicates the class in which the landowner (at the time of the inventory) belongs.

Code	Owner
11	National forest
12	Bureau of Land Management. Federal lands administered by the Bureau of Land Management, U.S. Department of the Interior.
14	Other Federal agencies: Federal lands other than lands administered by the Forest Service or BLM.
15	State: Lands owned by State governments, or lands leased by State governmental units for more than 50 years.
16	County and municipal: Lands owned by county or municipal agencies, or lands leased by these agencies for more than 50 years.
20	Forest industry: Lands owned by companies, tribes, or individuals operating wood-using plants.
60	Other private – corporate: Lands owned by private corporations other than forest industry.
70	Other private – individual: Lands owned by individuals, including farmers.
80	Other private-corporate–leased: Lands owned by corporations but leased to forest industry.
90	Other private-individual–leased: Lands owned by individuals but leased to forest industry.
99	Unknown: Ownership not recorded or unavailable. This code is legal for nonforest land and water cover classes only.

20. AEF

Area Expansion Factor. The number of acres the sample plot represents for making current estimates of area. The sum of AEF over all plot records for a particular State will closely match the area reported for that State by the Bureau of Census in 1990.

21. VEF

Volume Expansion Factor. The number of acres the sample plot represents for making current estimates of volume and biomass.

22. FORTYPE

Forest type group. The forest cover type of the inventoried stand, based on the tree species forming a plurality of the stocking within the stand. The first digit of this three-digit code represents either eastern (1) or western (2) type groups. The second and third digits are the historic RPA forest type codes.

Code	Forest Type Group Name
100	White - red - jack pine
110	Spruce - fir
120	Longleaf - slash pine
130	Loblolly - shortleaf pine
140	Oak - pine
150	Oak - hickory
160	Oak - gum - cypress
170	Elm - ash - cottonwood
180	Maple - beech - birch
190	Aspen - birch
198	Other forest types
199	Nonstocked
200	Douglas-fir

Code	Forest Type Group Name
210	Ponderosa pine
220	Western white pine
230	Fir - spruce
240	Hemlock - Sitka spruce
250	Larch
260	Lodgepole pine
270	Redwood
280	Other hardwoods
290	Unclassified and other forest types
293	Pinyon - juniper
297	Chaparral
299	Nonstocked

23. LOCALTYPE

Local forest type. Available for every State except Hawaii and interior Alaska.

EASTERN FOREST TYPES

100	WHITE-RED-JACK PINE TYPE GROUP
101	Jack pine
102	Red pine
103	White pine
104	White pine - hemlock
105	Hemlock
211	Ponderosa pine
110	SPRUCE-FIR TYPE GROUP
111	Balsam fir
112	Black spruce
113	Red spruce - Balsam fir
114	Northern white-cedar
115	Tamarack
116	White spruce
120	LONGLEAF-SLASH PINE TYPE GROUP
121	Longleaf pine
122	Slash pine
130	LOBLOLLY-SHORTLEAF PINE TYPE GROUP
131	Loblolly pine
132	Shortleaf pine
133	Virginia pine
134	Sand pine
135	Eastern redcedar
136	Pond pine
137	Spruce pine
138	Pitch pine
139	Table-mountain pine

(table continued on next page)

EASTERN FOREST TYPES *(continued)*

140 OAK-PINE TYPE GROUP
141 White pine - northern red oak - white ash
142 Eastern redcedar - hardwood
143 Longleaf pine - scrub oak
144 Shortleaf pine - oak
145 Virginia pine - southern red oak
146 Loblolly pine - hardwood
147 Slash pine - hardwood
149 Other oak - pine

150 OAK-HICKORY TYPE GROUP
151 Post oak, black oak or bear oak
152 Chestnut oak
153 White oak - red oak - hickory
154 White oak
155 Northern red oak
156 Yellow poplar - white oak - northern red oak
157 Southern scrub oak
158 Sweetgum - yellow poplar
159 Mixed hardwoods

160 OAK-GUM-CYPRESS TYPE GROUP
161 Swamp chestnut oak - cherrybark oak
162 Sweetgum - Nuttall oak - willow oak
163 Sugarberry - American elm - green ash
165 Overcup oak - water hickory
166 Atlantic white cedar
167 Baldcypress - water tupelo
168 Sweetbay - swamp tupelo - red maple
169 Palm-mangrove-other tropical

170 ELM-ASH-COTTONWOOD TYPE GROUP
171 Black ash - American elm - Red maple
172 River birch - sycamore
173 Cottonwood
174 Willow
175 Sycamore - pecan - American elm
176 Red maple-lowland
179 Mixed lowland hardwoods

180 MAPLE-BEECH-BIRCH TYPE GROUP
181 Sugar maple - beech - yellow birch
182 Black cherry
183 Black walnut
184 Red maple-northern hardwoods
187 Red maple-upland
188 Northern hardwood-reverting field
189 Mixed northern hardwoods

190 ASPEN-BIRCH TYPE GROUP
191 Aspen
192 Paper birch
194 Balsam poplar

198 OTHER FOREST TYPES

199 NONSTOCKED

WESTERN FOREST TYPES

200 DOUGLAS-FIR TYPE GROUP
201 Douglas-fir
202 Douglas-fir - Western hemlock
203 Port-Orford-cedar - Douglas-fir

210 PONDEROSA PINE TYPE GROUP
211 Ponderosa pine
212 Jeffrey pine
213 Ponderosa pine - sugar pine - fir

220 WESTERN WHITE PINE TYPE GROUP
221 Western white pine

230 FIR-SPRUCE TYPE GROUP
116 White spruce (in Alaska)
231 White fir and grand fir
232 Red fir
234 Pacific silver fir - hemlock
235 Engelmann spruce
236 Engelmann spruce - subalpine fir

(table continued on next page)

WESTERN FOREST TYPES *(continued)*

240	HEMLOCK-SITKA SPRUCE TYPE GROUP
241	Western redcedar
242	Sitka spruce
247	Mountain hemlock - subalpine fir
248	Western hemlock
250	LARCH TYPE GROUP
255	Larch - Douglas-fir
256	Grand fir - larch - Douglas-fir
257	Ponderosa pine - larch - Douglas-fir
260	LODGEPOLE PINE TYPE GROUP
261	Lodgepole pine
270	REDWOOD TYPE GROUP
271	Redwood
280	OTHER HARDWOODS TYPE GROUP
281	Red alder
282	Poplar - birch
283	Aspen
284	California black oak
285	Cottonwood - willow
286	Canyon live oak
287	Oak - Madrone
288	Other oaks
289	Ohia
192	Paper birch
290	OTHER FOREST TYPES (includes Arizona cypress-western juniper)
112	Black spruce (in Alaska)
291	Coulter pine
292	Digger pine - oak
294	Knobcone pine
295	Bristlecone pine
296	Whitebark pine
298	Limber pine
293	PINYON-JUNIPER
297	CHAPARRAL
299	NONSTOCKED

24. STANDORIGIN Stand origin code. Method of stand regeneration for the trees in the condition. An artificially regenerated stand is established by planting or artificial seeding.

Code	Stand origin
-1	Unknown
1	Natural stands
2	Clear evidence of artificial regeneration

25. SSCLASS

Stand-size class code. Classification of the predominant (based on stocking) diameter class of live trees within the condition. Large diameter trees are at least 11.0 inches diameter for hardwoods and at least 9.0 inches diameter for softwoods. Medium diameter trees are at least 5.0 inches diameter but not as large as large diameter trees. Small diameter trees are less than 5.0 inches diameter. Chaparral communities, land consisting of chapparal with all live stocking less than 10 and at least 5 percent, are considered nonstocked.

Code	Stand-size class
-1	Unknown (only allowed for nontimberland plots)
1	Nonstocked: Forest land with all live stocking less than 10
2	Small diameter: Stands with an all live stocking value of at least 10 (base 100) on which at least 50 percent of the stocking is in small diameter trees
3	Medium diameter: Stands with an all live stocking of at least 10 (base 100); with more than 50 percent of the stocking in medium and large diameter trees; and with the stocking of large diameter trees less than the stocking of medium diameter trees
4	Large diameter: Stands with an all live stocking of at least 10 (base 100); with more than 50 percent of the stocking in medium and large diameter trees; and with the stocking of large diameter trees equal to or greater than the stocking of medium diameter trees

26. STDIAM

Mean stand diameter. Value of the mean stand diameter of the main stand (which is composed of all trees >= 5" d.b.h.). Estimated by calculating the quadratic mean diameter (except for Hawaii and interior Alaska).

27. AGECLASS

Stand age. Average total age, to the nearest year, of the trees (plurality of all live trees not overtopped) in the predominant stand-size class of the condition, determined using local procedures. Age is difficult to measure and therefore stand age may have large measurement errors. Nonstocked stands are recorded as 0. Any inventory dated 1995 or later will contain stand ages recorded to the nearest year. For some older inventories, stand age was recorded in 10- or 20-year classes (CT, DE, KY, MD, NH, PA, RI, VT, and WV) for stands less than 100 years old, 20-year age classes for stands between 100 and 200 years, and 100-year age classes for stands older than 200 years. The value recorded is the midpoint of the age class. Mixed age classes were allowed in older inventories (AR, CT, KY, LA, ME, MA, MS, NH, NY, OH, OK, PA, RI, TX, VT, and WV) and were assigned a value of –999.

28. STOCKPC

Percent stocking class. A coded value indicating the percent stocking class for growing stock in the stand; the 10-percent interval classes range from nonstocked to 100 percent stocking, relative stocking basis. All 10 codes were used for Hawaii and interior Alaska. Only codes 1, 3, 5, 7, 9, and –1 were used for the 48 contiguous States and southeast Alaska (the STOCKPC data for these States came from the GSSTKCD variable in the FIADB, which has fewer classes than STOCKPC). For the 48 contiguous States and southeast Alaska, a code of 1 is equivalent to Nonstocked, 3 Poorly stocked, 5 Medium stocked, 7 Fully stocked, 9 Overstocked, and –1 Data unavailable.

29. TREATOPP

Treatment opportunity class code. Identifies the physical opportunity to improve stand conditions by applying management practices. This variable is mandatory for nonindustrial private timberland but may not be available for other ownerships. No values available for AL, AZ, CO, HI, ID, MT, NM, NV, SC, TN, UT, and WY.

Code	Treatment opportunity class
1	Regeneration without site preparation: The area is characterized by the absence of a manageable stand because of inadequate stocking of growing stock. Growth will be much below the potential for the site if the area is left alone. Prospects are not good for natural regeneration. Artificial regeneration will require little or no site preparation.
2	Regeneration with site preparation: The area is characterized by the absence of a manageable stand because of inadequate stocking of growing stock. Growth will be much below the potential for the site if the area is left alone. Either natural or artificial regeneration will require site preparation.
3	Stand conversion: The area is characterized by stands of undesirable, chronically diseased, or off-site (found where not normally expected) species. Growth and quality will be much below the potential for the site if the area is left alone. The best prospect is to convert the area to a different forest type or species.
4	Thinning seedlings and saplings: The stand is characterized by a dense stocking of growing stock. Stagnation appears likely if left alone. Stocking must be reduced to help crop trees attain dominance.
5	Thinning poletimber: The stand is characterized by a dense stocking of growing stock. Stocking must be reduced to prevent stagnation or to confine growth to selected, high-quality crop trees.
6	Other stocking control: The stand is characterized by an adequate stocking of seedlings, saplings, and poletimber growing stock, mixed with competing vegetation either overtopping or otherwise inhibiting the development of crop trees. The undesirable material must be removed to release overtopped trees, to prevent stagnation, or to improve composition, form, or growth of the residual stand.
7	Other intermediate treatments: The stand would benefit from other special treatments, such as fertilization to improve the growth potential of the site, and pruning to improve the quality of individual crop trees.
8	Clearcut harvest: The area is characterized by a mature or overmature sawtimber stand of sufficient volume to justify a commercial harvest. The best prospect is to harvest the stand and regenerate.

9	Partial cut harvest: The stand is characterized by poletimber- or sawtimber-size trees with sufficient merchantable volume for a commercial harvest, which will meet intermediate stand treatment needs or prepare the stand for natural regeneration. The stand is of a favored species composition and may be even- or uneven-aged. Included are such treatments as commercial thinning, seed tree, or shelterwood regeneration, and use of the selection system to maintain an uneven-aged stand.
10	Salvage harvest: The stand is characterized by excessive damage to merchantable timber because of fire, insects, disease, wind, ice, or other destructive agents. The best prospect is to remove damaged or threatened material.
11	No treatment: No silvicultural treatment is needed.
-1	Not available/unclassified.

30. LOCALINFO1 — Local info 1. Only used in Hawaii. Class codes of 0 and 7.

31. LOCALINFO2 — Local info 2. Only used in Hawaii. Class codes of 0 and 9.

32. LOCALINFO3 — Local info 3. Only used in Hawaii. Class codes of 0, 3, and 7.

33. LOCALINFO4 — Local info 4. Only used in Hawaii. Class codes of 0, and 8.

34. LOCALINFO5 — Local info 5. Not used.

35. LOCALINFO6 — Local info 6. Not used.

36. BDFTSW — Softwood board foot volume (International 1/4-inch rule). The net volume/acre (board feet) of softwood growing stock. Trees must be >= 9 inches d.b.h. The minimum saw log top is 7 inches diameter outside bark. Available only for timberland plots.

37. BDFTHW — Hardwood board foot volume (International 1/4-inch rule). The net volume/acre (board feet) of hardwood growing stock. Trees must be >= 11 inches d.b.h. The minimum saw log top is 9 inches diameter outside bark. Available only for timberland plots.

38. BDFT — Board foot volume (International 1/4-inch rule). The net volume/acre (board feet) of softwood and hardwood growing stock. Available only for timberland plots.

39. BDFTSW_LOCAL — Softwood board foot volume (local rule). The net volume/acre (board feet) of softwood growing stock. Not used in the 2002 RPA.

40. BDFTHW_LOCAL — Hardwood board board foot volume (local rule). The net volume/acre (board feet) of softwood growing stock. Not used in the 2002 RPA.

41. BDFT_LOCAL — Board foot volume (local rule). The net volume/acre (board feet) of softwood and hardwood growing stock. Not used in the 2002 RPA.

42. LOCAL_RULE — Local Board foot rule. Identifies the rule used for the local volume estimation. Not used in the 2002 RPA.

Code	Local rule
1	Scribner - long log
2	Scribner - short log
3	Doyle
4	International 1/8"
5	local cubic

43. CUBICSW — Softwood cubic foot volume. Net volume/acre (cubic feet) of softwood growing stock. Trees must be >=5 inches d.b.h., to a minimum 4-inch diameter outside bark. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

44. CUBICHW — Hardwood cubic foot volume. Net volume/acre (cubic feet) of hardwood growing stock. Trees must be >=5 inches d.b.h., to a minimum 4-inch diameter outside bark. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

45. CUBIC — Cubic foot volume. Net volume/acre (cubic feet) of hardwood growing stock. Trees must be >=5 inches d.b.h., to a minimum 4- inch diameter outside bark. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

46. CULLSW — Softwood live cull volume. Net volume/acre (cubic feet) of live cull softwood trees; trees must be >=5 inches d.b.h. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

47. CULLHW — Hardwood live cull volume. Net volume/acre (cubic feet) of live cull hardwood trees; trees must be >=5 inches d.b.h. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

48. CULL — All live cull volume. Net volume/acre (cubic feet) of all live cull trees; trees must be >=5 inches d.b.h. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

49. DEADSW — Salvable dead softwood. Net volume/acre (cubic feet) of merchantable sound dead softwood trees – merchantability determined by regional standards. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

50. DEADHW — Salvable dead hardwood. Net volume/acre (cubic feet) of merchantable sound dead hardwood trees – merchantability determined by regional standards. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

51. DEAD — Salvable dead. Net volume/acre (cubic feet) of merchantable sound dead trees – merchantability determined by regional standards. Available for all forest land plots. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land).

52. MORTSW — Softwood mortality. Volume/acre (cubic feet) of annual mortality of softwood growing stock; trees must be >= 5 inches d.b.h. Available only for timberland plots.

53. MORTHW — Hardwood mortality. Volume/acre (cubic feet) of annual mortality of hardwood growing stock; trees must be >= 5 inches d.b.h. Available only for timberland plots.

54. MORT — Mortality. Volume/acre (cubic feet) of annual mortality of growing-stock trees; trees must be >= 5 inches d.b.h. Available only for timberland plots.

55. GROWTHSW — Net annual softwood growth. Net annual growth/acre (cubic feet) of softwood growing stock. Net growth is gross growth minus mortality minus negative cull increment plus positive cull increment. Negative cull increment occurs when growing-stock trees at time zero are reclassed as cull trees at time one. Positive cull increment is when trees classified as cull at time zero are reclassified as growing stock at time one. Available only for timberland plots.

56. GROWTHHW — Net annual hardwood growth. Net annual growth/acre (cubic feet) of hardwood growing stock. Net growth is gross growth minus mortality minus negative cull increment plus positive cull increment. Negative cull increment occurs when growing-stock trees at time zero are reclassed as cull trees at time one. Positive cull increment is when trees classified as cull at time zero are reclassified as growing stock at time one. Available only for timberland plots.

57. GROWTH — Net annual growth. Net annual growth/acre (cubic feet) of softwood growing stock. Net growth is gross growth minus mortality minus negative cull increment plus positive cull increment. Negative cull increment occurs when growing-stock trees at time zero are reclassed as cull trees at time one. Positive cull increment is when trees classified as cull at time zero are reclassified as growing stock at time one. Available only for timberland plots.

58. COUNTY — 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, 1990, are used if a single county is represented. See appendix B for specific codes. Note: A county code of 0 was allowed in Alaska, and all of Hawaii was given a county code of 1.

59 CONDITION

Condition number. Unique identifying number assigned to each condition on a plot. Condition is defined by owner group class, reserved status, and land class. Differences in broad forest type, stand size, stand origin, and stand density further define condition for forest land. Mapped nonforest conditions are also assigned numbers. The condition at the center of subplot one is given condition number 1. Other conditions on the plot are assigned numbers sequentially. Once a number has been assigned, the number is reused whenever that same condition is encountered on the plot.

60. TSOURCE

Source of volume data. Identifies whether data source for volume record (trees, stands, etc.) is based on observed or modeled tree d.b.h.

Code	Source of volume data
0	Nonforest land.
1	Observed from tree data (All timberland plots are based on observed tree data).
2	Used for unproductive forest land or reserved forest land plots where no tree data were available. Plots with a value of 2 for TSOURCE have imputed values for the following variables: cubic, cubicsw, cubichw, cullsw, cullhw, cull, deadsw, deadhw, dead, biobolesw, biobolehw, biobole, biosapssw, biosapshw, biosaps, balive. These variables were assigned the average values from similar plots (unproductive plots were matched with unproductive plots and reserved plots were matched with reserved plots where the plots had the same first two characters for the ECOSUBCD variable). A minimum of five plots having the same ECOSUBCD string through two characters was required for the plot to be assigned a TSOURCE code of 2. This plot failed the requirements to receive a TSOURCE code of 3.
3	Used for unproductive forest land or reserved forest land plots where no tree data were available. Plots with a value of 3 for TSOURCE have imputed values for the following variables: cubic, cubicsw, cubichw, cullsw, cullhw, cull, deadsw, deadhw, dead, biobolesw, biobolehw, biobole, biosapssw, biosapshw, biosaps, balive. These variables were assigned the average values from similar plots. (Unproductive plots were matched with unproductive plots and reserved plots were matched with reserved plots where the plots had the same first three characters for the ECOSUBCD variable.) A minimum of five plots having the same ECOSUBCD string through three characters was required for the plot to be assigned a TSOURCE code of 3. This plot failed the requirements to receive a TSOURCE code of 4.
4	Used for unproductive forest land or reserved forest land plots where no tree data were available. Plots with a value of 4 for TSOURCE have imputed values for the following variables: cubic, cubicsw, cubichw, cullsw, cullhw, cull, deadsw, deadhw, dead, biobolesw, biobolehw, biobole, biosapssw, biosapshw, biosaps, biostumptopsw, biostumptophw, biostumptop, balive. These variables were assigned the averge values from similar plots. (Unproductive plots were matched with unproductive plots and reserved plots were matched with reserved plots where the plots had the same first four characters for the ECOSUBCD variable.) A minimum of five plots having the same ECOSUBCD string through four characters was required for the plot to be assigned a TSOURCE code of 4. This plot failed the requirements to receive a TSOURCE code of 5.
5	Used for unproductive forest land or reserved forest land plots where no tree data were available. Plots with a value of 5 for TSOURCE have imputed values for the following variables: cubic, cubicsw, cubichw, cullsw, cullhw, cull, deadsw, deadhw, dead, biobolesw, biobolehw, biobole, biosapssw, biosapshw, biosaps, balive. These variables were assigned the average

values from similar plots. (Unproductive plots were matched with unproductive plots and reserved plots were matched with reserved plots where the plots had the same first five characters for the ECOSUBCD variable.) A minimum of five plots having the same ECOSUBCD string through five characters was required for the plot to be assigned a TSOURCE code of 5. This plot failed the requirements to receive a TSOURCE code of 6.

6 Used for unproductive forest land or reserved forest land plots where no tree data were available. Plots with a value of 2 for TSOURCE have imputed values for the following variables: cubic, cubicsw, cubichw, cullsw, cullhw, cull, deadsw, deadhw, dead, biobolesw, biobolehw, biobole, biosapssw, biosapshw, biosaps, balive. These variables were assigned the average values from similar plots. (Unproductive plots were matched with unproductive plots and reserved plots were matched with reserved plots where the plots had the same first two characters for the ECOSUBCD variable.) A minimum of five plots having the same ECOSUBCD string through six characters was required for the plot to be assigned a TSOURCE code of 6.

96 Hawaii. Values for variables biosapssw, biosapshw, and biosaps were imputed based on the average ratio of biostumptop to biobole for the lower 48 States. Individual tree data were unavailable for computing trees per acre and basal area variables.

97 Interior Alaska. Values for variables cubic, cubicsw, cubichw, cullsw, cullhw, cull, deadsw, deadhw, dead, biobolesw, biobolehw, biobole, biosapssw, biosapshw, biosaps, and balive were imputed from information contained on six plots measured in the Northwest Territories.

98 Productive reserved plots that did not meet requirements for codes 1 through 6. They received the average values from all other productive reserved plots that were measured in this State or neighboring States (a minimum of five plots was required to develop the average).

99 Unproductive plots that did not meet requirements for codes 1 through 6. They received the average values from all other unproductive plots that were measured in this State or neighboring States (a minimum of five plots was required to develop the average). Exception for Florida (332 plots). Information for these 332 plots was derived from publication by Neal Cost (1982) on unproductive forest land.

61. BIOBOLESW Softwood biomass in the bole. Total gross biomass (including bark) in dry pounds per acre of all live softwood trees 5 inches d.b.h. or larger from a 1-foot stump to a minimum 4-inch top diameter outside bark of the central stem. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forestland). Available for all forest land plots.

62. BIOBOLEHW Hardwood biomass in the bole. Total gross biomass (including bark) in dry pounds per acre of all live hardwood trees 5 inches d.b.h. or larger from a 1-foot stump to a minimum 4-inch top diameter outside bark of the central stem. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

63. BIOBOLE — Biomass in the bole. Total gross biomass (including bark) in dry pounds per acre of all live trees 5 inches d.b.h. or larger from a 1-foot stump to a minimum 4-inch top diameter outside bark of the central stem. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

64. BIOSAPSSW — Softwood sapling biomass. Total gross aboveground biomass (including bark) in dry pounds per acre of all live softwood trees from 1 to 5 inches d.b.h., including tops and limbs. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

65. BIOSAPSHW — Hardwood sapling biomass. Total gross aboveground biomass (including bark) in dry pounds per acre of all live hardwood trees from 1 to 5 inches d.b.h., including tops and limbs. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

66. BIOSAPS — Sapling biomass. Total gross aboveground biomass (including bark) in dry pounds per acre of all live trees from 1 to 5 inches d.b.h., including tops and limbs. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

67. BALIVE — Basal area (sq.ft./ac.) of all live trees 1 inch and larger in diameter. Only calculated when TSOURCE=1. Diameters are usually measured at breast height except for certain woodland species where diameters are measured at the root collar. Available for forest land plots.

68. LAT — Latitude NAD 83 datum (not available for public distribution due to privacy policy). Due to the Privacy Ammendment: H.R.3423 Department of the Interior and Related Agencies Appropriations Act, 2000 (November 17, 1999) latitude and longitude are zeroed out. For internal FIA users the approximate latitude of the plot in decimal degrees to the nearest 100 seconds (0.028 degrees). The precision of this item along the meridian is ± 1542 m at latitude 45 degrees north. A value of -1 means that latitude was not recorded. However, in some cases the county centroid may be entered when the actual location is not available. Actual plot locations cannot be released.

69. LON — Longitude NAD 83 datum (not available for public distribution due to privacy policy). Due to the Privacy Ammendment: H.R.3423 Department of the Interior and Related Agencies Appropriations Act, 2000 (November 17, 1999) latitude and longitude are zeroed out. For internal FIA users the approximate longitude of the plot in decimal degrees to the nearest 100 seconds (0.028 degrees). The precision of this item along the parallel is ± 1094 m at latitude 45 degrees. A value of -1 means that longitude was not recorded. However, in some cases the county centroid may be entered when the actual location is not available.

70. CONDPROP — Condition proportion. Proportion of the plot in the condition. Values of 1 indicate that the plot was not mapped. Values of less than 1 indicate that data for this record came from a mapped portion of a plot.

71. FHMHEXID — Forest Health Monitoring hexagon identifier. Number of the hexagon wherein the plot resides. FHM hexagons are approximately 160,000 acres in size.

72. BALIVE_5 — Basal area (sq.ft./ac.) of all live trees 5 inches and larger in diameter. Only calculated when TSOURCE=1. Diameters are usually measured at breast height except for certain woodland species where diameters are measured at the root collar.

73. TPA_5 — Number of live trees per acre 5 inches in diameter and larger. Only calculated when TSOURCE=1. Diameters are usually measured at breast height except for certain woodland species where diameters are measured at the root collar.

74. DWD — Down woody debris. Not populated.

75. TPA_1 — Number of live trees per acre 1 inch in diameter and larger. Only calculated when TSOURCE=1. Diameters are usually measured at breast height except for certain woodland species where diameters are measured at the root collar.

76. STDIAM_1 — Quadratic mean stand diameter using all live trees over 1 inch in diameter. Only calculated when TSOURCE=1.

77. ECOSUBCD — Ecological subsection code. An area of similar surficial geology, lithology, geomorphic process, soil groups, subregional climate, and potential natural communities. Subsection boundaries usually correspond with discrete changes in geomorphology. Subsection information is used for broad planning and assessment. Subsection codes may consist of up to six characters and were developed by the Forest Service as part of the National Hierarchical Framework of Ecological Units.

78. CONGCD — Congressional District code for the 107th Congress (2001-2002). A territorial division of a State from which a member of the U.S. House of Representatives is elected. There are 435 congressional districts in the United States apportioned to the States based on population; each State receives at least one congressional district. The Congressional District code assigned to a plot (regardless of when it was measured) is for the most recent Congress. CONGCD is a four-digit number. The first two digits are the State FIPS code and the last two digits are the congressional district number. If a State has only one congressional district, the congressional district number is 00.

79. BIOSTUMPTOPSW — Biomass in the stump and tops of live softwood trees 5 inches in diameter and larger. Difference between total dry biomass and merchantable drybiomass on live trees 5 inches in diameter and larger. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forestland). Available for all forest land plots.

80. BIOSTUMPTOPHW — Biomass in the stump and tops of live hardwood trees 5 inches in diameter and larger. Difference between total dry biomass and merchantable dry biomass on live trees 5 inches in diameter and larger. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

81. BIOSTUMPTOP Biomass in the stump and tops of live trees 5 inches in diameter and larger. Difference between total dry biomass and merchantable dry biomass on live trees 5 inches in diameter and larger. Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

82. BIOSALVDEADSW Total gross biomass ovendry weight for salvable dead softwood trees. The total aboveground biomass of a sample tree 5.0 inches in diameter or larger, including all tops and limbs (but excluding foliage). Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

83. BIOSALVDEADHW Total gross biomass ovendry weight for salvable dead hardwood trees. The total aboveground biomass of a sample tree 5.0 inches in diameter or larger, including all tops and limbs (but excluding foliage). Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

84. BIOSALVDEAD Total gross biomass ovendry weight for salvable dead trees. The total aboveground biomass of a sample tree 5.0 inches in diameter or larger, including all tops and limbs (but excluding foliage). Values are imputed where the value of the variable TSOURCE is not equal to 1 (TSOURCE may not be equal to 1 for some reserved and unproductive forest land). Available for all forest land plots.

Species Diameter Class Table (Oracle table name is SPDBH2002)

	Column name	Oracle data type	Value or unit of measure	Key data item
1.	SRID	NUMBER		
2.	STATE	NUMBER	Coded	X
3.	STATEABB	VARCHAR2(2)		
4.	RSID	NUMBER	Coded	X
5.	SUBREGION	NUMBER		
6.	RPA_REGION	NUMBER		
7.	RPA_SUBREGION	NUMBER		
8.	YEAR	NUMBER		
9.	OWNGROUP	NUMBER	Coded	X
10.	OWNN	VARCHAR2(16)		
11.	DBHCODE	NUMBER	Coded	X
12.	DCN	VARCHAR2(22)		
13.	NVGSESW	NUMBER		
14.	NVGSLGSL	NUMBER		
15.	NVGSLBSH	NUMBER		
16.	NVGSOTYP	NUMBER		
17.	NVGSEWRD	NUMBER		
18.	NVGSJACK	NUMBER		
19.	NVGSSPFR	NUMBER		
20.	NVGSEHEM	NUMBER		
21.	NVGSCYPR	NUMBER		
22.	NVGSOTESW	NUMBER		
23.	NVBFESW	NUMBER		
24.	NVBFLGSL	NUMBER		
25.	NVBFLBSH	NUMBER		
26.	NVBFOTYP	NUMBER		
27.	NVBFEWRD	NUMBER		
28.	NVBFJACK	NUMBER		
29.	NVBFSPFR	NUMBER		
30.	NVBFEHEM	NUMBER		
31.	NVBFCYPR	NUMBER		
32.	NVBFOTESW	NUMBER		
33.	NVGSEHW	NUMBER		
34.	NVGSSWOK	NUMBER		
35.	NVGSSROK	NUMBER		
36.	NVGSOWOK	NUMBER		
37.	NVGSOROK	NUMBER		
38.	NVGSHICK	NUMBER		
39.	NVGSYBIR	NUMBER		

(table continued on next page)

Species Diameter Class Table (Oracle table name is SPDBH2002) *continued*

	Column name	Oracle data type	Value or unit of measure	Key data item
40.	NVGSHMAP	NUMBER		
41.	NVGSSMAP	NUMBER		
42.	NVGSBECH	NUMBER		
43.	NVGSSGUM	NUMBER		
44.	NVGSBGUM	NUMBER		
45.	NVGSASH	NUMBER		
46.	NVGSBASS	NUMBER		
47.	NVGSYPOP	NUMBER		
48.	NVGSECOAS	NUMBER		
49.	NVGSBWAL	NUMBER		
50.	NVGSBCHR	NUMBER		
51.	NVGSOTEHW	NUMBER		
52.	NVBFEHW	NUMBER		
53.	NVBFSWOK	NUMBER		
54.	NVBFSROK	NUMBER		
55.	NVBFOWOK	NUMBER		
56.	NVBFOROK	NUMBER		
57.	NVBFHICK	NUMBER		
58.	NVBFYBIR	NUMBER		
59.	NVBFHMAP	NUMBER		
60.	NVBFSMAP	NUMBER		
61.	NVBFBECH	NUMBER		
62.	NVBFSGUM	NUMBER		
63.	NVBFBGUM	NUMBER		
64.	NVBFASH	NUMBER		
65.	NVBFBASS	NUMBER		
66.	NVBFYPOP	NUMBER		
67.	NVBFECOAS	NUMBER		
68.	NVBFBWAL	NUMBER		
69.	NVBFBCHR	NUMBER		
70.	NVBFOTEHW	NUMBER		
71.	NVGSWSW	NUMBER		
72.	NVGSDOUG	NUMBER		
73.	NVGSPDJEFF	NUMBER		
74.	NVGSFIR	NUMBER		
75.	NVGSWHEM	NUMBER		
76.	NVGSSUGAR	NUMBER		
77.	NVGSWWPN	NUMBER		
78.	NVGSRDWD	NUMBER		

(table continued on next page)

Species Diameter Class Table (Oracle table name is SPDBH2002) *continued*

	Column name	Oracle data type	Value or unit of measure	Key data item
79.	NVGSSITKA	NUMBER		
80.	NVGSENGEL	NUMBER		
81.	NVGSWLARCH	NUMBER		
82.	NVGSINCEN	NUMBER		
83.	NVGSLODGE	NUMBER		
84.	NVGSWRCED	NUMBER		
85.	NVGSOTWSW	NUMBER		
86.	NVGSWHW	NUMBER		
87.	NVGSWCOAS	NUMBER		
88.	NVGSALDER	NUMBER		
89.	NVGSWOK	NUMBER		
90.	NVGSOTWHW	NUMBER		
91.	NVBFWSW	NUMBER		
92.	NVBFDOUG	NUMBER		
93.	NVBFPDJEFF	NUMBER		
94.	NVBFFIR	NUMBER		
95.	NVBFWHEM	NUMBER		
96.	NVBFSUGAR	NUMBER		
97.	NVBFWWPN	NUMBER		
98.	NVBFRDWD	NUMBER		
99.	NVBFSITKA	NUMBER		
100.	NVBFENGEL	NUMBER		
101.	NVBFWLARCH	NUMBER		
102.	NVBFINCEN	NUMBER		
103.	NVBFLODGE	NUMBER		
104.	NVBFWRCED	NUMBER		
105.	NVBFOTWSW	NUMBER		
106.	NVBFWHW	NUMBER		
107.	NVBFWCOAS	NUMBER		
108.	NVBFALDER	NUMBER		
109.	NVBFWOK	NUMBER		
110.	NVBFOTWHW	NUMBER		

1. SRID — Station/Region ID number. Not used.

2. STATE — State. The State in which the plot is located. Two-digit FIPS code.

3. STATEABB — State abbreviation. Two-character State abbreviation.

4. RSID — Region or station identification number. This coded value uniquely identifies each of the 16 locations contributing data to the RPA Database. This ID can be used as a reference key to delete an entire set of data from the aggregated database, to updata a particular RSID database, to retrieve a database, or to produce a summary report for individual regions or stations.

5. SUBREGION — The subregion code indicates geographic location (east or west) within four States (Alaska, Oregon, South Dakota, and Washington).

6. RPA_REGION — RPA Region. Grouping of States into four regions for reporting purposes.

7. RPA_SUBREGION — RPA Subregions. Grouping of States into nine subregions for reporting purposes. Subregions 1 and 2 belong in the Northern Region, subregions 3 and 4 belong in the Southern Region, subregions 5 and 6 belong in the Rocky Mountain Region, and Regions 7, 8, and 9 belong in the Pacific Coast Region.

8. YEAR — RPA Year. This is set to 2002 for all records in the 2002 RPA plot summary database.

9. OWNGROUP — Ownership group. A broad grouping of ownership classes.

Code	Recreation Use
1	National forest land: Federal lands designated by Executive order or statute as national forests or purchase units, and other lands under the administration of the Forest Service including experimental areas and Bankhead-Jones Title III lands.
2	Other public land: Publicly owned lands other than national forest lands.
3	Forest industry land: Lands owned by companies or individuals operating wood-using plants (includes Indian lands if they qualify as industry).
4	Nonindustrial private land: All private lands except those owned by forest industry (includes nonindustrial Indian lands).

10. OWNN — Owner name. Not applicable. Value is set to "own_name" for all records.

11. DBHCODE — Diameter class code.

DBHcode	Diameter class name
1	5.0-6.9
2	7.0-8.9
3	9.0-10.9
4	11.0-12.9
5	13.0-14.9
6	15.0-16.9
7	17.0-18.9
8	19.0-20.9
9	21.0-28.9
10	29.0+
11	All d.b.h. classes

12. DCN — Diameter class name.

13. NVGSESW — Net volume growing-stock all eastern softwoods. Includes species groups: NVGSLGSL, NVGSLBSH, NVGSOTYP, NVGSEWRD, NVGSJACK, NVGSSPFR, NVGSEHEM, NVGSCYPR, NVGSOTESW

14. NVGSLGSL — Net volume growing-stock longleaf and slash pines.

15. NVGSLBSH — Net volume growing-stock loblolly and shortleaf pines.

16. NVGSOTYP — Net volume growing-stock other yellow pines.

17. NVGSEWRD — Net volume growing-stock white and red pines.

18. NVGSJACK — Net volume growing-stock jack pine.

19. NVGSSPFR — Net volume growing-stock spruce and balsam fir.

20. NVGSEHEM — Net volume growing-stock eastern hemlock.

21. NVGSCYPR — Net volume growing-stock cypress.

22. NVGSOTESW — Net volume growing-stock other eastern softwoods.

23. NVBFESW — Net volume sawtimber all eastern softwoods.Includes species groups: NVBFLGSL, NVBFLBSH, NVBFOTYP, NVBFEWRD, NVBFJACK, NVBFSPFR, NVBFEHEM, NVBFCYPR, NVBFOTESW

24. NVBFLGSL Net volume sawtimber longleaf and slash pines.

25. NVBFLBSH Net volume sawtimber loblolly and shortleaf pines.

26. NVBFOTYP Net volume sawtimber other yellow pines.

27. NVBFEWRD Net volume sawtimber white and red pines.

28. NVBFJACK Net volume sawtimber jack pine.

29. NVBFSPFR Net volume sawtimber spruce and balsam fir.

30. NVBFEHEM Net volume sawtimber eastern hemlock.

31. NVBFCYPR Net volume sawtimber cypress.

32. NVBFOTESW Net volume sawtimber other eastern softwoods.

33. NVGSEHW Net volume growing-stock all eastern hardwoods. Includes species groups: NVGSSWOK, NVGSSROK, NVGSOWOK, NVGSOROK, NVGSHICK, NVGSYBIR, NVGSHMAP, NVGSSMAP, NVGSBECH, NVGSSGUM, NVGSBGUM, NVGSASH, NVGSBASS, NVGSYPOP, NVGSECOAS, NVGSBWAL, NVGSBCHR, NVGSOTEHW

34. NVGSSWOK Net volume growing-stock select white oak.

35. NVGSSROK Net volume growing-stock select red oak.

36. NVGSOWOK Net volume growing-stock other white oak.

37. NVGSOROK Net volume growing-stock other red oak.

38. NVGSHICK Net volume growing-stock hickory.

39. NVGSYBIR Net volume growing-stock yellow birch.

40. NVGSHMAP Net volume growing-stock hard maple.

41. NVGSSMAP Net volume growing-stock soft maple.

42. NVGSBECH Net volume growing-stock beech.

43. NVGSSGUM Net volume growing-stock sweetgum.

44. NVGSBGUM Net volume growing-stock tupelo and black gum.

45. NVGSASH Net volume growing-stock ash.

46. NVGSBASS Net volume growing-stock basswood.

47. NVGSYPOP Net volume growing-stock yellow-poplar.

48. NVGSECOAS Net volume growing-stock cottonwood and aspen.

49. NVGSBWAL Net volume growing-stock black walnut.

50. NVGSBCHR Net volume growing-stock black cherry.

51. NVGSOTEHW Net volume growing-stock other eastern hardwoods.

52. NVBFEHW Net volume sawtimber all eastern hardwoods. Includes species groups: NVBFSWOK, NVBFSROK, NVBFOWOK, NVBFOROK, NVBFHICK, NVBFYBIR, NVBFHMAP, NVBFSMAP, NVBFBECH, NVBFSGUM, NVBFBGUM, NVBFASH, NVBFBASS, NVBFYPOP, NVBFECOAS, NVBFBWAL, NVBFBCHR, NVBFOTEHW

53. NVBFSWOK Net volume sawtimber select white oak.

54. NVBFSROK Net volume sawtimber select red oak.

55. NVBFOWOK Net volume sawtimber other white oak.

56. NVBFOROK Net volume sawtimber other red oak.

57. NVBFHICK Net volume sawtimber hickory.

58. NVBFYBIR Net volume sawtimber yellow birch.

59. NVBFHMAP Net volume sawtimber hard maple.

60. NVBFSMAP Net volume sawtimber soft maple.

61. NVBFBECH Net volume sawtimber beech.

62. NVBFSGUM Net volume sawtimber sweetgum.

63. NVBFBGUM Net volume sawtimber tupelo and black gum.

64. NVBFASH Net volume sawtimber ash.

65. NVBFBASS Net volume sawtimber basswood.

66. NVBFYPOP Net volume sawtimber yellow-poplar.

67. NVBFECOAS Net volume sawtimber cottonwood and aspen.

68. NVBFBWAL Net volume sawtimber black walnut.

69. NVBFBCHR Net volume sawtimber black cherry.

70. NVBFOTEHW Net volume sawtimber other eastern hardwoods.

71. NVGSWSW Net volume growing-stock all western softwoods. Includes species groups: NVGSDOUG, NVGSPDJEFF, NVGSFIR, NVGSWHEM, NVGSSUGAR, NVGSWWPN, NVGSRDWD, NVGSSITKA, NVGSENGEL, NVGSWLARCH, NVGSINCEN, NVGSLODGE, NVGSWRCED, NVGSOTWSW

72. NVGSDOUG Net volume growing-stock Douglas fir.

73. NVGSPDJEFF Net volume growing-stock ponderosa and Jeffrey pine.

74. NVGSFIR Net volume growing-stock true fir.

75. NVGSWHEM Net volume growing-stock western hemlock.

76. NVGSSUGAR Net volume growing-stock sugar pine.

77. NVGSWWPN Net volume growing-stock western white pine.

78. NVGSRDWD Net volume growing-stock redwood.

79. NVGSSITKA Net volume growing-stock sitka spruce.

80. NVGSENGEL Net volume growing-stock Engelmann and other spruces.

81. NVGSWLARCH Net volume growing-stock western larch.

82. NVGSINCEN Net volume growing-stock incense cedar.

83. NVGSLODGE Net volume growing-stock lodgepole pine.

84. NVGSWRCED Net volume growing-stock western red cedar.

85. NVGSOTWSW Net volume growing-stock other western softwoods.

86. NVGSWHW Net volume growing-stock all western hardwoods. Includes species groups: NVGSWCOAS, NVGSALDER, NVGSWOK, NVGSOTWHW

87. NVGSWCOAS Net volume growing-stock cottonwood and aspen.

88. NVGSALDER Net volume growing-stock red alder.

89. NVGSWOK Net volume growing-stock oak.

90. NVGSOTWHW Net volume growing-stock other western hardwoods.

91. NVBFWSW Net volume sawtimber all western softwoods. Includes species groups: NVBFDOUG, NVBFPDJEFF, NVBFFIR, NVBFWHEM, NVBFSUGAR, NVBFWWPN, NVBFRDWD, NVBFSITKA, NVBFENGEL, NVBFWLARCH, NVBFINCEN, NVBFLODGE, NVBFWRCED, NVBFOTWSW

92. NVBFDOUG Net volume sawtimber Douglas-fir.

93. NVBFPDJEFF Net volume sawtimber ponderosa and Jeffrey pine.

94. NVBFFIR Net volume sawtimber true fir.

95. NVBFWHEM Net volume sawtimber western hemlock.

96. NVBFSUGAR Net volume sawtimber sugar pine.

97. NVBFWWPN Net volume sawtimber western white pine.

98. NVBFRDWD Net volume sawtimber redwood.

99. NVBFSITKA Net volume sawtimber Sitka spruce.

100. NVBFENGEL Net volume sawtimber Engelmann and other spruces.

101. NVBFWLARCH Net volume sawtimber western larch.

102. NVBFINCEN Net volume sawtimber incense cedar.

103. NVBFLODGE Net volume sawtimber lodgepole pine.

104. NVBFWRCED Net volume sawtimber western red cedar.

105. NVBFOTWSW Net volume sawtimber other western softwoods.

106. NVBFWHW Net volume sawtimber all western hardwoods. Includes species groups: NVBFWCOAS, NVBFALDER, NVBFWOK, NVBFOTWHW

107. NVBFWCOAS Net volume sawtimber cottonwood and aspen.

108. NVBFALDER Net volume sawtimber red alder.

109. NVBFWOK Net volume sawtimber oak.

110. NVBFOTWHW Net volume sawtimber other western hardwoods.

Chapter 3 – Algorithms for Summarizing Data

Data in the RPADB were designed for easy use with most database management systems, statistical packages, and other data summary software. Data are typically provided as comma-delimited ASCII files. Database management systems that support hierarchical data structures, as well as those based on the relational model, can easily process RPADB files. Chapter 2 should give the user of almost any software package the information needed to input an RPADB file into a processing system.

The procedures or algorithms used to compute population estimates are provided in tables 1 through 6. Those familiar with the relational data model and the standard Structured Query Language (SQL) database language available in many database management systems will find it easy to load RPADB files into one of these systems and to retrieve information from a loaded database.

ALGORITHMS FOR POPULATION ESTIMATES

All the variables used in these algorithms are defined in Chapter 2.

Table 1. Algorithms for calculating area estimates. Use the RPA_PLOT2002 table.

Units	Type	Calculation	Requirements
Acres	Area of all land and noncensus water	Sum(aef)	landcc in (20,60,92)
Acres	Area of forest land	Sum(aef)	landcc=20
Acres	Area of timberland	Sum(aef)	forcode=1

To calculate the area of all land and noncensus water for the State of Alabama:

Select Sum(aef)
From rpa_plot2002
Where state=1 and landcc in (20,60,92)

To calculate the area of forestland for the State of Alabama:

Select Sum(aef)
From rpa_plot2002
Where state=1 and landcc in (20)

To calculate the area of timberland for the State of Alabama:

Select Sum(aef)
From rpa_plot2002
Where state=1 and landcc in (20) and spclass in (1,2,3,4,5,6) and reserclass=1

or, you could also use the following retrieval to calculate the area of timberland for Alabama:

Select Sum(aef)
From rpa_plot2002
Where state=1 and forcode=1

Table 2. Algorithms for calculating numbers of trees. Use the RPA_PLOT2002 table.

Units	Type	Calculation	Requirements
Trees	Number of all live trees 5 inches and larger on timberland	Sum(vef*tpa_5)	Forcode=1 Note: Not available for Hawaii and interior Alaska.
Trees	Number of all live trees 1 inches and larger on timberland	Sum(vef*tpa_1)	Forcode=1 Note: Not available for Hawaii and interior Alaska.

To calculate the number of all live trees 5 inches d.b.h. and larger on timberland in Minnesota:

Select Sum(vef*tpa_5)
From rpa_plot2002
Where state=27 and forcode=1

To calculate the number of all live trees 1 inch d.b.h. and larger on timberland in Minnesota:

Select Sum(vef*tpa_1)
From rpa_plot2002
Where state=27 and forcode=1

Table 3. Algorithms for calculating volumes. Use the RPA_PLOT2002 table.

Units	Type	Calculation	Requirements
Cuft	Merchantable volume of growing-stock trees on timberland	Sum(vef*cubic)	Forcode=1
Cuft	Merchantable volume of cull trees on timberland	Sum(vef*cull)	Forcode=1
Cuft	Merchantable volume of growing-stock trees on forest land	Sum(vef*cubic)	Landcc=20
Cuft	Merchantable volume of cull trees on forest land	Sum(vef*cull)	Landcc=20
Cuft	All live volume on forest land	Sum(vef*(cubic+cull)	Landcc=20
Cuft	Salvable dead volume on timberland	Sum(vef*dead)	Forcode=1
Bdft	Merchantable volume of sawtimber trees on timberland	Sum(vef*bdft)	Forcode=1

To calculate merchantable volume of growing-stock trees on timberland in Minnesota:

Select Sum(vef*cubic)
From rpa_plot2002
Where state=27 and forcode=1

To calculate merchantable volume of cull trees on timberland in Minnesota:

Select Sum(vef*cull)
From rpa_plot2002
Where state=27 and forcode=1

To calculate merchantable volume of growing-stock trees on forest land in Minnesota:

Select Sum(vef*cubic)
From rpa_plot2002
Where state=27 and landcc=20

To calculate merchantable volume of cull trees on forest land in Minnesota:

Select Sum(vef*cull)
From rpa_plot2002
Where state=27 and landcc=20

To calculate merchantable volume of sawtimber trees on timberland in Minnesota:

Select Sum(vef*bdft)
From rpa_plot2002
Where state=27 and forcode=1

Table 4. Algorithms for estimating net average annual growth and average annual mortality. Use the RPA_PLOT2002 table.

Units	Type	Calculation	Requirements
Cuft/year	Net annual merchantable growth of growing-stock trees on timberland	Sum(vef*growth)	
Cuft/year	Annual merchantable mortality of growing-stock trees on timberland	Sum(vef*mort)	

To calculate net annual merchantable growth of growing-stock trees on timberland in Minnesota:

Select Sum(vef*growth)
From rpa_plot2002
Where state=27

To calculate annual merchantable mortality of growing-stock trees on timberland in Minnesota:

Select Sum(vef*mort)
From rpa_plot2002
Where state=27

Table 5. Algorithms for estimating biomass. Use the RPA_PLOT2002 table.

Units	Type	Calculation	Requirements
Ovendry lbs.	Gross biomass of all live trees on timberland	Sum(vef* (biobole+biosaps+ biostumptop))	Forcode=1
Ovendry lbs.	Merchantable biomass of all live trees on timberland	Sum(vef*biobole)	Forcode=1
Ovendry lbs.	Gross biomass of all live trees on forest land	Sum(vef* (biobole+biosaps+ biostumptop))	Landcc=20
Ovendry lbs.	Merchantable biomass of all live trees on forest land	Sum(vef*biobole)	Landcc=20

To calculate aboveground gross biomass of all live trees (excluding foliage) on timberland in Minnesota:

Select Sum(vef*(biobole+biosaps+biostumptop))
From rpa_plot2002
Where state=27 and forcode=1

To calculate aboveground merchantable biomass of all live trees (excluding foliage) on timberland in Minnesota:

Select Sum(vef*(biobole))
From rpa_plot2002
Where state=27 and forcode=1

To calculate aboveground gross biomass of all live trees (excluding foliage) on forest land in Minnesota:

Select Sum(vef*(biobole+biosaps+biostumptop))
From rpa_plot2002
Where state=27 and landcc=20

To calculate aboveground merchantable biomass of all live trees (excluding foliage) on forest land in Minnesota:

Select Sum(vef*(biobole))
From rpa_plot2002
Where state=27 and landcc=20

Table 6. Algorithms for estimating growing-stock volumes on timberland by species group and diameter class. Uses the SPDBH2002 Table.

Units	Type	Calculation	Requirements
Cuft	Merchantable volume of growing-stock trees on timberland	Sum(NVGSESW+ NVGSEHW+ NVGSWSW+ NVGSWHW)	Dbhcode<>11
Bdft	Merchantable volume of sawtimber trees on timberland	Sum(NVBFESW+ NVBFEHW+ NVBFWSW+ NVBFWHW)	Dbhcode<>11
Cuft	Merchantable volume of longleaf and slash pine growing-stock trees from 5 to 6.9 inches d.b.h. on national forest timberland	Sum (NVGSLGSL)	Dbhcode=1 and Owngroup=1
Bdft	Merchantable volume of longleaf and slash pine sawtimber trees from 11 to 12.9 inches d.b.h. on national forest timberland	Sum (NVBFLGSL)	Dbhcode=4 and Owngroup=1

To calculate merchantable volume of growing-stock trees on timberland in Minnesota:

Select Sum(NVGSESW+NVGSEHW+NVGSWSW+NVGSWHW)

From SPDBH2002

Where state=27 and Dbhcode<>11

To calculate merchantable volume of sawtimber trees on timberland in Minnesota:

Select Sum(NVBFESW+NVBFEHW+NVBFWSW+NVBFWHW)

From SPDBH2002

Where state=27 and Dbhcode<>11

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Appendix A

SOURCES OF 2002 RPA DATA

State	Year	Format	Submitting Unit
Alabama	2000	FIADB	Southern Research Station
Alaska	1998	FIADB/**RPADB**	FIADB 31 million acres of forest land in southeast Alaska were measured by the Pacific Northwest FIA; RPA Summary DB format 96 million acres of interior Alaska
Arizona	1999	FIADB	Rocky Mountain Research Station
Arkansas	1995	FIADB	Southern Research Station
California	1994	FIADB	8.1 million acres of forest land were measured by the Pacific Northwest FIA; Region 5 measured 9.6 million acres; and Region 6 measured 0.6 million acres.
Colorado	1983	FIADB	6.2 million acres of forest land were measured by the Rocky Mountain FIA; Region 2 measured 5.5 million acres
Connecticut	1998	FIADB	Northeastern Research Station
Delaware	1999	FIADB	Northeastern Research Station
District of Columbia	2002	FIADB	Southern Research Station
Florida	1995	FIADB	Southern Research Station
Georgia	1997	FIADB	Southern Research Station
Hawaii		**RPADB**	Pacific Northwest Research Station
Idaho	1991	FIADB	Rocky Mountain Research Station
Illinois	1998	FIADB	North Central Research Station
Indiana	1998	FIADB	North Central Research Station
Iowa	1990	FIADB	North Central Research Station
Kansas	1994	FIADB	North Central Research Station
Kentucky	1988	FIADB	Southern Research Station
Louisiana	1991	FIADB	Southern Research Station
Maine	1995	FIADB	Northeastern Research Station
Maryland	1999	FIADB	Northeastern Research Station
Massachusetts	1998	FIADB	Northeastern Research Station
Michigan	1993	FIADB	North Central Research Station
Minnesota	1990	FIADB	North Central Research Station
Mississippi	1994	FIADB	Southern Research Station
Missouri	1989	FIADB	North Central Research Station
Montana	1989	FIADB	Rocky Mountain Research Station
Nebraska	1994	FIADB	North Central Research Station

(table continued on next page)

State	Year	Format	Submitting Unit
Nevada	1989	FIADB	Rocky Mountain Research Station
New Hampshire	1997	FIADB	Northeastern Research Station
New Jersey	1999	FIADB	Northeastern Research Station
New Mexico	1999	FIADB	Rocky Mountain Research Station
New York	1993	FIADB	Northeastern Research Station
North Carolina	1990	FIADB	Southern Research Station
North Dakota	1995	FIADB	North Central Research Station
Ohio	1993	FIADB	Northeastern Research Station
Oklahoma	1993	FIADB	Southern Research Station
Oregon	1992	FIADB	9.8 million acres of forest land measured by the Pacific Northwest FIA; 14.0 million were measured by Region 6
Pennsylvania	1989	FIADB	Northeastern Research Station
Rhode Island	1998	FIADB	Northeastern Research Station
South Carolina	2000	FIADB	Southern Research Station
South Dakota	1995	FIADB	0.6 million acres of forest land were measured by the North Central FIA (1995); 1.0 million acres by the Rocky Mountain FIA
Tennessee	1999	FIADB	Southern Research Station
Texas	1992	FIADB	Southeast and northeast Texas were inventoried by the Southern FIA; West Texas was estimated using remotely sensed data (AVHRR)
Utah	1995	FIADB	Rocky Mountain Research Station
Vermont	1997	FIADB	Northeastern Research Station
Virginia	1992	FIADB	Southern Research Station
Washington	1991	FIADB	11.4 million acres of forest land were measured by the Pacific Northwest FIA; 5.9 million acres were measured by Region 6
West Virginia	1989	FIADB	Northeastern Research Station
Wisconsin	1996	FIADB	North Central Research Station
Wyoming	1984	FIADB	5.1 million acres of forest land were measured by the Rocky Mountain FIA; 0.6 million acres were measured by Region 2

Addresses of USDA Forest Service Research Stations with responsibilities for forest inventories in the United States and their area of responsibility

Address	Area of responsibility
Northeastern Research Station 11 Campus Boulevard Newtown Square, PA 19073	Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, and West Virginia
North Central Research Station 1992 Folwell Avenue St. Paul, MN 55108	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin
Southern Research Station 4700 Old Kingston Pike. Knoxville, TN 37919	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, and Puerto Rico
Pacific Northwest Research Station Forestry Sciences Laboratory 620 SW Main, Suite 400 Portland, OR 97205	Alaska, California, Hawaii, Oregon, and Washington
Rocky Mountain Research Station Forestry Sciences Laboratory 507 25th Street Ogden UT 84401	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming

Addresses of National Forest System Regional Offices in the United States

Address	Region	Location of national forests
Forest Service, USDA Northern Region Federal Building 200 E.Broadway PO Box 7669 Missoula, MT 59807	Region 1	Montana, northern Idaho, North Dakota, and northwestern South Dakota
Forest Service, USDA Rocky Mountain Region 740 Simms St P.O. Box 25127 Lakewood, CO 80225-0127	Region 2	Colorado, Kansas, Nebraska, South Dakota, and eastern Wyoming
Forest Service, USDA Southwestern Region 333 Broadway SE Albuquerque, NM 87102	Region 3	Arizona and New Mexico
Forest Service, USDA Intermountain Region Federal Building 324 25th Street Ogden, UT 84401	Region 4	Southern Idaho, Nevada, Utah, and western Wyoming

Forest Service, USDA Pacific Southwest Region 1323 Club Drive Vallejo, CA 94592	Region 5	California
Forest Service, USDA Pacific Northwest Region 333 S.W. 1st Avenue P.O. Box 3623 Portland, OR 97208	Region 6	Oregon and Washington
Forest Service, USDA Southern Region 1720 Peachtree Road, N.W. Atlanta, GA 30309	Region 8	Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, Tennessee, Texas, Virginia, West Virginia, and Puerto Rico
Forest Service, USDA Eastern Region 310 West Wisconsin Avenue, Suite 500 Milwaukee, WI 53203	Region 9	Connecticut, Delaware, Illinois, Indiana, Iowa Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, and Wisconsin
Forest Service, USDA Alaska Region P.O. Box 21628 Juneau, AK 99802-1628	Region 10	Alaska

For additional information, contact the Internet sites for the regional offices through the USDA Forest Service home page: http://www.fs.fed.us. The forest management staff in each regional office manages timber inventories conducted by the region.

Appendix B – State, Survey Unit, and County Codes

01	Alabama
01	**Southwest-South**
003	Baldwin
039	Covington
053	Escambia
097	Mobile
129	Washington
02	**Southwest-North**
023	Choctaw
025	Clarke
035	Conecuh
091	Marengo
099	Monroe
119	Sumter
131	Wilcox
03	**Southeast**
001	Autauga
005	Barbour
011	Bullock
013	Butler
017	Chambers
021	Chilton
031	Coffee
041	Crenshaw
045	Dale
047	Dallas
051	Elmore
061	Geneva
067	Henry
069	Houston
081	Lee
085	Lowndes
087	Macon
101	Montgomery
109	Pike
113	Russell
123	Tallapoosa
04	**West Central**
007	Bibb
057	Fayette
063	Greene
065	Hale
075	Lamar
093	Marion
105	Perry
107	Pickens
125	Tuscaloosa
05	**North Central**
009	Blount
015	Calhoun
019	Cherokee
027	Clay
029	Cleburne
037	Coosa
043	Cullman
055	Etowah
073	Jefferson
111	Randolph
115	St. Clair
117	Shelby
121	Talladega
127	Walker
133	Winston
06	**North**
033	Colbert
049	DeKalb
059	Franklin
071	Jackson
077	Lauderdale
079	Lawrence
083	Limestone
089	Madison
095	Marshall
103	Morgan

02	Alaska
01	**Alaska**
013	Aleutians East Borough
016	Aleutians West Census Area
020	Anchorage Borough
050	Bethel Census Area
060	Bristol Bay Borough
070	Dillingham Census Area
090	Fairbanks North Star Borough
100	Haines Borough
110	Juneau Borough
122	Kenai Peninsula Borough
130	Ketchikan Gateway Borough
150	Kodiak Island Borough
164	Lake and Peninsula Borough
170	Matanuska-Susitna Borough
180	Nome Census Area
185	North Slope Borough
188	Northwest Arctic Borough
201	Prince of Wales-Outer Ketchikan Census Area
220	Sitka Borough
231	Skagway-Yakutat-Angoon Census Area
240	Southeast Fairbanks Census Area
261	Valdez-Cordova Census Area
270	Wade Hampton Census Area
280	Wrangell-Petersburg Census Area
290	Yukon-Koyukuk Census Area

04	Arizona
01	**Southern**
003	Cochise
009	Graham
011	Greenlee
012	La Paz
013	Maricopa
019	Pima
021	Pinal
023	Santa Cruz
027	Yuma
02	**Northern**
001	Apache
005	Coconino
007	Gila
015	Mohave
017	Navajo
025	Yavapai

05	Arkansas
01	**South Delta**
001	Arkansas
017	Chicot
041	Desha
069	Jefferson
077	Lee
079	Lincoln
085	Lonoke
095	Monroe
107	Phillips
117	Prairie

02	**North Delta**
021	Clay
031	Craighead
035	Crittenden
037	Cross
055	Greene
067	Jackson
075	Lawrence
093	Mississippi
111	Poinsett
123	St. Francis
147	Woodruff
03	**Southwest**
003	Ashley
011	Bradley
013	Calhoun
019	Clark
025	Cleveland
027	Columbia
039	Dallas
043	Drew
053	Grant
057	Hempstead
059	Hot Spring
061	Howard
073	Lafayette
081	Little River
091	Miller
099	Nevada
103	Ouachita
109	Pike
133	Sevier
139	Union
04	**Ouachita**
051	Garland
083	Logan
097	Montgomery
105	Perry
113	Polk
119	Pulaski
125	Saline
127	Scott
131	Sebastian
149	Yell

05	**Ozark**
005	Baxter
007	Benton
009	Boone
015	Carroll
023	Cleburne
029	Conway
033	Crawford
045	Faulkner
047	Franklin
049	Fulton
063	Independence
065	Izard
071	Johnson
087	Madison
089	Marion
101	Newton
115	Pope
121	Randolph
129	Searcy
135	Sharp
137	Stone
141	Van Buren
143	Washington
145	White

06	**California**
01	**North Coast**
015	Del Norte
023	Humboldt
045	Mendocino
097	Sonoma
02	**North Interior**
035	Lassen
049	Modoc
089	Shasta
093	Siskiyou
105	Trinity
03	**Sacramento**
007	Butte
011	Colusa
017	El Dorado
021	Glenn
033	Lake
055	Napa
057	Nevada
061	Placer
063	Plumas
067	Sacramento
091	Sierra
101	Sutter
103	Tehama
113	Yolo
115	Yuba
04	**Central Coast**
001	Alameda
013	Contra Costa
041	Marin
053	Monterey
069	San Benito
075	San Francisco
079	San Luis Obispo
081	San Mateo
083	Santa Barbara
085	Santa Clara
087	Santa Cruz
095	Solano
111	Ventura
05	**San Joaquin**
003	Alpine
005	Amador
009	Calaveras
019	Fresno
029	Kern
031	Kings
039	Madera
043	Mariposa
047	Merced
051	Mono
077	San Joaquin
099	Stanislaus
107	Tulare
109	Tuolumne
06	**Southern**
025	Imperial
027	Inyo
037	Los Angeles
059	Orange
065	Riverside
071	San Bernardino
073	San Diego

08	Colorado
01	**Northern Front Range**
013	Boulder
019	Clear Creek
035	Douglas
039	Elbert
041	El Paso
047	Gilpin
059	Jefferson
065	Lake
069	Larimer
093	Park
119	Teller
02	**Southern Front Range**
015	Chaffee
023	Costilla
027	Custer
043	Fremont
055	Huerfano
071	Las Animas
101	Pueblo
03	**West Central**
003	Alamosa
021	Conejos
037	Eagle
049	Grand
051	Gunnison
053	Hinsdale
057	Jackson
079	Mineral
097	Pitkin
105	Rio Grande
107	Routt
109	Saguache
111	San Juan
117	Summit
04	**Western**
007	Archuleta
029	Delta
033	Dolores
045	Garfield
067	La Plata
077	Mesa
081	Moffat
083	Montezuma
085	Montrose
091	Ouray
103	Rio Blanco
113	San Miguel
05	**Eastern**
001	Adams
005	Arapahoe
009	Baca
011	Bent
017	Cheyenne
025	Crowley
031	Denver
061	Kiowa
063	Kit Carson
073	Lincoln
075	Logan
087	Morgan
089	Otero
095	Phillips
099	Prowers
115	Sedgwick
121	Washington
123	Weld
125	Yuma

09	Connecticut
01	**State**
001	Fairfield
003	Hartford
005	Litchfield
007	Middlesex
009	New Haven
011	New London
013	Tolland
015	Windham

10	Delaware
01	State
001	Kent
003	New Castle
005	Sussex

11	District of Columbia

12	Florida
01	Northeastern
001	Alachua
003	Baker
007	Bradford
019	Clay
023	Columbia
029	Dixie
031	Duval
035	Flagler
041	Gilchrist
047	Hamilton
067	Lafayette
075	Levy
079	Madison
083	Marion
089	Nassau
107	Putnam
109	St. Johns
121	Suwannee
123	Taylor
125	Union
127	Volusia
02	**Northwestern**
005	Bay
013	Calhoun
033	Escambia
037	Franklin
039	Gadsden
045	Gulf
059	Holmes
063	Jackson
065	Jefferson
073	Leon
077	Liberty
091	Okaloosa
113	Santa Rosa
129	Wakulla
131	Walton
133	Washington
03	**Central**
009	Brevard
017	Citrus
027	DeSoto
049	Hardee
053	Hernando
055	Highlands
057	Hillsborough

061 Indian River
069 Lake
081 Manatee
093 Okeechobee
095 Orange
097 Osceola
101 Pasco
103 Pinellas
105 Polk
111 St. Lucie
115 Sarasota
117 Seminole
119 Sumter

04 Southern
011 Broward
015 Charlotte
021 Collier
025 Dade
043 Glades
051 Hendry
071 Lee
085 Martin
087 Monroe
099 Palm Beach

13 Georgia
01 Southeastern
001 Appling
003 Atkinson
005 Bacon
025 Brantley
029 Bryan
031 Bulloch
039 Camden
043 Candler
049 Charlton
051 Chatham
065 Clinch
069 Coffee
091 Dodge
101 Echols
103 Effingham
107 Emanuel
109 Evans
127 Glynn
161 Jeff Davis
165 Jenkins
167 Johnson
175 Laurens
179 Liberty
183 Long
191 McIntosh
209 Montgomery
229 Pierce
251 Screven
267 Tattnall
271 Telfair
279 Toombs
283 Treutlen
299 Ware
305 Wayne
309 Wheeler

02 Southwestern
007 Baker
017 Ben Hill
019 Berrien
027 Brooks
071 Colquitt
075 Cook
081 Crisp
087 Decatur
093 Dooly
099 Early
131 Grady
155 Irwin
173 Lanier
185 Lowndes
201 Miller
205 Mitchell
253 Seminole
275 Thomas
277 Tift
287 Turner
315 Wilcox
321 Worth

03 Central
009 Baldwin
021 Bibb
023 Bleckley
033 Burke
035 Butts
037 Calhoun
053 Chattahoochee
061 Clay
073 Columbia
079 Crawford
095 Dougherty
125 Glascock
133 Greene
141 Hancock
145 Harris
153 Houston
159 Jasper
163 Jefferson
169 Jones
171 Lamar
177 Lee
181 Lincoln
189 McDuffie
193 Macon
197 Marion
207 Monroe
211 Morgan
215 Muscogee
225 Peach
231 Pike
235 Pulaski
237 Putnam
239 Quitman
243 Randolph
245 Richmond
249 Schley
259 Stewart
261 Sumter
263 Talbot
265 Taliaferro
269 Taylor
273 Terrell
289 Twiggs
293 Upson
301 Warren
303 Washington
307 Webster
317 Wilkes
319 Wilkinson

04 North Central
011 Banks
013 Barrow
045 Carroll
059 Clarke
063 Clayton
067 Cobb
077 Coweta
089 DeKalb
097 Douglas

105	Elbert
113	Fayette
117	Forsyth
119	Franklin
121	Fulton
135	Gwinnett
139	Hall
143	Haralson
147	Hart
149	Heard
151	Henry
157	Jackson
195	Madison
199	Meriwether
217	Newton
219	Oconee
221	Oglethorpe
223	Paulding
233	Polk
247	Rockdale
255	Spalding
285	Troup
297	Walton
05	**Northern**
015	Bartow
047	Catoosa
055	Chattooga
057	Cherokee
083	Dade
085	Dawson
111	Fannin
115	Floyd
123	Gilmer
129	Gordon
137	Habersham
187	Lumpkin
213	Murray
227	Pickens
241	Rabun
257	Stephens
281	Towns
291	Union
295	Walker
311	White
313	Whitfield

15	**Hawaii**
01	**State**
001	Hawaii
003	Honolulu
005	Kalawao
007	Kauai
009	Maui

16	**Idaho**
01	**Northern**
009	Benewah
017	Bonner
021	Boundary
035	Clearwater
049	Idaho
055	Kootenai
057	Latah
061	Lewis
069	Nez Perce
079	Shoshone
02	**Southeastern**
001	Ada
003	Adams
015	Boise
027	Canyon
039	Elmore
045	Gem
073	Owyhee
075	Payette
085	Valley
087	Washington
03	**Southwestern**
005	Bannock
007	Bear Lake
011	Bingham
013	Blaine
019	Bonneville
023	Butte
025	Camas
029	Caribou
031	Cassia
033	Clark
037	Custer
041	Franklin
043	Fremont
047	Gooding
051	Jefferson
053	Jerome
059	Lemhi
063	Lincoln
065	Madison
067	Minidoka
071	Oneida
077	Power
081	Teton
083	Twin Falls

17	**Illinois**
01	**Southern**
003	Alexander
055	Franklin
059	Gallatin
065	Hamilton
069	Hardin
077	Jackson
087	Johnson
127	Massac
145	Perry
151	Pope
153	Pulaski
157	Randolph
165	Saline
181	Union
193	White
199	Williamson
02	**Claypan**
005	Bond
013	Calhoun
023	Clark
025	Clay
027	Clinton
033	Crawford
035	Cumberland
047	Edwards
049	Effingham
051	Fayette
061	Greene
079	Jasper
081	Jefferson
083	Jersey
101	Lawrence
117	Macoupin
119	Madison
121	Marion
133	Monroe

135 Montgomery
159 Richland
163 St. Clair
173 Shelby
185 Wabash
189 Washington
191 Wayne

03 Prairie
001 Adams
007 Boone
009 Brown
011 Bureau
015 Carroll
017 Cass
019 Champaign
021 Christian
029 Coles
031 Cook
037 DeKalb
039 De Witt
041 Douglas
043 DuPage
045 Edgar
053 Ford
057 Fulton
063 Grundy
067 Hancock
071 Henderson
073 Henry
075 Iroquois
085 Jo Daviess
089 Kane
091 Kankakee
093 Kendall
095 Knox
097 Lake
099 La Salle
103 Lee
105 Livingston
107 Logan
109 McDonough
111 McHenry
113 McLean
115 Macon
123 Marshall
125 Mason
129 Menard
131 Mercer
137 Morgan
139 Moultrie
141 Ogle
143 Peoria
147 Piatt
149 Pike
155 Putnam
161 Rock Island
167 Sangamon
169 Schuyler
171 Scott
175 Stark
177 Stephenson
179 Tazewell
183 Vermilion
187 Warren
195 Whiteside
197 Will
201 Winnebago
203 Woodford

18 Indiana

01 Lower Wabash
021 Clay
027 Daviess
051 Gibson
055 Greene
083 Knox
101 Martin
121 Parke
125 Pike
129 Posey
133 Putnam
153 Sullivan
163 Vanderburgh
165 Vermillion
167 Vigo

02 Knobs
013 Brown
019 Clark
025 Crawford
037 Dubois
043 Floyd
061 Harrison
071 Jackson
093 Lawrence
105 Monroe
109 Morgan
117 Orange
119 Owen
123 Perry
143 Scott
147 Spencer
173 Warrick
175 Washington

03 Upland Flats
029 Dearborn
041 Fayette
047 Franklin
077 Jefferson
079 Jennings
115 Ohio
137 Ripley
155 Switzerland
161 Union

04 Northern
001 Adams
003 Allen
005 Bartholomew
007 Benton
009 Blackford
011 Boone
015 Carroll
017 Cass
023 Clinton
031 Decatur
033 De Kalb
035 Delaware
039 Elkhart
045 Fountain
049 Fulton
053 Grant
057 Hamilton
059 Hancock
063 Hendricks
065 Henry
067 Howard
069 Huntington
073 Jasper
075 Jay
081 Johnson
085 Kosciusko
087 Lagrange
089 Lake
091 La Porte
095 Madison
097 Marion

099	Marshall
103	Miami
107	Montgomery
111	Newton
113	Noble
127	Porter
131	Pulaski
135	Randolph
139	Rush
141	St. Joseph
145	Shelby
149	Starke
151	Steuben
157	Tippecanoe
159	Tipton
169	Wabash
171	Warren
177	Wayne
179	Wells
181	White
183	Whitley

19 Iowa

01 Northeastern

005	Allamakee
011	Benton
013	Black Hawk
017	Bremer
019	Buchanan
023	Butler
031	Cedar
037	Chickasaw
043	Clayton
045	Clinton
055	Delaware
061	Dubuque
065	Fayette
067	Floyd
075	Grundy
089	Howard
097	Jackson
103	Johnson
105	Jones
113	Linn
131	Mitchell
163	Scott
171	Tama
191	Winneshiek

02 Southeastern

007	Appanoose
015	Boone
039	Clarke
049	Dallas
051	Davis
053	Decatur
057	Des Moines
077	Guthrie
079	Hamilton
083	Hardin
087	Henry
095	Iowa
099	Jasper
101	Jefferson
107	Keokuk
111	Lee
115	Louisa
117	Lucas
121	Madison
123	Mahaska
125	Marion
127	Marshall
135	Monroe
139	Muscatine
153	Polk
157	Poweshiek
169	Story
177	Van Buren
179	Wapello
181	Warren
183	Washington
185	Wayne
187	Webster

03 Southwestern

001	Adair
003	Adams
009	Audubon
027	Carroll
029	Cass
047	Crawford
071	Fremont
073	Greene
085	Harrison
129	Mills
133	Monona
137	Montgomery
145	Page
155	Pottawattamie
159	Ringgold
165	Shelby
173	Taylor
175	Union
193	Woodbury

04 Northwestern

021	Buena Vista
025	Calhoun
033	Cerro Gordo
035	Cherokee
041	Clay
059	Dickinson
063	Emmet
069	Franklin
081	Hancock
091	Humboldt
093	Ida
109	Kossuth
119	Lyon
141	O'Brien
143	Osceola
147	Palo Alto
149	Plymouth
151	Pocahontas
161	Sac
167	Sioux
189	Winnebago
195	Worth
197	Wright

20 Kansas

01 Northeastern

005	Atchison
013	Brown
027	Clay
041	Dickinson
043	Doniphan
045	Douglas
059	Franklin
061	Geary
085	Jackson
087	Jefferson
091	Johnson
103	Leavenworth
117	Marshall
121	Miami
131	Nemaha
139	Osage

149	Pottawatomie
161	Riley
177	Shawnee
197	Wabaunsee
201	Washington
209	Wyandotte

02	**Southeastern**
001	Allen
003	Anderson
011	Bourbon
015	Butler
017	Chase
019	Chautauqua
021	Cherokee
031	Coffey
035	Cowley
037	Crawford
049	Elk
073	Greenwood
099	Labette
107	Linn
111	Lyon
115	Marion
125	Montgomery
127	Morris
133	Neosho
205	Wilson
207	Woodson

03	**Western**
007	Barber
009	Barton
023	Cheyenne
025	Clark
029	Cloud
033	Comanche
039	Decatur
047	Edwards
051	Ellis
053	Ellsworth
055	Finney
057	Ford
063	Gove
065	Graham
067	Grant
069	Gray
071	Greeley
075	Hamilton
077	Harper
079	Harvey
081	Haskell
083	Hodgeman
089	Jewell
093	Kearny
095	Kingman
097	Kiowa
101	Lane
105	Lincoln
109	Logan
113	McPherson
119	Meade
123	Mitchell
129	Morton
135	Ness
137	Norton
141	Osborne
143	Ottawa
145	Pawnee
147	Phillips
151	Pratt
153	Rawlins
155	Reno
157	Republic
159	Rice
163	Rooks
165	Rush
167	Russell
169	Saline
171	Scott
173	Sedgwick
175	Seward
179	Sheridan
181	Sherman
183	Smith
185	Stafford
187	Stanton
189	Stevens
191	Sumner
193	Thomas
195	Trego
199	Wallace
203	Wichita

21	**Kentucky**
01	**Eastern**
071	Floyd
095	Harlan
119	Knott
131	Leslie
133	Letcher
159	Martin
193	Perry
195	Pike

02	**Northern Cumberland**
019	Boyd
043	Carter
063	Elliott
089	Greenup
115	Johnson
127	Lawrence
135	Lewis
153	Magoffin
165	Menifee
175	Morgan
197	Powell
205	Rowan
237	Wolfe

03	**Southern Cumberland**
013	Bell
025	Breathitt
051	Clay
065	Estill
109	Jackson
121	Knox
125	Laurel
129	Lee
147	McCreary
189	Owsley
203	Rockcastle
235	Whitley

04	**Bluegrass**
005	Anderson
011	Bath
015	Boone
017	Bourbon
021	Boyle
023	Bracken
037	Campbell
041	Carroll
049	Clark
067	Fayette
069	Fleming
073	Franklin
077	Gallatin
079	Garrard

081	Grant
097	Harrison
103	Henry
111	Jefferson
113	Jessamine
117	Kenton
137	Lincoln
151	Madison
161	Mason
167	Mercer
173	Montgomery
181	Nicholas
185	Oldham
187	Owen
191	Pendleton
201	Robertson
209	Scott
211	Shelby
215	Spencer
223	Trimble
229	Washington
239	Woodford

05	**Pennyroyal**
001	Adair
027	Breckinridge
029	Bullitt
045	Casey
053	Clinton
057	Cumberland
085	Grayson
087	Green
091	Hancock
093	Hardin
099	Hart
123	Larue
155	Marion
163	Meade
169	Metcalfe
179	Nelson
199	Pulaski
207	Russell
217	Taylor
231	Wayne

06	**Western Coalfield**
003	Allen
009	Barren
031	Butler
033	Caldwell
047	Christian
055	Crittenden
059	Daviess
061	Edmonson
101	Henderson
107	Hopkins
141	Logan
149	McLean
171	Monroe
177	Muhlenberg
183	Ohio
213	Simpson
219	Todd
225	Union
227	Warren
233	Webster

07	**Western**
007	Ballard
035	Calloway
039	Carlisle
075	Fulton
083	Graves
105	Hickman
139	Livingston
143	Lyon
145	McCracken
157	Marshall
221	Trigg

22	**Louisiana**
01	**North Delta**
025	Catahoula
029	Concordia
035	East Carroll
041	Franklin
065	Madison
067	Morehouse
083	Richland
107	Tensas
123	West Carroll

02	**South Delta**
001	Acadia
005	Ascension
007	Assumption
009	Avoyelles
045	Iberia
047	Iberville
055	Lafayette
057	Lafourche
077	Pointe Coupee
089	St. Charles
093	St. James
095	St. John the Baptist
097	St. Landry
099	St. Martin
101	St. Mary
109	Terrebonne
113	Vermilion
121	West Baton Rouge
125	West Feliciana

03	**Southwest**
003	Allen
011	Beauregard
019	Calcasieu
039	Evangeline
043	Grant
053	Jefferson Davis
059	La Salle
069	Natchitoches
079	Rapides
085	Sabine
115	Vernon

04	**Southeast**
033	East Baton Rouge
037	East Feliciana
063	Livingston
091	St. Helena
103	St. Tammany
105	Tangipahoa
117	Washington

05	**Northwest**
013	Bienville
015	Bossier
017	Caddo
021	Caldwell
027	Claiborne
031	De Soto
049	Jackson
061	Lincoln
073	Ouachita
081	Red River
111	Union
119	Webster
127	Winn

	Unsampled parishes
023	Cameron
051	Jefferson
071	Orleans
075	Plaquemines
087	St. Bernard

23	**Maine**
01	**Washington**
029	Washington
02	**Aroostook**
003	Aroostook
03	**Penobscot**
019	Penobscot
04	**Hancock**
009	Hancock
05	**Piscataquis**
021	Piscataquis
06	**Capitol Region**
011	Kennebec
013	Knox
015	Lincoln
027	Waldo
07	**Somerset**
025	Somerset
08	**Casco Bay**
001	Androscoggin
005	Cumberland
023	Sagadahoc
031	York
09	**Western Maine**
007	Franklin
017	Oxford

24	**Maryland**
02	**North Central**
003	Anne Arundel
005	Baltimore
011	Caroline
013	Carroll
015	Cecil
021	Frederick
025	Harford
027	Howard
029	Kent
031	Montgomery
033	Prince George's
035	Queen Anne's
041	Talbot
043	Washington
510	Baltimore city
03	**Southern**
009	Calvert
017	Charles
037	St. Mary's
04	**Lower Eastern Shore**
019	Dorchester
039	Somerset
045	Wicomico
047	Worcester
05	**Western**
001	Allegany
023	Garrett

25	**Massachusetts**
01	State
001	Barnstable
003	Berkshire
005	Bristol
007	Dukes
009	Essex
011	Franklin
013	Hampden
015	Hampshire
017	Middlesex
019	Nantucket
021	Norfolk
023	Plymouth
025	Suffolk
027	Worcester

26	**Michigan**
01	**Eastern Upper Peninsula**
003	Alger
033	Chippewa
041	Delta
095	Luce
097	Mackinac
109	Menominee
153	Schoolcraft
02	**Western Upper Peninsula**
013	Baraga
043	Dickinson
053	Gogebic
061	Houghton
071	Iron
083	Keweenaw
103	Marquette
131	Ontonagon
03	**Northern Lower Peninsula**
001	Alcona
007	Alpena
009	Antrim
011	Arenac
017	Bay
019	Benzie
029	Charlevoix
031	Cheboygan
035	Clare
039	Crawford
047	Emmet
051	Gladwin
055	Grand Traverse
069	Iosco
073	Isabella
079	Kalkaska
085	Lake
089	Leelanau
101	Manistee
105	Mason
107	Mecosta
111	Midland
113	Missaukee
119	Montmorency
123	Newaygo
127	Oceana
129	Ogemaw
133	Osceola
135	Oscoda
137	Otsego
141	Presque Isle
143	Roscommon
165	Wexford

04	**Southern Lower Peninsula**
005	Allegan
015	Barry
021	Berrien
023	Branch
025	Calhoun
027	Cass
037	Clinton
045	Eaton
049	Genesee
057	Gratiot
059	Hillsdale
063	Huron
065	Ingham
067	Ionia
075	Jackson
077	Kalamazoo
081	Kent
087	Lapeer
091	Lenawee
093	Livingston
099	Macomb
115	Monroe
117	Montcalm
121	Muskegon
125	Oakland
139	Ottawa
145	Saginaw
147	St. Clair
149	St. Joseph
151	Sanilac
155	Shiawassee
157	Tuscola
159	Van Buren
161	Washtenaw
163	Wayne

27	**Minnesota**
01	**Aspen-Birch**
017	Carlton
031	Cook
071	Koochiching
075	Lake
137	St. Louis

02	**Northern Pine**
001	Aitkin
005	Becker
007	Beltrami
021	Cass
029	Clearwater
035	Crow Wing
057	Hubbard
061	Itasca
077	Lake of the Woods
087	Mahnomen
135	Roseau
159	Wadena

03	**Central Hardwood**
003	Anoka
009	Benton
019	Carver
025	Chisago
037	Dakota
041	Douglas
045	Fillmore
049	Goodhue
053	Hennepin
055	Houston
059	Isanti
065	Kanabec
079	Le Sueur
095	Mille Lacs
097	Morrison
109	Olmsted
111	Otter Tail
115	Pine
123	Ramsey
131	Rice
139	Scott
141	Sherburne
145	Stearns
153	Todd
157	Wabasha
163	Washington
169	Winona
171	Wright

04	**Prairie**
011	Big Stone
013	Blue Earth
015	Brown
023	Chippewa
027	Clay
033	Cottonwood
039	Dodge
043	Faribault
047	Freeborn
051	Grant
063	Jackson
067	Kandiyohi
069	Kittson
073	Lac qui Parle
081	Lincoln
083	Lyon
085	McLeod
089	Marshall
091	Martin
093	Meeker
099	Mower
101	Murray
103	Nicollet
105	Nobles
107	Norman
113	Pennington
117	Pipestone
119	Polk
121	Pope
125	Red Lake
127	Redwood
129	Renville
133	Rock
143	Sibley
147	Steele
149	Stevens
151	Swift
155	Traverse
161	Waseca
165	Watonwan
167	Wilkin
173	Yellow Medicine

28	**Mississippi**
01	**Delta**
011	Bolivar
027	Coahoma
051	Holmes
053	Humphreys
055	Issaquena
083	Leflore
119	Quitman
125	Sharkey
133	Sunflower
135	Tallahatchie
143	Tunica
149	Warren
151	Washington
163	Yazoo

02 North
003 Alcorn
009 Benton
013 Calhoun
015 Carroll
017 Chickasaw
019 Choctaw
025 Clay
033 DeSoto
043 Grenada
057 Itawamba
071 Lafayette
081 Lee
087 Lowndes
093 Marshall
095 Monroe
097 Montgomery
105 Oktibbeha
107 Panola
115 Pontotoc
117 Prentiss
137 Tate
139 Tippah
141 Tishomingo
145 Union
155 Webster
161 Yalobusha

03 Central
007 Attala
023 Clarke
061 Jasper
069 Kemper
075 Lauderdale
079 Leake
099 Neshoba
101 Newton
103 Noxubee
121 Rankin
123 Scott
127 Simpson
129 Smith
159 Winston

04 South
031 Covington
035 Forrest
039 George
041 Greene
045 Hancock
047 Harrison
059 Jackson
065 Jefferson Davis
067 Jones
073 Lamar
077 Lawrence
091 Marion
109 Pearl River
111 Perry
131 Stone
147 Walthall
153 Wayne

05 Southwest
001 Adams
005 Amite
021 Claiborne
029 Copiah
037 Franklin
049 Hinds
063 Jefferson
085 Lincoln
089 Madison
113 Pike
157 Wilkinson

29 Missouri

01 Eastern Ozarks
017 Bollinger
023 Butler
035 Carter
055 Crawford
065 Dent
093 Iron
123 Madison
149 Oregon
179 Reynolds
181 Ripley
187 St. Francois
203 Shannon
221 Washington
223 Wayne

02 Southwestern Ozarks
009 Barry
043 Christian
067 Douglas
091 Howell
119 McDonald
145 Newton
153 Ozark
209 Stone
213 Taney
215 Texas
225 Webster
229 Wright

03 Northwestern Ozarks
015 Benton
029 Camden
039 Cedar
059 Dallas
085 Hickory
105 Laclede
125 Maries
131 Miller
141 Morgan
161 Phelps
167 Polk
169 Pulaski
185 St. Clair

04 Prairie
001 Adair
003 Andrew
005 Atchison
007 Audrain
011 Barton
013 Bates
021 Buchanan
025 Caldwell
033 Carroll
037 Cass
041 Chariton
045 Clark
047 Clay
049 Clinton
053 Cooper
057 Dade
061 Daviess
063 DeKalb
075 Gentry
077 Greene
079 Grundy
081 Harrison
083 Henry
087 Holt

095	Jackson
097	Jasper
101	Johnson
103	Knox
107	Lafayette
109	Lawrence
111	Lewis
113	Lincoln
115	Linn
117	Livingston
121	Macon
127	Marion
129	Mercer
137	Monroe
147	Nodaway
159	Pettis
163	Pike
165	Platte
171	Putnam
173	Ralls
175	Randolph
177	Ray
195	Saline
197	Schuyler
199	Scotland
205	Shelby
211	Sullivan
217	Vernon
227	Worth
05	**Riverborder**
019	Boone
027	Callaway
031	Cape Girardeau
051	Cole
069	Dunklin
071	Franklin
073	Gasconade
089	Howard
099	Jefferson
133	Mississippi
135	Moniteau
139	Montgomery
143	New Madrid
151	Osage
155	Pemiscot
157	Perry
183	St. Charles
186	Ste. Genevieve
189	St. Louis
201	Scott
207	Stoddard
219	Warren
510	St. Louis city

30	**Montana**
01	**Northwestern**
029	Flathead
047	Lake
053	Lincoln
089	Sanders
02	**Eastern**
003	Big Horn
005	Blaine
009	Carbon
011	Carter
015	Chouteau
017	Custer
019	Daniels
021	Dawson
025	Fallon
027	Fergus
033	Garfield
035	Glacier
037	Golden Valley
041	Hill
051	Liberty
055	McCone
065	Musselshell
069	Petroleum
071	Phillips
073	Pondera
075	Powder River
079	Prairie
083	Richland
085	Roosevelt
087	Rosebud
091	Sheridan
095	Stillwater
097	Sweet Grass
099	Teton
101	Toole
103	Treasure
105	Valley
109	Wibaux
111	Yellowstone
113	Yellowstone National Park

03	**Western**
039	Granite
061	Mineral
063	Missoula
081	Ravalli
04	**West Central**
007	Broadwater
013	Cascade
043	Jefferson
045	Judith Basin
049	Lewis and Clark
059	Meagher
077	Powell
107	Wheatland
05	**Southwestern**
001	Beaverhead
023	Deer Lodge
031	Gallatin
057	Madison
067	Park
093	Silver Bow

31	**Nebraska**
01	**Eastern**
001	Adams
011	Boone
019	Buffalo
021	Burt
023	Butler
025	Cass
027	Cedar
035	Clay
037	Colfax
039	Cuming
041	Custer
043	Dakota
047	Dawson
051	Dixon
053	Dodge
055	Douglas
059	Fillmore
061	Franklin
063	Frontier
065	Furnas
067	Gage
073	Gosper
077	Greeley

079	Hall
081	Hamilton
083	Harlan
087	Hitchcock
093	Howard
095	Jefferson
097	Johnson
099	Kearney
109	Lancaster
119	Madison
121	Merrick
125	Nance
127	Nemaha
129	Nuckolls
131	Otoe
133	Pawnee
137	Phelps
139	Pierce
141	Platte
143	Polk
145	Red Willow
147	Richardson
151	Saline
153	Sarpy
155	Saunders
159	Seward
163	Sherman
167	Stanton
169	Thayer
173	Thurston
175	Valley
177	Washington
179	Wayne
181	Webster
185	York
02	**Western**
003	Antelope
005	Arthur
007	Banner
009	Blaine
013	Box Butte
015	Boyd
017	Brown
029	Chase
031	Cherry
033	Cheyenne
045	Dawes
049	Deuel
057	Dundy
069	Garden
071	Garfield
075	Grant
085	Hayes
089	Holt
091	Hooker
101	Keith
103	Keya Paha
105	Kimball
107	Knox
111	Lincoln
113	Logan
115	Loup
117	McPherson
123	Morrill
135	Perkins
149	Rock
157	Scotts Bluff
161	Sheridan
165	Sioux
171	Thomas
183	Wheeler

32	**Nevada**
01	**Nevada**
001	Churchill
003	Clark
005	Douglas
007	Elko
009	Esmeralda
011	Eureka
013	Humboldt
015	Lander
017	Lincoln
019	Lyon
021	Mineral
023	Nye
027	Pershing
029	Storey
031	Washoe
033	White Pine
510	Carson City

33	**New Hampshire**
02	**Northern**
003	Carroll
007	Coos
009	Grafton
03	**Southern**
001	Belknap
005	Cheshire
011	Hillsborough
013	Merrimack
015	Rockingham
017	Strafford
019	Sullivan

34	**New Jersey**
01	**State**
001	Atlantic
003	Bergen
005	Burlington
007	Camden
009	Cape May
011	Cumberland
013	Essex
015	Gloucester
017	Hudson
019	Hunterdon
021	Mercer
023	Middlesex
025	Monmouth
027	Morris
029	Ocean
031	Passaic
033	Salem
035	Somerset
037	Sussex
039	Union
041	Warren

35	**New Mexico**
01	**Northwestern**
001	Bernalillo
006	Cibola
028	Los Alamos
031	McKinley
039	Rio Arriba
043	Sandoval
045	San Juan
049	Santa Fe
055	Taos
061	Valencia

02 Northeastern
007 Colfax
019 Guadalupe
021 Harding
033 Mora
037 Quay
047 San Miguel
057 Torrance
059 Union

03 Southwestern
003 Catron
013 Dona Ana
017 Grant
023 Hidalgo
029 Luna
051 Sierra
053 Socorro

04 Southeastern
005 Chaves
009 Curry
011 DeBaca
015 Eddy
025 Lea
027 Lincoln
035 Otero
041 Roosevelt

36 New York

01 Adirondack
019 Clinton
033 Franklin
045 Jefferson
089 St. Lawrence

02 Lake Plain
011 Cayuga
029 Erie
037 Genesee
051 Livingston
053 Madison
055 Monroe
063 Niagara
067 Onondaga
069 Ontario
073 Orleans
075 Oswego
099 Seneca
117 Wayne
121 Wyoming
123 Yates

03 Western Adirondack
035 Fulton
043 Herkimer
049 Lewis
065 Oneida

04 Eastern Adirondack
031 Essex
041 Hamilton
113 Warren

05 Southwest Highlands
003 Allegany
009 Cattaraugus
013 Chautauqua
101 Steuben

06 South-Central Highlands
007 Broome
015 Chemung
017 Chenango
023 Cortland
025 Delaware
077 Otsego
097 Schuyler
107 Tioga
109 Tompkins

07 Capitol District
001 Albany
021 Columbia
057 Montgomery
083 Rensselaer
091 Saratoga
093 Schenectady
115 Washington

08 Catskill-Lower Hudson
005 Bronx
027 Dutchess
039 Greene
047 Kings
059 Nassau
061 New York
071 Orange
079 Putnam
081 Queens
085 Richmond
087 Rockland
095 Schoharie
103 Suffolk
105 Sullivan
111 Ulster
119 Westchester

37 North Carolina

01 Southern Coastal Plain
017 Bladen
019 Brunswick
047 Columbus
051 Cumberland
061 Duplin
079 Greene
085 Harnett
093 Hoke
101 Johnston
103 Jones
105 Lee
107 Lenoir
125 Moore
129 New Hanover
133 Onslow
141 Pender
153 Richmond
155 Robeson
163 Sampson
165 Scotland
191 Wayne

02 Northern Coastal Plain
013 Beaufort
015 Bertie
029 Camden
031 Carteret
041 Chowan
049 Craven
053 Currituck
055 Dare
065 Edgecombe
073 Gates
083 Halifax
091 Hertford
095 Hyde
117 Martin
127 Nash

131 Northampton
137 Pamlico
139 Pasquotank
143 Perquimans
147 Pitt
177 Tyrrell
187 Washington
195 Wilson

03 Piedmont
001 Alamance
003 Alexander
007 Anson
025 Cabarrus
033 Caswell
035 Catawba
037 Chatham
045 Cleveland
057 Davidson
059 Davie
063 Durham
067 Forsyth
069 Franklin
071 Gaston
077 Granville
081 Guilford
097 Iredell
109 Lincoln
119 Mecklenburg
123 Montgomery
135 Orange
145 Person
149 Polk
151 Randolph
157 Rockingham
159 Rowan
161 Rutherford
167 Stanly
169 Stokes
171 Surry
179 Union
181 Vance
183 Wake
185 Warren
197 Yadkin

04 Mountains
005 Alleghany
009 Ashe
011 Avery
021 Buncombe
023 Burke
027 Caldwell
039 Cherokee
043 Clay
075 Graham
087 Haywood
089 Henderson
099 Jackson
111 McDowell
113 Macon
115 Madison
121 Mitchell
173 Swain
175 Transylvania
189 Watauga
193 Wilkes
199 Yancey

38 North Dakota

01 Eastern
001 Adams
003 Barnes
005 Benson
007 Billings
009 Bottineau
011 Bowman
013 Burke
015 Burleigh
017 Cass
019 Cavalier
021 Dickey
023 Divide
025 Dunn
027 Eddy
029 Emmons
031 Foster
033 Golden Valley
035 Grand Forks
037 Grant
039 Griggs
041 Hettinger
043 Kidder
045 LaMoure
047 Logan
049 McHenry
051 McIntosh
053 McKenzie
055 McLean
057 Mercer
059 Morton
061 Mountrail
063 Nelson
065 Oliver
067 Pembina
069 Pierce
071 Ramsey
073 Ransom
075 Renville
077 Richland
079 Rolette
081 Sargent
083 Sheridan
085 Sioux
087 Slope
089 Stark
091 Steele
093 Stutsman
095 Towner
097 Traill
099 Walsh
101 Ward
103 Wells
105 Williams

39 Ohio

01 South-Central
001 Adams
015 Brown
025 Clermont
053 Gallia
071 Highland
079 Jackson
087 Lawrence
131 Pike
141 Ross
145 Scioto

02 Southeastern
009 Athens
073 Hocking
105 Meigs
115 Morgan
127 Perry
163 Vinton
167 Washington

03	**East-Central**
013	Belmont
019	Carroll
031	Coshocton
059	Guernsey
067	Harrison
075	Holmes
081	Jefferson
111	Monroe
119	Muskingum
121	Noble
157	Tuscarawas
04	**Northeastern**
005	Ashland
007	Ashtabula
029	Columbiana
035	Cuyahoga
043	Erie
055	Geauga
077	Huron
085	Lake
093	Lorain
099	Mahoning
103	Medina
133	Portage
139	Richland
151	Stark
153	Summit
155	Trumbull
169	Wayne
05	**Southwestern**
017	Butler
023	Clark
027	Clinton
037	Darke
045	Fairfield
047	Fayette
049	Franklin
057	Greene
061	Hamilton
089	Licking
097	Madison
109	Miami
113	Montgomery
129	Pickaway
135	Preble
165	Warren
06	**Northwestern**
003	Allen
011	Auglaize
021	Champaign
033	Crawford
039	Defiance
041	Delaware
051	Fulton
063	Hancock
065	Hardin
069	Henry
083	Knox
091	Logan
095	Lucas
101	Marion
107	Mercer
117	Morrow
123	Ottawa
125	Paulding
137	Putnam
143	Sandusky
147	Seneca
149	Shelby
159	Union
161	Van Wert
171	Williams
173	Wood
175	Wyandot
40	**Oklahoma**
01	**Southeast**
005	Atoka
013	Bryan
023	Choctaw
029	Coal
061	Haskell
077	Latimer
079	Le Flore
089	McCurtain
121	Pittsburg
127	Pushmataha
02	**Northeast**
001	Adair
021	Cherokee
041	Delaware
091	McIntosh
097	Mayes
101	Muskogee
115	Ottawa
135	Sequoyah
	Unsampled counties
003	Alfalfa
007	Beaver
009	Beckham
011	Blaine
015	Caddo
017	Canadian
019	Carter
025	Cimarron
027	Cleveland
031	Comanche
033	Cotton
035	Craig
037	Creek
039	Custer
043	Dewey
045	Ellis
047	Garfield
049	Garvin
051	Grady
053	Grant
055	Greer
057	Harmon
059	Harper
063	Hughes
065	Jackson
067	Jefferson
069	Johnston
071	Kay
073	Kingfisher
075	Kiowa
081	Lincoln
083	Logan
085	Love
087	McClain
093	Major
095	Marshall
099	Murray
103	Noble
105	Nowata
107	Okfuskee
109	Oklahoma
111	Okmulgee
113	Osage
117	Pawnee
119	Payne
123	Pontotoc

125 Pottawatomie
129 Roger Mills
131 Rogers
133 Seminole
137 Stephens
139 Texas
141 Tillman
143 Tulsa
145 Wagoner
147 Washington
149 Washita
151 Woods
153 Woodward

41 Oregon

00 Northwest
005 Clackamas
007 Clatsop
009 Columbia
027 Hood River
047 Marion
051 Multnomah
053 Polk
057 Tillamook
067 Washington
071 Yamhill

01 West Central
003 Benton
039 Lane
041 Lincoln
043 Linn

02 Southwest
011 Coos
015 Curry
019 Douglas
029 Jackson
033 Josephine

03 Central
013 Crook
017 Deschutes
021 Gilliam
031 Jefferson
035 Klamath
037 Lake
055 Sherman
065 Wasco
069 Wheeler

04 Blue Mountains
001 Baker
023 Grant
025 Harney
045 Malheur
049 Morrow
059 Umatilla
061 Union
063 Wallowa

42 Pennsylvania

00 South Central
043 Dauphin
055 Franklin
057 Fulton
061 Huntingdon
067 Juniata
087 Mifflin
099 Perry
109 Snyder
119 Union

05 Western
003 Allegheny
005 Armstrong
007 Beaver
019 Butler
039 Crawford
049 Erie
059 Greene
063 Indiana
073 Lawrence
085 Mercer
125 Washington
129 Westmoreland

06 North Central/Allegheny
023 Cameron
027 Centre
031 Clarion
033 Clearfield
035 Clinton
047 Elk
053 Forest
065 Jefferson
081 Lycoming
083 Mc Kean
105 Potter
113 Sullivan
117 Tioga
121 Venango
123 Warren

07 Southwestern
009 Bedford
013 Blair
021 Cambria
051 Fayette
111 Somerset

08 Northeastern/Pocono
015 Bradford
025 Carbon
037 Columbia
069 Lackawanna
079 Luzerne
089 Monroe
093 Montour
097 Northumberland
103 Pike
107 Schuylkill
115 Susquehanna
127 Wayne
131 Wyoming

09 Southeastern
001 Adams
011 Berks
017 Bucks
029 Chester
041 Cumberland
045 Delaware
071 Lancaster
075 Lebanon
077 Lehigh
091 Montgomery
095 Northampton
101 Philadelphia
133 York

44 Rhode Island

01 State
001 Bristol
003 Kent
005 Newport
007 Providence
009 Washington

45	**South Carolina**
01	**Southern Coastal Plain**
003	Aiken
005	Allendale
009	Bamberg
011	Barnwell
013	Beaufort
017	Calhoun
029	Colleton
035	Dorchester
049	Hampton
053	Jasper
063	Lexington
075	Orangeburg
02	**Northern Coastal Plain**
015	Berkeley
019	Charleston
025	Chesterfield
027	Clarendon
031	Darlington
033	Dillon
041	Florence
043	Georgetown
051	Horry
055	Kershaw
061	Lee
067	Marion
069	Marlboro
079	Richland
085	Sumter
089	Williamsburg
03	**Piedmont**
001	Abbeville
007	Anderson
021	Cherokee
023	Chester
037	Edgefield
039	Fairfield
045	Greenville
047	Greenwood
057	Lancaster
059	Laurens
065	McCormick
071	Newberry
073	Oconee
077	Pickens
081	Saluda
083	Spartanburg
087	Union
091	York

46	**South Dakota**
01	**Eastern**
003	Aurora
005	Beadle
007	Bennett
009	Bon Homme
011	Brookings
013	Brown
015	Brule
017	Buffalo
021	Campbell
023	Charles Mix
025	Clark
027	Clay
029	Codington
031	Corson
035	Davison
037	Day
039	Deuel
041	Dewey
043	Douglas
045	Edmunds
049	Faulk
051	Grant
053	Gregory
055	Haakon
057	Hamlin
059	Hand
061	Hanson
065	Hughes
067	Hutchinson
069	Hyde
071	Jackson
073	Jerauld
075	Jones
077	Kingsbury
079	Lake
083	Lincoln
085	Lyman
087	McCook
089	McPherson
091	Marshall
095	Mellette
097	Miner
099	Minnehaha
101	Moody
105	Perkins
107	Potter
109	Roberts
111	Sanborn
115	Spink
117	Stanley
119	Sully
121	Todd
123	Tripp
125	Turner
127	Union
129	Walworth
135	Yankton
137	Ziebach
02	**Western**
019	Butte
033	Custer
047	Fall River
063	Harding
081	Lawrence
093	Meade
103	Pennington
113	Shannon

47	**Tennessee**
01	**West**
017	Carroll
023	Chester
033	Crockett
045	Dyer
047	Fayette
053	Gibson
069	Hardeman
075	Haywood
077	Henderson
079	Henry
095	Lake
097	Lauderdale
109	McNairy
113	Madison
131	Obion
157	Shelby
167	Tipton
183	Weakley
02	**West Central**
005	Benton
039	Decatur

071 Hardin
081 Hickman
083 Houston
085 Humphreys
099 Lawrence
101 Lewis
135 Perry
161 Stewart
181 Wayne

03 Central
003 Bedford
015 Cannon
021 Cheatham
027 Clay
031 Coffee
037 Davidson
041 DeKalb
043 Dickson
055 Giles
087 Jackson
103 Lincoln
111 Macon
117 Marshall
119 Maury
125 Montgomery
127 Moore
147 Robertson
149 Rutherford
159 Smith
165 Sumner
169 Trousdale
187 Williamson
189 Wilson

04 Plateau
007 Bledsoe
013 Campbell
035 Cumberland
049 Fentress
051 Franklin
061 Grundy
115 Marion
129 Morgan
133 Overton
137 Pickett
141 Putnam
151 Scott
153 Sequatchie
175 Van Buren
177 Warren
185 White

05 East
001 Anderson
009 Blount
011 Bradley
019 Carter
025 Claiborne
029 Cocke
057 Grainger
059 Greene
063 Hamblen
065 Hamilton
067 Hancock
073 Hawkins
089 Jefferson
091 Johnson
093 Knox
105 Loudon
107 McMinn
121 Meigs
123 Monroe
139 Polk
143 Rhea
145 Roane
155 Sevier
163 Sullivan
171 Unicoi
173 Union
179 Washington

48 Texas

01 Southeast
005 Angelina
071 Chambers
185 Grimes
199 Hardin
201 Harris
225 Houston
241 Jasper
245 Jefferson
289 Leon
291 Liberty
313 Madison
339 Montgomery
351 Newton
361 Orange
373 Polk
403 Sabine
405 San Augustine
407 San Jacinto
455 Trinity
457 Tyler
471 Walker
473 Waller

02 Northeast
001 Anderson
037 Bowie
063 Camp
067 Cass
073 Cherokee
159 Franklin
183 Gregg
203 Harrison
213 Henderson
315 Marion
343 Morris
347 Nacogdoches
365 Panola
387 Red River
401 Rusk
419 Shelby
423 Smith
449 Titus
459 Upshur
467 Van Zandt
499 Wood

Unsampled counties
003 Andrews
007 Aransas
009 Archer
011 Armstrong
013 Atascosa
015 Austin
017 Bailey
019 Bandera
021 Bastrop
023 Baylor
025 Bee
027 Bell
029 Bexar
031 Blanco
033 Borden
035 Bosque
039 Brazoria

041	Brazos	149	Fayette	269	King
043	Brewster	151	Fisher	271	Kinney
045	Briscoe	153	Floyd	273	Kleberg
047	Brooks	155	Foard	275	Knox
049	Brown	157	Fort Bend	277	Lamar
051	Burleson	161	Freestone	279	Lamb
053	Burnet	163	Frio	281	Lampasas
055	Caldwell	165	Gaines	283	La Salle
057	Calhoun	167	Galveston	285	Lavaca
059	Callahan	169	Garza	287	Lee
061	Cameron	171	Gillespie	293	Limestone
065	Carson	173	Glasscock	295	Lipscomb
069	Castro	175	Goliad	297	Live Oak
075	Childress	177	Gonzales	299	Llano
077	Clay	179	Gray	301	Loving
079	Cochran	181	Grayson	303	Lubbock
081	Coke	187	Guadalupe	305	Lynn
083	Coleman	189	Hale	307	McCulloch
085	Collin	191	Hall	309	McLennan
087	Collingsworth	193	Hamilton	311	McMullen
089	Colorado	195	Hansford	317	Martin
091	Comal	197	Hardeman	319	Mason
093	Comanche	205	Hartley	321	Matagorda
095	Concho	207	Haskell	323	Maverick
097	Cooke	209	Hays	325	Medina
099	Coryell	211	Hemphill	327	Menard
101	Cottle	215	Hidalgo	329	Midland
103	Crane	217	Hill	331	Milam
105	Crockett	219	Hockley	333	Mills
107	Crosby	221	Hood	335	Mitchell
109	Culberson	223	Hopkins	337	Montague
111	Dallam	227	Howard	341	Moore
113	Dallas	229	Hudspeth	345	Motley
115	Dawson	231	Hunt	349	Navarro
117	Deaf Smith	233	Hutchinson	353	Nolan
119	Delta	235	Irion	355	Nueces
121	Denton	237	Jack	357	Ochiltree
123	DeWitt	239	Jackson	359	Oldham
125	Dickens	243	Jeff Davis	363	Palo Pinto
127	Dimmit	247	Jim Hogg	367	Parker
129	Donley	249	Jim Wells	369	Parmer
131	Duval	251	Johnson	371	Pecos
133	Eastland	253	Jones	375	Potter
135	Ector	255	Karnes	377	Presidio
137	Edwards	257	Kaufman	379	Rains
139	Ellis	259	Kendall	381	Randall
141	El Paso	261	Kenedy	383	Reagan
143	Erath	263	Kent	385	Real
145	Falls	265	Kerr	389	Reeves
147	Fannin	267	Kimble	391	Refugio

393	Roberts
395	Robertson
397	Rockwall
399	Runnels
409	San Patricio
411	San Saba
413	Schleicher
415	Scurry
417	Shackelford
421	Sherman
425	Somervell
427	Starr
429	Stephens
431	Sterling
433	Stonewall
435	Sutton
437	Swisher
439	Tarrant
441	Taylor
443	Terrell
445	Terry
447	Throckmorton
451	Tom Green
453	Travis
461	Upton
463	Uvalde
465	Val Verde
469	Victoria
475	Ward
477	Washington
479	Webb
481	Wharton
483	Wheeler
485	Wichita
487	Wilbarger
489	Willacy
491	Williamson
493	Wilson
495	Winkler
497	Wise
501	Yoakum
503	Young
505	Zapata
507	Zavala

49	**Utah**
01	**Northern**
003	Box Elder
005	Cache
011	Davis
029	Morgan
033	Rich
035	Salt Lake
043	Summit
045	Tooele
049	Utah
051	Wasatch
057	Weber
02	**Uinta**
009	Daggett
013	Duchesne
047	Uintah
03	**Central**
023	Juab
027	Millard
031	Piute
039	Sanpete
041	Sevier
055	Wayne
04	**Eastern**
007	Carbon
015	Emery
019	Grand
037	San Juan
05	**Southwestern**
001	Beaver
017	Garfield
021	Iron
025	Kane
053	Washington

50	**Vermont**
02	**Northern**
005	Caledonia
009	Essex
011	Franklin
013	Grand Isle
015	Lamoille
017	Orange
019	Orleans
023	Washington
003	**Southern**
001	Addison
003	Bennington
007	Chittenden
021	Rutland
025	Windham
027	Windsor

51	**Virginia**
01	**Coastal Plain**
001	Accomack
025	Brunswick
033	Caroline
036	Charles City
041	Chesterfield
053	Dinwiddie
057	Essex
073	Gloucester
081	Greensville
085	Hanover
087	Henrico
093	Isle of Wight
095	James City
097	King and Queen
099	King George
101	King William
103	Lancaster
115	Mathews
119	Middlesex
127	New Kent
131	Northampton
133	Northumberland
149	Prince George
159	Richmond
175	Southampton
181	Surry
183	Sussex
193	Westmoreland
199	York
550	Chesapeake city
650	Hampton city
700	Newport News city
800	Suffolk city
810	Virginia Beach city
02	**Southern Piedmont**
007	Amelia
011	Appomattox
019	Bedford
029	Buckingham
031	Campbell
037	Charlotte

049	Cumberland
067	Franklin
083	Halifax
089	Henry
111	Lunenburg
117	Mecklenburg
135	Nottoway
141	Patrick
143	Pittsylvania
145	Powhatan
147	Prince Edward
03	**Northern Piedmont**
003	Albemarle
009	Amherst
013	Arlington
047	Culpeper
059	Fairfax
061	Fauquier
065	Fluvanna
075	Goochland
079	Greene
107	Loudoun
109	Louisa
113	Madison
125	Nelson
137	Orange
153	Prince William
157	Rappahannock
177	Spotsylvania
179	Stafford
04	**Northern Mountains**
005	Alleghany
015	Augusta
017	Bath
023	Botetourt
043	Clarke
045	Craig
069	Frederick
091	Highland
139	Page
161	Roanoke
163	Rockbridge
165	Rockingham
171	Shenandoah
187	Warren
05	**Southern Mountains**
021	Bland
027	Buchanan
035	Carroll
051	Dickenson
063	Floyd
071	Giles
077	Grayson
105	Lee
121	Montgomery
155	Pulaski
167	Russell
169	Scott
173	Smyth
185	Tazewell
191	Washington
195	Wise
197	Wythe
	Unsampled cities
510	Alexandria city
515	Bedford city
520	Bristol city
530	Buena Vista city
540	Charlottesville city
560	Clifton Forge city
570	Colonial Heights city
580	Covington city
590	Danville city
595	Emporia city
600	Fairfax city
610	Falls Church city
620	Franklin city
630	Fredericksburg city
640	Galax city
660	Harrisonburg city
670	Hopewell city
678	Lexington city
680	Lynchburg city
683	Manassas city
685	Manassas Park city
690	Martinsville city
710	Norfolk city
720	Norton city
730	Petersburg city
735	Poquoson city
740	Portsmouth city
750	Radford city
760	Richmond city
770	Roanoke city
775	Salem city
780	South Boston city
790	Staunton city
820	Waynesboro city
830	Williamsburg city
840	Winchester city

53 Washington

05	**Puget Sound**
029	Island
033	King
035	Kitsap
053	Pierce
055	San Juan
057	Skagit
061	Snohomish
073	Whatcom
06	**Olympic Peninsula**
009	Clallam
027	Grays Harbor
031	Jefferson
045	Mason
067	Thurston
07	**Southwest**
011	Clark
015	Cowlitz
041	Lewis
049	Pacific
059	Skamania
069	Wahkiakum
08	**Central**
001	Adams
003	Asotin
005	Benton
013	Columbia
019	Ferry
021	Franklin
023	Garfield
025	Grant
043	Lincoln
051	Pend Oreille
063	Spokane
065	Stevens
071	Walla Walla
075	Whitman
09	**Inland Empire**
007	Chelan

017 Douglas
037 Kittitas
039 Klickitat
047 Okanogan
077 Yakima

54 West Virginia

02 Northeastern
001 Barbour
003 Berkeley
007 Braxton
023 Grant
027 Hampshire
031 Hardy
033 Harrison
037 Jefferson
041 Lewis
057 Mineral
065 Morgan
071 Pendleton
075 Pocahontas
077 Preston
083 Randolph
091 Taylor
093 Tucker
097 Upshur
101 Webster

03 Southern
005 Boone
015 Clay
019 Fayette
025 Greenbrier
039 Kanawha
045 Logan
047 McDowell
055 Mercer
059 Mingo
063 Monroe
067 Nicholas
081 Raleigh
089 Summers
109 Wyoming

04 Northwestern
009 Brooke
011 Cabell
013 Calhoun
017 Doddridge
021 Gilmer
029 Hancock
035 Jackson
043 Lincoln
049 Marion
051 Marshall
053 Mason
061 Monongalia
069 Ohio
073 Pleasants
079 Putnam
085 Ritchie
087 Roane
095 Tyler
099 Wayne
103 Wetzel
105 Wirt
107 Wood

55 Wisconsin

01 Northeastern
037 Florence
041 Forest
067 Langlade
069 Lincoln
075 Marinette
078 Menominee
083 Oconto
085 Oneida
115 Shawano
125 Vilas

02 Northwestern
003 Ashland
005 Barron
007 Bayfield
013 Burnett
031 Douglas
051 Iron
095 Polk
099 Price
107 Rusk
113 Sawyer
119 Taylor
129 Washburn

03 Central
001 Adams
017 Chippewa
019 Clark
035 Eau Claire
053 Jackson
057 Juneau
073 Marathon
077 Marquette
081 Monroe
097 Portage
135 Waupaca
137 Waushara
141 Wood

04 Southwestern
011 Buffalo
023 Crawford
033 Dunn
043 Grant
049 Iowa
063 La Crosse
065 Lafayette
091 Pepin
093 Pierce
103 Richland
109 St. Croix
111 Sauk
121 Trempealeau
123 Vernon

05 Southeastern
009 Brown
015 Calumet
021 Columbia
025 Dane
027 Dodge
029 Door
039 Fond du Lac
045 Green
047 Green Lake
055 Jefferson
059 Kenosha
061 Kewaunee
071 Manitowoc
079 Milwaukee
087 Outagamie
089 Ozaukee
101 Racine
105 Rock

117	Sheboygan
127	Walworth
131	Washington
133	Waukesha
139	Winnebago

56	**Wyoming**
01	**Western**
013	Fremont
017	Hot Springs
023	Lincoln
029	Park
035	Sublette
037	Sweetwater
039	Teton
041	Uinta
02	**Central and Southeastern**
001	Albany
003	Big Horn
007	Carbon
009	Converse
015	Goshen
019	Johnson
021	Laramie
025	Natrona
027	Niobrara
031	Platte
033	Sheridan
043	Washakie
03	**Northeastern**
005	Campbell
011	Crook
045	Weston

72	**Puerto Rico**
01	**Puerto Rico**
001	Adjuntas
003	Aguada
005	Aguadilla
007	Aguas Buenas
009	Aibonito
011	Anasco
013	Arecibo
015	Arroyo
017	Barceloneta
019	Barranquitas
021	Bayamon
023	Cabo Rojo
025	Caguas
027	Camuy
029	Canovanas
031	Carolina
033	Catano
035	Cayey
037	Ceiba
039	Ciales
041	Cidra
043	Coamo
045	Comerio
047	Corozal
049	Culebra
051	Dorado
053	Fajardo
054	Florida
055	Guanica
057	Guayama
059	Guayanilla
061	Guaynabo
063	Gurabo
065	Hatillo
067	Hormigueros
069	Humacao
071	Isabela
073	Jayuya
075	Juana Diaz
077	Juncos
079	Lajas
081	Lares
083	Las Marias
085	Las Piedras
087	Loiza
089	Luquillo
091	Manati
093	Maricao
095	Maunabo
097	Mayaguez
099	Moca
101	Morovis
103	Naguabo
105	Naranjito
107	Orocovis
109	Patillas
111	Penuelas
113	Ponce
115	Quebradillas
117	Rincon
119	Rio Grande
121	Sabana Grande
123	Salinas
125	San German
127	San Juan
129	San Lorenzo
131	San Sebastian
133	Santa Isabel
135	Toa Alta
137	Toa Baja
139	Trujillo Alto
141	Utuado
143	Vega Alta
145	Vega Baja
147	Vieques
149	Villalba
151	Yabucoa
153	Yauco

Appendix C – Species group names and crosswalk to FIADB.

Species group name	Crosswalk from FIADB to SPDBH2002 table	Variable suffix
Longleaf and slash pines	spgrpcd=1	lgsl
Loblolly and shortleaf pines	spgrpcd=2	lbsh
Other yellow pines	spgrpcd=3	otyp
Eastern white and red pines	spgrpcd=4	ewrd
Jack pine	spgrpcd=5	jack
Spruce and balsam fir	spgrpcd=6	spfr
Eastern hemlock	spgrpcd=7	ehem
Cypress	spgrpcd=8	cypr
Other eastern softwoods	spgrpcd=9	otesw
Douglas-fir	spgrpcd=10	doug
Ponderosa and Jeffrey pines	spgrpcd=11	pdjeff
True fir	spgrpcd=12	fir
Western hemlock	spgrpcd=13	whem
Sugar pine	spgrpcd=14	sugar
Western white pine	spgrpcd=15	wwpn
Redwood	spgrpcd=16	rdwd
Sitka spruce	spgrpcd=17	sitka
Engelmann and other spruces	spgrpcd=18	engel
Western larch	spgrpcd=19	wlarch
Incense-cedar	spgrpcd=20	incen
Lodgepole pine	spgrpcd=21	lodge
Western redcedar	spgrpcd=22	wrced
Western woodland softwoods	spgrpcd=23	N/A
Other western softwoods	spgrpcd=24	otwsw
Select white oaks	spgrpcd=25	swok
Select red oaks	spgrpcd=26	srok
Other white oaks	spgrpcd=27	owok
Other red oaks	spgrpcd=28	orok
Hickory	spgrpcd=29	hick
Yellow birch	spgrpcd=30	ybir
Hard maple	spgrpcd=31	hmap
Soft maple	spgrpcd=32	smap
Beech	spgrpcd=33	bech
Sweetgum	spgrpcd=34	sgum
Tupelo and blackgum	spgrpcd=35	bgum
Ash	spgrpcd=36	ash

(table continued on next page)

Species group name	Crosswalk from FIADB to SPDBH2002 table	Variable suffix
Cottonwood and aspen	spgrpcd=37	ecoas
Basswood	spgrpcd=38	bass
Yellow-poplar	spgrpcd=39	ypop
Black walnut	spgrpcd=40	bwal
Black cherry	spgrpcd=41 and spcd=762	bchr
Other eastern hardwoods	spgrpcd=41,42,43 but not spcd=762	otehw
Cottonwood and aspen	spgrpcd=44	wcoas
Red alder	spgrpcd=45	alder
Oak	spgrpcd=46	wok
Other western hardwoods	spgrpcd=47,48	otwhw

MISSION STATEMENT

We believe the good life has its roots in clean air, sparkling water, rich soil, healthy economies and a diverse living landscape. Maintaining the good life for generations to come begins with everyday choices about natural resources. The North Central Research Station provides the knowledge and the tools to help people make informed choices. That's how the science we do enhances the quality of people's lives.

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USDA Forest Service
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St. Paul, MN 55108

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www.ncrs.fs.fed.us