



United States Department of Agriculture  
US Forest Service  
Natural Resource Manager (NRM)



# **FSVeg Common Stand Exam User Guide Region 2 Appendices**

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## APPENDIX A: ADMINISTRATIVE AND PROCLAIMED FOREST CODES

Table 1: Region 2 codes

| Admin Number | Administrative Forest Name           | Proclaimed Number | Proclaimed Forest Name |
|--------------|--------------------------------------|-------------------|------------------------|
| 02           | Bighorn                              | 02                | Bighorn                |
| 03           | Black Hills                          | 03                | Black Hills            |
| 04           | Grand Mesa, Uncompahgre and Gunnison | 04                | Uncompahgre            |
| 04           | Grand Mesa, Uncompahgre and Gunnison | 05                | Gunnison               |
| 04           | Grand Mesa, Uncompahgre and Gunnison | 24                | Grand Mesa             |
| 06           | Medicine Bow – Routt                 | 06                | Medicine Bow           |
| 06           | Medicine Bow - Routt                 | 11                | Routt                  |
| 06           | Medicine Bow – Routt                 | 23                | Thunder Basin NGL      |
| 07           | Nebraska                             | 07                | Nebraska               |
| 07           | Nebraska                             | 16                | Samuel R. McKelvie     |
| 07           | Nebraska                             | 20                | Ogallala NGL           |
| 07           | Nebraska                             | 21                | Buffalo Gap NGL        |
| 07           | Nebraska                             | 22                | Fort Pierre NGL        |
| 09           | Rio Grande                           | 09                | Rio Grande             |
| 10           | Arapaho – Roosevelt                  | 01                | Arapaho                |
| 10           | Arapaho – Roosevelt                  | 10                | Roosevelt              |
| 10           | Arapaho – Roosevelt                  | 19                | Pawnee NGL             |
| 12           | Pike and San Isabel                  | 08                | Pike                   |
| 12           | Pike and San Isabel                  | 12                | San Isabel             |
| 12           | Pike and San Isabel                  | 17                | Cimmaron NGL           |

| Admin Number | Administrative Forest Name | Proclaimed Number | Proclaimed Forest Name |
|--------------|----------------------------|-------------------|------------------------|
| 12           | Pike and San Isabel        | 18                | Comanche NGL           |
| 13           | San Juan                   | 13                | San Juan               |
| 14           | Shoshone                   | 14                | Shoshone               |
| 15           | White River                | 01                | Arapaho (Dillon)       |
| 15           | White River                | 15                | White River            |

## APPENDIX B: DISTRICT CODES

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Table 2: Region 2 codes

| Forest              | Code | District       |
|---------------------|------|----------------|
| Arapaho & Roosevelt | 1    | Boulder        |
| Arapaho & Roosevelt | 5    | Canyon Lakes   |
| Arapaho & Roosevelt | 6    | Pawnee         |
| Arapaho & Roosevelt | 7    | Clear Creek    |
| Arapaho & Roosevelt | 8    | Sulphur        |
| Bighorn             | 1    | Powder River   |
| Bighorn             | 3    | Medicine Wheel |
| Bighorn             | 4    | Paintrock      |
| Bighorn             | 6    | Tongue         |
| Black Hills         | 1    | Bearlodge      |
| Black Hills         | 3    | Hell Canyon    |
| Black Hills         | 6    | Mystic         |
| Black Hills         | 8    | Northern Hills |
| GMUG                | 2    | Grand Valley   |
| GMUG                | 5    | Norwood        |

| Forest               | Code | District                |
|----------------------|------|-------------------------|
| GMUG                 | 6    | Ouray                   |
| GMUG                 | 7    | Cebolla/Gunnison        |
| GMUG                 | 8    | Paonia                  |
| Medicine Bow – Routt | 1    | Yampa                   |
| Medicine Bow – Routt | 2    | Brush Creek – Hayden    |
| Medicine Bow – Routt | 3    | Hahns Peak – Bears Ears |
| Medicine Bow – Routt | 4    | Parks                   |
| Medicine Bow – Routt | 6    | Douglas-Laramie         |
| Medicine Bow – Routt | 9    | Douglas-Thunder Basin   |
| Nebraska             | 1    | Bessey                  |
| Nebraska             | 2    | Pine Ridge              |
| Nebraska             | 3    | Bessey Nursery          |
| Nebraska             | 5    | Fall River              |
| Nebraska             | 6    | Wall River              |
| Nebraska             | 9    | Fort Pierre             |
| Pike & San Isabel    | 1    | Leadville               |
| Pike & San Isabel    | 2    | Salida                  |
| Pike & San Isabel    | 3    | San Carlos              |
| Pike & San Isabel    | 6    | Comanche                |
| Pike & San Isabel    | 7    | Cimarron                |
| Pike & San Isabel    | 9    | Pikes Peak              |
| Pike & San Isabel    | 10   | South Park              |
| Pike & San Isabel    | 11   | South Platte            |
| Rio Grande           | 3    | Conejos Peak            |
| Rio Grande           | 4    | Divide                  |

| Forest      | Code | District       |
|-------------|------|----------------|
| Rio Grande  | 7    | Saguache       |
| San Juan    | 5    | Mancos-Dolores |
| San Juan    | 6    | Pagosa         |
| San Juan    | 8    | Columbine      |
| Shoshone    | 1    | Clarks Fork    |
| Shoshone    | 2    | Greybull       |
| Shoshone    | 3    | Washakie       |
| Shoshone    | 4    | Wapiti         |
| Shoshone    | 5    | Wind River     |
| White River | 1    | Aspen          |
| White River | 2    | Blanco         |
| White River | 3    | Sopris         |
| White River | 4    | Eagle          |
| White River | 7    | Holy Cross     |
| White River | 8    | Rifle          |
| White River | 10   | Dillon         |

## APPENDIX C: STATE CODES

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Table 3: Region 2 codes

| Code | State        |
|------|--------------|
| CO   | Colorado     |
| KS   | Kansas       |
| NE   | Nebraska     |
| SD   | South Dakota |
| WY   | Wyoming      |

## APPENDIX D: COUNTY CODES

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Table 4: Colorado County codes

| Code | County      |
|------|-------------|
| 1    | Adams       |
| 3    | Alamosa     |
| 5    | Arapahoe    |
| 7    | Archuleta   |
| 9    | Baca        |
| 11   | Bent        |
| 13   | Boulder     |
| 15   | Chaffee     |
| 17   | Cheyenne    |
| 19   | Clear Creek |
| 21   | Conejos     |
| 23   | Costilla    |
| 25   | Crowley     |
| 27   | Custer      |
| 29   | Delta       |
| 31   | Denver      |
| 33   | Dolores     |
| 35   | Douglas     |
| 37   | Eagle       |
| 39   | Elbert      |
| 41   | El Paso     |
| 43   | Freemont    |
| 45   | Garfield    |

| Code | County     |
|------|------------|
| 47   | Gilpin     |
| 49   | Grand      |
| 51   | Gunnison   |
| 53   | Hindsdale  |
| 55   | Huerfano   |
| 57   | Jackson    |
| 69   | Jefferson  |
| 71   | Las Animas |
| 73   | Lincoln    |
| 75   | Logan      |
| 77   | Mesa       |
| 79   | Mineral    |
| 81   | Moffat     |
| 83   | Montezuma  |
| 85   | Montrose   |
| 87   | Morgan     |
| 89   | Otero      |
| 91   | Ouray      |
| 93   | Park       |
| 95   | Phillips   |
| 97   | Pitkin     |
| 99   | Prowers    |
| 101  | Pueblo     |
| 103  | Rio Blanco |
| 105  | Rio Grande |

| <b>Code</b> | <b>County</b> |
|-------------|---------------|
| 107         | Routt         |
| 109         | Saguache      |
| 111         | San Juan      |
| 113         | San Miguel    |
| 115         | Sedgwick      |
| 117         | Summit        |
| 119         | Teller        |
| 121         | Washington    |
| 123         | Weld          |
| 125         | Yuma          |

Table 5: Kansas County codes

| <b>Code</b> | <b>County</b> |
|-------------|---------------|
| 129         | Morton        |
| 189         | Stevens       |

Table 6: Nebraska County codes

| <b>Code</b> | <b>County</b> |
|-------------|---------------|
| 9           | Blaine        |
| 31          | Cherry        |
| 45          | Dawes         |
| 165         | Sioux         |
| 171         | Thomas        |

Table 7: South Dakota County codes

| Code | County     |
|------|------------|
| 33   | Custer     |
| 47   | Fall River |
| 55   | Haakon     |
| 63   | Hardin     |
| 65   | Hughes     |
| 71   | Jackson    |
| 75   | Jones      |
| 81   | Lawrence   |
| 85   | Lyman      |
| 93   | Meade      |
| 103  | Pennington |
| 117  | Stanley    |

Table 8: Wyoming County codes

| Code | County      |
|------|-------------|
| 1    | Albany      |
| 3    | Big Horn    |
| 5    | Campbell    |
| 7    | Carbon      |
| 9    | Converse    |
| 11   | Crook       |
| 13   | Fremont     |
| 15   | Goshen      |
| 17   | Hot Springs |

| Code | County     |
|------|------------|
| 19   | Johnson    |
| 21   | Laramie    |
| 23   | Lincoln    |
| 25   | Natrona    |
| 27   | Niobrara   |
| 29   | Park       |
| 31   | Platte     |
| 33   | Sheridan   |
| 35   | Sublette   |
| 37   | Sweetwater |
| 39   | Teton      |
| 41   | Uinta      |
| 43   | Washakie   |
| 45   | Weston     |

## APPENDIX E: EXISTING VEGETATION REFERENCES & CODES

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Table 9: Existing Vegetation References

| Code | Name                                                | Author                                                     |
|------|-----------------------------------------------------|------------------------------------------------------------|
| SAF  | Forest Cover Types of the United States and Canada. | F.H. Eyre, Editor.<br>Society of American Foresters (1980) |
| SRM  | Society for Range Management                        | Society of Range Management                                |

Table 10: Existing SAF Vegetation codes (Forest Cover Type of the Society of American Foresters – SAF)

| Code | Description                               |
|------|-------------------------------------------|
| 00   | Non Forest Types                          |
| 01   | Jack Pine                                 |
| 05   | Balsam Fir                                |
| 12   | Black Spruce                              |
| 13   | Black spruce – tamarack                   |
| 14   | Northern pin oak                          |
| 15   | Red pine                                  |
| 16   | Aspen                                     |
| 17   | Pin cherry                                |
| 18   | Paper birch                               |
| 19   | Gray birch – red maple                    |
| 20   | White pine – northern red oak – red maple |
| 21   | Eastern white pine                        |
| 22   | Eastern pine – hemlock                    |
| 23   | Eastern hemlock                           |
| 24   | Hemlock – yellow birch                    |
| 25   | Sugar maple – beech – yellow birch        |
| 26   | Sugar maple – basswood                    |
| 27   | Sugar maple                               |
| 28   | Black cherry – maple                      |
| 30   | Red spruce – yellow birch                 |
| 31   | Red spruce – sugar maple – beech          |
| 32   | Red spruce                                |
| 33   | Red spruce – balsam fir                   |

| Code | Description                                  |
|------|----------------------------------------------|
| 34   | Red spruce – Fraser fir                      |
| 35   | Paper birch – red spruce – balsam fir        |
| 37   | Northern white-cedar                         |
| 38   | Tamarack                                     |
| 39   | Black ash – American elm – red maple         |
| 40   | Post oak – blackjack oak                     |
| 42   | Bur oak                                      |
| 43   | Bear oak                                     |
| 44   | Chestnut oak                                 |
| 45   | Pitch pine                                   |
| 46   | Eastern red cedar                            |
| 50   | Black locust                                 |
| 51   | White pine – chestnut oak                    |
| 52   | White oak – black oak – northern red oak     |
| 53   | White oak                                    |
| 55   | Northern red oak                             |
| 57   | Yellow poplar                                |
| 58   | Yellow poplar – eastern hemlock              |
| 59   | Yellow poplar – white oak – northern red oak |
| 60   | Beech – sugar maple                          |
| 61   | River birch – sycamore                       |
| 62   | Silver maple – American elm                  |
| 63   | Cottonwood                                   |
| 64   | Sassafras – persimmon                        |
| 65   | Pin oak – sweetgum                           |

| Code | Description                               |
|------|-------------------------------------------|
| 66   | Ashe juniper – redberry (Pinchot) juniper |
| 67   | Mohrs (shin) oak                          |
| 68   | Mesquite                                  |
| 69   | Sand pine                                 |
| 70   | Longleaf pine                             |
| 75   | Shortleaf pine                            |
| 76   | Shortleaf pine – oak                      |
| 79   | Virginia pine                             |
| 80   | Loblolly pine – shortleaf pine            |
| 81   | Loblolly pine                             |
| 83   | Longleaf pine – slash pine                |
| 84   | Slash pine                                |
| 98   | Pond pine                                 |
| 108  | Red maple                                 |
| 111  | South Florida slash pine                  |
| 201  | White spruce                              |
| 203  | Balsam poplar                             |
| 205  | Mountain hemlock                          |
| 206  | Englemann spruce – subalpine fir          |
| 208  | Whitebark pine                            |
| 209  | Bristlecone pine                          |
| 210  | Interior Douglas-fir                      |
| 211  | White fir – limber fir                    |
| 212  | White fir                                 |
| 213  | Western larch                             |

| Code | Description                                           |
|------|-------------------------------------------------------|
| 214  | Grand fir                                             |
| 215  | Western white pine                                    |
| 216  | Blue spruce                                           |
| 217  | Aspen – western forests – middle elevation – interior |
| 218  | Lodgepole pine                                        |
| 219  | Limber pine                                           |
| 220  | Rocky Mountain juniper                                |
| 224  | Western hemlock                                       |
| 225  | Western hemlock – Sitka spruce                        |
| 227  | Western red cedar – western hemlock                   |
| 228  | Western red cedar                                     |
| 230  | Douglas-fir – western hemlock                         |
| 235  | Cottonwood – willow                                   |
| 236  | Bur oak – western forests – low elevation – interior  |
| 236  | Interior ponderosa pine                               |
| 237  | Interior ponderosa pine                               |
| 238  | Western juniper                                       |
| 239  | Pinyon – juniper                                      |
| 240  | Arizona cypress                                       |
| 241  | Western live oak                                      |
| 242  | Mesquite                                              |
| 251  | White spruce – aspen                                  |
| 252  | Paper birch                                           |

Table 11: Existing SRM Vegetation codes (Rangeland Cover Types of Society of Range Management – SRM)

| Code | Description                                            |
|------|--------------------------------------------------------|
| 102  | Idaho fescue                                           |
| 104  | Antelope bitterbrush – bluebunch wheatgrass            |
| 105  | Antelope bitterbrush – Idaho fescue                    |
| 107  | Western juniper – big sagebrush – bluebunch wheatgrass |
| 108  | Alpine Idaho fescue                                    |
| 109  | Ponderosa pine – shrubland                             |
| 110  | Ponderosa pine – grassland                             |
| 201  | Blue oak woodland                                      |
| 203  | Riparian woodland                                      |
| 207  | Scrub oak mixed chaparral                              |
| 208  | Ceanothus mixed chaparral                              |
| 209  | Montane shrubland                                      |
| 210  | Bitterbrush                                            |
| 211  | Creosote bush scrub                                    |
| 212  | Blackbush                                              |
| 213  | Alpine grassland                                       |
| 215  | Valley grassland                                       |
| 216  | Montane meadows                                        |
| 217  | Wetlands                                               |
| 301  | Bluebunch wheatgrass – blue grama                      |
| 302  | Bluebunch wheatgrass – Sandberg bluegrass              |
| 303  | Bluebunch wheatgrass – western wheatgrass              |
| 304  | Idaho fescue – bluebunch wheatgrass                    |

| Code | Description                                      |
|------|--------------------------------------------------|
| 305  | Idaho fescue – Richardson needlegrass            |
| 306  | Idaho fescue – slender wheatgrass                |
| 307  | Idaho fescue - threadleaf sedge                  |
| 308  | Idaho fescue – tufted hairgrass                  |
| 309  | Idaho fescue – western wheatgrass                |
| 310  | Needle-and-thread-blue grama                     |
| 311  | Rough fescue – bluebunch wheatgrass              |
| 312  | Rough fescue – Idaho fescue                      |
| 313  | Tufted hairgrass – sedge                         |
| 314  | Big sagebrush – bluebunch wheatgrass             |
| 315  | Big sagebrush – Idaho fescue                     |
| 316  | Big sagebrush – rough fescue                     |
| 317  | Bitterbrush – bluebunch wheatgrass               |
| 318  | Bitterbrush – Idaho fescue                       |
| 319  | Bitterbrush – rough fescue                       |
| 320  | Black sagebrush – bluebunch wheatgrass           |
| 321  | Black sagebrush – Idaho fescue                   |
| 322  | Curleaf mountain-mahogany – bluebunch wheatgrass |
| 323  | Shrubby cinquefoil – rough fescue                |
| 324  | Threetip sagebrush – Idaho fescue                |
| 401  | Basin big sagebrush                              |
| 402  | Mountain big sagebrush                           |
| 403  | Wyoming big sagebrush                            |
| 404  | Threetip sagebrush                               |
| 405  | Black sagebrush                                  |

| Code | Description                       |
|------|-----------------------------------|
| 406  | Low sagebrush                     |
| 407  | Stiff sagebrush                   |
| 408  | Other sagebrush types             |
| 409  | Tall forb                         |
| 410  | Alpine rangeland                  |
| 411  | Aspen woodland                    |
| 412  | Juniper – pinyon woodland         |
| 413  | Gambel oak                        |
| 414  | Salt desert shrub                 |
| 415  | Curleaf mountain-mahogany         |
| 416  | True mountain-mahogany            |
| 417  | Littleleaf mountain-mahogany      |
| 418  | Bigtooth maple                    |
| 419  | Bittercherry                      |
| 420  | Snowbush                          |
| 421  | Chokecherry – serviceberry – rose |
| 422  | Riparian                          |
| 501  | Saltbush – greasewood             |
| 502  | Grama – galleta                   |
| 503  | Arizona chapparal                 |
| 504  | Juniper – pinyon pine woodland    |
| 505  | Grama – tobosa shrub              |
| 506  | Creosotebush – bursage            |
| 507  | Palo Verde – cactus               |
| 508  | Creosotebush – tarbush            |

| Code | Description                               |
|------|-------------------------------------------|
| 509  | Oak – juniper woodland and mahogany – oak |
| 601  | Bluestem prairie                          |
| 602  | Bluestem – prairie sandreed               |
| 603  | Prairie sandreed – needlegrass            |
| 604  | Bluestem – grama prairie                  |
| 605  | Sandsage prairie                          |
| 606  | Wheatgrass – bluestem – needlegrass       |
| 607  | Wheatgrass – needlegrass                  |
| 608  | Wheatgrass – grama needlegrass            |
| 609  | Wheatgrass – grama                        |
| 610  | Wheatgrass                                |
| 611  | Blue grama – buffalograss                 |
| 612  | Sagebrush – grass                         |
| 613  | Fesque grassland                          |
| 614  | Crested wheatgrass                        |
| 615  | Wheatgrass – saltgrass – grama            |
| 701  | Alkali sacaton – tobosagrass              |
| 702  | Black grama – alkali sacaton              |
| 703  | Black grama – sideoats grama              |
| 704  | Blue grama – western wheatgrass           |
| 705  | Blue grama – galleta                      |
| 706  | Blue grama – sideoats grama               |
| 707  | Blue grama – sideoats grama – black grama |
| 708  | Bluestem – dropseed                       |
| 709  | Bluestem – grama                          |

| Code | Description                                          |
|------|------------------------------------------------------|
| 710  | Bluestem prairie                                     |
| 711  | Bluestem – Sacahuista prairie                        |
| 712  | Galleta – alkali sacaton                             |
| 713  | Grama – muhly – treeawn                              |
| 714  | Grama – bluestem                                     |
| 715  | Grama – buffalograss                                 |
| 716  | Grama – feathergrass                                 |
| 717  | Little bluestem – Indiangrass – Texas wintergrass    |
| 718  | Mesquite – grama                                     |
| 720  | Sand bluestem – little bluestem dunes                |
| 721  | Sand bluestem – little bluestem plains               |
| 722  | Sand bluesage – mixed prairie                        |
| 724  | Sideoats grama – New Mexico feathergrass – winterfat |
| 725  | Vine mesquite – alkali sacaton                       |
| 726  | Cordgrass                                            |
| 727  | Mesquite – buffalograss                              |
| 728  | Mesquite – granjeno – acacia                         |
| 729  | Mesquite                                             |
| 730  | Sand sinner oak                                      |
| 733  | Juniper – oak                                        |
| 734  | Mesquite – oak                                       |
| 735  | Sideoats grama – sumac – juniper                     |
| 801  | Savanna                                              |
| 802  | Missouri prairie                                     |

| Code | Description                              |
|------|------------------------------------------|
| 803  | Missouri glades                          |
| 804  | Tall fescue                              |
| 805  | Riparian                                 |
| 809  | Mixed hardwood and pine                  |
| 822  | Slough                                   |
| 901  | Alder                                    |
| 902  | Alpine herb                              |
| 906  | Broadleaf forest                         |
| 908  | Fescue                                   |
| 909  | Freshwater marsh                         |
| 910  | Hairgrass                                |
| 911  | Lichen tundra                            |
| 914  | Mesic sedge – grass – herb meadow tundra |
| 915  | Mixed herb – herbaceous                  |
| 916  | Sedge – shrub tundra                     |
| 917  | Tall shrub swamp                         |
| 918  | Tussock tundra                           |
| 919  | Wet meadow tundra                        |
| 921  | Willow                                   |

## APPENDIX F: POTENTIAL VEGETATION REFERENCES

Table 12: Region 2 references

| Code | Name                                                                                                                                                                   | Author                                                                |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 201  | <b>Plant Associations for Region 2: Potential Plant Communities of Wyoming, South Dakota, Nebraska, Colorado, and Kansas.</b> Edition 4.                               | USDA/FS Report R2-ECOL-87-2 Barry C. Johnston (1987)                  |
| 202  | <b>The Black Hills Community Inventory</b> prepared by the Nature Conservancy authors, Midwest Regional Office, Minneapolis, Minnesota.                                | Amanda G. McAdams, Don Faber-Langendoen, Diane A. Stutzman            |
| 203  | <b>Riparian and Wetland Plant Communities of the Black Hills.</b> The Nature Conservancy. 12/2000                                                                      | Hollis J. Marriott and Don Faber-Langendoen                           |
| 204  | <b>Forest Vegetation of the Gunnison and Parts of the Uncompahgre National Forests: A Preliminary Habitat Type Classification.</b> USDA/FS Gen. Tech. Rep. RM-163.     | Vera Komarkova, Robert R. Alexander, and Barry C. Johnston (1988)     |
| 205  | <b>Forest Vegetation on National Forests in the Rocky Mountain and Intermountain Regions: Habitat Types and Community Types.</b> USDA/FS Gen. Tech. Rep RM-162.        | Robert R. Alexander (1988)                                            |
| 206  | <b>Ecological Types of the Upper Gunnison Basin.</b> Technical Report R2-RR-2001-01, 858pp. Lakewood, CO; USDA Forest Service, Rocky Mountain Region. May 2001.        | Johnson, Barry C., Laurie Huckaby, Terry J. Hughes and Joseph Pecor   |
| 207  | <b>Forest Vegetation of the Medicine Bow National Forest in Southwest Wyoming: A Habitat Type Classification.</b> RM-271. USDA Forest Service.                         | Alexander, Robert R., Hoffman, George R., and Wirsing, John M. (1986) |
| 208  | <b>Forest Vegetation of Bighorn Mountains, Wyoming: A Habitat Type Classification.</b> RM-170, USDA Forest Service.                                                    | Hoffman, George R. and Alexander, Robert R. (1986)                    |
| 209  | <b>Forest Vegetation of the Arapahoe and Roosevelt National Forests in Central Colorado: A Habitat Type Classification.</b> RM-266. 48p.                               | Karl Hess and Robert R. Alexander                                     |
| 210  | <b>Forest Vegetation of the White River National Forest in Western Colorado: A Habitat Type Classification.</b> USDA Forest Service, Research Paper RM-249, 36p. 1983. | Hoffman, George R. and Alexander, Robert R. (1986)                    |

## APPENDIX G: POTENTIAL VEGETATION CODES

Table 13: Reference Code 201

| PV_CODE | COMMON_NAME                                                     | SCIENTIFIC_NAME       |
|---------|-----------------------------------------------------------------|-----------------------|
| 001     | White fir series                                                | ABCO                  |
| 00101   | White fir-Douglas-fir/Rocky Mountain maple                      | ABCO-PSME/ACGL        |
| 001010  | White fir-Douglas-fir/Rocky Mountain maple-Rocky Mountain maple | ABCO-PSME/ACGL-ACGL   |
| 001011  | White fir-Douglas-fir/Rocky Mountain maple-creeping barberry    | ABCO-PSME/ACGL-MARE11 |
| 001012  | White fir-Douglas-Fir/Rocky Mountain maple-rockspirea           | ABCO-PSME/ACGL-HODU   |
| 001013  | White fir-Douglas-Fir/Rocky Mountain maple-thinleaf alder       | ABCO-PSME/ACGL-ALINT  |
| 00102   | White fir-Douglas-Fir (sparse undergrowth)                      | ABCO-PSME (SPARSE)    |
| 00103   | White fir-Douglas-Fir/spruce fir fleabane                       | ABCO-PSME/EREX4       |
| 00104   | White fir-Douglas-Fir/Arizona fescue                            | ABCO-PSME/FEAR2       |
| 001040  | White fir-Douglas-fir/Arizona fescue-Arizona fescue             | ABCO-PSME/FEAR2-FEAR2 |
| 001041  | White fir-Douglas-fir/Arizona fescue-Parry's oatgrass           | ABCO-PSME/FEAR2-DAPA2 |
| 00105   | White fir-Douglas-fir/Gamble oak                                | ABCO-PSME/QUGA        |
| 001050  | White fir-Douglas-fir/Gamble oak-Gamble oak                     | ABCO-PSME/QUGA-QUGA   |
| 001052  | White fir-Douglas-fir/Gamble oak/Arizona fescue                 | ABCO-PSME/QUGA/FEAR2  |
| 001053  | White fir-Douglas-fir/Gamble oak/fragrant bedstraw              | ABCO-PSME/QUGA/GATR3  |
| 001054  | White fir-Douglas-fir/Gamble oak-Oregon boxleaf                 | ABCO-PSME/QUGA-PAMY   |
| 00109   | White fir-Douglas-fir/kinnikinnick                              | ABCO-PSME/ARUV        |
| 00110   | White fir-Douglas-fir/whortleberry                              | ABCO-PSME/VAMY2       |

| PV_CODE | COMMON_NAME                                                         | SCIENTIFIC_NAME        |
|---------|---------------------------------------------------------------------|------------------------|
| 00111   | White fir-Douglas-fir/Saskatoon serviceberry                        | ABCO-PSME/AMAL2        |
| 00112   | White fir-Douglas-fir/greenleaf manzanita                           | ABCO-PSME/ARPA6        |
| 00113   | White fir-Douglas-fir/rockspirea                                    | ABCO-PSME/HODU         |
| 00114   | White fir-Douglas-fir/mountain snowberry                            | ABCO-PSME/SYOR2        |
| 00115   | White fir-limber pine/Arizona fescue                                | ABCO-PIFL2/FEAR2       |
| 00116   | White fir-Douglas-fir/common juniper                                | ABCO-PSME/JUCO6        |
| 00117   | White fir-Douglas-fir/creeping barberry                             | ABCO-PSME/MARE11       |
| 001171  | White fir-Douglas-fir/creeping barberry-common snowberry            | ABCO-PSME/MARE11-JUCO6 |
| 00118   | White fir-Douglas-fir/mallow ninebark                               | ABCO-PSME/PHMA5        |
| 002     | Subalpine fir series                                                | ABLA                   |
| 00201   | Subalpine fir/Geyer's sedge                                         | ABLA/CAGE2             |
| 00202   | Subalpine fir/Fendler's meadow-rue                                  | ABLA/THFE              |
| 00203   | Subalpine fir/creeping barberry                                     | ABLA/MARE11            |
| 003     | Subalpine fir-Englemann spruce series                               | ABLA-PIEN              |
| 00301   | Subalpine fir-Englemann spruce/red baneberry                        | ABLA-PIEN/ACRU2        |
| 00302   | Subalpine fir-Englemann spruce/heartleaf arnica                     | ABLA-PIEN/ARCO9        |
| 003020  | Subalpine fir-Englemann spruce/heartleaf arnica-heartleaf arnica    | ABLA-PIEN/ARCO9-ARCO9  |
| 003021  | Subalpine fir-Englemann spruce/heartleaf arnica-timber milkvetch    | ABLA-PIEN/ARCO9-ASMI9  |
| 003022  | Subalpine fir-Englemann spruce/heartleaf arnica-russet buffaloberry | ABLA-PIEN/ARCO9-SHCA   |
| 003023  | Subalpine fir-Englemann spruce/heartleaf arnica/Englemann spruce    | ABLA-PIEN/ARCO9/PIEN   |
| 00303   | Subalpine fir-Englemann spruce/broadleaf arnica                     | ABLA-PIEN/ARLA8        |

| PV_CODE | COMMON_NAME                                                        | SCIENTIFIC_NAME         |
|---------|--------------------------------------------------------------------|-------------------------|
| 00304   | Subalpine fir-Englemann spruce/creeping barberry                   | ABLA-PIEN/MARE11        |
| 003040  | Subalpine fir-Englemann spruce/creeping barberry-creeping barberry | ABLA-PIEN/MARE11-MARE11 |
| 003041  | Subalpine fir-Englemann spruce/creeping barberry-Oregon boxleaf    | ABLA-PIEN/MARE11-PAMY   |
| 00305   | Subalpine fir-Englemann spruce/bluejoint                           | ABLA-PIEN/CACA4         |
| 00306   | Subalpine fir-Englemann spruce/tall fringed bluebells              | ABLA-PIEN/MECI3         |
| 00307   | Subalpine fir-Englemann spruce/Geyer's sedge                       | ABLA-PIEN/CAGE2         |
| 00308   | Subalpine fir-Englemann spruce/spruce fir fleabane                 | ABLA-PIEN/EREX4         |
| 00309   | Subalpine fir-Englemann spruce/common juniper                      | ABLA-PIEN/JUCO6         |
| 00310   | Subalpine fir-Englemann spruce/twinflower                          | ABLA-PIEN/LIBO3         |
| 003100  | Subalpine fir-Englemann spruce/twinflower-twinflower               | ABLA-PIEN/LIBO3-LIBO3   |
| 003101  | Subalpine fir-Englemann spruce/twinflower/grouse whortleberry      | ABLA-PIEN/LIBO3/VASC    |
| 00311   | Subalpine fir-Englemann spruce/moss species                        | ABLA-PIEN/2MOSS         |
| 00313   | Subalpine fir-Englemann spruce/Oregon boxleaf                      | ABLA-PIEN/PAMY          |
| 003130  | Subalpine fir-Englemann spruce/Oregon boxleaf-Oregon boxleaf       | ABLA-PIEN/PAMY-PAMY     |
| 003131  | Subalpine fir-Englemann spruce/Oregon boxleaf-Douglas-fir          | ABLA-PIEN/PAMY-PSME     |
| 003132  | Subalpine fir-Englemann spruce/Oregon boxleaf-gooseberry currant   | ABLA-PIEN/PAMY-RIMO2    |
| 00315   | Subalpine fir-Englemann spruce/Wheeler bluegrass                   | ABLA-PIEN/PONE2         |
| 00316   | Subalpine fir-Englemann spruce/arrowleaf ragwort                   | ABLA-PIEN/SETR          |

| PV_CODE | COMMON_NAME                                                              | SCIENTIFIC_NAME       |
|---------|--------------------------------------------------------------------------|-----------------------|
| 00318   | Subalpine fir-Englemann spruce/western meadow-rue                        | ABLA-PIEN/THOC        |
| 00319   | Subalpine fir-Englemann spruce/thinleaf huckleberry                      | ABLA-PIEN/VAME        |
| 003190  | Subalpine fir-Englemann spruce/thinleaf huckleberry-thinleaf huckleberry | ABLA-PIEN/VAME-VAME   |
| 003191  | Subalpine fir-Englemann spruce/thinleaf huckleberry-grouse whortleberry  | ABLA-PIEN/VAME-VASC   |
| 00320   | Subalpine fir-Englemann spruce/whortleberry                              | ABLA-PIEN/VAMY2       |
| 003200  | Subalpine fir-Englemann spruce/whortleberry-whortleberry                 | ABLA-PIEN/VAMY2-VAMY2 |
| 003201  | Subalpine fir-Englemann spruce/whortleberry/Jacob's ladder               | ABLA-PIEN/VAMY2/POPU3 |
| 00321   | Subalpine fir-Englemann spruce/grouse whortleberry                       | ABLA-PIEN/VASC        |
| 003210  | Subalpine fir-Englemann spruce/grouse whortleberry/grouse whortleberry   | ABLA-PIEN/VASC/VASC   |
| 003211  | Subalpine fir-Englemann spruce/grouse whortleberry/whitebark pine        | ABLA-PIEN/VASC/PIAL   |
| 003212  | Subalpine fir-Englemann spruce/grouse whortleberry/Jacob's ladder        | ABLA-PIEN/VASC/POPU3  |
| 003213  | Subalpine fir-Englemann spruce/grouse whortleberry/Geyer's sedge         | ABLA-PIEN/VASC/VAGE2  |
| 003216  | Subalpine fir-Englemann spruce/grouse whortleberry-russet buffaloberry   | ABLA-PIEN/VASC-SHCA   |
| 003217  | Subalpine fir-Englemann spruce/grouse whortleberry/heartleaf arnica      | ABLA-PIEN/VASC/ARCO9  |
| 00322   | Subalpine fir-Englemann spruce/currant                                   | ABLA-PIEN/RIBES       |
| 003220  | Subalpine fir-Englemann spruce/currant-currant                           | ABLA-PIEN/RIBES-RIBES |
| 003221  | Subalpine fir-Englemann spruce/currant/Fendler's meadow-rue              | ABLA-PIEN/RIBES/THFE  |
| 00323   | Subalpine fir-Englemann spruce/grayleaf willow                           | ABLA-PIEN/SAGL        |

| PV_CODE | COMMON_NAME                                                     | SCIENTIFIC_NAME     |
|---------|-----------------------------------------------------------------|---------------------|
| 00324   | Subalpine fir-Englemann spruce/thimbleberry                     | ABLA-PIEN/RUPA      |
| 003240  | Subalpine fir-Englemann spruce/thimbleberry-thimbleberry        | ABLA-PIEN/RUPA-RUPA |
| 003241  | Subalpine fir-Englemann spruce/thimbleberry-grouse whortleberry | ABLA-PIEN/RUPA-VASC |
| 00325   | Subalpine fir-Englemann spruce/white spirea                     | ABLA-PIEN/SPBE2     |
| 00326   | Subalpine fir-Englemann spruce/Ross' sedge                      | ABLA-PIEN/CARO5     |
| 00327   | Subalpine fir-Englemann spruce/Rocky Mountain maple             | ABLA-PIEN/ACGL      |
| 00328   | Subalpine fir-Englemann spruce/pinegrass                        | ABLA-PIEN/CARU      |
| 003280  | Subalpine fir-Englemann spruce/pinegrass-pinegrass              | ABLA-PIEN/CARU-CARU |
| 003281  | Subalpine fir-Englemann spruce/pinegrass-Oregon boxleaf         | ABLA-PIEN/CARU-PAMY |
| 00329   | Subalpine fir-Englemann spruce/dwarf bilberry                   | ABLA-PIEN/VACA13    |
| 00330   | Subalpine fir-Douglas-fir/mallow ninebark                       | ABLA-PSME/PHMA5     |
| 004     | Englemann spruce series                                         | PIEN                |
| 00401   | Englemann spruce/heartleaf arnica                               | PIEN/ARCO9          |
| 00402   | Englemann spruce/white marsh marigold                           | PIEN/CALE4          |
| 00403   | Englemann spruce/softleaf sedge                                 | PIEN/CADI6          |
| 00405   | Englemann spruce-blue spruce/fragrant bedstraw                  | PIEN-PIPU/GATR3     |
| 00406   | Englemann spruce/moss                                           | PIEN/2MOSS          |
| 00407   | Englemann spruce/common juniper                                 | PIEN/JUCO6          |
| 00408   | Englemann spruce/twinflower                                     | PIEN/LIBO3          |
| 00409   | Englemann spruce/mallow ninebark                                | PIEN/PHMA5          |
| 00413   | Englemann spruce/alpine clover                                  | PIEN/TRDA2          |
| 00414   | Englemann spruce/grouse whortleberry                            | PIEN/VASC           |

| PV_CODE | COMMON_NAME                                                                | SCIENTIFIC_NAME        |
|---------|----------------------------------------------------------------------------|------------------------|
| 004140  | Englemann spruce/grouse whortleberry-grouse whortleberry                   | PIEN/VASC-VASC         |
| 004141  | Englemann spruce/grouse whortleberry/<br>American bistort                  | PIEN/VASC/POBI6        |
| 004142  | Englemann spruce/grouse whortleberry/silvery lupine                        | PIEN/VASC/LUAR3        |
| 004145  | Englemann spruce/grouse whortleberry/Jacob's ladder                        | PIEN/VASC/POPU3        |
| 00415   | Englemann spruce/whortleberry                                              | PIEN/VAMY2             |
| 004150  | Englemann spruce/whortleberry-whortleberry                                 | PIEN/VAMY2-VAMY2       |
| 004151  | Englemann spruce/whortleberry/Jacob's ladder                               | PIEN/VAMY2/POPU3       |
| 00416   | Englemann spruce/Thurber's fescue                                          | PIEN/FETH              |
| 00417   | Englemann spruce-Douglas-fir/common juniper                                | PIEN-PME/JUCO6         |
| 00418   | Englemann spruce/dwarf bilberry                                            | PIEN/VACA13            |
| 005     | White spruce series                                                        | PIGL                   |
| 00501   | White spruce/Peck's sedge                                                  | PIGL/CAPE11            |
| 00502   | White spruce/common juniper                                                | PIGL/JUCO6             |
| 00503   | White spruce/twinflower                                                    | PIGL/LIBO3             |
| 005030  | White spruce/twinflower-twinflower                                         | PIGL/LIBO3-LIBO3       |
| 005031  | White spruce/twinflower-grouse whortleberry                                | PIGL/LIBO3-VASC        |
| 005032  | White spruce/twinflower-white spirea                                       | PIGL/LIBO3-SPBE2       |
| 006     | Blue spruce series                                                         | PIPU                   |
| 00601   | Blue spruce/Saskatoon serviceberry-redosier dogwood                        | PIPU/AMAL2-COSES       |
| 006010  | Blue spruce/Saskatoon serviceberry-redosier dogwood/Saskatoon serviceberry | PIPU/AMAL2-COSES/AMAL2 |
| 006011  | Blue spruce/Saskatoon serviceberry-redosier dogwood/redosier dogwood       | PIPU/AMAL2-COSES/COSES |
| 00602   | Blue spruce/heartleaf arnica                                               | PIPU/ARCO9             |

| PV_CODE | COMMON_NAME                                             | SCIENTIFIC_NAME       |
|---------|---------------------------------------------------------|-----------------------|
| 00603   | Blue spruce/bluegrass                                   | PIPU/POA              |
| 00604   | Blue spruce-Douglas-fir/twinflower                      | PIPU-PSME/LIBO3       |
| 006040  | Blue spruce-Douglas-fir/twinflower-twinflower           | PIPU-PSME/LIBO3-LIBO3 |
| 006043  | Blue spruce-Douglas-fir/twinflower-common juniper       | PIPU-PSME/LIBO3-JUCO6 |
| 00605   | Blue spruce/thinleaf alder                              | PIPU/ALINT            |
| 00606   | Blue spruce-Douglas-fir/dryspike sedge                  | PIPU-PSME/CAFO3       |
| 00607   | Blue spruce-Douglas-fir/sprucefir fleabane              | PIPU-PSME/EREX4       |
| 00608   | Blue spruce-Douglas-fir/kinnikinnick                    | PIPU-PSME/ARUV        |
| 00609   | Blue spruce-Douglas-fir/Arizona fescue                  | PIPU-PSME/FEAR2       |
| 006090  | Blue spruce-Douglas-fir/Arizona fescue-Arizona fescue   | PIPU-PSME/FEAR2-FEAR2 |
| 006091  | Blue spruce-Douglas-fir/Arizona fescue-Parry's oatgrass | PIPU-PSME/FEAR2-DAPA2 |
| 00610   | Blue spruce-Douglas-fir/creeping barberry               | PIPU-PSME/MARE11      |
| 00611   | Blue spruce-Englemann spruce/field horsetail            | PIPU-PIEN/EQAR        |
| 00612   | Blue spruce-Douglas-fir/common juniper                  | PIPU-PSME/JUCO6       |
| 006120  | Blue spruce-Douglas-fir/common juniper-common juniper   | PIPU-PSME/JUCO6-JUCO6 |
| 006121  | Blue spruce-Douglas-fir/common juniper/Geyer's sedge    | PIPU-PSME/JUCO6/CAGE2 |
| 007     | Whitebark pine series                                   | PIAL                  |
| 00701   | Whitebark pine/Geyer's sedge                            | PIAL/CAGE2            |
| 007010  | Whitebark pine/Geyer's sedge-Geyer's sedge              | PIAL/CAGE2-CAGE2      |
| 007011  | Whitebark pine/Geyer's sedge/lodgepole pine             | PIAL/CAGE2-PICO       |
| 00702   | Whitebark pine/Ross' sedge                              | PIAL/CARO5            |
| 007020  | Whitebark pine/Ross' sedge-Ross' sedge                  | PIAL/CARO5-CARO5      |
| 007021  | Whitebark pine/Ross' sedge/lodgepole pine               | PIAL/CARO5/PODI2      |

| PV_CODE | COMMON_NAME                                            | SCIENTIFIC_NAME  |
|---------|--------------------------------------------------------|------------------|
| 00703   | Whitebark pine-limber pine/varileaf cinquefoil         | PIAL-FIFL2/POD12 |
| 00704   | Whitebark pine/Idaho fescue                            | PIAL/FEID        |
| 00705   | Whitebark pine/common juniper                          | PIAL/JUCO6       |
| 007050  | Whitebark pine/common juniper-common juniper           | PIAL/JUCO6-JUCO6 |
| 007051  | Whitebark pine/common juniper/russet buffaloberry      | PIAL/JUCO6/SHCA  |
| 00706   | Whitebark pine/grouse whortleberry                     | PIAL/VASC        |
| 008     | Bristlecone pine series                                | PIAR             |
| 00801   | Bristlecone pine/Thurber's fescue                      | PIAR/FETH        |
| 00802   | Bristlecone pine/Arizona fescue                        | PIAR/FEAR2       |
| 00803   | Bristlecone pine/alpine clover                         | PIAR/TRDA2       |
| 00804   | Bristlecone pine/gooseberry currant                    | PIAR/RIMO2       |
| 00805   | Bristlecone pine/common juniper                        | PIAR/JUCO6       |
| 009     | Lodgepole pine series                                  | PICO             |
| 00901   | Lodgepole pine/kinnikinnick                            | PICO/ARUV        |
| 00903   | Lodgepole pine/Geyer's sedge                           | PICO/CAGE2       |
| 009030  | Lodgepole pine/Geyer's sedge-Geyer's sedge             | PICO/CAGE2-CAGE2 |
| 009031  | Lodgepole pine/Geyer's sedge/Oregon boxleaf            | PICO/CAGE2/PAMY  |
| 00905   | Lodgepole pine/common juniper                          | PICO/JUCO6       |
| 00907   | Lodgepole pine/Wheeler bluegrass                       | PICO/PONE2       |
| 00908   | Lodgepole pine/russet buffaloberry                     | PICO/SHCA        |
| 009080  | Lodgepole pine/russet buffaloberry-russet buffaloberry | PICO/SCHA-SCHA   |
| 00909   | Lodgepole pine/whortleberry                            | PICO/VAMY2       |
| 00910   | Lodgepole pine/grouse whortleberry                     | PICO/VASC        |
| 00911   | Lodgepole pine/Ross' sedge                             | PICO/CARO5       |

| PV_CODE | COMMON_NAME                                                    | SCIENTIFIC_NAME   |
|---------|----------------------------------------------------------------|-------------------|
| 00912   | Lodgepole pine/dwarf bilberry                                  | PICO/VACA13       |
| 010     | Limber pine series                                             | PIFL2             |
| 01001   | Limber pine/bluebunch wheatgrass                               | PIFL2/PSSPS       |
| 01002   | Limber pine/purple reedgrass                                   | PIFL2/CAPU        |
| 01003   | Limber pine/Idaho fescue                                       | PIFL2/FEID        |
| 01004   | Limber pine/spike fescue                                       | PIFL2/LEK12       |
| 010040  | Limber pine/spike fescue-spike fescue                          | PIFL2/LEK12-LEK12 |
| 010041  | Limber pine/spike fescue/cutleaf anemone                       | PIFL2/LEK12/PUPAM |
| 010042  | Limber pine/spike fescue-prairie Junegrass                     | PIFL2/LEK12-KOMA  |
| 01005   | Limber pine/common juniper                                     | PIFL2/JUCO6       |
| 01006   | Limber pine/alpine clover                                      | PIFL2/TRDA2       |
| 01007   | Limber pine/curl-leaf mountain mahogany                        | PIFL2/CELE3       |
| 01008   | Limber pine/creeping juniper                                   | PIFL2/JUHO2       |
| 01009   | Limber pine/Thurber's fescue                                   | PIFL2/FETH        |
| 01010   | Limber pine/chokecherry                                        | PIFL2/PRVIV       |
| 011     | Ponderosa pine series                                          | PIPO              |
| 01101   | Ponderosa pine-Rocky Mountain juniper/<br>bluebunch wheatgrass | PIPO-JUSC2/PSSPS  |
| 01102   | Ponderosa pine/little bluestem-western<br>wheatgrass           | PIPO/SCSC-PASM    |
| 01103   | Ponderosa pine-juniper/blue grama                              | PIPO-JUNIP/BOGR2  |
| 01104   | Ponderosa pine/sideoats grama                                  | PIPO/BOCU         |
| 01105   | Ponderosa pine/Geyer's sedge                                   | PIPO/CAGE2        |
| 011050  | Ponderosa pine/Geyer's sedge-Geyer's sedge                     | PIPO/CAGE2-CAGE2  |
| 011051  | Ponderosa pine/Geyer's sedge/silvery lupine                    | PIPO/CAGE2/LUAR3  |
| 011052  | Ponderosa pine/Geyer's sedge/spearleaf<br>stonecrop            | PIPO/CAGE2/SELA   |

| PV_CODE | COMMON_NAME                                                       | SCIENTIFIC_NAME      |
|---------|-------------------------------------------------------------------|----------------------|
| 01106   | Ponderosa pine/Ross' sedge                                        | PIPO/CARO5           |
| 01107   | Ponderosa pine/alderleaf mountain mahogany                        | PIPO/CEMO2           |
| 01108   | Ponderosa pine/timber oatgrass                                    | PIPO/DAIN            |
| 01109   | Ponderosa pine/Arizona fescue                                     | PIPO/FEAR2           |
| 011090  | Ponderosa pine/Arizona fescue-Arizona fescue                      | PIPO/FEAR2-FEAR2     |
| 011091  | Ponderosa pine/Arizona fescue-Parry's oatgrass                    | PIPO/FEAR2-DAPA2     |
| 011092  | Ponderosa pine/Arizona fescue-blue grama                          | PIPO/FEAR2-BOGR2     |
| 01110   | Ponderosa pine/Idaho fescue                                       | PIPO/FEID            |
| 011100  | Ponderosa pine/Idaho fescue-Idaho fescue                          | PIPO/FEID-FEID       |
| 011101  | Ponderosa pine/Idaho fescue/greanleaf manzanita                   | PIPO/FEID/ARPA6      |
| 01111   | Ponderosa pine/spike fescue                                       | PIPO/LEK12           |
| 01112   | ponderosa pine/common juniper                                     | PIPO/JUCO6           |
| 01113   | Ponderosa pine/common juniper-common snowberry                    | PIPO/JUCO6-SYAL      |
| 01115   | Ponderosa pine-Rocky Mountain juniper/alderleaf mountain mahogany | PIPO-JUSC2/CEMO2     |
| 01117   | Ponderosa pine-Douglas-fir/mountain muhly                         | PIPO-PSME/MUMO       |
| 011170  | Ponderosa pine-Douglas-fir/mountain muhly-mountain muhly          | PIPO-PSME/MUMO-MUMO  |
| 011171  | Ponderosa pine-Douglas-fir/mountain muhly/Fendler's ceanothus     | PIPO-PSME/MUMO/CEFE  |
| 011172  | Ponderosa pine-Douglas-fir/mountain muhly/streambank wheatgrass   | PIPO-PSME/MUMO/ELLAL |
| 01118   | Ponderosa pine/twoneedle pinyon-Gambel oak                        | PIPO/PIED-QUGA       |
| 01119   | Ponderosa pine/mountain ninebark                                  | PIPO/PHMO4           |
| 01120   | Ponderosa pine/antelope bitterbrush                               | PIPO/PUTR2           |
| 01121   | Ponderosa pine/Gambel oak                                         | PIPO/QUGA            |

| PV_CODE | COMMON_NAME                                              | SCIENTIFIC_NAME   |
|---------|----------------------------------------------------------|-------------------|
| 011210  | Ponderosa pine/Gambel oak-Gambel oak                     | PIPO/QUGA-QUGA    |
| 011211  | Ponderosa pine/Gambel oak/Arizona fescue                 | PIPO/QUGA/FEAR2   |
| 011214  | Ponderosa pine/Gambel oak/common snowberry               | PIPO/QUGA/SYAL    |
| 011215  | Ponderosa pine/Gambel oak/boxelder                       | PIPO/QUGA/ACNE2   |
| 01122   | Ponderosa pine/chokecherry                               | PIPO/PRVIV        |
| 011220  | Ponderosa pine/chokecherry-chokecherry                   | PIPO/PRVIV-PRVIV  |
| 011221  | Ponderosa pine/chokecherry/dryspike sedge                | PIPO/PRVIV/CAFO3  |
| 011222  | Ponderosa pine/chokecherry-Saskatoon serviceberry        | PIPO/PRVIV-AMAL2  |
| 011224  | Ponderosa pine/chokecherry-creeping barberry             | PIPO/PRVIV-MARE11 |
| 011225  | Ponderosa pine/chokecherry-bur oak                       | PIPO/PRVIV-QUMA2  |
| 011226  | Ponderosa pine/chokecherry/big bluestem                  | PIPO/PRVIV/ANGE   |
| 01123   | Ponderosa pine/white spirea                              | PIPO/SPBE2        |
| 01124   | Ponderosa pine/common snowberry                          | PIPO/SYAL         |
| 011240  | Ponderosa pine/common snowberry-common snowberry         | PIPO/SYAL-SYAL    |
| 011242  | Ponderosa pine/common snowberry/roughleaf ricegrass      | PIPO/SYAL/ORAS    |
| 011243  | Ponderosa pine/common snowberry/creeping barberry        | PIPO/SYAL/ORAS    |
| 01125   | Ponderosa pine/bluebunch wheatgrass                      | PIPO/PSSPS        |
| 011250  | Ponderosa pine/bluebunch wheatgrass-bluebunch wheatgrass | PIPO/PSSPS-PSSPS  |
| 011251  | Ponderosa pine/bluebunch wheatgrass/big sagebrush        | PIPO/PSSPS/ARTR2  |
| 01126   | Ponderosa pine/sub sedge                                 | PIPO/CAINH2       |
| 01127   | Ponderosa pine/blue grama                                | PIPO/BOGR2        |
| 011270  | Ponderosa pine/blue grama-blue grama                     | PIPO/BOGR2-BOGR2  |

| PV_CODE | COMMON_NAME                                             | SCIENTIFIC_NAME  |
|---------|---------------------------------------------------------|------------------|
| 011272  | Ponderosa pine/blue grama-sand bluestem                 | PIPO/BOGR2-ANHA  |
| 011273  | Ponderosa pine/blue grama/big sagebrush                 | PIPO/BOGR2/ARTR2 |
| 011274  | Ponderosa pine/blue grama/twoneedle pinyon              | PIPO/BOGR2/PIED  |
| 01128   | Ponderosa pine/little bluestem                          | PIPO/SCSC        |
| 011280  | Ponderosa pine/little bluestem-little bluestem          | PIPO/SCSC-SCSC   |
| 011281  | Ponderosa pine/little bluestem/wavyleaf oak             | PIPO/SCSC/QUPA4  |
| 01129   | Ponderosa pine/greenleaf manzanita                      | PIPO/ARPA6       |
| 011291  | Ponderosa pine/greenleaf manzanita-greenleaf manzanita  | PIPO/ARPA6-ARPA6 |
| 01131   | Ponderosa pine/black sagebrush                          | PIPO/ARNO4       |
| 01132   | Ponderosa pine/curl-leaf mountain mahogany              | PIPO/CELE3       |
| 01140   | Ponderosa pine/kinnikinnick                             | PIPO/ARUV        |
| 01150   | Ponderosa pine-Rocky Mountain juniper/western snowberry | PIPO-JUSC2/SYOC  |
| 01151   | Ponderosa pine/bur oak                                  | PIPO/QUMA2       |
| 012     | Douglas-fir series                                      | PSME             |
| 01201   | Douglas-fir/Rocky Mountain maple                        | PSME/ACGL        |
| 012010  | Douglas-fir/Rocky Mountain maple-Rocky Mountain maple   | PSME/ACGL-ACGL   |
| 012011  | Douglas-fir/Rocky Mountain maple/Oregon boxleaf         | PSME/ACGL/PAMY   |
| 012012  | Douglas-fir/Rocky Mountain maple/mountain snowberry     | PSME/ACGL/SYOR2  |
| 01202   | Douglas-fir/heartleaf arnica                            | PSME/ARCO9       |
| 012020  | Douglas-fir/heartleaf arnica-heartleaf arnica           | PSME/ARCO9-ARCO9 |
| 012021  | Douglas-fir/heartleaf arnica/timber milkvetch           | PSME/ARCO9/ASMI9 |
| 01203   | Douglas-fir/creeping barberry                           | PSME/MARE11      |

| PV_CODE | COMMON_NAME                                     | SCIENTIFIC_NAME    |
|---------|-------------------------------------------------|--------------------|
| 012030  | Douglas-fir/creeping barberry-creeping barberry | PSME/MARE11-MARE11 |
| 012032  | Douglas-fir/creeping barberry-common juniper    | PSME/MARE11-JUCI6  |
| 01204   | Douglas-fir/Ross' sedge                         | PSME/CARO5         |
| 01205   | Douglas-fir/pinegrass                           | PSME/CARU          |
| 012050  | Douglas-fir/pinegrass-pinegrass                 | PSME/CARU-CARU     |
| 012051  | Douglas-fir/pinegrass/Oregon boxleaf            | PSME/CARU/PAMY     |
| 012052  | Douglas-fir/pinegrass-Idaho fescue              | PSME/CARU-FEID     |
| 012053  | Douglas-fir/pinegrass/ponderosa pine            | PSME/CARU/PIPO     |
| 01206   | Douglas-fir/Geyer's sedge                       | PSME/CAGE2         |
| 01207   | Douglas-fir/alderleaf mountain mahogany         | PSME/CEMO2         |
| 01208   | Douglas-fir/Idaho fescue                        | PSME/FEID          |
| 01209   | Douglas-fir/fivepetal cliffbush                 | PSME/JAAM          |
| 01210   | Douglas-fir/common juniper                      | PSME/JUCO6         |
| 01211   | Douglas-fir/Oregon boxleaf                      | PSME/PAMY          |
| 01212   | Douglas-fir/mallow ninebark                     | PSME/PHMA5         |
| 01213   | Douglas-fir/mountain ninebark                   | PSME/PHMO4         |
| 01214   | Douglas-fir/Gambel oak                          | PSME/QUGA          |
| 012140  | Douglas-fir/Gambel oak-Gambel oak               | PSME/QUGA-QUGA     |
| 012141  | Douglas-fir/Gambel oak/Arizona fescue           | PSME/QUGA/FEAR2    |
| 01215   | Douglas-fir/white spirea                        | PSME/SPBE2         |
| 012150  | Douglas-fir/white spirea-white spirea           | PSME/SPBE2-SPBE2   |
| 012151  | Douglas-fir/white spirea/pinegrass              | PSME/SPBE2/CARU    |
| 012153  | Douglas-fir/white spirea/ponderosa pine         | PSME/SPBE2/PIPO    |
| 01216   | Douglas-fir/common snowberry                    | PSME/SYAL          |
| 01217   | Douglas-fir/mountain snowberry                  | PSME/SYOR2         |

| PV_CODE | COMMON_NAME                                                         | SCIENTIFIC_NAME   |
|---------|---------------------------------------------------------------------|-------------------|
| 012170  | Douglas-fir/mountain snowberry-mountain snowberry                   | PSME/SYOR2-SYOR2  |
| 012171  | Douglas-fir/mountain snowberry-creeping barberry                    | PSME/SYOR2-MARE11 |
| 012172  | Douglas-fir/mountain snowberry/Geyer's sedge                        | PSME/SYOR2/CAGE2  |
| 012173  | Douglas-fir/mountain snowberry/spike fescue                         | PSME/SYOR2/LEKI2  |
| 012174  | Douglas-fir/mountain snowberry/bluebunch wheatgrass                 | PSME/SYOR2/PSSPS  |
| 01218   | Douglas-fir/thinleaf huckleberry                                    | PSME/VAME         |
| 01219   | Douglas-fir/kinnikinnick-common juniper                             | PSME/ARUV-JUCO6   |
| 01220   | Douglas-fir/Greenleaf manzanita                                     | PSME/ARPA6        |
| 01221   | Douglas-fir/antelope bitterbrush                                    | PSME/PUTR2        |
| 01222   | Douglas-fir/Saskatoon serviceberry                                  | PSME/AMAL2        |
| 01223   | Douglas-fir/curl-leaf mountain mahogany                             | PSME/CELE3        |
| 01233   | Douglas-fir/Arizona fescue                                          | PSME/FEAR2        |
| 01241   | Douglas-fir/oceanspray                                              | PSME/HODI         |
| 102     | Hophornbeam series                                                  | OSVI              |
| 10202   | Hophornbeam/fleshy hawthorn                                         | OSVI/CRSU5        |
| 10203   | Hophornbeam-bur oak (sparse understory)                             | OSVI-QUMA2        |
| 103     | Narrowleaf cottonwood                                               | POAN3             |
| 10301   | Narrowleaf cottonwood/Saskatoon serviceberry                        | POAN3/AMAL2       |
| 103010  | Narrowleaf cottonwood/Saskatoon serviceberry-Saskatoon serviceberry | POAN3/AMAL2-AMAL2 |
| 103011  | Narrowleaf cottonwood/Saskatoon serviceberry-boxelder               | POAN3/AMAL2-ACNE2 |
| 10302   | Narrowleaf cottonwood/narrowleaf willow-water birch                 | POAN3/SAEX-BEOC2  |
| 10303   | Narrowleaf cottonwood/water birch-current                           | POAN3/BEOC2-RIBES |

| PV_CODE | COMMON_NAME                                                         | SCIENTIFIC_NAME        |
|---------|---------------------------------------------------------------------|------------------------|
| 10304   | Narrowleaf cottonwood/mountain ninebark-chokecherry                 | POAN3/PHMO4-PRVIV      |
| 10305   | Narrowleaf cottonwood-Englemann spruce/twinberry honeysuckle        | POAN3-PIEN/LOINI       |
| 10306   | Narrowleaf cottonwood/thinleaf alder-redosier dogwood               | POAN3/ALINT-COSES      |
| 104     | Plains cottonwood series                                            | PODEM                  |
| 10401   | Plains cottonwood/western snowberry-basin wildrye                   | PODEM/SYOC-LECI4       |
| 104010  | Plains cottonwood/western snowberry-basin wildrye/western snowberry | PODEM/SYOC-LECI4/SYOC  |
| 104011  | Plains cottonwood/western snowberry-basin wildrye/redosier dogwood  | PODEM/SYOC-LECI4/COSES |
| 10402   | Plains cottonwood-narrowleaf cottonwood/willow                      | PODEM-POAN3/SALIX      |
| 10403   | Plains cottonwood/willow                                            | PODEM/SALIX            |
| 10404   | Plains cottonwood/American black currant                            | PODEM/RIAM2            |
| 10405   | Plains cottonwood/western snowberry-narrowleaf willow               | PODEM/SYOC-SAEX        |
| 105     | Quaking aspen series                                                | POTR5                  |
| 10501   | Quaking aspen/Geyer's sedge                                         | POTR5/CAGE2            |
| 10502   | Quaking aspen/beaked hazelnut                                       | POTR5/COCO6            |
| 105020  | Quaking aspen/beaked hazelnut-beaked hazelnut                       | POTR5/COCO6-COCO6      |
| 105021  | Quaking aspen/beaked hazelnut/western brackenfern                   | POTR5/COCO6/PTAQ       |
| 105022  | Quaking aspen/beaked hazelnut/wild sarsaparilla                     | POTR5/COCO6/ARNU2      |
| 10503   | Quaking aspen/Thurber's fescue                                      | POTR5/FETH             |
| 10504   | Quaking aspen/common cowparsnip                                     | POTR5/HEMA80           |
| 10505   | Quaking aspen/Nevada pea                                            | POTR5/LALAL3           |

| PV_CODE | COMMON_NAME                                                             | SCIENTIFIC_NAME         |
|---------|-------------------------------------------------------------------------|-------------------------|
| 10507   | Quaking aspen/silvery lupine                                            | POTR5/LUAR3             |
| 10508   | Quaking aspen/common juniper                                            | POTR5/JUCO6             |
| 10510   | Quaking aspen/western brackenfern                                       | POTR5/PTAQ              |
| 10511   | Quaking aspen/mountain snowberry                                        | POTR5/SYOR2             |
| 10512   | Quaking aspen/Fendler's meadow-rue                                      | POTR5/THFE              |
| 105120  | Quaking aspen/Fendler's meadow-rue-Fendler's meadow-rue                 | POTR5/THFE-THFE         |
| 105121  | Quaking aspen/Fendler's meadow-rue-spreadfruit goldenbanner             | POTR5/THFE-THDI4        |
| 105123  | Quaking aspen/Fendler's meadow-rue/stinging nettle                      | POTR5/THFE/URDI         |
| 10513   | Quaking aspen/Colorado false hellebore                                  | POTR5/VETE4             |
| 10514   | Quaking aspen/big sagebrush                                             | POTR5/ARTR2             |
| 10515   | Quaking aspen/Saskatoon serviceberry-chokecherry                        | POTR5/AMAL2-PRVIV       |
| 105150  | Quaking aspen/Saskatoon serviceberry-chokecherry-Saskatoon serviceberry | POTR5/AMAL2-PRVIV-AMAL2 |
| 105151  | Quaking aspen/Saskatoon serviceberry-chokecherry-Rocky Mountain maple   | POTR5/AMAL2-PRVIV-ACGL  |
| 105152  | Quaking aspen/Saskatoon serviceberry-chokecherry-Gambel oak             | POTR5/AMAL2-PRVIV-QUGA  |
| 105153  | Quaking aspen/Saskatoon serviceberry-chokecherry-Englemann's aster      | POTR5/AMAL2-PRVIV-EUEN  |
| 105154  | Quaking aspen/Saskatoon serviceberry-chokecherry/balsam poplar          | POTR5/AMAL2-PRVIV/POBA2 |
| 10516   | Quaking aspen/snowbrush ceanothus                                       | POTR5/CEVE              |
| 10517   | Quaking aspen/pinegrass                                                 | POTR5/CARU              |
| 10518   | Quaking aspen/licorice-root                                             | POTR5/LIGUS             |
| 10519   | Quaking aspen/chokecherry                                               | POTR5/PRVIV             |
| 105190  | Quaking aspen/chokecherry-chokecherry                                   | POTR5/PRVIV-PRVIV       |

| PV_CODE | COMMON_NAME                                   | SCIENTIFIC_NAME  |
|---------|-----------------------------------------------|------------------|
| 105191  | Quaking aspen/chokecherry-common snowberry    | POTR5/PRVIV-SYAL |
| 10520   | Quaking aspen/creeping barberry               | POTR5/MARE11     |
| 10521   | Quaking aspen/kinnikinnick                    | POTR5/ARUV       |
| 10522   | Quaking aspen/Arizona fescue                  | POTR5/FEAR2      |
| 10523   | Quaking aspen/red elderberry                  | POTR5/SARA2      |
| 106     | Bur oak series                                | QUMA2            |
| 10601   | Bur oak/western snowberry                     | QUMA2/SYOC       |
| 106010  | Bur oak/western snowberry-western snowberry   | QUMA2/SYOC-SYOC  |
| 106011  | Bur oak/western snowberry-quaking aspen       | QUMA2/SYOC-POTR5 |
| 10602   | Bur oak/hazelnut                              | QUMA/CORYL       |
| 107     | Green ash series                              | FRPE             |
| 10701   | Green ash/western snowberry                   | FRPE/SYOC        |
| 107010  | Green ash/western snowberry-western snowberry | FRPE/SYOC-SYOC   |
| 107011  | Green ash/western snowberry/prairie sandreed  | FRPE/SYOC/CALO   |
| 10702   | Green ash/chokecherry                         | FRPE/PRVIV       |
| 107020  | Green ash/chokecherry-chokecherry             | FRPE/PRVIV-PRVIV |
| 107021  | Green ash/chokecherry/Sprengel's sedge        | FRPE/PRVIV/CASP7 |
| 108     | Paper birch series                            | BEPA             |
| 10801   | Paper birch/beaked hazelnut                   | BEPA/COCO6       |
| 109     | Balsam poplar series                          | POBA2            |
| 10901   | Balsam poplar/redosier dogwood                | POBA2/COSES      |
| 201     | Oneseed juniper series                        | JUMO             |
| 20101   | Oneseed juniper/sideoats grama                | JUMO/BOCU        |
| 20102   | Oneseed juniper/blue grama                    | JUMO/BOGR2       |

| PV_CODE | COMMON_NAME                                                                      | SCIENTIFIC_NAME         |
|---------|----------------------------------------------------------------------------------|-------------------------|
| 20103   | Oneseen juniper/western wheatgrass                                               | JUMO/PASM               |
| 202     | Utah juniper series                                                              | JUOS                    |
| 20201   | Utah juniper-twoneedle pinyon/beardless wheatgrass                               | JUOS-PIED/PSSPI         |
| 20202   | Utah juniper/big sagebrush                                                       | JUOS/ARTR2              |
| 20203   | Utah juniper/alderleaf mountain mahogany-squaw-apple                             | JUOS/CEMO2-PERA4        |
| 202030  | Utah juniper/alderleaf mountain mahogany-squaw apple-alderleaf mountain mahogany | JUOS/CEMO2-PERA4-CEMO2  |
| 202031  | Utah juniper/alderleaf mountain mahogany-squaw apple-Wyoming big sagebrush       | JUOS/CEMO2-PERA4-ARTRW8 |
| 20204   | Utah juniper/Indian ricegrass                                                    | JUOS/ACHY               |
| 20205   | Utah juniper/Fremont's mahonia                                                   | JUOS/MAFR3              |
| 20206   | Utah juniper/saline wildrye                                                      | JUOS/LESA4              |
| 203     | Rocky Mountain juniper series                                                    | JUSC2                   |
| 20301   | Rocky Mountain juniper/western wheatgrass                                        | JUSC2/PASM              |
| 20302   | Rocky Mountain juniper/big sagebrush                                             | JUSC2/ARTR2             |
| 20303   | Rocky Mountain juniper/bluebunch wheatgrass                                      | JUSC2/PSSPS             |
| 20304   | Rocky Mountain juniper/alderleaf mountain mahogany                               | JUSC2/CEMO2             |
| 20306   | Rocky Mountain juniper/antelope bitterbrush                                      | JUSC2/PUTR2             |
| 20307   | Rocky Mountain juniper/littleseed ricegrass                                      | JUSC2/PIMI7             |
| 204     | Twoneedle pinyon series                                                          | PIED                    |
| 20401   | Twoneedle pinyon-Utah juniper/big sagebrush                                      | PIED-JUOS/ARTR2         |
| 204010  | Twoneedle pinyon-Utah juniper/big sagebrush-big sagebrush                        | PIED-JUOS/ARTR2-ARTR2   |
| 204011  | Twoneedle pinyon-Utah juniper/big sagebrush/blue grama                           | PIED-JUOS/ARTR2/BOGR2   |
| 20402   | twoneedle pinyon/blue grama                                                      | PIED/BOGR2              |

| PV_CODE | COMMON_NAME                                                                                     | SCIENTIFIC_NAME            |
|---------|-------------------------------------------------------------------------------------------------|----------------------------|
| 20403   | Twoneedle pinyon-Utah juniper/Utah serviceberry-alderleaf mountain mahogany                     | PIED-JUOS/AMUT-CEMO2       |
| 204030  | Twoneedle pinyon-Utah juniper/Utah serviceberry-alderleaf mountain mahogany-Utah serviceberry   | PIED-JUOS/AMUT-CEMO2-AMUT  |
| 204031  | Twoneedle pinyon-Utah juniper/Utah serviceberry-alderleaf mountain mahogany-greenleaf manzanita | PIED-JUOA/AMUT-CEMO2-ARPA6 |
| 20404   | Twoneedle pinyon/Gambel oak                                                                     | PIED/QUGA                  |
| 20405   | Twoneedle pinyon-Utah juniper/antelope bitterbrush                                              | PIED-JUOS/PUTR2            |
| 20406   | Twoneedle pinyon-Utah juniper/muttongrass                                                       | PIED-JUOS/POFE             |
| 20407   | Twoneedle pinyon-oneseed juniper/alderleaf mountain mahogany                                    | PIED-JUMO/CEMO2            |
| 20408   | Twoneedle pinyon-oneseed juniper/Columbia needlegrass                                           | PIED-JUMO/ACNEN2           |
| 20409   | Twoneedle pinyon-Utah juniper/alderleaf mountain mahogany                                       | PIED-JUOS/CEMO2            |
| 204090  | Twoneedle pinyon-Utah juniper/alderleaf mountain mahogany-alderleaf mountain mahogany           | PIED-JUOS/CEMO2-CEMO2      |
| 204091  | Twoneedle pinyon-Utah juniper/alderleaf mountain mahogany-Gambel oak                            | PIED-JUOS/CEMO2-QUGA       |
| 20410   | Twoneedle pinyon/black sagebrush                                                                | PIED/ARNO4                 |
| 301     | Serviceberry services                                                                           | AMELA                      |
| 30101   | Serviceberry/mountain snowberry-big sagebrush                                                   | AMELA/SYOR2-ARTR2          |
| 301011  | Serviceberry/mountain snowberry-big sagebrush/bluebunch wheatgrass                              | AMELA/SYOR2-ARTR2/PSSPS    |
| 301012  | Serviceberry/mountain snowberry-big sagebrush/Letterman's needlegrass                           | AMELA-SYOR2-ARTR2/ACLE9    |
| 301013  | Serviceberry/mountain snowberry-big savebrush/Thurber's fescue                                  | AMELA-SYOR2-ARTR2/FETH     |

| PV_CODE | COMMON_NAME                                            | SCIENTIFIC_NAME   |
|---------|--------------------------------------------------------|-------------------|
| 30102   | Serviceberry/Geyer's sedge                             | AMELA/CAGE2       |
| 30103   | Saskatoon serviceberry-switchgrass/American vetch      | AMAL2-PAVI2/VIAM  |
| 30104   | Serviceberry-antelope bitterbrush/bluebunch wheatgrass | AMELA-PUTR2/PSSPS |
| 302     | Silver sagebrush series                                | ARCA13            |
| 30201   | Silver sagebrush/western wheatgrass                    | ARCA13/PASM       |
| 302011  | Silver sagebrush/western wheatgrass/green needlegrass  | ARCA13/PASM/NAVI4 |
| 30202   | Silver sagebrush/Idaho fescue                          | ARCA13/FEID       |
| 30203   | Silver sagebrush/Thurber's fescue                      | ARCA13/FETH       |
| 30204   | Silver sagebrush-western snowberry/western wheatgrass  | ARCA13-SYOC/PASM  |
| 303     | Sand sagebrush series                                  | ARFI2             |
| 30301   | Sand sagebrush/sand bluestem                           | ARFI2/ANHA        |
| 30302   | Sand sagebrush/sand dropseed-blue grama                | ARFI2/SPCR-BOGR2  |
| 304     | Little sagebrush series                                | ARAR8             |
| 30401   | Little sagebrush/bluebunch wheatgrass                  | ARAR8/PSSPS       |
| 30403   | Little sagebrush/Idaho fescue                          | ARAR8/FEID        |
| 305     | Big sagebrush series                                   | ARTR2             |
| 30502   | Big sagebrush/bluebunch wheatgrass                     | ARTR2/PSSPS       |
| 30503   | Big sagebrush/rubber rabbitbrush                       | ARTR2/ERNAN5      |
| 30504   | Big sagebrush/Colorado wildrye                         | ARTR2/LEAM        |
| 30505   | Big sagebrush/basin wildrye                            | ARTR2/LECI4       |
| 30506   | Big sagebrush/Idaho fescue                             | ARTR2/FEID        |
| 305061  | Big sagebrush/Idaho fescue/sticky purple geranium      | ARTR2/FEID/GEVI2  |
| 30507   | Big sagebrush/Thurber's fescue                         | ARTR2/FETH        |

| PV_CODE | COMMON_NAME                                                  | SCIENTIFIC_NAME   |
|---------|--------------------------------------------------------------|-------------------|
| 30508   | Big sagebrush/spike fescue                                   | ARTR2/LEK12       |
| 30509   | Big sagebrush-antelope bitterbrush/<br>streambank wheatgrass | ARTR2-PUTR2/ELLAL |
| 30510   | Big sagebrush/Indian ricegrass                               | ARTR2/ACHY        |
| 305101  | Big sagebrush/Indian ricegrass-mountain<br>snowberry         | ARTR2/ACHY-AYOR2  |
| 30511   | Big sagebrush/Letterman's needlegrass                        | ARTR2/ACLE9       |
| 30512   | Big sagebrush/needle and thread                              | ARTR2/HECOC8      |
| 30514   | Big sagebrush-antelope bitterbrush/western<br>wheatgrass     | ARTR2-PUTR2/PASM  |
| 30515   | Big sagebrush-yellow rabbitbrush/lupine                      | ARTR2-CHVI8/LUPIN |
| 305170  | Big sagebrush/western wheatgrass                             | ARTR2/PASM        |
| 305171  | Big sagebrush/plains muhly                                   | ARTR2/MUCU3       |
| 305172  | Big sagebrush/blue grama                                     | ARTR2/BOGR2       |
| 30518   | Big sagebrush-mountain snowberry/basin<br>wildrye            | ARTR2-SYOR2/LECI4 |
| 30519   | Big sagebrush/sand dropseed                                  | ARTR2/SPCR        |
| 305190  | Big sagebrush/blue grama                                     | ARTR2/BOGR2       |
| 305191  | Big sagebrush/James' galleta                                 | ARTR2/PLJA        |
| 306     | Threetip sagebrush series                                    | ARTR4             |
| 30601   | Threetip sagebrush/Idaho fescue                              | ARTR4/FEID        |
| 30603   | Threetip sagebrush/Sandberg bluegrass                        | ARTR4/POSE        |
| 30604   | Threetip sagebrush/needle and thread                         | ARTR4/HECOC8      |
| 307     | Curl-leaf mountain mahogany series                           | CELE3             |
| 30701   | Curl-leaf mountain mahogany/bluebunch<br>wheatgrass          | CELE3/PSSPS       |
| 308     | Alderleaf mountain mahogany series                           | CEMO2             |

| PV_CODE | COMMON_NAME                                                   | SCIENTIFIC_NAME    |
|---------|---------------------------------------------------------------|--------------------|
| 30801   | Alderleaf mountain mahogany/streambank wheagrass              | CEMO2/ELLAL        |
| 30802   | Alderleaf mountain mahogany/bluebunch wheatgrass              | CEMO2/PSSPS        |
| 30803   | Alderleaf mountain mahogany/Idaho fescue                      | CEMO/FEID          |
| 30804   | Alderleaf mountain mahogany-skunkbush sumac/sideoats grama    | CEMO2-RHTR/BOCU    |
| 30805   | Alderleaf mountain mahogany/needle and thread                 | CEMO2/HECOC8       |
| 308051  | Alderleaf mountain mahogany/needle and thread/skunkbush sumac | CEMO2/HECOC8/RHTRT |
| 30806   | Alderleaf mountain mahogany/Letterman's needlegrass           | CEMO2/ACLE9        |
| 30807   | Alderleaf mountain mahogany/mountain muhly                    | CEMO2/MUMO         |
| 30808   | Alderleaf mountain mahogany-skunkbush sumac/big bluestem      | CEMO2-RHTR/ANGE    |
| 310     | Eightpetal mountain-avens series                              | DROC               |
| 31002   | Eightpetal mountain-avens/pinegrass                           | DROC/CARU          |
| 310021  | Eightpetal mountain-avens/pinegrass/mountain stitchwort       | DROC/CARU/MIB19    |
| 31003   | Eightpetal mountain-avens/snow willow                         | DROC/SANI8         |
| 311     | Shrubby cinquefoil series                                     | DAFL3              |
| 31101   | Shrubby cinquefoil/Idaho fescue                               | DAFL3/FEID         |
| 31102   | Shrubby cinquefoil/Thurber's fescue                           | DAFL3/FETH         |
| 31103   | Shrubby cinquefoil/Altai fescue                               | DAFL3/FEAL         |
| 31104   | Shrubby cinquefoil/tufted hairgrass                           | DAFL3/DECA18       |
| 31105   | Shrubby cinquefoil/matted saxifrage                           | DAFL3/SABRA2       |
| 312     | Antelope bitterbrush series                                   | PUTR2              |
| 31201   | Antelope bitterbrush-big sagebrush/Idaho fescue               | PUTR2-ARTR2/FEID   |

| PV_CODE | COMMON_NAME                                                | SCIENTIFIC_NAME         |
|---------|------------------------------------------------------------|-------------------------|
| 31202   | Antelope bitterbrush/mountain muhly                        | PUTR2/MUMO              |
| 31203   | Antelope bitterbrush/needle and thread                     | PUTR2/HECOC8            |
| 31204   | Antelope bitterbrush/bluebunch wheatgrass                  | PUTR2/PSSPS             |
| 31205   | Antelope bitterbrush-big sagebrush/bluebunch wheatgrass    | PUTR2-ARTR2/PSSPS       |
| 313     | Gambel oak series                                          | QUGA                    |
| 31301   | Gambel oak/Saskatoon serviceberry                          | QUGA/AMAL2              |
| 313011  | Gambel oak/Saskatoon serviceberry/creeping barberry        | QUGA/AMAL2/MARE11       |
| 31302   | Gambel oak/Utah serviceberry                               | QUGA/AMUT               |
| 31303   | Gambel oak/alderleaf mountain mahogany                     | QUGA/CEMO2              |
| 31304   | Gambel oak-chokecherry/Oregon boxleaf                      | QUGA-PRVIV/PAMY         |
| 313043  | Gambel oak-chokecherry/Oregon boxleaf/redosier dogwood     | QUGA-PRVIV/PAMY/COSES   |
| 31305   | Gambel oak/mountain snowberry                              | QUGA/SYOR2              |
| 313050  | Gambel oak/mountain snowberry-mountain snowberry           | QUGA/SYOR2-SYOR2        |
| 313054  | Gambel oak/mountain snowberry/alderleaf mountain mahogany  | QUGA/SYOR2/CEMO2        |
| 313055  | Gambel oak/mountain snowberry/big sagebrush                | QUGA/SYOR2/ARTR2        |
| 31306   | Gambel oak/sun sedge                                       | QUGA/CAINH2             |
| 31307   | Gambel oak-chokecherry/Thruher's fescue                    | QUGA-PRVIV/FETH         |
| 314     | Willow series                                              | SALIX                   |
| 31401   | Diamondleaf willow/white marsh marigold                    | SAPL2/CALE4             |
| 31402   | Geyer's willow-strapleaf willow/bluejoint                  | SAGE2-SALI/CACA4        |
| 314021  | Geyer's willow-strapleaf willow/bluejoint/tufted hairgrass | SAGE2-SALI/CACA4/DECA18 |
| 31404   | Meadow willow/eastern marsh fern                           | SAPES/THPA              |

| PV_CODE | COMMON_NAME                                                       | SCIENTIFIC_NAME        |
|---------|-------------------------------------------------------------------|------------------------|
| 31405   | Diamondleaf willow/water sedge                                    | SAPL2/CAAQ             |
| 314051  | Diamondleaf willow/water sedge/tufted hairgrass                   | SAPL2/CAAQ/DECA18      |
| 31406   | Diamondleaf willow/mountain sedge                                 | SAPL2/CASC12           |
| 31408   | Grayleaf willow-shortfruit willow/tufted hairgrass                | SAGL-SABR/DECA18       |
| 314081  | Grayleaf willow-shortfruit willow/tufted hairgrass/Jacob's ladder | SAGL-SABR/DECA18/POPU3 |
| 31409   | Grayleaf willow-strapleaf willow/sedge                            | SAGL-SALI/CAREX        |
| 31411   | Peachleaf willow-diamondleaf willow/white panicle aster           | SAAM2-SAPL2/SYLAH6     |
| 31412   | Strapleaf willow-willow/bluegrass                                 | SAEX-SALIX/POA         |
| 31413   | Geyer's willow-willow/Northwest Territory sedge                   | SAGE2-SALIX/CAUT       |
| 31414   | Diamondleaf willow/tufted hairgrass                               | SAPL2/DECA18           |
| 31415   | Grayleaf willow/Ross' avens                                       | SAGL/GEROT             |
| 31416   | Geyer's willow/fowl bluegrass                                     | SAGE2/POPA2            |
| 31417   | Booth's willow-willow/Northwest Territory sedge                   | SABO2-SALIX/CAUT       |
| 31418   | Booth's willow-willow/bluejoint                                   | SABO2-SALIX/CACA4      |
| 31419   | Wolf's willow/water sedge                                         | SAWO/CAAQ              |
| 31420   | Wolf's willow/Northwest Territory sedge                           | SAWO/CAUT              |
| 31421   | Wolf's willow/bluejoint                                           | SAWO/CACA4             |
| 31422   | Wolf's willow/tufted hairgrass                                    | SAWO/DECA18            |
| 31423   | Wolf's willow/Virginia strawberry                                 | SAWO/FRVI              |
| 31424   | Narrowleaf willow-willow/bluejoint-field horsetail                | SAEX-SALIX/CACA4-EQAR  |
| 31425   | Yellow willow/field horsetail                                     | SALU2/EQAR             |
| 31426   | Drummond's willow/bluejoint                                       | SADR/CACA4             |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME  |
|---------|----------------------------------------------------|------------------|
| 31427   | Sageleaf willow-willow/water sedge                 | SACA4-SALIX/CAAQ |
| 315     | Greasewood series                                  | SAVE4            |
| 31501   | Greasewood-big sagebrush/western wheatgrass        | SAVE4-ARTR2/PASM |
| 31502   | Greasewood-Gardner's saltbrush/Sandberg bluegrass  | SAVE4-ATGA/POSE  |
| 31504   | Greasewood/alkali sacaton                          | SAVE4/SPAI       |
| 31505   | Greasewood/basin wildrye                           | SAVE4/LECI4      |
| 31506   | Greasewood/bluebunch wheatgrass                    | SAVE4/PSSPS      |
| 31507   | Greasewood-shadescale saltbrush/slender wheatgrass | SAVE4-ATCO/ELTR7 |
| 316     | Mountain snowberry series                          | SYOR2            |
| 31601   | Mountain snowberry/Thurber's fescue                | SYOR2/FETH       |
| 317     | Black sagebrush series                             | ARNO4            |
| 31701   | Black sagebrush/bluebunch wheatgrass               | ARMO4/PSSPS      |
| 31702   | Black sagebrush/arrowleaf balsamroot               | ARNO4/BASA3      |
| 318     | Little sagebrush series                            | ARARL            |
| 31801   | Little sagebrush/western wheatgrass                | ARARL/PASM       |
| 31802   | Little sagebrush/bluebunch wheatgrass              | ARARL/PSSPS      |
| 319     | Skunkbush sumac series                             | RHTRT            |
| 31901   | Skunkbush sumac/bluebunch wheatgrass               | RHTRT/PSSPS      |
| 319011  | Skunkbush sumac/bluebunch wheatgrass-Idaho fescue  | RHTRT/PSSPS-FEID |
| 31902   | Skunkbush sumac/sand dropseed                      | RHTRT/SPCR       |
| 31903   | Skunkbush sumac/threadleaf sedge                   | RHTRT/CAFI       |
| 31904   | Skunkbush sumac/mountain muhly                     | RHTRT/MUMO       |
| 320     | Currant series                                     | RIBES            |

| PV_CODE | COMMON_NAME                                            | SCIENTIFIC_NAME   |
|---------|--------------------------------------------------------|-------------------|
| 32001   | Wax currant/Colorado blue columbine                    | RICE/AQCA2        |
| 32002   | Gooseberry currant/Jacob's-ladder                      | RIMO2/POPU3       |
| 32003   | Gooseberry currant/Idaho fescue                        | RIMO2/FEID        |
| 321     | Blackberry series                                      | VACCI             |
| 32101   | Grayleaf red raspberry/Colorado blue columbine         | RUIDS2/AQCA2      |
| 32102   | Grayleaf red raspberry/littleflower alumroot           | RUIDS2/HEPA10     |
| 322     | Blueberry series                                       | VACCI             |
| 32201   | Grouse whortleberry-dwarf bilberry/mountain stitchwort | VASC-VACA13/MIBI9 |
| 32202   | Dwarf bilberry/pine dropseed                           | VACA13/BLTR       |
| 323     | Thinleaf alder series                                  | ALINT             |
| 32301   | Thinleaf alder-water birch/willow                      | ALINT-BEOC2/SALIX |
| 32302   | Thinleaf alder-dwarf birch/water sedge                 | ALINT-BENA-CAAQ   |
| 32303   | Thinleaf alder-Drummond's willow/field horsetail       | ALINT-SADR/EQAR   |
| 32304   | Thinleaf alder/redosier dogwood                        | ALINT/COSES       |
| 324     | Saltbrush series                                       | ATRIP             |
| 32401   | Fourwing saltbrush/blue grama                          | ATCA2/BOGR2       |
| 32402   | Fourwing saltbrush-shadscale saltbrush/alkali sacaton  | ATCA2-ATCO/SPAI   |
| 32403   | Shadscale saltbrush-big sagebrush/bluebunch wheatgrass | ATCO-ARTR2/PSSPS  |
| 32404   | Fourwing saltbrush/needle and thread                   | ATCA2/HECOC8      |
| 32405   | Fourwing saltbrush/western wheatgrass-blue grama       | ATCA2/OASM-BOGR2  |
| 32406   | Fourwing saltbrush-big sagebrush/western wheatgrass    | ATCA2-ARTR2/PASM  |
| 32407   | Gardner's saltbrush/western wheatgrass                 | ATGA/PASM         |

| PV_CODE | COMMON_NAME                                         | SCIENTIFIC_NAME   |
|---------|-----------------------------------------------------|-------------------|
| 325     | Creeping juniper series                             | JUHO2             |
| 32501   | Creeping juniper/little bluestem                    | JUHO2/SCSC        |
| 325011  | Creeping juniper/little bluestem/shrubby cinquefoil | JUHO/SCSC/DAFL3   |
| 32502   | Creeping juniper/sun sedge                          | JUHO/CAINH2       |
| 325021  | Creeping juniper/sun sedge/bluebunch wheatgrass     | JUHO/CAINH2/PSSPS |
| 326     | Western snowberry series                            | SYOC              |
| 32601   | Western snowberry/western wheatgrass                | SYOC/PASM         |
| 327     | Chokecherry series                                  | PRVIV             |
| 32701   | Chokecherry-western snowberry/western wheatgrass    | PRVIV-SYOC/PASM   |
| 32702   | Chokecherry-mountain snowberry/slender wheatgrass   | PRVIV-SYOR2/ELTR7 |
| 328     | Redosier dogwood series                             | COSES             |
| 32801   | Redosier dogwood/common cowparsnip                  | COSES/HEMA80      |
| 32802   | Redosier dogwood/twinberry honeysuckle              | COSES/LOIN1       |
| 32803   | Redosier dogwood/whitestem gooseberry               | COSES/RIIN2       |
| 329     | Dwarf birch series                                  | BENA              |
| 32901   | Dwarf birch/mountain sedge                          | BENA/CASC12       |
| 32902   | Dwarf birch/Jacob's-ladder                          | BENA/POPU3        |
| 330     | Rocky Mountain maple series                         | ACGL              |
| 33001   | Rocky Mountain maple/redosier dogwood               | ACGL/COSES        |
| 331     | Twinberry honeysuckle series                        | LOINI             |
| 33101   | Twinberry honeysuckle/bluejoint                     | LOINI/CACA4       |
| 332     | Common juniper series                               | JUCO6             |
| 33201   | Common juniper-currant/Thurber's fescue             | JUCO6-RIBES/FETH  |

| PV_CODE | COMMON_NAME                                      | SCIENTIFIC_NAME    |
|---------|--------------------------------------------------|--------------------|
| 333     | Rockspirea series                                | HODU               |
| 33301   | Rockspirea/Thurber's fescue                      | HODU/FETH          |
| 33302   | Rockspirea/wax currant                           | HODU/RICE          |
| 334     | Squaw apple series                               | PERA4              |
| 33401   | Squaw apple-mountain snowberry/creeping barberry | PERA4-SYOR2/MARE11 |
| 335     | Winterfat series                                 | KRLA2              |
| 33501   | Winterfat/James' galleta                         | KRLA2/PLJA         |
| 401     | Western wheatgrass series                        | PASM               |
| 40101   | Western wheatgrass/blue grama                    | PASM/BOGR2         |
| 401011  | Western wheatgrass/blue grama-needle and thread  | PASM/BOGR2-HECOC8  |
| 401012  | Western wheatgrass/blue grama-green needlegrass  | PASM/BOGR2-NAVI4   |
| 40102   | Western wheatgrass/inland saltgrass              | PASM/DISP          |
| 40103   | Western wheatgrass/needle spikerush              | PASM/ELAC          |
| 40104   | Western wheatgrass/green needlegrass             | PASM/NAVI5         |
| 40105   | Western wheatgrass/sun sedge                     | PASM/CAINH2        |
| 40106   | Western wheatgrass/threadleaf sedge              | PASM/CAFI          |
| 402     | Bluebunch wheatgrass series                      | PSSPS              |
| 40204   | Bluebunch wheatgrass/Sandberg bluegrass          | PSSPS/POSE         |
| 40206   | Bluebunch wheatgrass/muttongrass                 | PSSPS/POFE         |
| 40207   | Bluebunch wheatgrass/western wheatgrass          | PSSPS/PASM         |
| 40208   | Bluebunch wheatgrass/blue grama                  | PSSPS/BOGR2        |
| 40209   | Bluebunch wheatgrass/sideoats grama              | PSSPS/BOCU         |
| 40210   | Bluebunch wheatgrass/threadleaf sedge            | PSSPS/CAFI         |
| 40211   | Bluebunch wheatgrass/needle and thread           | PSSPS/HECOC8       |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME  |
|---------|----------------------------------------------------|------------------|
| 403     | Big bluestem series                                | ANGE             |
| 40301   | Big bluestem-little bluestem                       | ANGE-SCSC        |
| 40302   | Big bluestem/Indiangrass                           | ANGE/SONU2       |
| 403021  | Big bluestem/Indiangrass-prairie cordgrass         | ANGE/SONU2-SPPE  |
| 403022  | Big bluestem/Indiangrass-alkali sacaton            | ANGE/SONU2-SPAI  |
| 40303   | Big bluestem/prairie dropseed                      | ANGE/SPHE        |
| 40304   | Big bluestem/Scribner's rosette grass              | ANGE/DIOLS       |
| 404     | Sand bluestem series                               | ANHA             |
| 40401   | Sand bluestem/prairie sandreed                     | ANHA/CALO        |
| 404011  | Sand bluestem/needle and thread                    | ANHA/HECOC8      |
| 404012  | Sand bluestem/sand lovegrass                       | ANHA/ERTR3       |
| 404013  | Sand bluestem/little bluestem                      | ANHA/SCSC        |
| 405     | Little bluestem series                             | SCSC             |
| 40501   | Little bluestem-sideoats grama/threadleaf sedge    | SCSC-BOCU/CAFI   |
| 40502   | Little bluestem/blue grama                         | SCSC/BOGR2       |
| 40503   | Little bluestem/threadleaf sedge                   | SCSC/CAFI        |
| 405031  | Little bluestem/threadleaf sedge-needle and thread | SCSC/CAFI-HECOC8 |
| 40504   | Little bluestem/hairy grama                        | SCSC/BOHI2       |
| 40505   | Little bluestem/needlegrass                        | SCSC/STIPA       |
| 406     | Sideoats grama series                              | BOCU             |
| 40601   | Sideoats grama/little bluestem                     | BOCU/SCSC        |
| 407     | Blue grama series                                  | BOGR2            |
| 40701   | Blue grama/western wheatgrass                      | BOGR2/PASM       |
| 407012  | Blue grama/western wheatgrass-buffalograss         | BOGR2/PASM-BUDA  |

| PV_CODE | COMMON_NAME                                     | SCIENTIFIC_NAME     |
|---------|-------------------------------------------------|---------------------|
| 40704   | Blue grama/fourwing saltbrush                   | BOGR2/ATCA2         |
| 40705   | Blue grama/buffalograss                         | BOGR2/BUDA          |
| 40706   | Blue grama/sun sedge                            | BOGR2/CAINH2        |
| 40707   | Blue grama/winterfat                            | BOGR2/KRLA2         |
| 40708   | Blue grama/sideoats grama                       | BOGR2/BOCU          |
| 407081  | Blue grama/sideoats grama-alkali sacaton        | BOGR2/BOCU-SPAI     |
| 40709   | Blue grama/slimstem muhly                       | BOGR2/MUFI          |
| 407091  | Blue grama/slimstem muhly-rubber rabbitbrush    | BOGR2/MUFI-ERNAN5   |
| 407092  | Blue grama/slimstem muhly-Parry's rabbitbrush   | BOGR2/MUFI-ERPAP10  |
| 40710   | Blue grama/needlegrass                          | BOGR2/STIPA         |
| 40711   | Blue grama/needle and thread                    | BOGR2/HECOC8        |
| 407111  | Blue grama/needle and thread-prairie sandreed   | BOGR2/HECOC8-CALO   |
| 407112  | Blue grama/needle and thread-sun sedge          | BOGR2/HECOC8-CAINH2 |
| 407113  | Blue grama/needle and thread-green needlegrass  | BOGR2/HECOC8-NAVI4  |
| 40712   | Blue grama/needleleaf sedge                     | BOGR2/CADU6         |
| 40713   | Blue grama/James' galleta                       | BOGR2/PLJA          |
| 407131  | Blue grama/James' galleta-hairy grama           | BOGR2/PLJA-BOHI2    |
| 409     | Buffalograss series                             | BUDA                |
| 40901   | Buffalograss/western wheatgrass                 | BUDA/PASM           |
| 40902   | Buffalograss/sedge                              | BUDA/CAREX          |
| 410     | Bluejoint series                                | CACA4               |
| 41001   | Bluejoint/Sartwell's sedge                      | CAAC4/CASA8         |
| 41002   | Bluejoint-mountain sedge/tall fringed bluebells | CACA4-CASC12/MECI3  |
| 411     | Prairie sandreed series                         | CALO                |

| PV_CODE | COMMON_NAME                                               | SCIENTIFIC_NAME   |
|---------|-----------------------------------------------------------|-------------------|
| 41102   | Prairie sandreed/needle and thread                        | CALO/HECOC8       |
| 411021  | Prairie sandreed/needle and thread-blue grama             | CALO/HECOC8-BOGR2 |
| 41103   | Prairie sandreed/sand dropseed                            | CALO/SPCR         |
| 41104   | Prairie sandreed/blue grama                               | CALO/BOGR2        |
| 41105   | Prairie sandreed/sun sedge                                | CALO/CAINH2       |
| 412     | Sedge series                                              | CAREX             |
| 41201   | Water sedge/Northwest Territory sedge                     | CAAQ/CAUT         |
| 412011  | Water sedge/Northwest Territory sedge-fewflower spikerush | CAAQ/CAUT-ELQU2   |
| 412012  | Water sedge/Northwest Territory sedge-water sedge         | CAAQ/CAUT-CAAQ    |
| 41202   | Blackroot sedge/alpine clover                             | CAEL3/TRDA2       |
| 41203   | Pinegrass/mountain stitchwort                             | CARU/MIBI9        |
| 41204   | Pinegrass/alpine clover                                   | CARU/TRDA2        |
| 41205   | Mountain sedge/white marsh marigold                       | CASC12/CALE4      |
| 41206   | Water sedge/elphanthead lousewort                         | CAAQ/PEGR2        |
| 41207   | Arapaho sedge/mountain stitchwort                         | CARR13/MIBI9      |
| 41208   | Sedge/alpine bistort                                      | AREX/POVI3        |
| 41209   | Blackroot sedge/oreoxis                                   | CAEL3/OREOX       |
| 41210   | Dryspike sedge/Ross' avens                                | CAFO3/GEROT       |
| 41211   | Cloud sedge/arctic bluegrass                              | CAHA6/POAR2       |
| 412110  | Cloud sedge/arctic bluegrass-arctic bluegrass             | CAHA6/POAR2-POAR2 |
| 412112  | Cloud sedge/arctic bluegrass-varileaf cinquefoil          | CAHA6/POAR2-PODI2 |
| 41212   | Sedge/alpine bistort                                      | CAREX/POVI3       |
| 41213   | Black alpine sedge/rush                                   | CANI2/JUNCU       |
| 41214   | Globe sedge/moss campion                                  | CAPE12/SIAC       |

| PV_CODE | COMMON_NAME                                            | SCIENTIFIC_NAME   |
|---------|--------------------------------------------------------|-------------------|
| 41215   | Nebraska sedge/water whorlgrass-rush                   | CANE2/CAAQ3-JUNCU |
| 41216   | Pyrenean sedge/blackhead fleabane                      | CAPY3/ERME2       |
| 41217   | Mountain sedge/Ross' avens                             | CASC12/GEROT      |
| 41218   | Pyrean sedge/moss                                      | CAPY3/2MOSS       |
| 41219   | Sedge/tufted hairgrass                                 | CAREX/DECA18      |
| 41220   | Nebraska sedge/tufted hairgrass                        | CANE2/DECA18      |
| 41221   | Pinegrass/Siberian phlox                               | CARU/PHSI         |
| 41222   | Mountain sedge/turfed hairgrass                        | CASC12/DECA18     |
| 41223   | Mountain sedge/moss                                    | CASC12/2MOSS      |
| 41224   | Spike sedge/alpine besseya                             | CANA2/BEAL        |
| 41225   | Pinegrass/Bellardi bog sedge                           | CARU/KOMY         |
| 41226   | Blackroot sedge/lesser spikemoss                       | CAEL3/SEDE2       |
| 41227   | Blackroot sedge/Ross' avens                            | CAEL3/GEROT       |
| 41228   | Englemann's sedge/snow willow                          | CAEN3/SANI8       |
| 41229   | Early sedge/water sedge                                | CAPR4/CAAQ        |
| 412291  | Early sedge/water sedge-fewflower spikerush            | CARP4/CAAQ-ELQU2  |
| 41230   | Water sedge/Hood's sedge                               | CAAQ/CAHO5        |
| 41231   | Smallwing sedge/tufted hairgrass                       | CAMI7/DECA18      |
| 41232   | Mountain sedge/alpine bistort                          | CASC12/POVI3      |
| 413     | Timber oatgrass series                                 | DAIN              |
| 41301   | Timber oatgrass/varileaf cinquefoil                    | DAIN/PODI2        |
| 413011  | Timber oatgrass/varileaf cinquefoil-creeping sibbaldia | DAIN/PODI2-SIPR   |
| 41302   | Timber oatgrass/tufted hairgrass                       | DAIN/DECA18       |
| 413021  | Timber oatgrass/tufted hairgrass/alpine oreoxis        | DAIN/DECA18/ORAL  |
| 41303   | Timber oatgrass/Letterman's needlegrass                | DAIN/ACLE9        |

| PV_CODE | COMMON_NAME                                                   | SCIENTIFIC_NAME   |
|---------|---------------------------------------------------------------|-------------------|
| 414     | Parry's oatgrass series                                       | DAPA2             |
| 41401   | Parry's oatgrass/Idaho fescue                                 | DAPA2/FEID        |
| 41402   | Parry's oatgrass/sun sedge                                    | DAPA2/CAINH2      |
| 414021  | Parry's oatgrass/sun sedge-little bluestem                    | DAPA2/CAINH2-SCSC |
| 41403   | Parry's oatgrass/Arizona fescue                               | DAPA2/FEAR2       |
| 415     | Tufted hairgrass series                                       | DECA18            |
| 41501   | Tufted hairgrass/white marsh marigold                         | DECA18/CALE4      |
| 415011  | Tufted hairgrass/white marsh marigold/plaintainleaf buttercup | DEAC18/CALE4/RAAL |
| 41502   | Tufted hairgrass/sedge                                        | DECA18/CAREX      |
| 415020  | Tufted hairgrass/Nebraska sedge                               | DECA18/CANE2      |
| 415021  | Tufted hairgrass/water sedge                                  | DECA18/CAAQ       |
| 415022  | Tufted hairgrass/sheep sedge                                  | DECA18/CAIL       |
| 41503   | Tufted hairgrass/Ross' avens                                  | DECA18/GEROT      |
| 41504   | Tufted hairgrass/Drummond's rush                              | DECA18/JUDR       |
| 41505   | Tufted hairgrass/slender wheatgrass                           | DECA18/ELTR7      |
| 416     | Inland saltgrass series                                       | DISP              |
| 41601   | Inland saltgrass/western wheatgrass                           | DISP/PASM         |
| 41602   | Inland saltgrass/Nuttall's alkaligrass                        | DISP/PUNU2        |
| 41603   | Inland saltgrass/alkali sacaton-western wheatgrass            | DISP/SPAI-PASM    |
| 416031  | Inland saltgrass/alkali sacaton-Pursh seepweed                | DISP/SPAI-SUCA2   |
| 417     | Spikerush series                                              | ELEOC             |
| 41701   | Common spikerush/sedge                                        | ELPA3/CAREX       |
| 418     | Colorado wildrye series                                       | LEAM              |
| 41801   | Colorado wildrye/wax currant                                  | LEAM/RICE         |

| PV_CODE | COMMON_NAME                                            | SCIENTIFIC_NAME    |
|---------|--------------------------------------------------------|--------------------|
| 419     | Arizona fescue series                                  | FEAR2              |
| 41902   | Arizona fescue/mountain muhly                          | FEAR2/MUMO         |
| 41903   | Arizona fescue/sun sedge                               | FEAR2/CAINH2       |
| 420     | Idaho fescue series                                    | FEID               |
| 42001   | Idaho fescue/western wheatgrass                        | FEID/PASM          |
| 42002   | Idaho fescue/obtuse sedge                              | FEID/CAOB4         |
| 42003   | Idaho fescue/sticky purple geranium                    | FEID/GEVI2         |
| 42004   | Idaho fescue/spike fescue                              | FEID/LEKI2         |
| 42005   | Idaho fescue/silky lupine                              | FEID/LUSE4         |
| 42008   | Idaho fescue/slender wheatgrass                        | FEID/ELTR7         |
| 420081  | Idaho fescue/slender wheatgrass/scarlet gilia          | FEID/ELTR7/IPAG    |
| 42010   | Idaho fescue/bluebunch wheatgrass                      | FEID/PSSPS         |
| 420101  | Idaho fescue/bluebunch wheatgrass-Columbia needlegrass | FEID/PSSPS-ACENEN2 |
| 42011   | Idaho fescue/tufted hairgrass                          | FEID/DECA18        |
| 42012   | Idaho fescue/spike trisetum                            | FEID/TRSP2         |
| 42013   | Idaho fescue/sun sedge                                 | FEID/CAINH2        |
| 422     | Thurber's fescue series                                | FETH               |
| 42201   | Thurber's fescue/Idaho fescue                          | FETH/FEID          |
| 42202   | Thurber's fescue/American vetch-Nevada pea             | FETH/VIAM-LALAL3   |
| 42203   | Thurber's fescue/Arizona fescue                        | FETH/FEAR2         |
| 42204   | Thurber's fescue/Parry's oatgrass                      | FETH/DAPA2         |
| 42205   | Thurber's fescue/alpine oreoxis                        | FETH/ORAL          |
| 423     | Rush series                                            | JUNCU              |
| 42301   | Mountain rush/sedge                                    | JUBAM/CAREX        |
| 423011  | Mountain rush/Nebraska sedge                           | JUBAM/CANE2        |

| PV_CODE | COMMON_NAME                                     | SCIENTIFIC_NAME  |
|---------|-------------------------------------------------|------------------|
| 423012  | Mountain rush/tufted hairgrass                  | JUBAM/DECA18     |
| 42302   | Drummond's rush/sedge                           | JUDR/CAREX       |
| 42303   | Drummond's rush/creeping sabbaldia              | JUDR/SIPR        |
| 42304   | Mountain rush/inland saltgrass                  | JUBAM/DISP       |
| 424     | Bog sedge series                                | KOBRE            |
| 42401   | Bellardi bog sedge/Ross' avens-pinegrass        | KOMY/GEROT-CARU  |
| 42402   | Bellardi bog sedge/alpine clover                | KOMY/TRDA2       |
| 424020  | Bellardi bog sedge/alpine clover-alpine clover  | KOMY/TRDA2-TRDA2 |
| 424021  | Bellardi bog sedge/alpine clover-alpine oreoxis | KOMY/TRDA2-ORAL  |
| 42403   | Bellardi bog sedge/dwarf clover                 | KOMY/TRNA2       |
| 42404   | Siberian bog sedge/alpine bistort               | KOSI/POVI3       |
| 425     | Slimstem muhly series                           | MUFI             |
| 42501   | Slimstem muhly/prairie sagewort                 | MUFI/ARFR4       |
| 426     | Mountain muhly series                           | MUMO             |
| 42601   | Mountain muhly/pine dropseed                    | MUMO/BLTR        |
| 42602   | Mountain muhly/Arizona fescue                   | MUMO/FEAR2       |
| 42603   | Mountain muhly/streambank wheatgrass            | MUMO/ELLAL       |
| 42604   | Mountain muhly/prairie bluebells                | MUMO/MELA3       |
| 427     | Alpine timothy series                           | PHAL2            |
| 42701   | Alpine timothy/hairy sedge                      | PHAL2/CALA16     |
| 428     | Bluegrass series                                | POA              |
| 42801   | Wheeler bluegrass/Letterman's needlegrass       | PONE2/ACLE9      |
| 42803   | Arctic bluegrass/alpine bistort                 | POAR2/ACLE9      |
| 429     | Alkali sacaton series                           | SPAI             |
| 42901   | Alkali sacaton/western wheatgrass               | SPAI/PASM        |

| PV_CODE | COMMON_NAME                                   | SCIENTIFIC_NAME     |
|---------|-----------------------------------------------|---------------------|
| 42902   | Alkali sacaton/blue grama                     | SPAI/BOGR2          |
| 430     | Composite dropseed series                     | SPCOC2              |
| 43001   | Composite dropseed/little bluestem            | SPCOC2/SCSC         |
| 431     | Needle and thread series                      | HECOC8              |
| 43102   | Needle and thread/streambank wheatgrass       | HECOC8/ELLAL        |
| 43103   | Needle and thread/blue grama                  | HECOC8/BOGR2        |
| 431031  | Needle and thread/blue grama-sideoats grama   | HECOC8/BOGR2-BOCU   |
| 431032  | Needle and thread/blue grama-porcupinegrass   | HECOC8/BOGR2-HESP11 |
| 43104   | Needle and thread/threadleaf sedge            | HECOC8/CAFI         |
| 43106   | Needle and thread/mountain muhly              | HECOC8/MUMO         |
| 43107   | Needle and thread/needleleaf sedge            | HECOC8/CADU6        |
| 43108   | Needle and thread/hairy grama                 | HECOC8/BOHI2        |
| 43109   | Needle and thread/sun sedge                   | HECOC8/CAINH2       |
| 431091  | Needle and thread/sun sedge-lesser spikemoss  | HECOC8/CAINH2-SEDE2 |
| 431092  | Needle and thread/sun sedge-green needlegrass | HECOC8/CAINH2-NAVI4 |
| 43110   | Needle and thread/ebony sedge                 | HECOC8/CAEB         |
| 432     | Prairie dropseed series                       | SPHE                |
| 43201   | Prairie dropseed/sedge                        | SPHE/CAREX          |
| 43202   | Prairie dropseed/porcupinegrass               | SPHE/HESP11         |
| 433     | Bulrush series                                | SCIRP               |
| 43301   | Chairmakers bulrush/sedge                     | SCAM6/CAREX         |
| 43302   | Bulrush/inland saltgrass                      | SCIRP/DISP          |
| 433021  | Bulrush/inland saltgrass-prairie cordgrass    | SCIRP/DISP-SPPE     |
| 434     | Plains muhly                                  | MUCU3               |
| 43401   | Plains muhly/little bluestem                  | MUCU3/SCSC          |

| PV_CODE | COMMON_NAME                                 | SCIENTIFIC_NAME    |
|---------|---------------------------------------------|--------------------|
| 435     | Altai fescue series                         | FEAL               |
| 43501   | Altai fescue/Idaho fescue                   | FEAL/FEID          |
| 436     | Porcupinegrass series                       | HESP11             |
| 43601   | Porcupinegrass/plains muhly                 | HESP11/MUCU3       |
| 43602   | Porcupinegrass/big bluestem                 | HESP11/ANGE        |
| 436021  | Porcupinegrass/big bluestem-little bluestem | HESP11/ANGE-SCSC   |
| 437     | Nuttall's alkaligrass series                | PUAI               |
| 43701   | Nuttall's alkaligrass/seaside arrowgrass    | PUAI/TRMA4         |
| 438     | Prairie cordgrass series                    | SPPE               |
| 43801   | Prairie cordgrass/bluejoint                 | SPPE/CACA4         |
| 439     | Purple reedgrass series                     | CAPU               |
| 43901   | Purple reedgrass/Morton's alpineoatgrass    | CAPU/HEMO3         |
| 43902   | Purple reedgrass/glaucous bluegrass         | CAPU/POGL          |
| 440     | Water whorlgrass series                     | CAAQ3              |
| 44001   | Water whorlgrass/water sedge                | CAAQ3/CAAQ         |
| 441     | James' galetta series                       | PLJA               |
| 44101   | James' galetta/alkali sacaton               | PLJA/SPAI          |
| 501     | Alpine springbeauty series                  | CLME               |
| 50101   | Alpine springbeauty/arctic pearlwort        | CLME/SASA          |
| 50102   | Alpine springbeauty/moss campion            | CLME/SIAC          |
| 502     | Ross' avens series                          | GEROT              |
| 50201   | Ross' avens/arctic bluegrass                | GEROT/POAR2        |
| 50203   | Ross' avens/clover-tufted hairgrass         | GEROT/TRIFO-DECA18 |
| 50205   | Ross' avens/American bistort                | GEROT/POBI6        |
| 50206   | Ross' avens/alpine clover                   | GEROT/TRDA2        |

| PV_CODE | COMMON_NAME                                              | SCIENTIFIC_NAME     |
|---------|----------------------------------------------------------|---------------------|
| 50207   | Ross' avens/dwarf clover                                 | GEROT/TRNA2         |
| 50208   | Ross' avens/curly sedge                                  | GEROT/CARU3         |
| 503     | Porter's licorice-root series                            | LIPO                |
| 50301   | Porter's licorice-root/lodgepole lupine                  | LIPO/LUPA8          |
| 50302   | Porter's licorice-root/American vetch                    | LIPO/VIAM           |
| 504     | Rocky Mountain nailwort series                           | PAPU2               |
| 50401   | Rocky Mountain nailwort/mountain stitchwort              | PAPU2/MIBI9         |
| 505     | Willow series                                            | SALIX               |
| 50501   | Arctic willow/Ross' avens                                | SAAR27/GEROT        |
| 505011  | Arctic willow/Ross' avens-creeping sibbaldia             | SAAR27/GEROT-SIPR   |
| 505012  | Arctic willow/Ross' avens-mountain sedge                 | SAAR27/GEROT-CASC12 |
| 50502   | Snow willow/Ross' avens                                  | SANI8/GEROT         |
| 50503   | Arctic willow/blackhead fleabane                         | SAAR27/ERME2        |
| 50504   | Snow willow/dwarf bilberry                               | SANI8/VACA13        |
| 50505   | Snow willow/Parry's clover                               | SAAR27/TRPA5        |
| 506     | Clover series                                            | TRIFO               |
| 50601   | Alpine clover/spreading wheatgrass                       | TRDA2/ELSC4         |
| 50602   | Alpine clover/pinegrass                                  | TRDA2/CARU          |
| 50603   | Dwarf clover/mountain stitchwort                         | TRNA2/MIBI9         |
| 506031  | Dwarf clover/mountain stitchwort-Rocky Mountain nailwort | TRNA2/MIBI9-PAPU2   |
| 50604   | Parry's clover/Ross' avens                               | TRPA5/GEROT         |
| 50605   | Parry's clover/alpine buttercup                          | TRPA5/RAAD          |
| 50606   | Alpine clover/mountain stitchwort                        | TRDA2/MIBI9         |
| 50607   | Dwarf clover/featherleaf fleabane                        | TRNA2/ERPI6         |
| 50608   | Parry's clover/tufted hairgrass                          | TRPA5/DECA18        |

| PV_CODE | COMMON_NAME                                                 | SCIENTIFIC_NAME    |
|---------|-------------------------------------------------------------|--------------------|
| 507     | Broadleaf cattail series                                    | TYLA               |
| 50701   | Broadleaf cattail/broadleaf arrowhead                       | TYLA/SALA2         |
| 508     | Captiate valerian series                                    | VACA3              |
| 50801   | Captiate valerian/Bering chickweed                          | VACA3/CEBE2        |
| 509     | Rocky Mountain pussytoes series                             | ANME2              |
| 50901   | Rocky Mountain pussytoes/arctic bluegrass                   | ANME2/POAR2        |
| 510     | Boreal sagebrush series                                     | ARAR9              |
| 51001   | Boreal sagebrush/Parry's clover-mountain stitchwort         | ARAR9/TRPA5-MIBI9  |
| 511     | White marsh marigold series                                 | CALE4              |
| 51101   | White marsh marigold/redpod stonecrop                       | CALE4/RHRH4        |
| 512     | Heartleaf bittercress series                                | CACO6              |
| 51201   | Heartleaf bittercress/white marsh marigold                  | CACO6/CALE4        |
| 513     | Mountain thistle series                                     | CISC3              |
| 51301   | Mountain thistle/Colorado blue columbine                    | CISC3/AQCA2        |
| 514     | Alumroot series                                             | HEUCH              |
| 51401   | Bracted alumroot-littleflower alumroot/featherleaf fleabane | HEBR2-HEPA10/ERP16 |
| 515     | Tall fringed bluebells series                               | MECI3              |
| 51501   | Tall fringed bluebells/tufted hairgrass                     | MECI3/DECA18       |
| 516     | Sticky polemonium series                                    | POVI               |
| 51601   | Sticky polemonium/silky phacelia-mountain thistle           | POVI/PHSE-CISC3    |
| 51602   | Sticky polemonium/featherleaf fleabane                      | POVI/ERP16         |
| 517     | Parry's primrose series                                     | PRPA               |
| 51701   | Parry's primrose/tufted hairgrass                           | PRPA/DECA18        |
| 518     | Saxifrage series                                            | SAXIF              |

| PV_CODE | COMMON_NAME                                                    | SCIENTIFIC_NAME        |
|---------|----------------------------------------------------------------|------------------------|
| 51801   | Brook saxifrage/tufted hairgrass                               | SAOD2/DECA18           |
| 51802   | Goldbloom saxifrage/alpine fescue                              | SACH4/FEBR             |
| 51803   | Matted saxifrage/brittle bladderfern                           | SABR2/CYFR2            |
| 519     | Ragwort series                                                 | SENEC                  |
| 51901   | Arrowleaf ragwort/fernleaf licorice-root                       | SETR/LIFI              |
| 51902   | Arctic groundsel/varileaf phacelia                             | TEAT2/PHHE2            |
| 520     | Creeping sibbaldia series                                      | SIPR                   |
| 52001   | Creeping sibbaldia/mountain stitchwort-moss                    | SIPR/MIBI9-2MOSS       |
| 520011  | Creeping sibbaldia/mountain stitchwort-moss/arctic bluegrass   | SIPR/MIBI9-2MOSS/POAR2 |
| 52002   | Creeping sibbaldia/Pyrenean sedge                              | SIPR/CAPY3             |
| 52004   | Creeping sibbaldia/ebony sedge                                 | SIPR/CAEB              |
| 521     | American globeflower series                                    | TRLAA2                 |
| 52101   | American globeflower-fernleaf licorice-root/subalpine fleabane | TRLAA2-LIFI/ERPE3      |
| 522     | Seepweed series                                                | SUAED                  |
| 52201   | Seepweed/red swampfire                                         | SUAED/SARU             |
| 522011  | Seepweed/red swampfire-Nuttall's alkaligrass                   | SUAED/SARU-PUAI        |
| 522012  | Seepweed/red swampfire-verrucose seapurslane                   | SUAED/SARU-SEVE2       |
| 523     | Oreoxis series                                                 | OREOX                  |
| 52301   | Baker's alpineparsley/arctic willow-lesser spikemoss           | ORBA/SAAR27-SEDE2      |
| 524     | Colorado false hellebore series                                | VETE4                  |
| 52401   | Colorado false hellebore/common cowparsnip                     | VETE4/HEMA80           |
| 525     | Phlox series                                                   | PHLOX                  |
| 52501   | Siberian phlox/alpine clover                                   | PHSI/TRDA2             |

| PV_CODE | COMMON_NAME                                 | SCIENTIFIC_NAME |
|---------|---------------------------------------------|-----------------|
| 526     | Twinpod series                              | PHYSA2          |
| 52601   | Avery Peak twinpod/Harrington's beardtongue | PHAL10/PEHA11   |
| 527     | Alpine smelowskia series                    | SMCA            |
| 52701   | Alpine smelowskia/field sagewort            | SMCS/ARCAB4     |
| 528     | Buckwheat series                            | ERIOG           |
| 52801   | Colorado buckwheat/nodding locoweed         | ERCO11/OXDEF    |
| 529     | Gordon's ivesia series                      | IVGO            |
| 52901   | Gordon's ivesia/Fendler's sandwort          | IVGO/ARFEF3     |

Table 14: Reference Code 202

| PV_CODE    | COMMON_NAME                                    | SCIENTIFIC_NAME |
|------------|------------------------------------------------|-----------------|
| CECX002003 | Blacktailed prairie dog town grassland complex | N/A             |
| CEGL000187 | Ponderosa pine/creeping barberry               | PIPO/MARE11     |
| CEGL000188 | Ponderosa pine/western wheatgrass              | PIPO/PASM       |
| CEGL000190 | Ponderosa pine/mountain ninebark               | PIPO/PHMO4      |
| CEGL000192 | Ponderosa pine/chokecherry                     | PIPO/PRVI       |
| CEGL000201 | Ponderosa pine/little bluestem                 | PIPO/SCSC       |
| CEGL000203 | Ponderosa pine/common snowberry                | PIPO/SYAL       |
| CEGL000382 | White spruce/twinflower                        | PIGL/LIBO3      |
| CEGL000383 | White spruce/grouse whortleberry               | PIGL/VASC       |
| CEGL000554 | Bur oak/sun sedge                              | QUMA2/CAINH2    |
| CEGL000555 | Bur oak/hophornbeam                            | QUMA2/OSVI      |
| CEGL000583 | Quaking aspen/beaked hazelnut                  | POTR5/COCO6     |
| CEGL000596 | Quaking aspen/chokecherry                      | POTR5/PRVI      |
| CEGL000597 | Quaking aspen/western brackenfern              | POTR5/PTAQ      |
| CEGL000607 | Quaking aspen/white spirea                     | POTR5/SPBE2     |

| PV_CODE    | COMMON_NAME                                           | SCIENTIFIC_NAME  |
|------------|-------------------------------------------------------|------------------|
| CEGL000628 | Boxelder/chokecherry                                  | ACNE2/PRVI       |
| CEGL000659 | Eastern cottonwood-peachleaf willow/narrowleaf willow | PODE3-SAAM2/SAEX |
| CEGL000660 | Eastern cottonwood/western snowberry                  | PODE3/SYOC       |
| CEGL000747 | Rocky Mountain juniper/littleseed ricegrass           | JUSC2/PIMI7      |
| CEGL000844 | Ponderosa pine/kinnikinnick                           | PIPO/ARUV        |
| CEGL000849 | Ponderosa pine/sun sedge                              | PIPO/CAINH2      |
| CEGL000859 | Ponderosa pine/common juniper                         | PIPO/JUCO6       |
| CEGL000861 | Ponderosa pine/Rocky Mountain juniper                 | PIPO/JUSC2       |
| CEGL000865 | Ponderosa pine/bluebunch wheatgrass                   | PIPO/PSSP6       |
| CEGL000873 | Ponderosa pine/bur oak                                | PIPO/QUMA2       |
| CEGL000878 | Ponderosa pine (scree slope)                          | PIPO             |
| CEGL000947 | Peachleaf willow                                      | SAAM2            |
| CEGL001047 | Wyoming big sagebrush/western wheatgrass              | ARTRW8/PASM      |
| CEGL001072 | Silver sagebrush/western wheatgrass                   | ARCA13/PASM      |
| CEGL001086 | Alderleaf mountain mahogany/sideoats grama            | CEMO2/BOCU       |
| CEGL001093 | Black hawthorn-fireberry hawthorn                     | CRDO2-CRCH       |
| CEGL001108 | Chokecherry                                           | PRVI             |
| CEGL001120 | Skunkbush sumac/bluebunch wheatgrass                  | RHTR/PSSP6       |
| CEGL001131 | Western snowberry                                     | SYOC             |
| CEGL001161 | Water birch/redosier dogwood                          | BEOC2/COSE16     |
| CEGL001173 | Bebb willow                                           | SABE2            |
| CEGL001188 | Sageleaf willow/beaked sedge                          | SACA4/CARO6      |
| CEGL001197 | Narrowleaf willow (temporarily flooded)               | SAEX             |
| CEGL001394 | Creeping juniper/little bluestem                      | JUHO2/SCSC       |
| CEGL001477 | Prairie cordgrass-sedge (wet meadow)                  | SPPE-CAREX       |

| PV_CODE    | COMMON_NAME                                               | SCIENTIFIC_NAME   |
|------------|-----------------------------------------------------------|-------------------|
| CEGL001559 | Bluejoint (wet meadow)                                    | CACA4             |
| CEGL001583 | Western wheatgrass-green needlegrass                      | PASM-NAVI4        |
| CEGL001681 | Little bluestem-grama/threadleaf sedge                    | SCSC-BOUTE/CAFI   |
| CEGL001813 | Nebraska sedge (wet meadow)                               | CANE2             |
| CEGL001833 | Common spikerush (wet meadow)                             | ELPA3             |
| CEGL001838 | Baltic rush (wet meadow)                                  | JUBA              |
| CEGL002034 | Western wheatgrass-needle and thread                      | PASM-HECOC8       |
| CEGL002037 | Needle and thread-blue grama-threadleaf sedge             | HECOC8-BOGR2-CAFI |
| CEGL002055 | Ponderosa pine (limestone cliffs)                         | PIPO              |
| CEGL002057 | White spruce (alluvial)                                   | PIGL              |
| CEGL002079 | Paper birch/beaked hazelnut                               | BEPA/COCO6        |
| CEGL002082 | Green ash-American elm/western snowberry                  | FRPE-ULAM/SYOC    |
| CEGL002123 | Ponderosa pine/roughleaf ricegrass                        | PIPO/ORAS         |
| CEGL002138 | Bur oak/chokecherry-western snowberry                     | QUMA2/PRVI-SYOC   |
| CEGL002205 | Big bluestem-little bluestem                              | ANGE-SCSC         |
| CEGL002228 | Northern Great Plains Cattail-Bulrush marsh               | TYPHA-SCIRP       |
| CEGL002240 | Prairie dropseed-Richardson's needlegrass-timber oatgrass | SPHE-ACRI8-DAIN   |
| CEGL002274 | Inland saltgrass-foxtail barley-alkali sacaton            | DISP-HOJU-SPAI    |
| CEGL002294 | Shale barren slopes                                       | n/a               |
| CEGL002295 | Black Hills granite/metamorphic rock outcrop              | n/a               |
| CEGL002307 | Black Hills talus                                         | n/a               |
| CEGL002389 | Cattail (northern great plains cattail marsh)             | TYPHA             |
| CEGL002664 | Narrowleaf cottonwood/redosier dogwood                    | POAN3/COSE16      |
| CEGL005257 | Sandstone dry Great Plains cliff sparse vegetation        | n/a               |

| <b>PV_CODE</b> | <b>COMMON_NAME</b>                                                     | <b>SCIENTIFIC_NAME</b> |
|----------------|------------------------------------------------------------------------|------------------------|
| CEGL005261     | Redbeds (siltstone) rock outcrop                                       | n/a                    |
| CEGL005262     | American mannagrass-fowl bluegrass (Black Hills streamside vegetation) | GLGR-POPA2             |
| CEGL005263     | Western Great Plains streamside vegetation                             | n/a                    |
| CEGL005283     | Igneous/metamorphic Black Hills butte sparse vegetation                | n/a                    |

Table 15: Reference Code 203

| <b>PV_CODE</b> | <b>COMMON_NAME</b>                                               | <b>SCIENTIFIC_NAME</b> |
|----------------|------------------------------------------------------------------|------------------------|
| CEGL000555     | Bur oak-hophornbeam                                              | QUMA2-OSVI             |
| CEGL000596     | Quaking aspen/chokecherry                                        | POTR5/PRVI             |
| CEGL000628     | Boxelder/chokecherry                                             | ACNE2/PRVI             |
| CEGL000659     | Eastern cottonwood-peachleaf willow/narrowleaf willow floodplain | PODE3-SAAM2/SAEX       |
| CEGL000660     | Eastern cottonwood/western snowberry floodplain                  | PODE3/SYOC             |
| CEGL000947     | Peachleaf willow                                                 | SAAM2                  |
| CEGL001093     | Black hawthorn-fireberry hawthorn                                | CRDO2-CRCH             |
| CEGL001131     | Western snowberry                                                | SYOC                   |
| CEGL001161     | Water birch/redosier dogwood                                     | BEOC2/COSE16           |
| CEGL001173     | Bebb willow                                                      | SABE2                  |
| CEGL001188     | Sageleaf willow/beaked sedge                                     | SACA4/CARO6            |
| CEGL001197     | Narrowleaf willow                                                | SAEX                   |
| CEGL001477     | Prairie cordgrass-sedge wet meadow                               | SPPE-CAREX             |
| CEGL001559     | Bluejoint wet meadow                                             | CACA4                  |
| CEGL001813     | Nebraska sedge wet meadow                                        | CANE2                  |
| CEGL001833     | Common spikerush wet meadow                                      | ELPA3                  |
| CEGL001838     | Baltic rush wet meadow                                           | JUBA                   |

| <b>PV_CODE</b> | <b>COMMON_NAME</b>                       | <b>SCIENTIFIC_NAME</b> |
|----------------|------------------------------------------|------------------------|
| CEGL002057     | White spruce alluvial                    | PIGL                   |
| CEGL002079     | Paper birch/beaked hazelnut              | BEPA/COCO6             |
| CEGL002082     | Green ash-American elm/western snowberry | FRPE-ULAM/SYOC         |
| CEGL002228     | Cattail-bulrush marsh                    | TYPHA-SCIRP            |
| CEGL002274     | Alkali sacaton saline meadow             | SPA1                   |
| CEGL002389     | Cattail marsh                            | TYPHA                  |
| CEGL002664     | Narrowleaf cottonwood/redosier dogwood   | POAN3/COSE16           |
| CEGL005262     | American mannagrass-fowl bluegrass       | GLGR-POPA2             |
| CEGL005263     | Bulrush-fowl bluegrass                   | SCIRP-POPA2            |

Table 16: Reference Code 204

| <b>PV_CODE</b> | <b>COMMON_NAME</b>                 | <b>SCIENTIFIC_NAME</b> |
|----------------|------------------------------------|------------------------|
| 002            | Subalpine fir series               | ABLA                   |
| 00201          | Subalpine fir/Geyer's sedge        | ABLA/CAGE2             |
| 00202          | Subalpine fir/grouse whortleberry  | ABLA/VASC              |
| 00203          | Subalpine fir/whortleberry         | ABLA/VAMY2             |
| 00204          | Subalpine fir/common juniper       | ABLA/JUCO6             |
| 00205          | Subalpine fir/ heartleaf arnica    | ABLA/ARCO9             |
| 00206          | Subalpine fir/arrowleaf ragwort    | ABLA/SETR              |
| 00207          | Subalpine fir/Jacob's-ladder       | ABLA/POPU3             |
| 00208          | Subalpine fir/bluejoint            | ABLA/CACA4             |
| 00211          | Subalpine fir/moss                 | ABLA/2MOSS             |
| 006            | Blue spruce series                 | PIPU                   |
| 00601          | Blue spruce/Saskatoon serviceberry | PIPU/AMAL2             |
| 006090         | Blue spruce/Arizona fescue         | PIPU/FEAR2             |
| 008            | Bristlecone pine series            | PIAR                   |

| PV_CODE | COMMON_NAME                                       | SCIENTIFIC_NAME   |
|---------|---------------------------------------------------|-------------------|
| 00801   | Bristlecone pine/Thurber's fescue                 | PIAR/FETH         |
| 00802   | Bristlecone pine/Arizona fescue                   | PIAR/FEAR2        |
| 00805   | Bristlecone pine/common juniper                   | PIAR/JUCO6        |
| 009     | Lodgepole pine series                             | PICO              |
| 00903   | Lodgepole pine/Geyer's sedge                      | PICO/CAGE2        |
| 00905   | Lodgepole pine/common juniper                     | PICO/JUCO6        |
| 00910   | Lodgepole pine/grouse whortleberry                | PICO/VASC         |
| 010     | Limber pine series                                | PIFL2             |
| 01020   | Limber pine/matted saxifrage                      | PIFL2/SABRA2      |
| 011     | Ponderosa pine series                             | PIPO              |
| 01109   | Ponderosa pine/Arizona fescue                     | PIPO/FEAR2        |
| 01110   | Ponderosa pine/Idaho fescue                       | PIPO/FEID         |
| 012     | Douglas-fir series                                | PSME              |
| 01206   | Douglas-fir/Geyer's sedge                         | PSME/CAGE2        |
| 01208   | Douglas-fir/Idaho fescue                          | PSME/FEID         |
| 01209   | Douglas-fir/fivepetal cliffbush                   | PSME/JAAM         |
| 01211   | Douglas-fir/Oregon boxleaf                        | PSME/PAMY         |
| 01217   | Douglas-fir/mountain snowberry                    | PSME/SYOR2        |
| 01221   | Douglas-fir/antelope bitterbrush                  | PSME/PUTR2        |
| 103     | Narrowleaf cottonwood series                      | POAN3             |
| 10306   | Narrowleaf cottonwood/gray alder-redosier dogwood | POAN3/ALIN2-COSES |
| 105     | Quaking aspen series                              | POTR5             |
| 10503   | Quaking aspen/Thurber's fescue                    | POTR5/FETH        |
| 10510   | Quaking aspen/western brackenfern                 | POTR5/PTAQ        |
| 10511   | Quaking aspen/mountain snowberry                  | POTR5/SYOR2       |

| PV_CODE | COMMON_NAME                                      | SCIENTIFIC_NAME  |
|---------|--------------------------------------------------|------------------|
| 10512   | Quaking aspen/Fendler's meadow-rue               | POTR5/THFE       |
| 10515   | Quaking aspen/Saskatoon serviceberry-chokecherry | POTR5/AMAL2-PRVI |
| 10521   | Quaking aspen/kinnikinnick                       | POTR5/ARUV       |
| 10522   | Quaking aspen/Arizona fescue                     | POTR5/FEAR2      |
| 202     | Utah juniper series                              | JUOS             |
| 20210   | Utah juniper/mountain snowberry                  | JUOS/SYOR2       |
| 313     | Gambel oak series                                | QUGA             |
| 313010  | Gambel oak/Saskatoon serviceberry                | QUGA/AMAL2       |
| 313080  | Gambel oak/chokecherry                           | QUGA/PRVI        |

Table 17: Reference Code 205

| PV_CODE | COMMON_NAME                                         | SCIENTIFIC_NAME   |
|---------|-----------------------------------------------------|-------------------|
| 00101   | White fir/Rocky Mountain maple                      | ABCO/ACGL         |
| 001011  | White fir/Rocky Mountain maple-creeping barberry    | ABCO/ACGL-MARE11  |
| 001012  | White fir/Rocky Mountain maple-rockspirea           | ABCO/ACGL-HODU    |
| 001013  | White fir/Rocky Mountain maple (riparian phase)     | ABCO/ACGL         |
| 001014  | White fir/Rocky Mountain maple-Rocky Mountain maple | ABCO/ACGL-ACGL    |
| 001015  | White fir/Rocky Mountain maple-Oregon boxleaf       | ABCO/ACGL-PAMY    |
| 001016  | White fir-Douglas-fir/Rocky Mountain maple          | ABCO-PSME/ACGL    |
| 00102   | White fir/creeping barberry                         | ABCO/MARE11       |
| 001021  | White fir/creeping barberry/New Mexico locust       | ABCO/MARE11/RONE  |
| 001022  | White fir/creeping barberry-common juniper          | ABCO/MARE11-JUCO6 |
| 001023  | White fir/creeping barberry-mountain snowberry      | ABCO/MARE11-SYOR  |

| PV_CODE | COMMON_NAME                                   | SCIENTIFIC_NAME    |
|---------|-----------------------------------------------|--------------------|
| 001024  | White fir/creeping barberry-creeping barberry | ABCO/MARE11-MARE11 |
| 001025  | White fir/creeping barberry (sparse)          | ABCO/MARE11        |
| 00103   | White fir/spurcefir fleabane                  | ABCO/EREX4         |
| 001031  | White fir-Douglas-fir/sprucefir fleabane      | ABCO-PSME/EREX4    |
| 00104   | White fir/Arizona fescue                      | ABCO/FEAR2         |
| 001041  | White fir/Arizona fescue-muttongrass          | ABCO/FEAR2-POFE    |
| 001042  | White fir/Arizona fescue-Gambel oak           | ABCO/FEAR2-QUGA    |
| 001043  | White fir-Douglas-fir/Arizona fescue          | ABCO-PSME/FEAR2    |
| 001044  | White fir/Arizona fescue-Arizona fescue       | ABCO/FEAR2-FEAR2   |
| 00105   | White fir/Gambel oak                          | ABCO/QUGA          |
| 001051  | White fir/Gambel oak-screwleaf muhly          | ABCO/QUGA-MUVI2    |
| 001052  | White fir/Gambel oak-Arizona fescue           | ABCO/QUGA-FEAR2    |
| 001053  | White fir/Gambel oak-pine muhly               | ABCO/QUGA-MUDU     |
| 001054  | White fir/Gambel oak-rockspirea               | ABCO/QUGA-HODU     |
| 001055  | White fir/Gambel oak-Gambel oak               | ABCO/QUGA-QUGA     |
| 001056  | White fir-Douglas-fir/Gambel oak              | ABCO-PSME/QUGA     |
| 00106   | White fir/screwleaf muhly                     | ABCO/MUVI2         |
| 00108   | White fir/bigtooth maple                      | ABCO/ACGR3         |
| 001081  | White fir/bigtooth maple-rockspirea           | ABCO/ACGR3-HODU    |
| 001082  | White fir/bigtooth maple-bigtooth maple       | ABCO/ACGR3-ACGR3   |
| 00109   | White fir/kinnikinnick                        | ABCO/ARUV          |
| 00110   | White fir/whortleberry                        | ABCO/VAMY2         |
| 00111   | White fir/New Mexico locust                   | ABCO/RONE          |
| 001111  | White fir/New Mexico locust (sparse)          | ABCO/RONE          |
| 00112   | White fir/beardless wildrye                   | ABCO/JUMA          |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME    |
|---------|----------------------------------------------------|--------------------|
| 001121  | White fir-Douglas-fir/beardless wildrye            | ABCO-PSME/LETR5    |
| 00113   | White fir/Arizona walnut                           | ABCO/JUMA          |
| 00115   | White fir/dryspike sedge                           | ABCO/CAFO3         |
| 00116   | White fir (sparse)                                 | ABCO               |
| 001161  | White fir-Douglas-fir (sparse undergrowth)         | ABCO-PSME (sparse) |
| 00120   | White fir/Greenleaf manzanita                      | ABCO/ARPA6         |
| 00121   | White fir/curl-leaf mountain mahogany              | ABCO/CELE3         |
| 00122   | White fir/rockspirea (scree forest)                | ABCO/HODU          |
| 00123   | White fir/common juniper                           | ABCO/JUCO6         |
| 00124   | White fir/mallow ninebark                          | ABCO/PHMA5         |
| 00125   | White fir/mountain snowberry                       | ABCO/SYOR2         |
| 00126   | White fir/fragrant bedstraw (riparian forest)      | ABCO/GATR3         |
| 00127   | White fir-Douglas-fir/Nevada pea                   | ABCO-PSME/LALAL3   |
| 00128   | White fir/sweetcicely                              | ABCO/OSBE          |
| 002     | Subalpine fir series                               | ABLA               |
| 00201   | Subalpine fir/Geyer's sedge                        | ABLA/CAGE2         |
| 002010  | Subalpine fir/Geyer's sedge-Geyer's sedge          | ABLA/CAGE2-CAGE2   |
| 002011  | Subalpine fir/Geyer's sedge-big sagebrush          | ABLA/CAGE2-ARTR2   |
| 002012  | Subalpine fir/Geyer's sedge-Douglas-fir            | ABLA/CAGE2-PSME    |
| 00202   | Subalpine fir/grouse whortleberry                  | ABLA/VASC          |
| 002021  | Subalpine fir/grouse whortleberry-twinflower       | ABLA/VASC-LIBO3    |
| 002022  | Subalpine fir/grouse whortleberry-whortleberry     | ABLA/VASC-VAMY2    |
| 002023  | Subalpine fir/grouse whortleberry-Englemann spruce | ABLA/VASC-PIEN     |
| 002024  | Subalpine fir/grouse whortleberry-thimbleberry     | ABLA/VASC-RUPA     |
| 00203   | Subalpine fir/creeping barberry                    | ABLA/MARE11        |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME    |
|---------|----------------------------------------------------|--------------------|
| 002030  | Subalpine fir/creeping barberry-creeping barberry  | ABLA/MARE11-MARE11 |
| 002031  | Subalpine fir/creeping barberry-gooseberry currant | ABLA/MARE11-RIMO2  |
| 002032  | Subalpine fir/creeping barberry-common juniper     | ABLA/MARE11-JUCO6  |
| 002033  | Subalpine fir/creeping barberry-Douglas-fir        | ABLA/MARE11-PSME   |
| 002034  | Subalpine fir/creeping barberry-Englemann spruce   | ABLA/MARE11-PIEN   |
| 002035  | Subalpine fir/creeping barberry-limber pine        | ABLA/MARE11-PIFL2  |
| 002036  | Subalpine fir/creeping barberry-Geyer's sedge      | ABLA/MARE11-CAGE2  |
| 00204   | Subalpine fir/common juniper                       | ABLA/JUCO6         |
| 00205   | Subalpine fir/heartleaf arnica                     | ABLA/ARCO9         |
| 002050  | Subalpine fir/heartleaf arnica-heartleaf arnica    | ABLA/ARCO9-ARCO9   |
| 002051  | Subalpine fir/heartleaf arnica-timber milkvetch    | ABLA/ARCO9-ASMI9   |
| 002052  | Subalpine fir/heartleaf arnica-russet buffaloberry | ABLA/ARCO9-SHCA    |
| 002053  | Subalpine fir/heartleaf arnica-Englemann spruce    | ABLA/ARCO9-PIEN    |
| 00206   | Subalpine fir/arrowleaf ragwort                    | ABLA/SETR          |
| 00207   | Subalpine fir/Jacob's-ladder                       | ABLA/POPU3         |
| 00211   | Subalpine fir/moss                                 | ABLA/2MOSS         |
| 00213   | Subalpine fir/Oregon boxleaf                       | ABLA/PAMY          |
| 00220   | Subalpine fir/whortleberry                         | ABLA/VAMY2         |
| 002201  | Subalpine fir/whortleberry-twinflower              | ABLA/VAMY2-LIBO3   |
| 002202  | Subalpine fir/whortleberry-thimbleberry            | ABLA/VAMY2-RUPA    |
| 002203  | Subalpine fir/grayleaf willow                      | ABLA/SAGL          |
| 00240   | Subalpine fir/Sitka alder                          | ABLA/ALVIS         |

| PV_CODE | COMMON_NAME                                                | SCIENTIFIC_NAME    |
|---------|------------------------------------------------------------|--------------------|
| 00245   | Subalpine fir/Rocky Mountain maple                         | ABLA/ACGL          |
| 002450  | Subalpine fir/Rocky Mountain maple-Rocky Mountain maple    | ABLA/ACGL-ACGL     |
| 002451  | Subalpine fir/Rocky Mountain maple-Oregon boxleaf          | ABLA/ACGL-PAMY     |
| 00260   | Subalpine fir/fragrant bedstraw                            | ABLA/GATR3         |
| 00261   | Subalpine fir/red baneberry                                | ABLA/ACRU2         |
| 00262   | Subalpine fir/bride's bonnet                               | ABLA/CLUN2         |
| 002621  | Subalpine fir/bride's bonnet-bride's bonnet                | ABLA/CLUN2-CLUN2   |
| 002622  | Subalpine fir/bride's bonnet-wild sarsaparilla             | ABLA/CLUN2-ARNU2   |
| 002623  | Subalpine fir/bride's bonnet-dwarf bilberry                | ABLA/CLUN2-VACA13  |
| 002624  | Subalpine fir/bride's bonnet-common beargrass              | ABLA/CLUN2-XETE    |
| 002625  | Subalpine fir/bride's bonnet-rusty menziesia               | ABLA/CLUN2-MEFE    |
| 00263   | Subalpine fir/claspleaf twistedstalk                       | ABLA/STAM2         |
| 002630  | Subalpine fir/claspleaf twistedstalk-claspleaf twistedleaf | ABLA/STAM2-STAM2   |
| 002631  | Subalpine fir/claspleaf twistedstalk-Canby's licorice-root | ABLA/STAM2-LICA2   |
| 002632  | Subalpine fir/claspleaf twistedstalk-rusty menziesia       | ABLA/STAM2-MEFE    |
| 00264   | Subalpine fir/dwarf bilberry                               | ABLA/VACA13        |
| 002640  | Subalpine fir/dwarf bilberry-dwarf bilberry                | ABLA/VACA13-VACA13 |
| 002641  | Subalpine fir/dwarf bilberry-Englemann spruce              | ABLA/VACA14-PIEN   |
| 00265   | Subalpine fir/bluejoint                                    | ABLA/CACA4         |
| 002651  | Subalpine fir/bluejoint-bluejoint                          | ABLA/CACA4-CACA4   |
| 002652  | Subalpine fir/bluejoint-Canby's licorice-root              | ABLA/CACA4-LICA2   |
| 002653  | Subalpine fir/bluejoint-fragrant bedstraw                  | ABLA/CACA4-GATR3   |
| 002654  | Subalpine fir/bluejoint-dwarf bilberry                     | ABLA/CACA4-VACA14  |

| PV_CODE | COMMON_NAME                                                | SCIENTIFIC_NAME  |
|---------|------------------------------------------------------------|------------------|
| 002655  | Subalpine fir/bluejoint-western Labrador tea               | ABLA/CACA4-LEGL  |
| 00266   | Subalpine fir/twinflower                                   | ABLA/LIBO3       |
| 002661  | Subalpine fir/twinflower-twinflower                        | ABLA/LIBO3-LIBO3 |
| 002662  | Subalpine fir/twinflower-common beargrass                  | ABLA/LIBO3-XETE  |
| 002663  | Subalpine fir/twinflower/grouse whortleberry               | ABLA/LIBO3/VASC  |
| 00267   | Subalpine fir/rusty menziesia                              | ABLA/MEFE        |
| 002670  | Subalpine fir/rusty menziesia-rusty menziesia              | ABLA/MEFE-MEFE   |
| 002671  | Subalpine fir/rusty menziesia-Idaho goldthread             | ABLA/MEFE-COOC   |
| 002672  | Subalpine fir/rusty menziesia-Hitchcock's smooth woodrush  | ABLA/MEFE-LUGLH  |
| 002673  | Subalpine fir/rusty menziesia-common beargrass             | ABLA/MEFE-XETE   |
| 002674  | Subalpine fir/rusty menziesia-grouse whortleberry          | ABLA/MEFE-VASC   |
| 00268   | Subalpine fir/Idaho goldthread                             | ABLA/COOC        |
| 00269   | Subalpine fir/common beargrass                             | ABLA/XETE        |
| 002690  | Subalpine fir/common beargrass-common beargrass            | ABLA/XETE-XETE   |
| 002691  | Subalpine fir/common beargrass-thinleaf huckleberry        | ABLA/XETE-VAME   |
| 002692  | Subalpine fir/common beargrass-grouse whortleberry         | ABLA/XETE-VASC   |
| 002693  | Subalpine fir/common beargrass-Idaho goldthread            | ABLA/XETE-COOC   |
| 002694  | Subalpine fir/common beargrass-Hitchcock's smooth woodrush | ABLA/XETE-LUGLH  |
| 00270   | Subalpine fir/sickletop lousewort                          | ABLA/PERA        |
| 002700  | Subalpine fir/sickletop lousewort-sickletop lousewort      | ABLA/PERA-PERA   |
| 002701  | Subalpine fir/ sickletop lousewort-Douglas-fir             | ABLA/PERA-PSME   |

| PV_CODE | COMMON_NAME                                             | SCIENTIFIC_NAME    |
|---------|---------------------------------------------------------|--------------------|
| 00271   | Subalpine fir/ broadleaf arnica                         | ABLA/ARLA8         |
| 00272   | Subalpine fir/thinleaf huckleberry                      | ABLA/VAME          |
| 002721  | Subalpine fir/thinleaf huckleberry-grouse whortleberry  | ABLA/VAME-VASC     |
| 002722  | Subalpine fir/thinleaf huckleberry-Oregon boxleaf       | ABLA/VAME-PAMY     |
| 002723  | Subalpine fir/thinleaf huckleberry-thinleaf huckleberry | ABLA/VAME-VAME     |
| 00273   | Subalpine fir/white spirea                              | ABLA/SPBE2         |
| 00274   | Subalpine fir/Columbian monkshood                       | ABLA/ACCO4         |
| 00275   | Subalpine fir/pinegrass                                 | ABLA/CARU          |
| 002750  | Subalpine fir/pinegrass-pinegrass                       | ABLA/CARU-CARU     |
| 002751  | Subalpine fir/pinegrass-Oregon boxleaf                  | ABLA/CARU-PAMY     |
| 00276   | Subalpine fir/sweetcicely                               | ABLA/OSBE          |
| 002760  | Subalpine fir/sweetcicely-sweetcicely                   | ABLA/OSBE-OSBE     |
| 002761  | Subalpine fir/sweetcicely-Oregon boxleaf                | ABLA/OSBE-PAMY     |
| 00278   | Subalpine fir/burnet ragwort                            | ABLA/PASA12        |
| 002780  | Subalpine fir/burnet ragwort-burnet ragwort             | ABLA/PASA12-PASA12 |
| 002781  | Subalpine fir/burnet ragwort-Douglas-fir                | ABLA/PASA12-PSME   |
| 00279   | Subalpine fir/Ross' sedge                               | ABLA/CARO5         |
| 00281   | Subalpine fir/gooseberry currant                        | ABLA/RIMO2         |
| 002811  | Subalpine fir/gooseberry currant-gooseberry current     | ABLA/RIMO2-RIMO2   |
| 002812  | Subalpine fir/gooseberry currant-whitebark pine         | ABLA/RIMO2-PIAL    |
| 002813  | Subalpine fir/gooseberry currant-Fendler's meadow-rue   | ABLA/RIMO2-THFE    |
| 002814  | Subalpine fir/gooseberry currant-lodgepole pine         | ABLA/RIMO2-PICO    |

| PV_CODE | COMMON_NAME                                                           | SCIENTIFIC_NAME  |
|---------|-----------------------------------------------------------------------|------------------|
| 002815  | Subalpine fir/gooseberry currant-spike trisetum                       | ABLA/RIMO2-TRSP2 |
| 002816  | Subalpine fir/gooseberry currant-aspen bluebells                      | ABLA/RIMO2-MEAR6 |
| 00283   | Subalpine fir/Hitchcock's smooth woodrush                             | ABLA/LUGLH       |
| 002830  | Subalpine fir/Hitchcock's smooth woodrush-Hitchcock's smooth woodrush | ABLA/LUGLH-LUGLH |
| 002831  | Subalpine fir/Hitchcock's smooth woodrush-grouse whortleberry         | ABLA/LUGLH-VASC  |
| 002382  | Subalpine fir/Hitchcock's smooth woodrush-rusty menziesia             | ABLA/LUGLH-MEFE  |
| 00284   | Subalpine fir/devilsclub                                              | ABLA/OPHO        |
| 00285   | Subalpine fir/rockspirea (scree forest)                               | ABLA/HODU        |
| 00286   | Subalpine fir/fivepetal cliffbush (scree forest)                      | ABLA/JAAM        |
| 00287   | Subalpine fir/yellowdot saxifrage (scree forest)                      | ABLA/SABR6       |
| 00288   | Subalpine fir/mallow ninebark                                         | ABLA/PHMA5       |
| 00289   | Subalpine fir/common snowberry                                        | ABLA/SYAL        |
| 00290   | Subalpine fir/Howell's marsh marigold                                 | ABLA/CALEH2      |
| 00291   | Subalpine fir/western meadow-rue                                      | ABLA/THOC        |
| 00292   | Subalpine fir/sprucefir fleabane                                      | ABLA/EREX4       |
| 00293   | Subalpine fir/Nevada pea                                              | ABLA/LALA3       |
| 00294   | Subalpine fir/tall fringed bluebells                                  | ABLA/MECI3       |
| 00295   | Subalpine fir/thimbleberry                                            | ABLA/RUPA        |
| 00296   | Subalpine fir/rock clematis                                           | ABLA/CLCOC2      |
| 00297   | Subalpine fir/russet buffaloberry                                     | ABLA/SHCA        |
| 00298   | Subalpine fir-whitebark pine/grouse whortleberry                      | ABLA-PIAL/VASC   |
| 00299   | Subalpine fir-whitebark pine                                          | ABLA-PIAL        |
| 003     | Subalpine fir-Engelmann spruce series                                 | ABLA-PIEN        |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME |
|---------|----------------------------------------------------|-----------------|
| 00302   | Subalpine fir-Engelmann spruce/heartleaf arnica    | ABLA-PIEN/ARCO9 |
| 00305   | Subalpine fir-Engelmann spruce/bluejoint           | ABLA-PIEN/CACA4 |
| 00307   | Subalpine fir-Engelmann spruce/Geyer's sedge       | ABLA-PIEN/CAGE2 |
| 00309   | Subalpine fir-Engelmann spruce/common juniper      | ABLA-PIEN/JUCO6 |
| 00311   | Subalpine fir-Engelmann spruce/moss species        | ABLA-PIEN/2MOSS |
| 00313   | Subalpine fir-Engelmann spruce/Oregon boxleaf      | ABLA-PIEN/PAMY  |
| 00316   | Subalpine fir-Engelmann spruce/arrowleaf ragwort   | ABLA-PIEN/SETR  |
| 00320   | Subalpine fir-Engelmann spruce/whortleberry        | ABLA-PIEN/VAMY2 |
| 00321   | Subalpine fir-Engelmann spruce/grouse whortleberry | ABLA-PIEN/VASC  |
| 00323   | Subalpine fir-Engelmann spruce/grayleaf willow     | ABLA-PIEN/SAGL  |
| 004     | Engelmann spruce/mountain hemlock series           | PIEN            |
| 00401   | Engelmann spruce/heartleaf arnica                  | PIEN/ARCO9      |
| 00402   | Engelmann spruce/white marsh marigold              | PIEN/CALE4      |
| 00403   | Engelmann spruce/softleaf sedge                    | PIEN/CADI6      |
| 00405   | Engelmann spruce/fragrant bedstraw                 | PIEN/GATR3      |
| 00406   | Engelmann spruce/moss                              | PIEN/2MOSS      |
| 004061  | Engelmann spruce/revolute hypnum moss              | PIEN/HYRE70     |
| 00407   | Engelmann spruce/common juniper                    | PIEN/JUCO6      |
| 00408   | Engelmann spruce/twinflower                        | PIEN/LIBO3      |
| 00409   | Engelmann spruce/mallow ninebark                   | PIEN/PHMA5      |
| 00413   | Engelmann spruce/alpine clover                     | PIEN/TRDA2      |
| 00414   | Engelmann spruce/grouse whortleberry               | PIEN/VASC       |
| 00415   | Engelmann spruce/whortleberry                      | PIEN/VAMY2      |

| PV_CODE | COMMON_NAME                                         | SCIENTIFIC_NAME   |
|---------|-----------------------------------------------------|-------------------|
| 004151  | Engelmann spruce/whortleberry/Jacob's ladder        | PIEN/VAMY2/POPU3  |
| 00418   | Engelmann spruce/dwarf bilberry                     | PIEN/VACA13       |
| 00430   | Engelmann spruce/Rocky Mountain maple               | PIEN/ACGL         |
| 00431   | Engelmann spruce/sprucefir fleabane                 | PIEN/EREX4        |
| 00432   | Engelmann spruce/beardless wildrye                  | PIEN/LETR5        |
| 00433   | Engelmann spruce/Ross' avens                        | PIEN/GERO2        |
| 00434   | Engelmann spruce/gooseberry currant                 | PIEN/RIMO2        |
| 00435   | Engelmann spruce/bittercress ragwort                | PIEN/PACA34       |
| 004350  | Engelmann spruce/bittercress ragwort-subalpine fir  | PIEN/PACA34-ABLAL |
| 004351  | Engelmann spruce/bittercress ragwort-white fir      | PIEN/PACA34-ABCO  |
| 00441   | Engelmann spruce/field horsetail                    | PIEN/EQAR         |
| 00442   | Engelmann spruce/grayleaf willow                    | PIEN/SAGL         |
| 00443   | Engelmann spruce-subalpine fir/grayleaf willow      | PIEN-ABLA/SAGL    |
| 00444   | Engelmann spruce/dryspike sedge                     | PIEN/CAFO1        |
| 00445   | Engelmann spruce/bride's bonnet                     | PIEN/CLUN2        |
| 004450  | Engelmann spruce/bride's bonnet-bride's bonnet      | PIEN/CLUN2-CLUN2  |
| 004451  | Engelmann spruce/bride's bonnet-dwarf bilberry      | PIEN/CLUN2-VACA13 |
| 00446   | Engelmann spruce/eltrot (riparian forest)           | PIEN/HESP5        |
| 00447   | Engelmann spruce/yellowdot saxifrage (scree forest) | PIEN/SABR6        |
| 00448   | Engelmann spruce/arrowleaf ragwort                  | PIEN/SETR         |
| 004481  | Engelmann spruce/arrowleaf ragwort-Engelmann spruce | PIEN/SETR-PIEN    |
| 004482  | Engelmann spruce/arrowleaf ragwort-Douglas-fir      | PIEN/SETR-PSME    |

| PV_CODE | COMMON_NAME                                                              | SCIENTIFIC_NAME  |
|---------|--------------------------------------------------------------------------|------------------|
| 00449   | Engelmann spruce/starry false lily of the valley                         | PIEN/MAST4       |
| 00467   | Mountain hemlock/claspleaf twistedstalk                                  | TSME/STAM2       |
| 004670  | Mountain hemlock/claspleaf twistedstalk-claspleaf twistedstalk           | TSME/STAM2-STAM2 |
| 004671  | Mountain hemlock/claspleaf twistedstalk-Hitchcock's smooth woodrush      | TSME/STAM2-LUGLH |
| 004672  | Mountain hemlock/claspleaf twistedstalk-rusty menziesia                  | TSME/STAM2-MEFE  |
| 00468   | Mountain hemlock/rusty menziesia                                         | TSME/MEFE        |
| 004680  | Mountain hemlock/rusty menziesia-rusty menziesia                         | TSME/MEFE-MEFE   |
| 004681  | Mountain hemlock/rusty menziesia-Hitchcock's smooth woodrush             | TSME/MEFE-LUGLH  |
| 004682  | Mountain hemlock/rusty menziesia-common beargrass                        | TSME/MEFE-XETE   |
| 00471   | Mountain hemlock/common beargrass                                        | TSME/XETE        |
| 004710  | Mountain hemlock/common beargrass-common beargrass                       | TSME/XETE-XETE   |
| 004711  | Mountain hemlock/common beargrass-Hitchcock's smooth woodrush            | TSME/XETE-LUGLH  |
| 004713  | Mountain hemlock/common beargrass-grouse whortleberry                    | TSME/XETE-VASC   |
| 00484   | Mountain hemlock/Hitchcock's smooth woodrush                             | TSME/LUGLH       |
| 004840  | Mountain hemlock/Hitchcock's smooth woodrush-Hitchcock's smooth woodrush | TSME/LUGLH-LUGLH |
| 004841  | Mountain hemlock/Hitchcock's smooth woodrush-grouse whortleberry         | TSME/LUGLH-VASC  |
| 004842  | Mountain hemlock/hitchcock's smooth woodrush-rusty menziesia             | TSME/LUGLH-MEFE  |
| 00485   | Mountain hemlock/bride's bonnet                                          | TSME/CLUN2       |

| PV_CODE | COMMON_NAME                                                       | SCIENTIFIC_NAME  |
|---------|-------------------------------------------------------------------|------------------|
| 004850  | Mountain hemlock/bride's bonnet-bride's bonnet                    | TSME/CLUN2-CLUN2 |
| 004851  | Mountain hemlock/bride's bonnet-rusty menziesia                   | TSME/CLUN2-MEFE  |
| 004852  | Mountain hemlock/bride's bonnet-common beargrass                  | TSME/CLUN2-XETE  |
| 005     | Grand fir series                                                  | ABGR             |
| 00501   | Western red cedar series                                          | THPL             |
| 00502   | Western hemlock series                                            | TSHE             |
| 00503   | White spruce/twinflower                                           | PIGL/LIBO3       |
| 00504   | White spruce/grouse whortleberry                                  | PIGL/VASC        |
| 00505   | Grand fir/white spirea                                            | ABGR/SPBE2       |
| 00506   | Grand fir/mallow ninebark                                         | ABGR/PHMA5       |
| 005061  | Grand fir/mallow ninebark-Idaho goldthread                        | ABGR/PHMA5-COOC  |
| 005062  | Grand fir/mallow ninebark-mallow ninebark                         | ABGR/PHMA5-PHMA5 |
| 00510   | Grand fir/common beargrass                                        | ABGR/XETE        |
| 005101  | Grand fir/common beargrass-Idaho goldthread                       | ABGR/XETE-COOC   |
| 005102  | Grand fir/common beargrass-thinleaf huckleberry                   | ABGR/XETE-VAME   |
| 005103  | Grand fir/common beargrass-common beargrass                       | ABGR/XETE-XETE   |
| 00511   | Grand fir/Idaho goldthread                                        | ABGR/COOC        |
| 00515   | Grand fir/thinleaf huckleberry                                    | ABGR/VAME        |
| 00516   | Grand fir/British Columbia wildginger                             | ABGR/ASCA2       |
| 005161  | Grand fir/British Columbia wildginger-British Columbia wildginger | ABGR/ASCA2-ASCA2 |
| 005162  | Grand fir/British Columbia wildginger-rusty menziesia             | ABGR/ASCA2-MEFE  |

| PV_CODE | COMMON_NAME                                           | SCIENTIFIC_NAME  |
|---------|-------------------------------------------------------|------------------|
| 005163  | Grand fir/British Columbia wildginger-Pacific yew     | ABGR/ASCA2-TABR2 |
| 00520   | Grand fir/bride's bonnet                              | ABGR/CLUN2       |
| 005201  | Grand fir/bride's bonnet-bride's bonnet               | ABGR/CLUN2-CLUN2 |
| 005203  | Grand fir/bride's bonnet-common beargrass             | ABGR/CLUN2-XETE  |
| 005204  | Grand fir/bride's bonnet-mallow ninebark              | ABGR/CLUN2-PHMA5 |
| 005205  | Grand fir/bride's bonnet-rusty menziesia              | ABGR/CLUN2-MEFE  |
| 005206  | Grand fir/bride's bonnet-Pacific yew                  | ABGR/CLUN2-TABR2 |
| 00525   | Grand fir/Rocky Mountain maple                        | ABGR/ACGL        |
| 005251  | Grand fir/Rocky Mountain maple-Rocky Mountain maple   | ABGR/ACGL-ACGL   |
| 005252  | Grand fir/Rocky Mountain maple-mallow ninebark        | ABGR/ACGL-PHMA5  |
| 00529   | Grand fir/arrowleaf ragwort                           | ABGR/SETR        |
| 00530   | Western red cedar/bride's bonnet                      | THPL/CLUN2       |
| 005301  | Western red cedar/bride's bonnet-bride's bonnet       | THPL/CLUN2-CLUN2 |
| 005302  | Western red cedar/bride's bonnet-wild sarsaparilla    | THPL/CLUN2-ARNU2 |
| 005303  | Western red cedar/bride's bonnet-rusty menziesia      | THPL/CLUN2-MEFE  |
| 005304  | Western red cedar/bride's bonnet-common beargrass     | THPL/CLUN2-XETE  |
| 005305  | Western red cedar/bride's bonnet-Pacific yew          | THPL/CLUN2-TABR2 |
| 00540   | Western red cedar/common ladyfern                     | THPL/ATFI        |
| 005401  | Western red cedar/common ladyfern-northern maidenhair | THPL/ATFI-ADPE   |
| 005402  | Western red cedar/common ladyfern-common ladyfern     | THPL/ATFI-ATFI   |
| 00545   | Western red cedar/British Columbia wildginger         | THPL/ASCA2       |

| PV_CODE | COMMON_NAME                                                               | SCIENTIFIC_NAME  |
|---------|---------------------------------------------------------------------------|------------------|
| 005451  | Western red cedar/British Columbia wildginger-British Columbia wildginger | THPL/ASCA2-ASCA2 |
| 005453  | Western red cedar/British Columbia wildginger-rusty menziesia             | THPL/ASCA2-TABR2 |
| 00550   | Western red cedar/devilsclub                                              | THPL/OPHO        |
| 00555   | Western red cedar/western oakfern                                         | THPL/GYDR        |
| 00560   | Western red cedar/northern maidenhair                                     | THPL/ADPE        |
| 00562   | Western red cedar/Oregon boxleaf                                          | THPL/PAMY        |
| 00565   | Western hemlock/western oakfern                                           | TSHE/GYDR        |
| 00570   | Western hemlock/bride's bonnet                                            | TSHE/CLUN2       |
| 005701  | Western hemlock/bride's bonnet-bride's bonnet                             | TSHE/CLUN2-CLUN2 |
| 005702  | Western hemlock/bride's bonnet-wild sarsaparilla                          | TSHE/CLUN2-ARNU2 |
| 005703  | Western hemlock/bride's bonnet-rusty menziesia                            | TSHE/CLUN2-MEFE  |
| 005704  | Western hemlock/bride's bonnet-common beargrass                           | TSHE/CLUN2-XETE  |
| 00571   | Western hemlock/Oregon boxleaf                                            | TSHE/PAMY        |
| 00575   | Western hemlock/British Columbia wildginger                               | TSHE/ASCA2       |
| 005751  | Western hemlock/British Columbia wildginger-wild sarsaparilla             | TSHE/ASCA2-ARNU2 |
| 005752  | Western hemlock/British Columbia wildginger-rusty menziesia               | TSHE/ASCA2-MEFE  |
| 005753  | Western hemlock/British Columbia wildginger-British Columbia wildginger   | TSHE/ASCA2-ASCA2 |
| 00579   | Western hemlock/rusty menziesia                                           | TSHE/MEFE        |
| 00580   | Grand fir/dwarf bilberry                                                  | ABGR/VACA13      |
| 00585   | Grand fir/pinegrass                                                       | ABGR/CARU        |
| 00590   | Grand fir/twinflower                                                      | ABGR/LIBO3       |

| PV_CODE | COMMON_NAME                                                       | SCIENTIFIC_NAME        |
|---------|-------------------------------------------------------------------|------------------------|
| 005901  | Grand fir/twinflower-twinflower                                   | ABGR/LIBO3-LIBO3       |
| 005902  | Grand fir/twinflower-common beargrass                             | ABGR/LIBO3-XETE        |
| 005903  | Grand fir/twinflower-thinleaf huckleberry                         | ABGR/LIBO3-VAME        |
| 00591   | Grand fir/Oregon boxleaf                                          | ABGR/PAMY              |
| 00592   | Grand fir/wild sarsaparilla                                       | ABGR/ARNU2             |
| 006     | Blue spruce series                                                | PIPU                   |
| 00601   | Blue spruce/Saskatoon serviceberry-redosier dogwood/Geyer's sedge | PIPU/AMAL2-COSES/CAGE2 |
| 006010  | Blue spruce/redosier dogwood (riparian forest)                    | PIPU/COSES             |
| 006011  | Blue spruce/Saskatoon serviceberry (riparian forest)              | PIPU/AMAL2             |
| 006012  | Blue spruce/creeping barberry-mountain snowberry                  | PIPU/MARE11-SYOR2      |
| 00602   | Blue spruce/heartleaf arnica (riparian forest)                    | PIPU/ARCO9             |
| 00603   | Blue spruce/bluegrass                                             | PIPU/POA               |
| 00604   | Blue spruce-Douglas-fir/twinflower                                | PIPU-PSME/LIBO3        |
| 0060401 | Blue spruce/twinflower                                            | PIPU/LIBO3             |
| 00605   | Blue spruce/thinleaf alder                                        | PIPU/ALINT             |
| 00606   | Blue spruce/dryspike sedge                                        | PIPU/CAFO3             |
| 00607   | Blue spruce/sprucefir fleabane                                    | PIPU/EREX4             |
| 006071  | Blue spruce/sprucefir fleabane-sprucefir fleabane                 | PIPU/EREX4-EREX4       |
| 006072  | Blue spruce/sprucefir fleabane-ponderosa pine                     | PIPU/EREX4-PIPO        |
| 006073  | Blue spruce-Engelmann spruce/sprucefir fleabane                   | PIPU-PIEN/EREX4        |
| 00608   | Blue spruce-Douglas-fir/kinnikinnick                              | PIPU-PSME/ARUV         |
| 006080  | Blue spruce/kinnikinnick                                          | PIPU/ARUV              |
| 00609   | Blue spruce/Arizona fescue                                        | PIPU/FEAR2             |

| PV_CODE | COMMON_NAME                                       | SCIENTIFIC_NAME    |
|---------|---------------------------------------------------|--------------------|
| 00610   | Blue spruce/creeping barberry                     | PIPU/MARE11        |
| 006101  | Blue spruce/creeping barberry-creeping barberry   | PIPU/MARE11-MARE11 |
| 00611   | Blue spruce/field horsetail                       | PIPU/EQAR          |
| 00612   | Blue spruce/common juniper                        | PIPU/JUCO6         |
| 006120  | Blue spruce-Douglas-fir/common juniper            | PIPU-PSME/JUCO6    |
| 00613   | Blue spruce/bittercress ragwort                   | PIPU/PACA34        |
| 006131  | Blue spruce-Engelmann spruce/bittercress ragwort  | PIPU-PIEN/PACA34   |
| 00620   | Blue spruce/Kentucky bluegrass (riparian forest)  | PIPU/POPR          |
| 00621   | Blue spruce/bluebunch wheatgrass                  | PIPU/PSSPS         |
| 00622   | Blue spruce/Virginia strawberry                   | PIPU/FRVIG2        |
| 00623   | Blue spruce-Douglas-fir                           | PIPU-PSME          |
| 006231  | Blue spruce-Douglas fir/sharpleaf calerian        | PIPU-PSME/VAAC     |
| 007     | Whitebark pine series                             | PIAL               |
| 00701   | Whitebark pine/Geyer's sedge                      | PIAL/CAGE2         |
| 00702   | Whitebark pine/Ross' sedge                        | PIAL/CARO5         |
| 007020  | Whitebark pine/Ross' sedge-Ross' sedge            | PIAL/CARO5-CARO5   |
| 0072021 | Whitebark pine/Ross' sedge/lodgepole pine         | PIAL/CARO5/PICO    |
| 00704   | Whitebark pine/Idaho fescue                       | PIAL/FEID          |
| 00705   | Whitebark pine/common juniper                     | PIAL/JUCO6         |
| 007050  | Whitebark pine/common juniper-common juniper      | PIAL/JUCO6-JUCO6   |
| 007051  | Whitebark pine/common juniper/russet buffaloberry | PIAL/JUCO6/SHCA    |
| 00706   | Whitebark pine/grouse whortleberry                | PIAL/VASC          |
| 00708   | Whitebark pine-subalpine fir                      | PIAL-ABLA          |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME |
|---------|----------------------------------------------------|-----------------|
| 00786   | Subalpine larch-subalpine fir                      | LALY-ABLA       |
| 008     | Bristlecone pine series                            | PIAR            |
| 00801   | Bristlecone pine/Thurber's fescue                  | PIAR/FETH       |
| 00802   | Bristlecone pine/Arizona fescue                    | PIAR/FEAR2      |
| 00803   | Bristlecone pine/alpine clover                     | PIAR/TRDA2      |
| 00804   | Bristlecone pine/gooseberry currant (scree forest) | PIAR/RIMO2      |
| 00805   | Bristlecone pine/common juniper                    | PIAR/JUCO6      |
| 009     | Lodgepole pine series                              | PICO            |
| 00901   | Lodgepole pine/kinnikinnick                        | PICO/ARUV       |
| 00903   | Lodgepole pine/Geyer's sedge                       | PICO/CAGE2      |
| 00905   | Lodgepole pine/common juniper                      | PICO/JUCO6      |
| 00908   | Lodgepole pine/russet buffaloberry                 | PICO/SHCA       |
| 00909   | Lodgepole pine/whortleberry                        | PICO/VAMY2      |
| 00910   | Lodgepole pine/grouse whortleberry                 | PICO/CASC       |
| 00911   | Lodgepole pine/Ross' sedge                         | PICO/CARO5      |
| 00912   | Lodgepole pine/dwarf bilberry                      | PICO/VACA13     |
| 00913   | Lodgepole pine/thinleaf huckleberry                | PICO/VAME       |
| 00920   | Lodgepole pine/bluejoint                           | PICO/CACA4      |
| 00921   | Lodgepole pine/pinegrass                           | PICO/CARU       |
| 00922   | Lodgepole pine/Idaho fescue                        | PICO/FEID       |
| 00923   | Lodgepole pine/heartleaf arnica                    | PICO/ARCO9      |
| 00925   | Lodgepole pine/common beargrass                    | PICO/XETE       |
| 00926   | Lodgepole pine/creeping barberry                   | PICO/MARE11     |
| 00927   | Lodgepole pine/twinflower                          | PICO/LIBO3      |
| 00928   | Lodgepole pine/antelope bitterbrush                | PICO/PUTR2      |

| PV_CODE | COMMON_NAME                                    | SCIENTIFIC_NAME  |
|---------|------------------------------------------------|------------------|
| 00929   | Lodgepole pine/white spirea                    | PICO/SPBE2       |
| 010     | Limber pine series                             | PIFL2            |
| 01001   | Limber pine/bluebunch wheatgrass               | PIFL2/PSSPS      |
| 01002   | Limber pine/purple reedgrass                   | PIFL2/CAPU       |
| 01003   | Limber pine/Idaho fescue                       | PIFL2/FEID       |
| 010032  | Limber pine/Idaho fescue-Idaho fescue          | PIFL2/FEID-FEID  |
| 010033  | Limber pine/Idaho fescue-Altai fescue          | PIFL2/FEID-FEAL  |
| 01004   | Limber pine/spike fescue                       | PIFL2/LEK12      |
| 01005   | Limber pine/common juniper                     | PIFL2/JUCO6      |
| 01006   | Limber pine/alpine clover                      | PIFL2/TRDA2      |
| 01007   | Limber pine/curl-leaf mountain mahogany        | PIFL2/CELE3      |
| 01008   | Limber pine/kinnikinnick                       | PIFL2/ARUV       |
| 01009   | Limber pine/creeping barberry                  | PIFL2/MARE11     |
| 01010   | Limber pine/yellowdot saxifrage                | PIFL2/SABR2      |
| 01011   | Limber pine/matted saxifrage                   | PIFL2/SABRA2     |
| 01012   | Limber pine/Great Basin bristlecone pine       | PIFL2/PILO       |
| 011     | Ponderosa pine series                          | PIPO             |
| 01104   | Ponderosa pine/common juniper-sideoats grama   | PIPO/JUCO6-BOCU  |
| 01105   | Ponderosa pine/Geyer's sedge                   | PIPO/CAGE2       |
| 01106   | Ponderosa pine/Ross' sedge                     | PIPO/CARO5       |
| 01109   | Ponderosa pine/Arizona fescue                  | PIPO/FEAR2       |
| 011090  | Ponderosa pine/Arizona fescue-Arizona fescue   | PIPO/FEAR2-FEAR2 |
| 011091  | Ponderosa pine/Arizona fescue-Parry's oatgrass | PIPO/FEAR2-DAPA2 |
| 011092  | Ponderosa pine/Arizona fescue-blue grama       | PIPO/FEAR2-BOGR2 |
| 011093  | Ponderosa pine/Arizona fescue-Gambel oak       | PIPO/FEAR2-QUGA  |

| PV_CODE | COMMON_NAME                                              | SCIENTIFIC_NAME  |
|---------|----------------------------------------------------------|------------------|
| 01110   | Ponderosa pine/Idaho fescue                              | PIPO/FEID        |
| 011100  | Ponderosa pine/Idaho fescue-Idaho fescue                 | PIPO/FEID-FEID   |
| 011101  | Ponderosa pine/Idaho fescue-greenleaf manzanita          | PIPO/FEID-ARPA6  |
| 011102  | Ponderosa pine/Idaho fescue-big sagebrush                | PIPO/FEID-ARTR2  |
| 011103  | Ponderosa pine/Idaho fescue-ponderosa pine               | PIPO/FEID-PIPO   |
| 011104  | Ponderosa pine/Idaho fescue-Altai fescue                 | PIPO/FEID-FEAL   |
| 01111   | Ponderosa pine/spike fescue                              | PIPO/KEK12       |
| 01112   | Ponderosa pine/common juniper                            | PIPO/JUCO6       |
| 01117   | Ponderosa pine-Douglas-fir/mountain muhly                | PIPO-PSME/MUMO   |
| 01118   | Ponderosa pine-twoneedle pinyon/Gambel oak               | PIPO-PIED/QUGA   |
| 01119   | Ponderosa pine/mountain ninebark                         | PIPO/PHMO4       |
| 01120   | Ponderosa pine/antelope bitterbrush                      | PIPO/PUTR2       |
| 011200  | Ponderosa pine/antelope bitterbrush-antelope bitterbrush | PIPO/PUTR2-PUTR2 |
| 011201  | Ponderosa pine/antelope bitterbrush-bluebunch wheatgrass | PIPO/PUTR2-PSSPS |
| 011202  | Ponderosa pine/antelope bitterbrush-Idaho fescue         | PIPO/PUTR2-FEID  |
| 01121   | Ponderosa pine/Gambel oak                                | PIPO/QUGA        |
| 011210  | Ponderosa pine/Gambel oak-Gambel oak                     | PIPO/QUGA-QUGA   |
| 011211  | Ponderosa pine/Gambel oak-Arizona fescue                 | PIPO/QUGA-FEAR2  |
| 011212  | Ponderosa pine/Gambel oak-Geyer's sedge                  | PIPO/QUGA-CAGE2  |
| 011213  | Ponderosa pine/Gambel oak-mountain snowberry             | PIPO/QUGA-SYOR2  |
| 011214  | Ponderosa pine/Gambel oak-blue grama                     | PIPO/QUGA-BOGR2  |
| 011215  | Ponderosa pine/Gambel oak-longtongue muhly               | PIPO/QUGA-MULO   |
| 011216  | Ponderosa pine/Gambel oak-little bluestem                | PIPO/QUGA-SCSC   |

| PV_CODE | COMMON_NAME                                          | SCIENTIFIC_NAME  |
|---------|------------------------------------------------------|------------------|
| 011217  | Ponderosa pine/Gambel oak-twoneedle pinyon           | PIPO/QUGA-PIED   |
| 01122   | Ponderosa pine/chokecherry                           | PIPO/PRVI        |
| 011220  | Ponderosa pine/chokecherry-chokecherry               | PIPO/PRVI-PRVI   |
| 011221  | Ponderosa pine/chokecherry-russet buffaloberry       | PIPO/PRVI-SHCA   |
| 01123   | Ponderosa pine/white spirea                          | PIPO/SPBE2       |
| 01124   | Ponderosa pine/common snowberry                      | PIPO/SYAL        |
| 011240  | Ponderosa pine/common snowberry-common snowberry     | PIPO/SYAL-SYAL   |
| 011241  | Ponderosa pine/common snowberry-arrowleaf balsamroot | PIPO/SYAL-BASA3  |
| 011242  | Ponderosa pine/common snowberry-roughleaf ricegrass  | PIPO/SYAL-ORAS   |
| 011243  | Ponderosa pine/common snowberry-creeping barberry    | PIPO/SYAL-MARE11 |
| 01125   | Ponderosa pine/bluebunch wheatgrass                  | PIPO/PSSPS       |
| 01126   | Ponderosa pine/sun sedge                             | PIPO/CAINH2      |
| 01127   | Ponderosa pine/blue grama                            | PIPO/BOGR2       |
| 011270  | Ponderosa pine/blue grama-blue grama                 | PIPO/BOGR2-BOGR2 |
| 011272  | Ponderosa pine/blue grama-sand bluestem              | PIPO/BOGR2-ANHA  |
| 011273  | Ponderosa pine/blue grama-big sagebrush              | PIPO/BOGR2-ARTR2 |
| 011274  | Ponderosa pine/blue grama-twoneedle pinyon           | PIPO/BOGR2-PIED  |
| 011275  | Ponderosa pine/blue grama-Gambel oak                 | PIPO/BOGR2-QUGA  |
| 011277  | Ponderosa pine/blue grama-canyon grape               | PIPO/BOGR2-VIAR2 |
| 01128   | Ponderosa pine/silverleaf oak                        | PIPO/QUHY        |
| 011330  | Ponderosa pine/mountain muhly                        | PIPO/MUMO        |
| 011340  | Ponderosa pine/screwleaf muhly                       | PIPO/MUVI2       |
| 011341  | Ponderosa pine/screwleaf muhly-Gambel oak            | PIPO/MUVI2-QUGA  |

| PV_CODE | COMMON_NAME                                              | SCIENTIFIC_NAME        |
|---------|----------------------------------------------------------|------------------------|
| 011342  | Ponderosa pine/screwleaf muhly-screwleaf muhly           | PIPO/MUVI2-MUVI2       |
| 011343  | Ponderosa pine/screwleaf muhly-blue grama                | PIPO/MUVI2-BOGR2       |
| 011350  | Ponderosa pine/Indian ricegrass                          | PIPO/ACHY              |
| 01136   | Ponderosa pine/gray oak                                  | PIPO/QUGR3             |
| 011360  | Ponderosa pine/gray oak-mountain muhly                   | PIPO/QUGR3-MUMO        |
| 011361  | Ponderosa pine/gray oak-longtongue muhly                 | PIPO/QUGR3-MULO        |
| 011362  | Ponderosa pine/gray oak-gray oak                         | PIPO/QUGR3-QUGR3       |
| 01137   | Ponderosa pine/wavyleaf oak                              | PIPO/QUPA4             |
| 011370  | Ponderosa pine/wavyleaf oak-wavyleaf oak                 | PIPO/QUPA4-QUPA4       |
| 011371  | Ponderosa pine/wavyleaf oak-pine muhly                   | PIPO/QUPA4-MUDU        |
| 011372  | Ponderosa pine/wavyleaf oak-longtongue muhly             | PIPO/QUPA4-MULO        |
| 011390  | Ponderosa pine/screwleaf muhly-Arizona fescue            | PIPO/MUVI2-FEAR2       |
| 011391  | Ponderosa pine/screwleaf muhly-Arizona fescue/blue grama | PIPO/MUVI2-FEAR2/BOGR2 |
| 011410  | Ponderosa pine/Arizona white oak                         | PIPO/QUAR              |
| 0114100 | Ponderosa pine/Arizona white oak-Arizona white oak       | PIPO/QUAR-QUAR         |
| 0114101 | Ponderosa pine/Arizona white oak-blue grama              | PIPO/QUAR-BOGR2        |
| 011430  | Ponderosa pine/netleaf oak                               | PIPO/QURU4             |
| 011440  | Ponderosa pine/Emory oak                                 | PIPO/PHMA5             |
| 011500  | Ponderosa pine (rockland)                                | PIPO                   |
| 01151   | Ponderosa pine/bur oak                                   | PIPO/QUMA2             |
| 01160   | Ponderosa pine/mallow ninebark                           | PIPO/PHMA5             |
| 01161   | Ponderosa pine/whitestem gooseberry (scree forest)       | PIPO/RIIN2             |
| 01162   | Ponderosa pine/mountain snowberry                        | PIPO/SYOR2             |

| PV_CODE | COMMON_NAME                                           | SCIENTIFIC_NAME    |
|---------|-------------------------------------------------------|--------------------|
| 01163   | Ponderosa pine/bluestem                               | PIPO/ANDRO2        |
| 01164   | Ponderosa pine/muttongrass                            | PIPO/POFE          |
| 01165   | Ponderosa pine/Kentucky bluegrass                     | PIPO/POPR          |
| 01166   | Ponderosa pine (riparian forest)                      | PIPO               |
| 01167   | Ponderosa pine/needle and thread                      | PIPO/HECOC8        |
| 01168   | Ponderosa pine/western needlegrass                    | PIPO/ACOCO         |
| 01169   | Ponderosa pine (cinder soils)                         | PIPO               |
| 012     | Douglas-fir series                                    | PSME               |
| 01201   | Douglas-fir/Rocky Mountain maple                      | PSME/ACGL          |
| 012010  | Douglas-fir/Rocky Mountain maple-Rocky Mountain maple | PSME/ACGL-ACGL     |
| 012011  | Douglas-fir/Rocky Mountain maple-Oregon boxleaf       | PSME/ACGL-PAMY     |
| 012012  | Douglas-fir/Rocky Mountain maple-mountain snowberry   | PSME/ACGL-SYOR2    |
| 01202   | Douglas-fir/heartleaf arnica                          | PSME/ARCO9         |
| 012020  | Douglas-fir/heartleaf arnica-heartleaf arnica         | PSME/ARCO9-ARCO9   |
| 012021  | Douglas-fir/heartleaf arnica-timber milkvetch         | PSME/ARCO9-ASMI9   |
| 01203   | Douglas-fir/creeping barberry                         | PSME/MARE11        |
| 012030  | Douglas-fir/creeping barberry-creeping barberry       | PSME-MARE11-MARE11 |
| 012032  | Douglas-fir/creeping barberry-common juniper          | PSME/MARE11-JUCO6  |
| 012033  | Douglas-fir/creeping barberry-mountain snowberry      | PSME/MARE11-SYOR2  |
| 012034  | Douglas-fir/creeping barberry-Geyer's sedge           | PSME/MARE11-CATE2  |
| 012035  | Douglas-fir/creeping barberry-ponderosa pine          | PSME/MARE11-PIPO   |
| 01204   | Douglas-fir/Ross' sedge                               | PSME/CARO5         |
| 01205   | Douglas-fir/pinegrass                                 | PSME/CARU          |

| PV_CODE | COMMON_NAME                                                 | SCIENTIFIC_NAME  |
|---------|-------------------------------------------------------------|------------------|
| 012050  | Douglas-fir/pinegrass-pinegrass                             | PSME/CARU-CARU   |
| 012051  | Douglas-fir/pinegrass-Oregon boxleaf                        | PSME/CARU-PAMY   |
| 012052  | Douglas-fir/pinegrass-Idaho fescue                          | PSME/CARU-FEID   |
| 012053  | Douglas-fir/pinegrass-ponderosa pine                        | PSME/CARU-PIPO   |
| 012054  | Douglas-fir/pinegrass-bluebunch wheatgrass                  | PSME/CARU-PSSPS  |
| 012055  | Douglas-fir/pinegrass-kinnikinnick                          | PSME/CARU-ARUV   |
| 01206   | Douglas-fir/Geyer's sedge                                   | PSME/CAGE2       |
| 012061  | Douglas-fir/Geyer's sedge-Geyer's sedge                     | PSME/CAGE2-CAGE2 |
| 012062  | Douglas-fir/Geyer's sedge-mountain snowberry                | PSME/CAGE2-SYOR2 |
| 012064  | Douglas-fir/Geyer's sedge-ponderosa pine                    | PSME/CAGE2-PIPO  |
| 01207   | Douglas-fir/alderleaf mountain mahogany                     | PSME/CEMO2       |
| 01208   | Douglas-fir/Idaho fescue                                    | PSME/FEID        |
| 012081  | Douglas-fir/Idaho fescue-Idaho fescue                       | PSME/FEID-FEID   |
| 012082  | Douglas-fir/Idaho fescue-ponderosa pine                     | PSME/FEID-PIPO   |
| 01209   | Douglas-fir/fivepetal cliffbush                             | PSME/JAAM        |
| 01210   | Douglas-fir/bluebunch wheatgrass                            | PSME/PSSPS       |
| 01211   | Douglas-fir/Oregon boxleaf                                  | PSME/PAMY        |
| 012111  | Douglas-fir/Oregon-boxleaf-Geyer's sedge                    | PSME/PAMY-CAGE2  |
| 01212   | Douglas-fir/mallow ninebark                                 | PSME/PHMA5       |
| 012121  | Douglas-fir/mallow ninebark-mallow ninebark                 | PSME/PHMA5-PHMA5 |
| 012122  | Douglas-fir/mallow ninebark-pinegrass                       | PSME/PHMA5-CARU  |
| 012123  | Douglas-fir/mallow ninebark-starry false lily of the valley | PSME/PHMA5-MAST4 |
| 012124  | Douglas-fir/mallow ninebark-ponderosa pine                  | PSME/PHMA5-PIPO  |
| 012125  | Douglas-fir/mallow ninebark-Douglas-fir                     | PSME/PHMA5-PSME  |
| 012126  | Douglas-fir/mallow ninebark-Oregon boxleaf                  | PSME/PHMA5-PAMY  |

| PV_CODE | COMMON_NAME                                         | SCIENTIFIC_NAME  |
|---------|-----------------------------------------------------|------------------|
| 01213   | Douglas-fir/mountain ninebark                       | PSME/PHMO4       |
| 01214   | Douglas-fir/Gambel oak                              | PSME/QUGA        |
| 012140  | Douglas-fir/Gambel oak-Gambel oak                   | PSME/QUGA-QUGA   |
| 012141  | Douglas-fir/Gambel oak-Arizona fescue               | PSME/QUGA-FEAR2  |
| 012142  | Douglas-fir/Gambel oak-screwleaf muhly              | PSME/QUGA-MUVI2  |
| 012143  | Douglas-fir/Gambel oak-rockspirea                   | PSME/QUGA-HODU   |
| 01215   | Douglas-fir/white spirea                            | PSME/SPBE2       |
| 012150  | Douglas-fir/white spirea-white spirea               | PSME/SPBE2-SPBE2 |
| 012151  | Douglas-fir/white spirea-pinegrass                  | PSME/SPBE2-CARU  |
| 012153  | Douglas-fir/white spirea-ponderosa pine             | PSME/SPBE2-PIPO  |
| 01217   | Douglas-fir/mountain snowberry                      | PSME/SYOR2       |
| 01220   | Douglas-fir/Greenleaf manzanita                     | PSME/ARPA6       |
| 01221   | Douglas-fir/antelope bitterbrush                    | PSME/PUTR2       |
| 01223   | Douglas-fir/curl-leaf mountain mahogany             | PSME/CELE3       |
| 01230   | Douglas-fir/Altai fescue                            | PSME/FEAL        |
| 01231   | Douglas-fir/kinnikinnick                            | PSME/ARUV        |
| 01232   | Douglas-fir/fringed brome                           | PSME/BRCI2       |
| 01233   | Douglas-fir/Arizona fescue                          | PSME/FEAR2       |
| 01234   | Douglas-fir/mountain muhly                          | PSME/MUMO        |
| 012350  | Douglas-fir/screwleaf muhly                         | PSME/MUVI2       |
| 012351  | Douglas-fir-southwestern white pine/screwleaf muhly | PSME-PIST3/MUVI2 |
| 01236   | Douglas-fir/silverleaf oak                          | PSME/QUHY        |
| 01239   | Douglas-fir/bigtooth maple                          | PSME/ACGR3       |
| 01241   | Douglas-fir/rockspirea (scree forest)               | PSME/HODU        |
| 01243   | Douglas-fir/Arizona white oak                       | PSME/QUAR        |

| <b>PV_CODE</b> | <b>COMMON_NAME</b>                                    | <b>SCIENTIFIC_NAME</b> |
|----------------|-------------------------------------------------------|------------------------|
| 01250          | Douglas-fir/dwarf bilberry                            | PSME/VACA13            |
| 01276          | Ponderosa pine/blue grama-little bluestem             | PIPO/BOGR2-SCSC        |
| 01280          | Douglas-fir/thinleaf huckleberry                      | PSME/VAME              |
| 01281          | Douglas-fir/thinleaf huckleberry-thinleaf huckleberry | PSME/VAME-VAME         |
| 01282          | Douglas-fir/thinleaf huckleberry-kinnikinnick         | PSME/VAME-ARUV         |
| 01283          | Douglas-fir/thinleaf huckleberry-common bluegrass     | PSME/VAME-XETE         |
| 0129           | Douglas-fir/twinflower                                | PSME/LIBO3             |
| 01290          | Douglas-fir/twinflower-twinflower                     | PSME/LIBO3-LIBO3       |
| 01291          | Douglas-fir/twinflower-common snowberry               | PSME/LIBO3-SYAL        |
| 01292          | Douglas-fir/twinflower-pinegrass                      | PSME/LIBO3-CARU        |
| 01293          | Douglas-fir/twinflower-thinleaf huckleberry           | PSME/LIBO3-VAME        |
| 01310          | Douglas-fir/common snowberry                          | PSME/SYAL              |
| 01311          | Douglas-fir/common snowberry-bluebunch wheatgrass     | PSME/SYAL-PSSPS        |
| 01312          | Douglas-fir/common snowberry-pinegrass                | PSME/SYAL-CARU         |
| 01313          | Douglas-fir/common snowberry-common snowberry         | PSME/SYAL-SYAL         |
| 01314          | Douglas-fir/common snowberry-ponderosa pine           | PSME/SYAL-PIPO         |
| 01315          | Douglas-fir/common juniper                            | PSME/JUCO6             |
| 01375          | Douglas-fir/sweetcicely                               | PSME/OSBE              |
| 01376          | Douglas-fir/rock clematis                             | PSME/CLCOC2            |
| 01377          | Douglas-fir/netleaf oak                               | PSME/QURU4             |
| 01378          | Douglas-fir (sparse)                                  | PSME                   |
| 032            | Apache pine series                                    | PIEN2                  |
| 032020         | Apache pine/Arizona white oak                         | PIEN2/QUAR             |

| PV_CODE | COMMON_NAME                                       | SCIENTIFIC_NAME   |
|---------|---------------------------------------------------|-------------------|
| 032030  | Apache pine/silverleaf oak                        | PIEN2/QUHY        |
| 032040  | Apache pine/Emory oak                             | PIEN2/QUEM        |
| 032050  | Apache pine/netleaf oak                           | PIEN2/QURU4       |
| 033     | Chihuahuan pine series                            | PILE              |
| 033010  | Chihuahuan pine/pinyon ricegrass                  | PILE/PIFI         |
| 033020  | Chihuahuan pine/Arizona white oak                 | PILE/QUAR         |
| 033030  | Chihuahuan pine/silverleaf oak                    | PILE/QUHY         |
| 033040  | Chihuahuan pine/pointleaf manzanita               | PILE/ARPU5        |
| 033050  | Chihuahuan pine/Emory oak                         | PILE/QUEM         |
| 033060  | Chihuahuan pine/Toumey oak                        | PILE/QUTO2        |
| 034     | Southwestern white pine series                    | PIST3             |
| 03401   | Southwestern white pine/Arizona fescue            | PIST3/FEAR2       |
| 105     | Quaking aspen series                              | POTR5             |
| 10501   | Quaking aspen/Geyer's sedge                       | POTR5/CAGE2       |
| 10502   | Quaking aspen/beaked hazelnut                     | POTR5/COCO6       |
| 105021  | Quaking aspen/beaked hazelnut/western brackenfern | POTR5/COCO6/PTAQ  |
| 105022  | Quaking aspen/beaked hazelnut/wild sarsaparilla   | POTR5/COCO6/ARNU2 |
| 10503   | Quaking aspen/Thurber's fescue                    | POTR5/FETH        |
| 105031  | Quaking aspen/Thurber's fescue-Geyer's sedge      | POTR5/FETH-CAGE2  |
| 10504   | Quaking aspen/common cowparsnip                   | POTR5/HEMA80      |
| 10505   | Quaking aspen/Nevada pea                          | POTR5/LALAL3      |
| 10507   | Quaking aspen/silvery lupine                      | POTR5/LUAR3       |
| 10508   | Quaking aspen/common juniper                      | POTR5/JUCO6       |
| 105081  | Quaking aspen/common juniper-Geyer's sedge        | POTR5/JUCO6-CAGE2 |

| PV_CODE | COMMON_NAME                                               | SCIENTIFIC_NAME   |
|---------|-----------------------------------------------------------|-------------------|
| 105082  | Quaking aspen/common juniper-silvery lupine               | POTR5/JUCO6-LUAR3 |
| 105083  | Quaking aspen/common juniper-timber milkvetch             | POTR5/JUCO6-ASMI9 |
| 10510   | Quaking aspen/western brackenfern                         | POTR5/PTAQ        |
| 10511   | Quaking aspen/mountain snowberry                          | POTR5/SYOR2       |
| 105111  | Quaking aspen/mountain snowberry-tall forb phase          | POTR5/SYOR2-2FORB |
| 105112  | Quaking aspen/mountain snowberry-pinegrass                | POTR5/SYOR2-CARU  |
| 105113  | Quaking aspen/mountain snowberry-Fendler's meadow-rue     | POTR5/SYOR2-THFE  |
| 105114  | Quaking aspen/mountain snowberry-Thurber's fescue         | POTR5/SYOR2-FETH  |
| 105115  | Quaking aspen/mountain snowberry-Ross' sedge              | POTR5/SYOR2-CARO5 |
| 105116  | Quaking aspen/mountain snowberry-mule-ears                | POTR5/SYOR2-WYAM  |
| 105117  | Quaking aspen/mountain snowberry-California brome         | POTR5/SYOR2-BRCA5 |
| 105118  | Quaking aspen/mountain snowberry-Kentucky bluegrass       | POTR5/SYOR2-POPR  |
| 105119  | Quaking aspen/mountain snowberry-Geyer's sedge            | POTR5/SYOR2-CAGE2 |
| 10512   | Quaking aspen/Fendler's meadow-rue                        | POTR5/THFE        |
| 105120  | Quaking aspen/Fendler's meadow-rue-Fendler's meadow-rue   | POTR5/THFE-THFE   |
| 105121  | Quaking aspen/Fendler's meadow-rue-Geyer's sedge          | POTR5/THFE-CAGE2  |
| 105122  | Quaking aspen/Fendler's meadow-rue-subalpine larkspur     | POTR5/THFE-DEBA2  |
| 105123  | Quaking aspen/Fendler's meadow-rue-Porter's licorice-root | POTR5/THFE-LIPO   |
| 10513   | Quaking aspen/Colorado false hellebore                    | POTR5/VETE4       |

| PV_CODE | COMMON_NAME                                                                  | SCIENTIFIC_NAME         |
|---------|------------------------------------------------------------------------------|-------------------------|
| 10514   | Quaking aspen/big sagebrush                                                  | POTR5/ARTR2             |
| 10515   | Quaking aspen/Saskatoon serviceberry                                         | POTR5/AMAL2             |
| 105151  | Quaking aspen/Saskatoon serviceberry-chokecherry                             | POTR5/AMAL2-PRVIV       |
| 105152  | Quaking aspen/Saskatoon serviceberry-Fendler's meadow-rue                    | POTR5/AMAL2-THFE        |
| 105153  | Quaking aspen/Saskatoon serviceberry-tall forb                               | POTR5/AMAL2-2FORB       |
| 105154  | Quaking aspen/Saskatoon serviceberry-western brackenfern                     | POTR5/AMAL2-PTAQ        |
| 105155  | Quaking aspen/Saskatoon serviceberry-mountain snowberry/tall forb            | POTR5/AMAL2-SYOR2/2FORB |
| 105156  | Quaking aspen/Saskatoon serviceberry-mountain snowberry/Fendler's meadow-rue | POTR5/AMAL2-SYOR2/THFE  |
| 105157  | Quaking aspen/Saskatoon serviceberry-mountain snowberry/pinegrass            | POTR5/AMAL2-SYOR2/CARU  |
| 105158  | Quaking aspen/Saskatoon serviceberry-mountain snowberry/California brome     | POTR5/AMAL2-SYOR2/BRCA5 |
| 10517   | Quaking aspen/pinegrass                                                      | POTR5/CARU              |
| 10520   | Quaking aspen/creeping barberry                                              | POTR5/MARE11            |
| 10521   | Quaking aspen/kinnikinnick                                                   | POTR5/ARUV              |
| 10522   | Quaking aspen/Arizona fescue                                                 | POTR5/FEAR2             |
| 10523   | Quaking aspen/red elderberry                                                 | POTR5/SARA2             |
| 10540   | Quaking aspen/blue wildrye                                                   | POTR5/ELGL              |
| 10541   | Quaking aspen/bluejoint                                                      | POTR5/CACA4             |
| 10542   | Quaking aspen/California brome                                               | POTR5/BRCA5             |
| 10543   | Quaking aspen/California false hellebore                                     | POTR5/VECA2             |
| 10544   | Quaking aspen/dryspike sedge                                                 | POTR5/CAFO3             |
| 10545   | Quaking aspen/dwarf bilberry                                                 | POTR5/VACA13            |
| 10546   | Quaking aspen/eltrot                                                         | POTR5/HESP6             |

| PV_CODE | COMMON_NAME                                          | SCIENTIFIC_NAME  |
|---------|------------------------------------------------------|------------------|
| 10547   | Quaking aspen/fringed brome                          | POTR5/BRCI2      |
| 10548   | Quaking aspen/gooseberry currant (riparian forest)   | POTR5/RIMO2      |
| 10549   | Quaking aspen/Kentucky bluegrass                     | POTR5/POPR       |
| 10550   | Quaking aspen/mountain ninebark                      | POTR5/PHMO4      |
| 10551   | Quaking aspen/mule-ears                              | POTR5/WYAM       |
| 10552   | Quaking aspen/needle and thread                      | POTR5/HECOC8     |
| 10553   | Quaking aspen/nodding ragwort                        | POTR5/SEBIB      |
| 105531  | Quaking aspen/nodding ragwort                        | POTR5/SEBI2      |
| 10554   | Quaking aspen/Porter's licorice-root                 | POTR5/LIPO       |
| 10555   | Quaking aspen/Rocky Mountain maple (riparian forest) | POTR5/ACGL       |
| 10556   | Quaking aspen/Ross' sedge                            | POTR5/CARO5      |
| 10557   | Quaking aspen/russet buffaloberry                    | POTR5/SHCA       |
| 10558   | Quaking aspen/Scouler's willow                       | POTR5/SASC       |
| 10559   | Quaking aspen/spreadfruit goldenhammer               | POTR5/THDI4      |
| 10560   | Quaking aspen/tall forb                              | POTR5/2FORB      |
| 10561   | Quaking aspen/thimbleberry                           | POTR5/RUPA       |
| 10562   | Quaking aspen/timber milkvetch                       | POTR5/ASMI9      |
| 10563   | Quaking aspen/twinberry honeysuckle                  | POTR5/LOIN5      |
| 10564   | Quaking aspen/water birch                            | POTR5/BEOC2      |
| 10565   | Quaking aspen/whortleberry                           | POTR5/VAMY2      |
| 10570   | Quaking aspen-blue spruce                            | POTR5-PIPU       |
| 10575   | Quaking aspen-Douglas-fir/common juniper             | POTR5-PSME/JUCO6 |
| 10576   | Quaking aspen-Douglas-fir/mountain snowberry         | POTR5-PSME/SYOR2 |
| 10577   | Quaking aspen-Douglas-fir/pinegrass                  | POTR5-PSME/CARU  |

| PV_CODE | COMMON_NAME                                                         | SCIENTIFIC_NAME        |
|---------|---------------------------------------------------------------------|------------------------|
| 10578   | Quaking aspen-Douglas-fir/Saskatoon serviceberry                    | POTR5-PSME/AMAL2       |
| 10579   | Quaking aspen-limber pine                                           | POTR5-PIFL2            |
| 10580   | Quaking aspen-lodgepole pine/common juniper                         | POTR5-PICO/JUCO6       |
| 10581   | Quaking aspen-lodgepole pine/Fendler's meadow-rue                   | POTR5-PICO/THFE        |
| 10582   | Quaking aspen-lodgepole pine/Geyer's sedge                          | POTR5-PICO/CAGE2       |
| 10583   | Quaking aspen-lodgepole pine/mountain snowberry                     | POTR5-PICO/SYOR2       |
| 10585   | Quaking aspen-ponderosa pine                                        | POTR5-PIPO             |
| 10586   | Quaking aspen-white fir/Greenleaf manzanita                         | POTR5-ABCO/ARPA6       |
| 10587   | Quaking aspen-white fir/Kentucky bluegrass                          | POTR5-ABCO/POPR        |
| 10588   | Quaking aspen-white fir/mountain snowberry                          | POTR5-ABCO/SYOR2       |
| 10590   | Quaking aspen-subalpine fir/common juniper                          | POTR5-ABLA/JUCO6       |
| 10591   | Quaking aspen-subalpine fir/Geyer's sedge                           | POTR5-ABLA/CAGE2       |
| 10592   | Quaking aspen-subalpine fir/Fendler's meadow-rue                    | POTR5-ABLA/THFE        |
| 10593   | Quaking aspen-subalpine fir/mountain snowberry                      | POTR5-ABLA/SYOR2       |
| 105931  | Quaking aspen-subalpine fir/mountain snowberry/tall forb            | POTR5-ABLA/SYOR2/2FORB |
| 105932  | Quaking aspen-subalpine fir/mountain snowberry/Fendler's meadow-rue | POTR5-ABLA/SYOR2/THFE  |
| 105933  | Quaking aspen-subalpine fir/mountain snowberry/California broome    | POTR5-ABLA/SYOR2/BRCA5 |
| 10594   | Quaking aspen-subalpine fir/Ross' sedge                             | POTR5-ABLA/CARO5       |
| 10595   | Quaking aspen-subalpine fir/russet buffaloberry                     | POTR5-ABLA/SHCA        |
| 10596   | Quaking aspen-subalpine fir/Saskatoon serviceberry                  | POTR5-ABLA/AMAL2       |
| 10597   | Quaking aspen-subalpine fir/tall forb                               | POTR5-ABLA/2FORB       |

Table 18: Reference Code 206

| PV_CODE | COMMON_NAME                                                   | SCIENTIFIC_NAME        |
|---------|---------------------------------------------------------------|------------------------|
| AL01    | Forb (alpine, rocky)                                          | 2FORB                  |
| AL02    | Bellardi bog sedge/curly sedge-lesser spikemoss               | KOMY/CARU3-SEDE2       |
| AL03    | Blackroot sedge/twinflower sandwort-alpine sagebrush          | CAEL3/MIOB2-ARSC       |
| AL04    | Curly sedge/glaucous bluegrass                                | CARU3/POGL             |
| AL05    | Tufted hairgrass/Ross' avens                                  | DECA18/GEROT           |
| AL06    | Creeping sibbaldia/Ross' avens                                | SIPR/GEROT             |
| AL07    | Pyrenean sedge-cloud sedge-black alpine sedge                 | CAPYP-CAHA6-CANI2      |
| AL08    | Mountain sedge                                                | CASC12                 |
| AL09    | Dwarf bilberry/varileaf cinquefoil                            | VACA13/PODI2           |
| AL10    | Alpine clover/twinflower sandwort                             | TRDA2/MIOB2            |
| AL11    | Parry's clover/tufted hairgrass-alpine bistort                | TRPA5/DECA18-POV13     |
| AL12    | Dwarf clover/twinflower sandwort                              | TRNA2/MIOB2            |
| AL13    | Eightpetal mountain-avens/curly sedge-Colorado fescue         | DROC/CARU3-FEBRC       |
| AL14    | Snow willow                                                   | SANI8                  |
| AL15    | Arctic willow                                                 | SAAR27                 |
| AL16    | White marsh marigold-ledge stonecrop (riparian forebland)     | CALEL8/RHIN11          |
| FD01    | Rocky Mountain juniper/littleseed ricegrass                   | JUSC2/PIMI7            |
| FD01A   | Rocky Mountain juniper/muttongrass-sedge-littleseed ricegrass | JUSC2/POFE-CAREX-PIMI7 |
| FD01B   | Rocky Mountain juniper/blue grama-big sagebrush               | JUSC2/BOGR2-ARTR2      |
| FD01C   | Rocky Mountain juniper/big sagebrush-Indian ricegrass         | JUSC2/ARTR2-ACHY       |

| PV_CODE | COMMON_NAME                                                                     | SCIENTIFIC_NAME               |
|---------|---------------------------------------------------------------------------------|-------------------------------|
| FD02    | Ponderosa pine/Arizona fescue                                                   | PIPO/FEAR2                    |
| FD02A   | Ponderosa pine/Arizona fescue-mountain<br>muhly                                 | PIPO/FEAR2-MUMO               |
| FD02B   | Ponderosa pine/Arizona fescue-big sagebrush<br>(sparse)                         | PIPO/FEAR2-ARTR2              |
| FD03    | Ponderosa pine/antelope bitterbrush                                             | PIPO/PUTR2                    |
| FD03A   | Ponderosa pine/antelope bitterbrush-big<br>sagebrush-Arizona fescue             | PIPO/PUTR2-ARTR2-FEAR2        |
| FS03B   | Ponderosa pine/antelope bitterbrush-big<br>sagebrush-muttongrass                | PIPO/PUTR2-ARTR2-POFE         |
| FD03C   | Ponderosa pine/antelope bitterbrush—<br>muttongrass (sparse)                    | PIPO/PUTR2-POFE               |
| FD04    | Bristlecone pine/wax currant-Arizona fescue-<br>mountain muhly-Parry's oatgrass | PIAR/RICE-FEAR-MUMO-<br>DAPA2 |
| FD04A   | Bristlecone pine/wax currant-Arizona fescue-<br>mountain muhly-Parry's oatgrass | PIAR/RICE-FEAR-MUMO-<br>DAPA2 |
| FD04B   | Bristlecone pine/wax currant-Arizona fescue                                     | PIAR/RICE-FEAR2               |
| FD04C   | Bristlecone pine/Arizona fescue-mountain<br>muhly                               | PIAR/FEAR2-MUMO               |
| FD05    | Bristlecone pine/Thurber's fescue                                               | PIAR/FETH                     |
| FD05A   | Bristlecone pine/Thurber's fescue/graminoids                                    | PIAR/FETH/2GRAM               |
| FD06    | Douglas-fir/wax currant-Arizona fescue                                          | PSME/RICE-FEAR2               |
| FD06A   | Douglas-fir/Arizona fescue                                                      | PSME/FEAR2                    |
| FD06B   | Ponderosa pine-Douglas-fir/wax currant-<br>Arizona fescue                       | PIPO-PSME/RICE-FEAR2          |
| FD06C   | Douglas-fir/wax currant-Arizona fescue-big<br>sagebrush                         | PSME/RICE-FEAR2-ARTR2         |
| FD06D   | Douglas-fir/wax currant/grass                                                   | PSME/RICE/2GRAM               |
| FD06E   | Douglas-fir-Rocky Mountain juniper/sparse wax<br>current-Wheeler bluegrass      | PSME-JUSC2/RICE-PONE2         |
| FD06F   | Douglas-fir/Arizona fescue (sparse)                                             | PSME/FEAR2                    |

| PV_CODE | COMMON_NAME                                                                                    | SCIENTIFIC_NAME                   |
|---------|------------------------------------------------------------------------------------------------|-----------------------------------|
| FD06G   | Douglas-fir/sparse wax currant                                                                 | PSME/RICE                         |
| FD08    | Douglas-fir/Saskatoon serviceberry                                                             | PSME/AMAL2                        |
| FD08A   | Douglas-fir/Saskatoon serviceberry-roundleaf snowberry-muttongrass                             | PSME/AMAL2-SYRO-POFE              |
| FD08B   | Douglas-fir-quaking aspen-common juniper/Saskatoon serviceberry-Thurber's fescue-Geyer's sedge | PSME-POTR5-JUCO6/AMAL2-FETH-CAGE2 |
| FD08C   | Douglas-fir-Rocky Mountain maple/rose-roundleaf snowberry                                      | PSME-ACGL/ROSA5-SYRO              |
| FD08D   | Quaking aspen/Saskatoon serviceberry-common juniper-roundleaf snowberry-northern bedstraw      | POTR5/AMAL2-JUCO6-SYRO-GABO2      |
| FD08E   | Douglas-fir/Saskatoon serviceberry-Geyer's sedge-creeping barberry                             | PSME/AMAL2-CAGE2-MARE11           |
| FD08F   | Douglas-fir/Saskatoon serviceberry-creeping barberry-sparse roundleaf snowberry                | PSME/AMAL2-MARE11-SYRO            |
| FD08G   | Quaking aspen-common juniper/Saskatoon serviceberry-Geyer's sedge-sparse roundleaf snowberry   | POTR5-JUCO6/AMAL2-CAGE2-SYRO      |
| FD08H   | Lodgepole pine-quaking aspen-Douglas-fir/Saskatoon serviceberry-kinnikinnick-Geyer's sedge     | PICO-POTR5-PSME/AMAL2-ARUV-CAGE2  |
| FD09    | Douglas-fir/Oregon boxleaf                                                                     | PSME/PAMY                         |
| FD09A   | Douglas-fir-quaking aspen-common juniper/Oregon boxleaf-Geyer's sedge                          | PSME-POTR5-JUCO6/PAMY-CAGE2       |
| FD09B   | Douglas-fir-common juniper/Oregon boxleaf-creeping barberry                                    | PSME-JUCO6/PAMY=MARE11            |
| FD09C   | Lodgepole pine/dwarf bilberry                                                                  | PICO/VACA14                       |
| FD09D   | Lodgepole pine-quaking aspen-common juniper/Oregon boxleaf-Geyer's sedge-heartleaf arnica      | PICO-POTR5-JUCO6/PAMY-CAGE2-ARCO9 |
| FD09E   | Quaking aspen-Douglas-fir-common juniper/Oregon boxleaf-rose-Geyer's sedge                     | POTR5-PSME-JUCO6/PAMY-ROSA5-CAGE2 |

| PV_CODE | COMMON_NAME                                                                  | SCIENTIFIC_NAME                     |
|---------|------------------------------------------------------------------------------|-------------------------------------|
| FD09F   | Quaking aspen/Oregon boxleaf-rose-Geyer's sedge-fringed brome-silvery lupine | POTR5/PAMY-ROSA5-CAGE2-BRCIC3-LUAR3 |
| FD10    | Douglas-fir/antelope bitterbrush                                             | PSME/PUTR2                          |
| FD11    | Douglas-fir/Geyer's sedge                                                    | PSME/CAGE2                          |
| FD12    | Douglas-fir/Thurber's fescue                                                 | PSME/FETH                           |
| FD13    | Douglas-fir/kinnikinnick                                                     | PSME/ARUV                           |
| FD14    | Douglas-fir-lodgepole pine/russet buffaloberry                               | PSME-PICO/SHCA                      |
| FD15    | Blue spruce/Arizona fescue                                                   | PIPU/FEAR2                          |
| FD16    | Blue spruce-Engelmann spruce/kinnikinnick                                    | PIPU-PIEN/ARUV                      |
| FD17    | Lodgepole pine/dryspike sedge                                                | PICO/CAFO3                          |
| FD18    | Lodgepole pine/whortleberry                                                  | PICO/VAMYO                          |
| FD19    | Lodgepole pine (sparse)                                                      | PICO                                |
| FL01    | Subalpine fir-Douglas-fir/Oregon boxleaf                                     | ABLAL-PSME/PAMY                     |
| FL02    | Subalpine fir/twinflower                                                     | ABLAL/LIBO3                         |
| FL03    | Subalpine fir-Engelmann spruce/Oregon boxleaf                                | ABLAL-PIEN/PAMY                     |
| FL04A   | Engelmann spruce-quaking aspen/Thurber's fescue-timber oatgrass              | PIEN-POTR5/FETH/DAIN                |
| FL04B   | Subalpine fir-Engelmann spruce/dwarf bilberry                                | ABLAL-PIEN/VACA13                   |
| FL05    | Subalpine fir-Engelmann spruce/Geyer's sedge                                 | ABLAL-PIEN/CAGE2                    |
| FL06    | Subalpine fir-Engelmann spruce/moss                                          | ABLAL-PIEN/2MOSS                    |
| FL07    | Subalpine fir-Engelmann spruce/russet buffaloberry                           | ABLAL-PIEN/SHCA                     |
| FL08    | Engelmann spruce/gooseberry currant                                          | PIEN/RIMO2                          |
| FL09    | Subalpine fir-Engelmann spruce/whortleberry                                  | ABLAL-PIEN/VAMYO                    |
| FL10    | Subalpine fir-Engelmann spruce/grayleaf willow                               | ABLAL-PIEN/SAGL                     |
| FL11    | Limber pine/common juniper                                                   | PIFL2/JUCO6                         |

| PV_CODE | COMMON_NAME                                                                                   | SCIENTIFIC_NAME             |
|---------|-----------------------------------------------------------------------------------------------|-----------------------------|
| FM1     | Quaking aspen/Saskatoon serviceberry-roundleaf snowberry                                      | POTR5/AMAL2-SYRO            |
| FM2     | Quaking aspen/Thurber's fescue                                                                | POTR5/FETH                  |
| FM3     | Quaking aspen/Fendler's meadow-rue-Nevada pea                                                 | POTR5/THFE-LALAL3           |
| FR1     | Narrowleaf cottonwood/Pacific willow-fowl bluegrass                                           | POAN3/SALUL-POPA2           |
| FR2     | Quaking aspen-narrowleaf cottonwood/bluejoint                                                 | POTR5-POAN3/CACA4           |
| FR3     | Blue spruce-narrowleaf cottonwood/thinleaf alder-dryspike sedge                               | PIPU-POAN3/ALINT-CAFO       |
| FR4     | Blue spruce-Engelmann spruce/twinberry honeysuckle-bluejoint                                  | PIPU-PIEN/LOIN1-CACA4       |
| FR5     | Blue spruce-Engelmann spruce/redosier dogwood                                                 | PIPU-PIEN/COSES             |
| FR6     | Subalpine fir-Engelmann spruce/arrowleaf ragwort-tall fringed bluebells-heartleaf bittercress | ABLAL-PIEN/SETR-MEC13-CACO6 |
| GA01    | Indian ricegrass/needle and thread-blue grama                                                 | ACHY/HECO26-BOGR2           |
| GA02    | Arizona fescue/pingue rubberweed                                                              | FEAR2/HYRIR                 |
| GA03    | Arizona fescue/mountain muhly-slimstem muhly                                                  | FEAR2/MUMO-MUFI             |
| GA04    | Thurber's fescue/Arizona fescue                                                               | FETH/FEAR2                  |
| GA05    | Thurber's fescue/Idaho fescue                                                                 | FETH/FEID                   |
| GA06    | Thurber's fescue/Fendler's meadow-rue-American vetch-Geyer's sedge                            | FETH/THFE-VIAM-CAGE2        |
| GA07    | Porter's licorice-root/Fendler's meadow-rue                                                   | LIPO/THFE                   |
| GA08    | Idaho fescue/slender wheatgrass                                                               | FEID/ELTR7                  |
| GA09    | Timber oatgrass/tufted hairgrass                                                              | DAIN/DECA18                 |
| GA10    | Purple reedgrass/spreading wheatgrass                                                         | CAPU/ELSC4                  |
| R11     | Yellow willow/Northwest Territory sedge                                                       | SALU2/CAUT                  |

| PV_CODE | COMMON_NAME                                                                                     | SCIENTIFIC_NAME                 |
|---------|-------------------------------------------------------------------------------------------------|---------------------------------|
| R12     | Drummond's willow/bluejoint-Northwest Territory sedge                                           | SADR/CACA4-CAUT                 |
| R13     | Park willow/Northwest Territory sedge                                                           | SAMO2/CAUT                      |
| R14     | Diamondleaf willow/water sedge                                                                  | SAPL2/CAAQ                      |
| R15     | Wolf's willow-diamondleaf willow/water sedge                                                    | SAWO-SAPL2/CAAQ                 |
| R16     | Shrubby cinquefoil/Idaho fescue                                                                 | DAFL3/FEID                      |
| R17     | Diamondleaf willow/white marsh marigold                                                         | SAPL2/CALEL8                    |
| R18     | Grayleaf willow-shortfruit willow/water sedge                                                   | SAGL-SABR/CAAQ                  |
| R19     | Water sedge-Northwest Territory sedge/tufted hairgrass                                          | CAAQ-CAUT/DECA18                |
| SA1     | Utah serviceberry/White Mountain sedge-sun sedge                                                | AMUT/CAGE-CAINH2                |
| SA2     | Utah serviceberry-alderleaf mountain mahogany/dryland sedge-sun sedge                           | AMUT-CEMO2/CAGE-CAINH2          |
| SA3     | Utah serviceberry-Saskatoon serviceberry-Gambel oak/White Mountain sedge-Geyer's sedge          | AMUT-AMAL2-QUGA/CAGE-CAGE2      |
| SA4     | Saskatoon serviceberry-Utah serviceberry/green needlegrass-spike fescue                         | AMAL2-AMUT/NAVI4-LEKI2          |
| SA5     | Saskatoon serviceberry/Geyer's sedge                                                            | AMAL2/CAGE2                     |
| SA6     | Saskatoon serviceberry/Thurber's fescue                                                         | AMAL2/FETH                      |
| SA7     | Oceanspray-common juniper-shrubby cinquefoil-skunkbush sumac-wax currant-American red raspberry | HODI-JUCO6-DAFL3-RHTR-RICE-RUID |
| SB1     | Wyoming big sagebrush/Indian redgrass                                                           | ARTRW8/ACHY                     |
| SB2     | Black sagebrush/muttongrass-pine needlegrass                                                    | ARNO4/POFE-ACPI2                |
| SB3     | Black sagebrush/Arizona fescue                                                                  | ARNO4/FEAR2                     |
| SS1     | Big sagebrush/muttongrass-pine needlegrass                                                      | ARTR2/POFE-ACPI2                |
| SS2     | Antelope bitterbrush-big sagebrush/needle and thread-pine needlegrass                           | PUTR2-ARTR2/HECO26-ACPI2        |

| PV_CODE | COMMON_NAME                                                           | SCIENTIFIC_NAME             |
|---------|-----------------------------------------------------------------------|-----------------------------|
| SS3     | Big sagebrush/Parry's oatgrass-Arizona fescue                         | ARTR2/FEPE2-FEAR2           |
| SS4     | Big sagebrush/Arizona fescue                                          | ARTR2/FEAR2                 |
| SS5     | Antelope bitterbrush-big sagebrush/Parry's oatgrass-Arizona fescue    | PUTR2-ARTR2/DAPA2-<br>FEAR2 |
| SS6     | Antelope bitterbrush-big sagebrush/Arizona fescue                     | PUTR2-ARTR2/FEAR2           |
| SU1     | Mountain big sagebrush/Thurber's fescue-Arizona fescue                | ARTRV/FETH-FEAR2            |
| SU2     | Mountain big sagebrush/Thurber's fescue-Idaho fescue                  | ARTRV/FETH-FEID             |
| SU3     | Mountain big sagebrush/Idaho fescue                                   | ARTRV/FEID                  |
| SU4     | Little sagebrush/Parry's oatgrass-Idaho fescue                        | ARAR8/DAPA2-FEID            |
| SU5     | Little sagebrush-mountain big sagebrush/Parry's oatgrass-Idaho fescue | ARAR8-ARTRV/DAPA2-FEID      |
| SU6     | Little sagebrush/Parry's oatgrass-Thurber's fescue-Idaho fescue       | ARAR8/DAPA2-FETH-FEID       |
| SU7     | Silver sagebrush/Thurber's fescue-Idaho fescue                        | ARAC13/FETH-FEID            |

Table 19: Reference Code 207

| PV_CODE | COMMON_NAME                        | SCIENTIFIC_NAME |
|---------|------------------------------------|-----------------|
| 002     | Subalpine fir series               | ABLA            |
| 00201   | Subalpine fir/Geyer's sedge        | ABLA/CAGE2      |
| 00202   | Subalpine fir/grouse whortleberry  | ABLA/VASC       |
| 00211   | Subalpine fir/moss                 | ABLA/2MOSS      |
| 009     | Lodgepole pine series              | PICO            |
| 00903   | Lodgepole pine/Geyer's sedge       | PICO/CAGE2      |
| 00905   | Lodgepole pine/common juniper      | PICO/JUCO6      |
| 00908   | Lodgepole pine/russet buffaloberry | PICO/SHCA       |
| 00910   | Lodgepole pine/grouse whortleberry | PICO/VASC       |

| PV_CODE | COMMON_NAME                        | SCIENTIFIC_NAME |
|---------|------------------------------------|-----------------|
| 00911   | Lodgepole pine/Ross' sedge         | PICO/CARO5      |
| 010     | Limber pine series                 | PIFL2           |
| 01004   | Limber pine/spike fescue           | PIFL2/LEKI2     |
| 01005   | Limber pine/common juniper         | PIFL2/JUCO6     |
| 011     | Ponderosa pine series              | PIPO            |
| 01105   | Ponderosa pine/Geyer's sedge       | PIPO/CAGE2      |
| 01106   | Ponderosa pine/Ross' sedge         | PIPO/CARO5      |
| 01140   | Ponderosa pine/kinnikinnick        | PIPO/ARUV       |
| 012     | Douglas-fir series                 | PSME            |
| 105     | Quaking aspen series               | POTR5           |
| 10501   | Quaking aspen/Geyer's sedge        | POTR5/CAGE2     |
| 105010  | Quaking aspen/Geyer's sedge        | POTR5/CAGE2     |
| 10512   | Quaking aspen/Fendler's meadow-rue | POTR5/THFE      |
| 10517   | Quaking aspen/pinegrass            | POTR5/CARU      |
| 11050   | Ponderosa pine/Geyer's sedge       | PIPO/CAGE2      |
| 11060   | Ponderosa pine/Ross' sedge         | PIPO/CARO5      |
| 11400   | Ponderosa pine/kinnikinnick        | PIPO/ARUV       |
| 203     | Rocky Mountain juniper series      | JUSC2           |
| 2110    | Subalpine fir/moss                 | ABLA/2MOSS      |
| 313     | Gambel oak series                  | QUGA            |
| 323     | Thinleaf alder                     | ALINT           |
| 41070   | Limber pine/common juniper         | PIFL2/JUCO6     |
| 41080   | Limber pine/spike fescue           | PIFL2/LEKI2     |
| 41730   | Subalpine fir/grouse whortleberry  | ABLA/VASC       |
| 41790   | Subalpine fir/Geyer's sedge        | ABLA/CAGE2      |

| PV_CODE | COMMON_NAME                        | SCIENTIFIC_NAME |
|---------|------------------------------------|-----------------|
| 41940   | Lodgepole pine/grouse whortleberry | PICO/VASC       |
| 41955   | Lodgepole pine/Geyer's sedge       | PICO/CAGE2      |
| 41960   | Lodgepole pine/common juniper      | PICO/JUCO6      |
| 41970   | Lodgepole pine/Ross' sedge         | PICO/CARO5      |
| 41975   | Lodgepole pine/russet buffaloberry | PICO/SHCA       |
| 42006   | Quaking aspen/pinegrass            | POTR5/CARU      |
| 42007   | Quaking aspen/Fendler's meadow-rue | POTR5/THFE      |

Table 20: Reference Code 208

| PV_CODE | COMMON_NAME                          | SCIENTIFIC_NAME |
|---------|--------------------------------------|-----------------|
| 002     | Subalpine fir series                 | ABLA            |
| 00202   | Subalpine fir/grouse whortleberry    | ABLA/VASC       |
| 00205   | Subalpine fir/heartleaf arnica       | ABLA/ARCO9      |
| 00212   | Subalpine fir/russet buffaloberry    | ABLA/SHCA       |
| 004     | Engelmann spruce series              | PIEN            |
| 00414   | Engelmann spruce/grouse whortleberry | PIEN/VASC       |
| 009     | Lodgepole pine series                | PICO            |
| 00901   | Lodgepole pine/kinnikinnick          | PICO/ARUV       |
| 00910   | Lodgepole pine/grouse whortleberry   | PICO/VASC       |
| 011     | Ponderosa pine series                | PIPO            |
| 01110   | Ponderosa pine/Idaho fescue          | PIPO/FEID       |
| 01112   | Ponderosa pine/common juniper        | PIPO/JUCO6      |
| 01119   | Ponderosa pine/mountain ninebark     | PIPO/PHMO4      |
| 01123   | Ponderosa pine/white spirea          | PIPO/SPBE2      |
| 01125   | Ponderosa pine/bluebunch wheatgrass  | PIPO/PSSPS      |
| 012     | Douglas-fir series                   | PSME            |

| PV_CODE | COMMON_NAME                                  | SCIENTIFIC_NAME   |
|---------|----------------------------------------------|-------------------|
| 01203   | Douglas-fir/creeping barberry                | PSME/MARE11       |
| 012032  | Douglas-fir/creeping barberry-common juniper | PSME/MARE11-JUCO6 |
| 01213   | Douglas-fir/mountain ninebark                | PSME/PHMO4        |
| 105     | Quaking aspen series                         | POTR5             |
| 10507   | Quaking aspen/silvery lupine                 | POTR5/LUAR3       |
| 105070  | Quaking aspen/silvery lupine                 | POTR5/LUAR3       |
| 11120   | Ponderosa pine/common juniper                | PIPO/JUCO6        |
| 11190   | Ponderosa pine/mountain ninebark             | PIPO/PHMO4        |
| 11230   | Ponderosa pine/white spirea                  | PIPO/SPBE2        |
| 12130   | Douglas-fir/mountain ninebark                | PSME/PHMO4        |
| 41130   | Ponderosa pine/bluebunch wheatgrass          | PIPO/PSSPS        |
| 41140   | Ponderosa pine/Idaho fescue                  | PIPO/FEID         |
| 41395   | Douglas-fir/creeping barberry                | PSME/MARE11       |
| 41485   | Engelmann spruce/grouse whortleberry         | PIEN/VASC         |
| 41730   | Subalpine fir/grouse whortleberry            | ABLA/VASC         |
| 41780   | Subalpine fir/heartleaf arnica               | ABLA/ARCO9        |
| 41940   | Lodgepole pine/grouse whortleberry           | PICO/VASC         |
| 41956   | Lodgepole pine/kinnikinnick                  | PICO/ARUV         |
| 999     | Subalpine fir/russet buffaloberry            | ABLA/SHCA         |

Table 21: Reference Code 209

| PV_CODE | COMMON_NAME                       | SCIENTIFIC_NAME |
|---------|-----------------------------------|-----------------|
| 002     | Subalpine fir series              | ABLA            |
| 00201   | Subalpine fir/Geyer's sedge       | ABLA/CAGE2      |
| 00202   | Subalpine fir/grouse whortleberry | ABLA/VASC       |
| 00206   | Subalpine fir/arrowleaf ragwort   | ABLA/SETR       |

| PV_CODE | COMMON_NAME                                | SCIENTIFIC_NAME |
|---------|--------------------------------------------|-----------------|
| 00208   | Subalpine fir/bluejoint                    | ABLA/CACA4      |
| 004     | Engelmann spruce series                    | PIEN            |
| 00413   | Engelmann spruce/alpine clover             | PIEN/TRDA2      |
| 006     | Blue spruce series                         | PIPU            |
| 00602   | Blue spruce/heartleaf arnica               | PIPU/ARCO9      |
| 008     | Bristlecone pine series                    | PIAR            |
| 00803   | Bristlecone pine/alpine clover             | PIAR/TRDA2      |
| 009     | Lodgepole pine series                      | PICO            |
| 00903   | Lodgepole pine/Geyer's sedge               | PICO/CAGE       |
| 00905   | Lodgepole pine/common juniper              | PICO/JUCO6      |
| 00908   | Lodgepole pine/russet buffaloberry         | PICO/SHCA       |
| 00910   | Lodgepole pine/grouse whortleberry         | PICO/VASC       |
| 010     | Limber pine series                         | PIFL2           |
| 01002   | Limber pine/purple reedgrass               | PIFL2/CAPU      |
| 01005   | Limber pine/common juniper                 | PIFL2/JUCO6     |
| 01006   | Limber pine/alpine clover                  | PIFL2/TRDA2     |
| 011     | Ponderosa pine series                      | PIPO            |
| 01106   | Ponderosa pine/Ross' sedge                 | PIPO/CARO5      |
| 01107   | Ponderosa pine/alderleaf mountain mahogany | PIPO/CEMO2      |
| 01111   | Ponderosa pine/spike fescue                | PIPO/LEKI2      |
| 01120   | Ponderosa pine/antelope bitterbrush        | PIPO/PUTR2      |
| 01133   | Ponderosa pine/mountain muhly              | PIPO/MUMO       |
| 012     | Douglas-fir series                         | PSME            |
| 01204   | Douglas-fir/Ross' sedge                    | PSME/CARO5      |
| 01206   | Douglas-fir/Geyer's sedge                  | PSME/CAGE2      |

| PV_CODE | COMMON_NAME                                        | SCIENTIFIC_NAME |
|---------|----------------------------------------------------|-----------------|
| 01209   | Douglas-fir/fivepetal cliffbush                    | PSME/JAAM       |
| 01213   | Douglas-fir/mountain ninebark                      | PSME/PHMO4      |
| 103     | Narrowleaf cottonwood                              | POAN3           |
| 10302   | Narrowleaf cottonwood/narrowleaf willow            | POAN3/SAEX      |
| 105     | Quaking aspen series                               | POTR5           |
| 10501   | Quaking aspen/Geyer's sedge                        | POTR5/CAGE2     |
| 10503   | Quaking aspen/Thurber's fescue                     | POTR5/FETH      |
| 10512   | Quaking aspen/Fendler's meadow-rue                 | POTR5/THFE      |
| 203     | Rocky Mountain juniper series                      | JUSC2           |
| 20302   | Rocky Mountain juniper/big sagebrush               | JUSC2/ARTR2     |
| 20304   | Rocky Mountain juniper/alderleaf mountain mahogany | JUSC2/CEMO2     |
| 20406   | Rocky Mountain juniper/antelope bitterbrush        | JUSC2/PUTR2     |

Table 22: Reference Code 210

| PV_CODE | COMMON_NAME                       | SCIENTIFIC_NAME |
|---------|-----------------------------------|-----------------|
| 002     | Subalpine fir series              | ABLA            |
| 00201   | Subalpine fir/Geyer's sedge       | ABLA/CAGE2      |
| 00202   | Subalpine fir/grouse whortleberry | ABLA/VASC       |
| 00603   | Blue spruce/bluegrass             | PIPU/POA        |
| 011     | Ponderosa pine series             | PIPO            |
| 012     | Douglas-fir series                | PSME            |
| 01211   | Douglas-fir/Oregon boxleaf        | PSME/PAMY       |
| 105     | Quaking aspen series              | POTR5           |
| 10501   | Quaking aspen/Geyer's sedge       | POTR5           |
| 10510   | Quaking aspen/western brackenfern | POTR5/PTAQ      |

| PV_CODE | COMMON_NAME                        | SCIENTIFIC_NAME |
|---------|------------------------------------|-----------------|
| 10511   | Quaking aspen/mountain snowberry   | POTR5/SYOR2     |
| 10512   | Quaking aspen/Fendler's meadow-rue | POTR5/THFE      |
| 10546   | Quaking aspen/eltrot               | POTR5/HESP6     |
| 204     | Twoneedle pinyon series            | PIED            |
| 31305   | Gambel oak/mountain snowberry      | QUGA/SYOR2      |

## APPENDIX H: FUEL PHOTO REFERENCES & CODES

Table 23: Fuel Photo References

| Code | Reference                                                                                                                                                                                                                                                                                                 |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3    | Fischer, William C. 1981. <b>Photo Guide for Appraising Downed Woody Fuels in Montana Forests: Lodgepole Pine and Englemann Spruce-Subalpine fir Cover Types.</b> USDA Forest Service, Gen. Tech. Rep. INT-98. 143 p. Intermt. For. and Range Exp. Stn., Ogden, UT 84401.                                 |
| 6    | Maxwell, Wayne G. and Franklin R. Ward. 1976. <b>Photo Series for Quantifying Forest Residues in the: Ponderosa Pine Type, Ponderosa Pine and Associated Species Types, Lodgepole Pine Type.</b> USDA Forest Service Gen. Tech. Rep. PNW-52, 74 p. Pacific Northwest Range Exp. Stn., Portland, OR 97208. |
| 8    | Maxwell, Wayne G. and Ward, Franklin R. 1980. <b>Photo Series for Quantifying Natural Forest Residues in Common Vegetation Types of the Pacific Northwest.</b> USDA Forest Service, Gen. Tech. Rep. PNW-105. Pacific Northwest Forest and Range Exp. Stn., Portland, OR. 229 p.                           |
| 11   | Maxwell, Wayne G. 1982. <b>Photo Series for Quantifying Forest Residues in the Black Hills. Ponderosa Pine Type and Spruce Type.</b> USDA Forest Service, Rocky Mountain Region. Report Number A-89-6-82. 80 p.                                                                                           |
| 12   | Anonymous. <b>Photo Series for Quantifying Forest Residues in the Southwestern Region.</b> USDA Forest Service, Southwest Region, Albuquerque, NM. Date Unknown. 227 p.                                                                                                                                   |
| 17   | Ottmar, Roger D., R.E. Vihnanek, and S.C. Wright. 2000. <b>Stereo Photo Series for Quantifying Natural Fuels in Lodgepole Pine, Quaking Aspen, and Gambel Oak Types in the Rocky Mountains.</b>                                                                                                           |

| Code | Reference                                                                                                                                                                                                                                                                     |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 20   | USDA Forest Service Rocky Mountain Region. <b>Photo Series for Quantifying Forest Residues in the Black Hills: Ponderosa Pine Types and Spruce Type</b> . 1990. Report Number A-89-1-90. 78 p.                                                                                |
| 32   | Popp, John B.; Lundquist, John E. 2006. <b>Photo Series for Quantifying Forest Residues in Managed Lands in the Medicine Bow National Forest</b> . Gen. Tech. Rep. RMRS-GTR-172. Fort Collins, CO: U.S. Dept. of Ag., Forest Service, Rocky Mountain Research Station; 105 p. |

## FUEL PHOTO CODES

Table 24: Fuel Photo Codes for Reference 3

| Code |
|------|
| 1    |
| 1A   |
| 2    |
| 2A   |
| 3    |
| 4    |
| 6    |
| 10   |
| 11   |
| 12   |
| 19   |
| 20   |
| 20A  |
| 21   |
| 21A  |
| 22   |
| 22A  |

| Code |
|------|
| 23A  |
| 24A  |
| 25A  |
| 26   |
| 26A  |
| 27   |
| 34A  |
| 35   |
| 35A  |
| 36   |
| 37   |
| 38   |
| 39   |
| 40   |
| 41   |
| 44   |
| 44A  |
| 45   |
| 45A  |
| 53   |
| 54   |
| 55   |
| 57   |
| 58   |
| 59   |

| Code |
|------|
| 60   |
| 61   |
| 62   |
| 81   |
| 82   |
| 83   |
| 85   |
| 87   |
| 90   |
| 92   |
| 93   |
| 94   |
| 96   |
| 97   |
| 98   |

Table 25: Fuel Photo Codes for Reference 6

| Code   |
|--------|
| 1PP4CC |
| 2PP4CC |
| 1PP4PC |
| 2PP4PC |
| 3PP4PC |
| 4PP4PC |
| 5PP4PC |
| 1PP1TH |

| Code         |
|--------------|
| 2PP1TH       |
| 3PP1TH       |
| 4PP1TH       |
| 5PP1TH       |
| 6PP1TH       |
| 1PP&ASSOC4PC |
| 2PP&ASSOC4PC |
| 3PP&ASSOC4PC |
| 4PP&ASSOC4PC |
| 5PP&ASSOC4PC |
| 6PP&ASSOC4PC |
| 7PP&ASSOC4PC |
| 8PP&ASSOC4PC |
| 1LP3PC       |
| 2LP3PC       |
| 3LP3PC       |
| 4LP3PC       |
| 5LP3P        |

Table 26: Fuel Photo Codes for Reference 8

| Code   |
|--------|
| 1BR    |
| 1DF2   |
| 1DF3   |
| 1DF4   |
| 1DFHD3 |

| Code       |
|------------|
| 1DFHD4     |
| 1GR        |
| 1HD2       |
| 1JU2       |
| 1LP1       |
| 1LP2       |
| 1LP3       |
| 1MC2       |
| 1MC3       |
| 1MC4       |
| 1PP&ASSOC3 |
| 1PP&ASSOC4 |
| 1PP1       |
| 1PP2       |
| 1PP3       |
| 1PP4       |
| 1SA1       |
| 1SA2       |
| 1SA3       |
| 1SA4       |
| 2BR        |
| 2DF2       |
| 2DF3       |
| 2DF4       |
| 2DFHD3     |

| Code       |
|------------|
| 2DFHD4     |
| 2GR        |
| 2HD2       |
| 2JU2       |
| 2LP1       |
| 2LP2       |
| 2LP3       |
| 2MC2       |
| 2MC3       |
| 2MC4       |
| 2PP&ASSOC3 |
| 2PP&ASSOC4 |
| 2PP1       |
| 2PP2       |
| 2PP3       |
| 2PP4       |
| 2SA1       |
| 2SA2       |
| 2SA3       |
| 2SA4       |
| 3DFHD3     |
| 3DFHD4     |
| 3LP1       |
| 3LP2       |
| 3LP3       |

| Code       |
|------------|
| 3MC2       |
| 3MC3       |
| 3PP&ASSOC3 |
| 3PP&ASSOC4 |
| 3PP1       |
| 3PP2       |
| 3PP3       |
| 3PP4       |
| 3SA1       |
| 3SA3       |
| 4DF4       |
| 4DFHD4     |
| 4LP2       |
| 4PP&ASSOC3 |
| 4PP2       |
| 4PP3       |
| 4PP4       |
| 4DF4       |
| 5DFHD4     |
| 5PP&ASSOC3 |
| 5PP3       |
| 5PP4       |
| 6DF4       |
| 6PP3       |
| 6PP4       |

| Code |
|------|
| 7DF4 |
| 7PP3 |
| 7PP4 |
| 8PP3 |
| 8PP4 |

Table 27: Fuel Photo Codes for Reference 11

| Code     |
|----------|
| 1PP1     |
| 1PP1PPC  |
| 1PP1TH   |
| 1PP2     |
| 1PP3     |
| 1PP3CC   |
| 1PP3PC   |
| 1PPSP3PC |
| 1SP3PC   |
| 2PP1TH   |
| 2PP2     |
| 2PP2PC   |
| 2PP3PC   |
| 2PPSP3PC |
| 2SP3PC   |
| 3PP1TH   |
| 3PP2PC   |
| 3PP3PC   |

| Code     |
|----------|
| 3PPSP3PC |
| 4PP1TH   |
| 4PP2PC   |
| 5PP1TH   |
| 5PP2PC   |
| 6PP1TH   |
| 7PP1TH   |

Table 28: Fuel Photo Codes for Reference 12

| Code          |
|---------------|
| 1AZPPSPPRE01  |
| 1AZPPSPPRE02  |
| 1AZPPSPPRE03  |
| 1AZPPSPPRE04  |
| 1JU2          |
| 1MC2          |
| 1MC3          |
| 1PP&ASSOC3    |
| 1PP&ASSOC4    |
| 1PP1          |
| 1PP1(BH)      |
| 1PP1TH        |
| 1PP1TH(BH)    |
| 1PP2          |
| 1PP2(BH)      |
| 1PP2(PNW-105) |

| Code          |
|---------------|
| 1PP2PC        |
| 1PP3          |
| 1PP3(BH)      |
| 1PP3(PNW-105) |
| 1PP3CC        |
| 1PP3PC        |
| 1PP4          |
| 1PP4PC        |
| 1PP4(PNW-105) |
| 1PPSPEPC      |
| 1SP3PC        |
| 2JU2          |
| 2MC2          |
| 2MC3          |
| 2PP&ASSOC3    |
| 2PP&ASSOC4    |
| 2PP1          |
| 2PP1TH        |
| 2PP1TH(BH)    |
| 2PP2          |
| 2PP2(BH)      |
| 2PP2(PNW-105) |
| 2PP2PC        |
| 2PP3CC        |
| 2PP3PC        |

| Code          |
|---------------|
| 2PP3          |
| 2PP3(PNW-105) |
| 2PP4          |
| 2PP4PC        |
| 2PP4(PNW-105) |
| 2PPSP3PC      |
| 2SP3PC        |
| 3MC2          |
| 3MC3          |
| 3PP&ASSOC3    |
| 3PP&ASSOC4    |
| 3PP1          |
| 3PP1TH        |
| 3PP2          |
| 3PP2(PNW-105) |
| 3PP2PC        |
| 3PP3PC        |
| 3PP3          |
| 3PP3(PNW-105) |
| 3PP4          |
| 3PP4PC        |
| 3PP4(PNW-105) |
| 3PPSP3PC      |
| 3WF2          |
| 3WF3          |

| Code          |
|---------------|
| 4PP&ASSOC3    |
| 4PP1TH        |
| 4PP1TH(BH)    |
| 4PP2          |
| 4PP2(PNW-105) |
| 4PP2PC        |
| 4PP3          |
| 4PP3(PNW-105) |
| 4PP4          |
| 4PP4PC        |
| 4WF3          |
| 5PP&ASSOC3    |
| 5PP1TH        |
| 5PP1TH(BH)    |
| 5PP2PC        |
| 5PP3          |
| 5PP4PC        |
| 6PP1TH        |
| 6PP1TH(BH)    |
| 6PP3          |
| 7PP1TH        |
| 7PP1TH(BH)    |
| 7PP3          |
| 8PP3          |

Table 29: Fuel Photo Codes for Reference 17

| Code |
|------|
| GO01 |
| GO02 |
| GO03 |
| GO04 |
| GO05 |
| GO06 |
| GO07 |
| GO08 |
| GO09 |
| LP01 |
| LP02 |
| LP03 |
| LP03 |
| LP04 |
| LP05 |
| LP06 |
| LP07 |
| LP08 |
| LP09 |
| LP10 |
| LP11 |
| LP12 |
| LP13 |
| QA01 |

| Code |
|------|
| QA02 |
| QA03 |
| QA04 |
| QA05 |
| QA06 |
| QA07 |
| QA08 |
| QA09 |
| QA10 |
| QA11 |
| QA12 |
| QA13 |

Table 30: Fuel Photo Codes for Reference 20

| Code     |
|----------|
| 1PP1     |
| 1PP1TH   |
| 1PP2     |
| 1PP2PC   |
| 1PP3     |
| 1PP3CC   |
| 1PP3PC   |
| 1PPSP3PC |
| 1SP3PC   |
| 2PP1TH   |
| 2PP2     |

| Code     |
|----------|
| 2PP2PC   |
| 2PP3CC   |
| 2PP3PC   |
| 2PPSP3PC |
| 2SP3PC   |
| 3PP1TH   |
| 3PP2PC   |
| 3PP3PC   |
| 3PPSP3PC |
| 4PP1TH   |
| 4PP2PC   |
| 5PP1TH   |
| 5PP2PC   |
| 6PP1TH   |
| 7PP1TH   |

Table 31: Fuel Photo Codes for Reference 32

| Code |
|------|
| 1    |
| 2    |
| 12   |
| 13   |
| 15   |
| 19   |
| 21   |
| 22   |

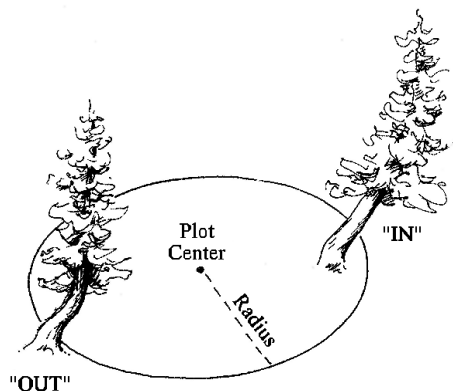
| Code |
|------|
| 28   |
| 31   |
| 41   |
| 45   |
| 48   |
| 49   |
| 54   |
| 55   |
| 56   |
| 58   |
| 59   |
| 61   |
| 63   |
| 64   |
| 67   |
| 71   |
| 73   |
| 74   |
| 76   |
| 78   |
| 79   |
| 83   |
| 85   |
| 89   |
| 91   |

| Code |
|------|
| 92   |
| 93   |
| 95   |
| 97   |
| 100  |
| 102  |

## APPENDIX I: FIXED RADIUS PLOT

A fixed radius plot is used to sample trees that are less than the specified breakpoint diameter. These sample trees are determined to be “in” or “out” at ground line. If the measured distance from plot center to the central axis of the tree at ground line is equal to or less than the fixed plot radius the tree is tallied as a sample tree. If this distance is greater than the fixed plot radius, the tree is not tallied.

Figure 1: Trees “in” and “out” of fixed radius plot



On level ground, the fixed plot radius is determined by holding the measuring tape or pole in a horizontal position from plot center to the central axis of the sample tree. On slopes greater than 9 percent, if a measuring tape or pole cannot be horizontally from plot center to the central axis of the sample tree, the fixed plot radius is corrected for the slope percent by using one of the following methods.

### METHOD 1

Correct the fixed plot radius for slope percent using the “Circular Plot Radii Corrected for Slope” table and then measuring distances parallel to the ground line. This method always results in a circular plot on the slope. Example – 1/300 acre fixed plot on 50 percent slope. Corrected fixed plot radius is 7.2 feet.

Figure 2: Correcting the fixed plot radius for slope percent

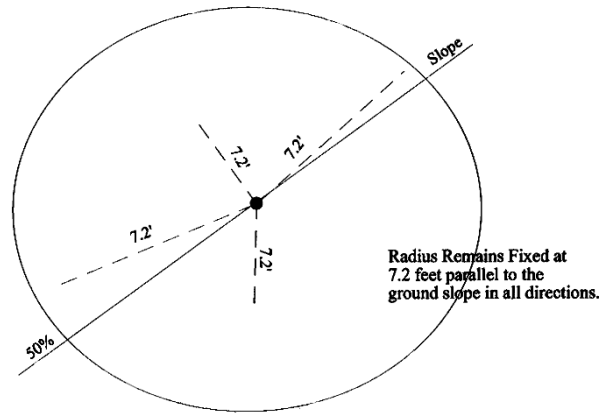


Table 32: Circular Plot Radii Corrected for Slope; plot size in acres

| Slope % | 1 / 300 | 1 / 100 | 1 / 50 | 1 / 20 | 1 / 10 | 1 / 5 |
|---------|---------|---------|--------|--------|--------|-------|
| 0-9     | 6.8     | 11.8    | 16.7   | 26.3   | 37.2   | 52.7  |
| 10-17   | 6.8     | 11.8    | 16.7   | 26.5   | 37.4   | 52.9  |
| 18-22   | 6.9     | 11.9    | 16.8   | 26.6   | 37.6   | 53.2  |
| 23-26   | 6.9     | 12.0    | 16.9   | 26.7   | 37.8   | 53.4  |
| 27-30   | 6.9     | 12.0    | 17.0   | 26.9   | 38.0   | 53.7  |
| 31-33   | 7.0     | 12.1    | 17.1   | 27.0   | 38.2   | 54.0  |
| 34-36   | 7.0     | 12.1    | 17.1   | 27.1   | 38.3   | 54.2  |
| 37-39   | 7.0     | 12.2    | 17.2   | 27.2   | 38.5   | 54.5  |
| 40-42   | 7.1     | 12.2    | 17.3   | 27.4   | 38.7   | 54.7  |
| 43-44   | 7.1     | 12.3    | 17.4   | 27.5   | 38.9   | 55.0  |
| 45-47   | 7.1     | 12.3    | 17.5   | 27.6   | 39.1   | 55.2  |
| 48-49   | 7.2     | 12.4    | 17.5   | 27.7   | 39.2   | 55.5  |
| 50-51   | 7.2     | 12.5    | 17.6   | 27.9   | 39.4   | 55.7  |
| 52-53   | 7.2     | 12.5    | 17.7   | 28.0   | 39.6   | 56.0  |
| 54-55   | 7.3     | 12.6    | 17.8   | 28.1   | 39.8   | 56.2  |
| 56-57   | 7.3     | 12.6    | 17.9   | 28.2   | 39.9   | 56.5  |

| <b>Slope %</b> | <b>1 / 300</b> | <b>1 / 100</b> | <b>1 / 50</b> | <b>1 / 20</b> | <b>1 / 10</b> | <b>1 / 5</b> |
|----------------|----------------|----------------|---------------|---------------|---------------|--------------|
| 58-59          | 7.3            | 12.7           | 17.9          | 28.4          | 40.1          | 56.7         |
| 60-61          | 7.4            | 12.7           | 18.0          | 28.5          | 40.3          | 57.0         |
| 62-63          | 7.4            | 12.8           | 18.1          | 28.6          | 40.4          | 57.2         |
| 64-65          | 7.4            | 12.8           | 18.2          | 28.7          | 40.6          | 57.4         |
| 66-67          | 7.4            | 12.9           | 18.2          | 28.8          | 40.8          | 57.7         |
| 68-69          | 7.5            | 13.0           | 18.3          | 29.0          | 41.0          | 57.9         |
| 70             | 7.5            | 13.0           | 18.4          | 29.1          | 41.1          | 58.2         |
| 71-72          | 7.5            | 13.1           | 18.5          | 29.2          | 41.3          | 58.4         |
| 73-74          | 7.6            | 13.1           | 18.5          | 29.3          | 41.5          | 58.6         |
| 75             | 7.6            | 13.2           | 18.6          | 29.4          | 41.6          | 58.7         |
| 76-77          | 7.6            | 13.2           | 18.7          | 29.6          | 41.8          | 59.1         |
| 78-79          | 7.7            | 13.3           | 18.8          | 29.7          | 42.0          | 59.3         |
| 80             | 7.7            | 13.3           | 18.8          | 29.8          | 42.1          | 59.6         |
| 81-82          | 7.7            | 13.4           | 18.9          | 29.9          | 42.3          | 59.8         |
| 83             | 7.8            | 13.4           | 19.0          | 30.0          | 42.5          | 60.0         |
| 84-85          | 7.8            | 13.5           | 19.1          | 30.1          | 42.6          | 60.3         |
| 86             | 7.8            | 13.5           | 19.1          | 30.3          | 42.8          | 60.5         |
| 87-88          | 7.8            | 13.6           | 19.2          | 30.4          | 42.9          | 60.7         |
| 89             | 7.9            | 13.6           | 19.3          | 30.5          | 43.1          | 61.0         |
| 90-91          | 7.9            | 13.7           | 19.3          | 30.6          | 43.3          | 61.2         |
| 92             | 7.9            | 13.7           | 19.4          | 30.7          | 43.4          | 61.4         |
| 93-94          | 8.0            | 13.8           | 19.5          | 30.8          | 43.6          | 61.6         |
| 95             | 8.0            | 13.8           | 19.6          | 30.9          | 43.7          | 61.9         |
| 96-97          | 8.0            | 13.9           | 19.6          | 31.0          | 43.9          | 62.1         |
| 98             | 8.0            | 13.9           | 19.7          | 31.2          | 44.1          | 62.3         |

| Slope % | 1 / 300 | 1 / 100 | 1 / 50 | 1 / 20 | 1 / 10 | 1 / 5 |
|---------|---------|---------|--------|--------|--------|-------|
| 99-100  | 8.1     | 14.0    | 19.8   | 31.3   | 44.2   | 62.5  |
| 101     | 8.1     | 14.0    | 19.8   | 31.4   | 44.4   | 62.8  |
| 102     | 8.1     | 14.1    | 19.9   | 31.5   | 44.5   | 63.0  |
| 103-104 | 8.2     | 14.1    | 20.0   | 31.6   | 44.7   | 63.2  |
| 105     | 8.2     | 14.2    | 20.1   | 31.7   | 44.8   | 63.4  |
| 106-107 | 8.2     | 14.2    | 20.1   | 31.8   | 45.0   | 63.6  |
| 108     | 8.2     | 14.3    | 20.2   | 31.9   | 45.1   | 63.8  |
| 109     | 8.3     | 14.3    | 20.3   | 32.0   | 45.3   | 64.1  |
| 110-111 | 8.3     | 14.4    | 20.3   | 32.1   | 45.5   | 64.3  |
| 112     | 8.3     | 14.4    | 20.4   | 32.2   | 45.6   | 64.5  |
| 113     | 8.4     | 14.5    | 20.5   | 32.4   | 45.8   | 64.7  |
| 114-115 | 8.4     | 14.5    | 20.5   | 32.5   | 45.9   | 64.9  |
| 116     | 8.4     | 14.6    | 20.6   | 32.6   | 46.1   | 65.1  |
| 117     | 8.4     | 14.6    | 20.7   | 32.7   | 46.2   | 65.3  |
| 118-119 | 8.5     | 14.7    | 20.7   | 32.8   | 46.4   | 65.6  |
| 120     | 8.5     | 14.7    | 20.8   | 32.9   | 46.5   | 65.8  |
| 121     | 8.5     | 14.8    | 20.9   | 33.0   | 46.7   | 66.0  |
| 122     | 8.5     | 14.8    | 20.9   | 33.1   | 46.8   | 66.2  |
| 123-124 | 8.6     | 14.8    | 21.0   | 33.2   | 47.0   | 66.4  |
| 125     | 8.6     | 14.9    | 21.1   | 33.3   | 47.1   | 66.6  |
| 130     | 8.7     | 15.1    | 21.3   | 33.7   | 47.7   | 67.4  |
| 135     | 8.8     | 15.3    | 21.6   | 34.1   | 48.3   | 68.3  |
| 140     | 8.9     | 15.4    | 21.8   | 34.5   | 48.8   | 69.1  |
| 145     | 9.0     | 15.6    | 22.1   | 34.9   | 49.4   | 69.9  |
| 150     | 9.1     | 15.8    | 22.3   | 35.3   | 50.0   | 70.0  |

## METHOD 2

The slope limiting distance to borderline trees by using the “Slope Correction Table” (the slope being corrected is the slope from plot center to the tree, not the overall plot slope). Measure the distance parallel to the ground line to the borderline tree. This method always results in an oval on the slope. Following is a list of fixed plot sizes and the specific radius for each.

Table 33: Method 2 plot size/radius slope

| Plot Size | Plot Radius |
|-----------|-------------|
| 1/1000    | 3.7 feet    |
| 1/500     | 5.3 feet    |
| 1/400     | 5.9 feet    |
| 1/300     | 6.8 feet    |
| 1/250     | 7.4 feet    |
| 1/200     | 8.3 feet    |
| 1/150     | 9.6 feet    |
| 1/100     | 11.8 feet   |
| 1/50      | 16.7 feet   |
| 1/20      | 26.3 feet   |
| 1/10      | 37.2 feet   |
| 1/5       | 52.7 feet   |
| 1/4       | 58.9 feet   |
| 1/3       | 68.0 feet   |
| 1/2       | 83.3 feet   |
| 1         | 117.8 feet  |

To determine the slope limiting distance, multiply the plot radius for the appropriate plot size by the appropriate slope correction factor.

### Example 1

1/300 acre fixed plot with a borderline tree on a 45 percent slope. A 1/300-acre plot equals a 6.8-foot radius and the slope correction factor for a 45 percent slope is 1.10.  $6.8 \times 1.10 = 7.48$ ; thus, a tree on a 1/300 acre fixed plot at a 45 percent slope can be 7.5 feet from plot center.

## Example 2

The same plot has another borderline tree on a 25 percent slope. The slope correction factor for a 25 percent slope is 1.03.  $6.8 \times 1.03 = 7.0$ ; thus, a tree on a 1/300 acre fixed plot at a 25 percent slope can be 7.0 feet from plot center.

Figure 3: Plot size radius slope

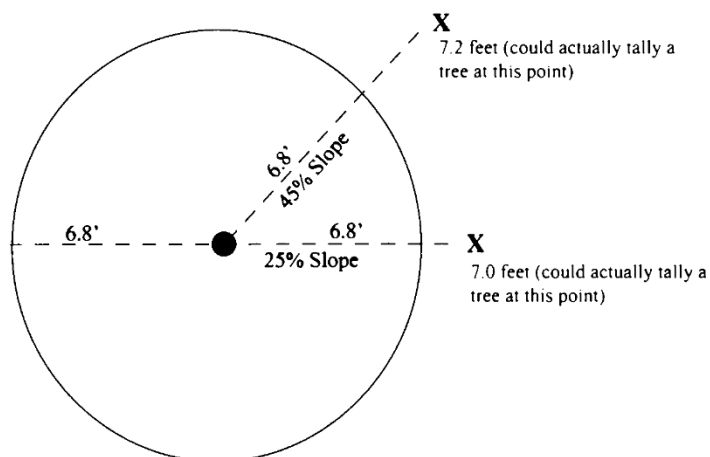


Table 34: Slope Correction Table

| Percent of Slope | Degree of Slope | Correction Factor |
|------------------|-----------------|-------------------|
| 0 to 9           | 0-6             | 1.00              |
| 10 to 17         | 7-10            | 1.01              |
| 18 to 22         | 11-12           | 1.02              |
| 23 to 26         | 13-14           | 1.03              |
| 27 to 30         | 15-17           | 1.04              |
| 31 to 33         | 18              | 1.05              |
| 34 to 36         | 19-20           | 1.06              |
| 37 to 39         | 21              | 1.07              |
| 40 to 42         | 22              | 1.08              |
| 43 to 44         | 23              | 1.09              |
| 45 to 47         | 24              | 1.10              |
| 48 to 49         | 25-26           | 1.11              |

| Percent of Slope | Degree of Slope | Correction Factor |
|------------------|-----------------|-------------------|
| 50 to 51         | 27              | 1.12              |
| 52 to 53         | 28              | 1.13              |
| 54 to 55         | 29              | 1.14              |
| 56 to 57         | 29              | 1.15              |
| 58 to 59         | 30              | 1.16              |
| 60 to 61         | 31              | 1.17              |
| 62 to 63         | 32              | 1.18              |
| 64 to 65         | 33              | 1.19              |
| 66 to 67         | 34              | 1.20              |
| 68 to 69         | 34              | 1.21              |
| 70               | 35              | 1.22              |
| 71 to 72         | 36              | 1.23              |
| 73 to 74         | 37              | 1.24              |
| 75               | 37              | 1.25              |
| 76 to 77         | 38              | 1.26              |
| 78 to 79         | 38              | 1.27              |
| 80               | 39              | 1.28              |
| 81 to 82         | 39              | 1.29              |
| 83               | 40              | 1.30              |
| 84 to 85         | 40              | 1.31              |
| 86               | 41              | 1.32              |
| 87 to 88         | 41              | 1.33              |
| 89               | 42              | 1.34              |
| 90 to 91         | 42              | 1.35              |
| 92               | 43              | 1.36              |

| Percent of Slope | Degree of Slope | Correction Factor |
|------------------|-----------------|-------------------|
| 93 to 94         | 43              | 1.37              |
| 95               | 44              | 1.38              |
| 96 to 97         | 44              | 1.39              |
| 98               | 44              | 1.40              |
| 99 to 100        | 45              | 1.41              |
| 101              | 45              | 1.42              |
| 102              | 46              | 1.43              |
| 103 to 104       | 46              | 1.44              |
| 105              | 46              | 1.45              |
| 106 to 107       | 47              | 1.46              |
| 108              | 47              | 1.47              |
| 109              | 47              | 1.48              |
| 110 to 111       | 48              | 1.49              |
| 112              | 48              | 1.50              |
| 113              | 48              | 1.51              |
| 114 to 115       | 49              | 1.52              |
| 116              | 49              | 1.53              |
| 117              | 49              | 1.54              |
| 118 to 119       | 50              | 1.55              |
| 120              | 50              | 1.56              |
| 121              | 50              | 1.57              |
| 122              | 51              | 1.58              |
| 123 to 124       | 51              | 1.59              |
| 125              | 51              | 1.60              |
| 126              | 52              | 1.61              |

| Percent of Slope | Degree of Slope | Correction Factor |
|------------------|-----------------|-------------------|
| 127 to 128       | 52              | 1.62              |
| 129              | 52              | 1.63              |
| 130              | 52              | 1.64              |
| 131              | 53              | 1.65              |
| 132 to 133       | 53              | 1.66              |
| 134              | 53              | 1.67              |
| 135              | 53              | 1.68              |
| 136              | 54              | 1.69              |
| 137 to 138       | 54              | 1.70              |
| 139              | 54              | 1.71              |
| 140              | 54              | 1.72              |
| 141              | 55              | 1.73              |
| 142 to 143       | 55              | 1.74              |
| 144              | 55              | 1.75              |
| 145              | 55              | 1.76              |
| 146              | 56              | 1.77              |
| 147              | 56              | 1.78              |
| 148 to 149       | 56              | 1.79              |
| 150              | 56              | 1.80              |

## APPENDIX J: VARIABLE RADIUS PLOT

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### INTRODUCTION

In or our determination is made at the DBH or DRC of each tree. For information on the theory and mathematics of variable plot cruising, and formulas for determining the plot radius factor for any given BAF, the reader is referred to **Log Scaling and Timber Cruising**, 1973, J.R. Dilworth. OSU Book Stores, Inc., Corvallis, Oregon.

The experienced field person using a wedge prism, angle gauge, or relaskop can quickly tell in which case trees are “in” or “out” on the variable plot. However, there are certain trees that are questionable (borderline) for tally because they are located at the outer limits of the variable plot radius. This narrative deals with the procedures needed to ascertain if these borderline trees should be tallied: the mechanics of using plot radius tables in the field, the associated measurements, and corrections of variable plot radii for slope.

## MEASUREMENT OF BORDERLINE TREES TO DETERMINE “IN OR OUT” STATUS

In variable plot sampling, the plot radius varies according to the DBH or DRC of each tree. To determine whether a tree is to be sampled requires measurement of its DBH or DRC and its distance from plot center. [Table 35](#), [Table 36](#), [Table 37](#), [Table 38](#), [Table 39](#), [Table 40](#), and [Table 41](#) display limiting distances (the maximum horizontal distance from plot center to the face of the tree at breast height for a tree to be considered “in”) for various tree diameters and commonly used basal area factors (BAF).

Once the DBH or DRC of the borderline tree is taken, the limiting distance is found by entering the table appropriate for the specified BAF. This limiting distance is then compared to the horizontal distance between plot center and the nearest **face of the tree** at breast height. If the measured horizontal distance from plot center is *less than or equal to* the limiting distance from the table, the tree in question is “in” and is tallied as a sample tree. However, if measured horizontal distance from plot center is greater than the limiting distance, then the tree in question is “out” and is not tallied.

1. Measure the diameter to the nearest tenth of an inch
2. Measure the percent slope from the face of the tree at DBH or DRC to plot center

**If the slope is less than ten percent** look up limiting distance in Tables 1 through 5 or use the BAF correction factors listed in Table 41 below.

Table 35: BAF correction factors

| Type                | Correction Factors |       |       |       |       |       |       |       |       |
|---------------------|--------------------|-------|-------|-------|-------|-------|-------|-------|-------|
| BAF                 | 10                 | 15    | 20    | 25    | 30    | 35    | 40    | 50    | 60    |
| Plot Radius Factor* | 27.08              | 2.203 | 1.902 | 1.697 | 1.546 | 1.428 | 1.333 | 1.188 | 1.081 |

*\* This is a corrected plot radius factor, corrected for determining the limiting distance to the face of the tree. A standard plot radius factor was used to determine limiting distance to the center of a tree, and is computed by  $8.696/\text{SQR}(\text{BAF})$ . A corrected PRF subtracts  $1/24$  (0.041666) from the standard plot radius factor.*

### Example:

BAF = 40; DBH = 20.9 inches; Slope = 5%

Limiting Distance = Plot Radius Factor \* DBH,  $1.333 * 20.9 = 27.9$  feet

3. **If the slope is greater than ten percent**, first determine the slope correction factor. The slope correction factor and the slope corrected plot radius factor can be obtained by using the formula below or by referring to [Table 40](#). Then, multiply the slope correction factor by the plot radius factor identified in step #3 above to obtain

the slope corrected plot radius factor. Finally, multiply the slope corrected plot radius factor by the diameter to obtain the limiting distance.

**Example:**

BAF = 40; DBH = 20.9 inches; Slope = 20%

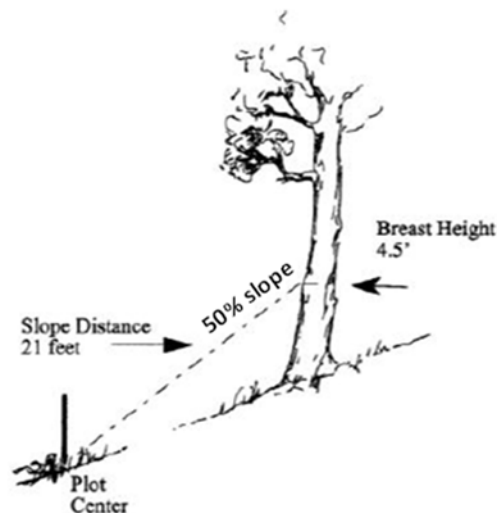
Slope Correction Factor =  $\text{SQR}(1 + (\text{slope}/100)^2) = \text{SQR}(1 + (20/100)^2) = 1.0198$

Slope Corrected Plot Radius Factor = Slope Correction Factor \* Plot Radius Factor =  $1.0198 * 1.333 = 1.359$

Limiting Distance = Slope Corrected Plot Radius Factor \* DBH =  $1.359 * 20.9 = 28.4$  feet

4. Measure the distance from plot center to the face of the tree, nearest plot center, at DBH or DRC. Both the slope measurement and distance measurement must be taken at plot center. If the measured distance is less than the limiting distance, the tree is "in."

Figure 4: Determining limiting distance on a slope



**Example:**

BAF = 40; DBH = 15.0; Slope = 50%; Slope Distance = 21.0 feet

Referring to [Table 40](#), the Combined Factor for a slope of 50% with a 4- BAF is 1.490.

Limiting Distance = DBH \* Combined Factor =  $15.0 * 1.490 = 22.35$

Since 21.0 is less than or equal to the limiting distance of 22.35 feet, the tree is "in" and is tallied as a sample tree.

## Measuring “In” or “Out” Down Trees

Down trees are “in” or “out” of the variable plot radius based on where the DBH or DRC now lies, not on where the tree once stood. The distance measurement is taken from plot center to the nearest face of the tree at breast height.

Table 36: BAF 10 Plot Radii in Feet and Tenths of Feet from Plot Center to Face of Tree at DBH for 0% Slope

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 5      | 13.5 | 13.8 | 14.1 | 14.4 | 14.6 | 14.9 | 15.2 | 15.4 | 15.7 | 16.0 |
| 6      | 16.2 | 16.5 | 16.8 | 17.1 | 17.3 | 17.6 | 17.9 | 18.1 | 18.4 | 18.7 |
| 7      | 19.0 | 19.2 | 19.5 | 19.8 | 20.0 | 20.3 | 20.6 | 20.9 | 21.1 | 21.4 |
| 8      | 21.7 | 21.9 | 22.2 | 22.5 | 22.7 | 23.0 | 23.3 | 23.6 | 23.8 | 24.1 |
| 9      | 24.4 | 24.6 | 24.9 | 25.2 | 25.5 | 25.7 | 26.0 | 26.3 | 26.5 | 26.8 |
| 10     | 27.1 | 27.4 | 27.6 | 27.9 | 28.2 | 28.4 | 28.7 | 29.0 | 29.2 | 29.5 |
| 11     | 29.8 | 30.1 | 30.3 | 30.6 | 30.9 | 31.1 | 31.4 | 31.7 | 32.0 | 32.2 |
| 12     | 32.5 | 32.8 | 38.5 | 38.7 | 39.0 | 39.3 | 39.5 | 39.8 | 40.1 | 40.3 |
| 13     | 35.2 | 35.5 | 35.7 | 36.0 | 36.3 | 36.6 | 36.8 | 37.1 | 37.4 | 37.6 |
| 14     | 37.9 | 38.2 | 38.5 | 38.7 | 39.0 | 39.3 | 39.5 | 39.8 | 40.1 | 40.3 |
| 15     | 40.6 | 40.9 | 41.2 | 41.4 | 41.7 | 42.0 | 42.2 | 42.5 | 42.8 | 43.1 |
| 16     | 43.3 | 43.6 | 43.9 | 44.1 | 44.4 | 44.7 | 45.0 | 45.2 | 45.5 | 45.8 |
| 17     | 46.0 | 46.3 | 46.6 | 46.8 | 47.1 | 47.4 | 47.7 | 47.9 | 48.2 | 48.5 |
| 18     | 48.7 | 49.0 | 49.3 | 49.6 | 49.8 | 50.1 | 50.4 | 50.6 | 50.9 | 51.2 |
| 19     | 51.5 | 51.7 | 52.0 | 52.3 | 52.5 | 52.8 | 53.1 | 53.3 | 53.6 | 53.9 |
| 20     | 54.2 | 54.4 | 54.7 | 55.0 | 55.2 | 55.5 | 55.8 | 56.1 | 56.3 | 56.6 |
| 21     | 56.9 | 57.1 | 57.4 | 57.7 | 58.0 | 58.2 | 58.5 | 58.8 | 59.0 | 59.3 |
| 22     | 59.6 | 57.1 | 57.4 | 57.7 | 58.0 | 58.2 | 58.5 | 58.8 | 59.0 | 59.3 |
| 23     | 62.3 | 62.6 | 62.8 | 63.1 | 63.4 | 63.6 | 63.9 | 64.2 | 64.5 | 64.7 |
| 24     | 65.0 | 65.3 | 65.5 | 65.8 | 66.1 | 66.3 | 66.6 | 66.9 | 67.2 | 67.4 |
| 25     | 67.7 | 68.0 | 68.2 | 63.1 | 63.4 | 63.6 | 63.9 | 64.2 | 64.5 | 64.7 |

| Inches | 0     | 0.1   | 0.2   | 0.3   | 0.4   | 0.5   | 0.6   | 0.7   | 0.8   | 0.9   |
|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 26     | 70.4  | 70.7  | 70.9  | 71.2  | 71.5  | 71.8  | 72.0  | 72.3  | 72.6  | 72.8  |
| 27     | 73.1  | 73.4  | 73.7  | 73.9  | 74.2  | 74.5  | 74.7  | 75.0  | 75.3  | 75.6  |
| 28     | 75.8  | 76.1  | 76.4  | 76.6  | 76.9  | 77.2  | 77.4  | 77.7  | 78.00 | 78.3  |
| 29     | 78.5  | 78.8  | 79.1  | 79.3  | 79.6  | 79.9  | 80.2  | 80.4  | 80.7  | 81.0  |
| 30     | 81.2  | 81.5  | 81.8  | 82.1  | 82.3  | 82.6  | 82.9  | 83.1  | 83.4  | 83.7  |
| 31     | 83.9  | 84.2  | 84.5  | 84.8  | 85.0  | 85.3  | 85.6  | 85.8  | 86.1  | 86.4  |
| 32     | 86.7  | 86.9  | 87.2  | 87.5  | 87.7  | 88.0  | 88.3  | 88.6  | 88.8  | 89.1  |
| 33     | 89.4  | 89.6  | 89.9  | 90.2  | 90.4  | 90.7  | 91.0  | 91.3  | 91.5  | 91.8  |
| 34     | 92.1  | 92.3  | 92.6  | 92.9  | 93.2  | 93.4  | 93.7  | 94.0  | 94.2  | 94.5  |
| 35     | 94.8  | 95.1  | 95.3  | 95.6  | 95.9  | 96.1  | 96.4  | 96.7  | 96.9  | 97.2  |
| 36     | 97.5  | 97.8  | 98.0  | 98.3  | 98.6  | 98.8  | 99.1  | 99.4  | 99.7  | 99.9  |
| 37     | 100.2 | 100.5 | 100.7 | 101.0 | 101.3 | 101.6 | 101.8 | 102.1 | 102.4 | 102.6 |
| 38     | 102.9 | 103.2 | 103.4 | 103.7 | 104.0 | 104.3 | 104.5 | 104.8 | 105.1 | 105.3 |
| 39     | 105.6 | 105.9 | 106.2 | 106.4 | 106.7 | 107.0 | 107.2 | 107.5 | 107.8 | 108.0 |
| 40     | 108.3 | 108.6 | 108.9 | 109.1 | 109.4 | 109.7 | 109.9 | 110.2 | 110.5 | 110.8 |
| 41     | 111.0 | 111.3 | 111.6 | 111.8 | 112.1 | 112.4 | 112.7 | 112.9 | 113.2 | 113.5 |
| 42     | 113.7 | 114.0 | 114.3 | 114.5 | 114.8 | 115.1 | 115.4 | 115.6 | 115.9 | 116.2 |
| 43     | 116.4 | 116.7 | 117.0 | 117.3 | 117.5 | 117.8 | 118.1 | 118.3 | 118.6 | 118.9 |
| 44     | 119.2 | 119.4 | 119.7 | 120.0 | 120.2 | 120.5 | 120.8 | 121.0 | 121.3 | 121.6 |
| 45     | 121.9 | 122.1 | 122.4 | 122.7 | 122.9 | 120.2 | 123.5 | 123.8 | 124.0 | 124.3 |
| 46     | 124.6 | 124.8 | 125.1 | 125.4 | 125.7 | 125.9 | 126.2 | 126.5 | 126.7 | 127.0 |
| 47     | 127.3 | 127.5 | 127.8 | 128.1 | 128.4 | 128.6 | 128.9 | 129.2 | 129.4 | 129.7 |
| 48     | 130.0 | 130.3 | 130.5 | 130.8 | 131.1 | 131.3 | 131.6 | 131.9 | 132.2 | 132.4 |
| 49     | 132.7 | 133.0 | 133.2 | 133.5 | 133.8 | 134.0 | 134.3 | 134.6 | 134.9 | 135.1 |
| 50     | 135.4 | 135.7 | 135.9 | 136.2 | 136.5 | 136.8 | 137.0 | 137.3 | 137.6 | 137.8 |

Prepared by multiplying the BAF 10 Plot Radius Factor 2.708 \* DBH. For example, if DBH = 14.3 inches, then 14.3 \* 2.708 = 38.

Table 37: BAF 20 Plot Radii in Feet and Tenths of Feet from Plot Center to Face of Tree at DBH for 0% Slope

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 5      | 9.5  | 9.7  | 9.9  | 10.1 | 10.3 | 10.5 | 10.7 | 10.8 | 11.0 | 11.2 |
| 6      | 11.4 | 11.6 | 11.8 | 12.0 | 12.2 | 12.4 | 12.6 | 12.8 | 12.9 | 13.1 |
| 7      | 13.3 | 13.5 | 13.7 | 13.9 | 14.1 | 14.3 | 14.5 | 14.7 | 14.8 | 15.0 |
| 8      | 15.2 | 15.4 | 15.6 | 15.8 | 16.0 | 16.2 | 16.4 | 16.6 | 16.8 | 16.9 |
| 9      | 17.1 | 17.3 | 17.5 | 17.7 | 17.9 | 18.1 | 18.3 | 18.5 | 18.6 | 18.8 |
| 10     | 19.0 | 19.2 | 19.4 | 19.6 | 19.8 | 20.0 | 20.2 | 20.4 | 20.6 | 20.7 |
| 11     | 20.9 | 21.1 | 21.3 | 21.5 | 21.7 | 21.9 | 22.1 | 22.3 | 22.5 | 22.6 |
| 12     | 22.8 | 23.0 | 23.2 | 23.4 | 23.6 | 23.8 | 24.0 | 24.2 | 24.4 | 24.5 |
| 13     | 24.7 | 24.9 | 25.1 | 25.3 | 25.5 | 25.7 | 25.9 | 26.1 | 26.3 | 26.5 |
| 14     | 26.6 | 26.8 | 27.0 | 27.2 | 27.4 | 27.6 | 27.8 | 28.0 | 28.2 | 28.4 |
| 15     | 28.5 | 28.7 | 28.9 | 29.1 | 29.3 | 29.5 | 29.7 | 29.9 | 30.1 | 30.3 |
| 16     | 30.4 | 30.6 | 30.8 | 31.0 | 31.2 | 31.4 | 31.6 | 31.8 | 32.0 | 32.2 |
| 17     | 32.4 | 32.5 | 32.7 | 32.9 | 33.1 | 33.3 | 33.5 | 33.7 | 33.9 | 34.1 |
| 18     | 34.3 | 34.4 | 34.6 | 34.8 | 35.0 | 35.2 | 35.4 | 35.6 | 35.8 | 36.0 |
| 19     | 36.2 | 36.3 | 36.5 | 36.7 | 36.9 | 37.1 | 37.3 | 37.5 | 37.7 | 37.9 |
| 20     | 38.1 | 38.3 | 38.4 | 38.6 | 38.8 | 39.0 | 39.2 | 39.4 | 39.6 | 39.8 |
| 21     | 40.0 | 40.2 | 40.3 | 40.5 | 40.7 | 40.9 | 41.1 | 41.3 | 41.5 | 41.7 |
| 22     | 41.9 | 42.1 | 42.2 | 42.4 | 42.6 | 42.8 | 43.0 | 43.2 | 43.4 | 43.6 |
| 23     | 43.8 | 44.0 | 44.1 | 44.3 | 44.5 | 44.7 | 44.9 | 45.1 | 45.3 | 45.5 |
| 24     | 45.7 | 45.9 | 46.1 | 46.2 | 46.4 | 46.6 | 46.8 | 47.0 | 47.2 | 47.4 |
| 25     | 47.6 | 47.8 | 48.0 | 48.1 | 48.3 | 48.5 | 48.7 | 48.9 | 49.1 | 49.3 |
| 26     | 49.5 | 49.7 | 49.9 | 50.0 | 50.2 | 50.4 | 50.6 | 50.8 | 51.0 | 51.2 |

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 27     | 51.4 | 51.6 | 51.8 | 52.0 | 52.1 | 52.3 | 52.5 | 52.7 | 52.9 | 53.1 |
| 28     | 53.3 | 53.5 | 53.7 | 53.9 | 54.0 | 54.2 | 54.4 | 54.6 | 54.8 | 55.0 |
| 29     | 55.2 | 55.4 | 55.6 | 55.8 | 55.9 | 56.1 | 56.3 | 56.5 | 56.7 | 56.9 |
| 30     | 57.1 | 57.3 | 57.5 | 57.7 | 57.9 | 58.0 | 58.2 | 58.4 | 58.6 | 58.8 |
| 31     | 59.0 | 59.2 | 59.4 | 59.6 | 59.8 | 59.9 | 60.1 | 60.3 | 60.5 | 60.7 |
| 32     | 60.9 | 61.1 | 61.3 | 61.5 | 61.7 | 61.8 | 62.0 | 62.2 | 62.4 | 62.6 |
| 33     | 62.8 | 63.0 | 63.2 | 63.4 | 63.6 | 63.8 | 63.9 | 64.1 | 64.3 | 64.5 |
| 34     | 64.7 | 64.9 | 65.1 | 65.3 | 65.5 | 65.7 | 65.8 | 6.0  | 66.2 | 66.4 |
| 35     | 66.6 | 66.8 | 67.0 | 67.2 | 67.4 | 67.6 | 67.7 | 67.9 | 68.1 | 68.3 |
| 36     | 68.5 | 68.7 | 68.9 | 69.1 | 69.3 | 69.5 | 69.6 | 69.8 | 70.0 | 70.2 |
| 37     | 70.4 | 70.6 | 70.8 | 71.0 | 71.2 | 71.4 | 71.6 | 71.7 | 71.9 | 72.1 |
| 38     | 72.3 | 72.5 | 72.7 | 72.9 | 73.1 | 73.3 | 73.5 | 73.6 | 73.8 | 74.0 |
| 39     | 74.2 | 74.4 | 74.6 | 74.8 | 75.0 | 75.2 | 75.4 | 75.5 | 75.7 | 75.9 |
| 40     | 76.1 | 76.3 | 76.5 | 76.7 | 76.9 | 77.1 | 77.3 | 77.5 | 77.6 | 77.8 |
| 41     | 78.0 | 78.2 | 78.4 | 78.6 | 78.8 | 79.0 | 79.2 | 79.4 | 79.5 | 79.7 |
| 42     | 79.9 | 80.1 | 80.3 | 80.5 | 80.7 | 80.9 | 81.1 | 81.3 | 81.4 | 81.6 |
| 43     | 81.8 | 82.0 | 82.2 | 82.4 | 82.6 | 82.8 | 83.0 | 83.2 | 83.4 | 83.5 |
| 44     | 83.7 | 83.9 | 84.1 | 84.3 | 84.5 | 84.7 | 84.9 | 85.1 | 85.3 | 85.4 |
| 45     | 85.6 | 85.8 | 86.0 | 86.2 | 86.4 | 86.6 | 86.8 | 87.0 | 87.2 | 87.3 |
| 46     | 87.5 | 87.7 | 87.9 | 88.1 | 88.3 | 88.5 | 88.7 | 88.9 | 89.1 | 89.3 |
| 47     | 89.4 | 89.6 | 89.8 | 90.0 | 90.2 | 90.4 | 90.6 | 90.8 | 91.0 | 91.2 |
| 48     | 91.3 | 91.5 | 91.7 | 91.9 | 92.1 | 92.3 | 92.5 | 92.7 | 92.9 | 93.1 |
| 49     | 93.2 | 93.4 | 93.6 | 93.8 | 94.0 | 94.2 | 94.4 | 94.6 | 94.8 | 95.0 |
| 50     | 95.2 | 95.3 | 95.5 | 95.7 | 95.9 | 96.1 | 96.3 | 96.5 | 96.7 | 96.9 |

*Prepared by multiplying the BAF 20 Plot Radius Factor 1.902 \* DBH. For example, if DBH = 14.3 inches, then 14.3 \* 1.903 = 27.*

Table 38: BAF 30 Plot Radii in Feet and Tenths of Feet from Plot Center to Face of Tree at DBH for 0% Slope

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9   |
|--------|------|------|------|------|------|------|------|------|------|-------|
| 5      | 7.7  | 7.9  | 8.0  | 8.2  | 8.3  | 8.5  | 8.7  | 8.8  | 9.0  | 9.1   |
| 6      | 9.3  | 9.4  | 9.6  | 9.7  | 9.9  | 10.0 | 10.2 | 10.4 | 10.5 | 10.7  |
| 7      | 10.8 | 11.0 | 11.1 | 11.3 | 11.4 | 11.6 | 11.7 | 11.9 | 12.1 | 12.2  |
| 8      | 12.4 | 12.5 | 12.7 | 12.8 | 13.0 | 13.1 | 13.3 | 13.5 | 13.6 | 13.8  |
| 9      | 13.9 | 14.1 | 14.2 | 14.4 | 14.5 | 14.7 | 14.8 | 15.0 | 15.2 | 15.3  |
| 10     | 15.5 | 15.6 | 15.8 | 15.9 | 16.1 | 16.2 | 16.4 | 16.5 | 16.7 | 16.9  |
| 11     | 17.0 | 17.2 | 17.3 | 17.5 | 17.6 | 17.8 | 17.9 | 18.1 | 18.2 | 18.4  |
| 12     | 18.6 | 18.7 | 18.9 | 19.0 | 19.2 | 19.3 | 19.5 | 19.6 | 19.8 | 19.9  |
| 13     | 20.1 | 20.3 | 20.4 | 20.6 | 20.7 | 20.9 | 21.0 | 21.2 | 21.3 | 21.5  |
| 14     | 21.6 | 21.8 | 22.0 | 22.1 | 22.3 | 22.4 | 22.6 | 22.7 | 22.9 | 23.0  |
| 15     | 23.2 | 23.3 | 23.5 | 23.7 | 23.8 | 24.0 | 24.1 | 24.3 | 24.4 | 24.6  |
| 16     | 24.7 | 24.9 | 25.0 | 25.2 | 25.4 | 25.5 | 25.7 | 25.8 | 26.0 | 26.1  |
| 17     | 26.3 | 26.4 | 26.6 | 26.7 | 26.9 | 27.1 | 27.2 | 27.4 | 27.5 | 27.7  |
| 18     | 27.8 | 28.0 | 28.1 | 28.3 | 28.4 | 28.6 | 28.8 | 28.9 | 29.1 | 29.2  |
| 19     | 29.4 | 29.5 | 29.7 | 29.8 | 30.0 | 30.1 | 30.3 | 30.5 | 30.6 | 30.8  |
| 20     | 30.9 | 31.1 | 31.2 | 31.4 | 31.5 | 31.7 | 31.8 | 32.0 | 32.2 | 32.3  |
| 21     | 32.5 | 32.6 | 32.8 | 32.9 | 33.1 | 33.2 | 33.4 | 33.5 | 33.7 | 33.9  |
| 22     | 34.0 | 34.2 | 34.3 | 34.5 | 34.6 | 34.8 | 34.9 | 35.1 | 35.2 | 35.4  |
| 23     | 35.6 | 35.7 | 35.9 | 36.0 | 36.2 | 36.3 | 36.5 | 36.6 | 36.8 | 36.9  |
| 24     | 37.1 | 37.3 | 37.4 | 37.6 | 37.7 | 37.9 | 38.0 | 38.2 | 38.3 | 38.5  |
| 25     | 38.7 | 38.8 | 39.0 | 39.1 | 39.3 | 39.4 | 39.6 | 39.7 | 39.9 | 40.00 |
| 26     | 40.2 | 40.4 | 40.5 | 40.7 | 40.8 | 41.0 | 41.1 | 41.3 | 41.4 | 41.6  |
| 27     | 41.7 | 41.9 | 42.1 | 42.2 | 42.4 | 42.5 | 42.7 | 42.8 | 43.0 | 43.1  |
| 28     | 43.3 | 43.4 | 43.6 | 43.8 | 43.9 | 44.1 | 44.2 | 44.4 | 44.5 | 44.7  |

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 29     | 44.8 | 45.0 | 45.1 | 45.3 | 45.5 | 45.6 | 45.8 | 45.9 | 46.1 | 46.2 |
| 30     | 46.4 | 46.5 | 46.7 | 46.8 | 47.0 | 47.2 | 47.3 | 47.5 | 47.6 | 47.8 |
| 31     | 47.9 | 48.1 | 48.2 | 48.4 | 48.5 | 48.7 | 48.9 | 49.0 | 49.2 | 49.3 |
| 32     | 49.5 | 49.6 | 49.8 | 49.9 | 50.1 | 50.2 | 50.4 | 50.6 | 50.7 | 50.9 |
| 33     | 51.0 | 51.2 | 51.3 | 51.5 | 51.6 | 51.8 | 51.9 | 52.1 | 52.3 | 52.4 |
| 34     | 52.6 | 52.7 | 52.9 | 53.0 | 53.2 | 53.3 | 53.5 | 53.6 | 53.8 | 54.0 |
| 35     | 54.1 | 54.3 | 54.4 | 54.6 | 54.7 | 54.9 | 55.0 | 55.2 | 55.3 | 55.5 |
| 36     | 55.7 | 55.8 | 56.0 | 56.1 | 56.3 | 56.4 | 56.6 | 56.7 | 56.9 | 57.0 |
| 37     | 57.2 | 57.4 | 57.5 | 57.7 | 57.8 | 58.0 | 58.1 | 58.3 | 58.4 | 58.6 |
| 38     | 58.7 | 58.9 | 59.1 | 59.2 | 59.4 | 59.5 | 59.7 | 59.8 | 60.0 | 60.1 |
| 39     | 60.3 | 60.4 | 60.6 | 60.8 | 60.9 | 61.1 | 61.2 | 61.4 | 61.5 | 61.7 |
| 40     | 61.8 | 62.0 | 62.1 | 62.3 | 62.5 | 62.6 | 62.8 | 62.9 | 63.1 | 63.2 |
| 41     | 63.4 | 63.5 | 63.7 | 63.8 | 64.0 | 64.2 | 64.3 | 64.5 | 64.3 | 64.8 |
| 42     | 64.9 | 65.1 | 65.2 | 65.4 | 65.6 | 65.7 | 65.9 | 66.0 | 66.2 | 66.3 |
| 43     | 66.5 | 66.6 | 66.8 | 66.9 | 67.1 | 67.3 | 67.4 | 67.6 | 67.7 | 67.9 |
| 44     | 68.0 | 68.2 | 68.3 | 68.5 | 68.6 | 68.8 | 69.0 | 69.1 | 69.3 | 69.4 |
| 45     | 69.6 | 69.7 | 69.9 | 70.0 | 70.2 | 70.3 | 70.5 | 70.7 | 70.8 | 71.0 |
| 46     | 71.1 | 71.3 | 71.4 | 71.6 | 71.7 | 71.9 | 72.0 | 72.2 | 72.4 | 72.5 |
| 47     | 72.7 | 72.8 | 73.0 | 73.1 | 73.3 | 73.4 | 73.6 | 73.7 | 73.9 | 74.1 |
| 48     | 74.2 | 74.4 | 74.5 | 74.7 | 74.8 | 75.0 | 75.1 | 75.3 | 75.4 | 75.6 |
| 49     | 75.8 | 75.9 | 76.1 | 76.2 | 76.4 | 76.5 | 76.7 | 76.8 | 77.0 | 77.1 |
| 50     | 77.3 | 77.5 | 77.6 | 77.8 | 77.9 | 78.1 | 78.2 | 78.4 | 78.5 | 78.7 |

Prepared by multiplying the BAF 30 Plot Radius Factor 1.546 \* DBH. For example, if DBH = 14.3 inches, then  $14.3 * 1.546 = 22$ .

Table 39: BAF 40 Plot Radii in Feet and Tenths of Feet from Plot Center to Face of Tree at DBH for 0% Slope

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 5      | 6.7  | 6.8  | 6.9  | 7.1  | 7.2  | 7.3  | 7.5  | 7.6  | 7.7  | 7.9  |
| 6      | 8.0  | 8.1  | 8.3  | 8.4  | 8.5  | 8.7  | 8.8  | 8.9  | 9.1  | 9.2  |
| 7      | 9.3  | 9.5  | 9.6  | 9.7  | 9.9  | 10.0 | 10.1 | 10.3 | 10.4 | 10.5 |
| 8      | 10.7 | 10.8 | 10.9 | 11.1 | 11.2 | 11.3 | 11.5 | 11.6 | 11.7 | 11.9 |
| 9      | 12.0 | 12.1 | 12.3 | 12.4 | 12.5 | 12.7 | 12.8 | 12.9 | 13.1 | 13.2 |
| 10     | 13.3 | 13.5 | 13.6 | 13.7 | 13.9 | 14.0 | 14.1 | 14.3 | 14.4 | 14.5 |
| 11     | 14.7 | 14.8 | 14.9 | 15.1 | 15.2 | 15.3 | 15.5 | 15.6 | 15.7 | 15.9 |
| 12     | 16.0 | 16.1 | 16.3 | 16.4 | 16.5 | 16.7 | 16.8 | 16.9 | 17.1 | 17.2 |
| 13     | 17.3 | 17.5 | 17.6 | 17.7 | 17.9 | 18.0 | 18.1 | 18.3 | 18.4 | 18.5 |
| 14     | 18.7 | 18.8 | 18.9 | 19.1 | 19.2 | 19.3 | 19.5 | 19.6 | 19.7 | 19.9 |
| 15     | 20.0 | 20.1 | 20.3 | 20.4 | 20.5 | 20.7 | 20.8 | 20.9 | 21.1 | 21.2 |
| 16     | 21.3 | 21.5 | 21.6 | 21.7 | 21.9 | 22.0 | 22.1 | 22.3 | 22.4 | 22.5 |
| 17     | 22.7 | 22.8 | 22.9 | 23.1 | 23.2 | 23.3 | 23.5 | 23.6 | 23.7 | 23.9 |
| 18     | 24.0 | 24.1 | 24.3 | 24.4 | 24.5 | 24.7 | 24.8 | 24.9 | 25.1 | 25.2 |
| 19     | 25.3 | 25.5 | 25.6 | 25.7 | 25.9 | 26.0 | 26.1 | 26.3 | 26.4 | 26.5 |
| 20     | 26.7 | 26.8 | 26.9 | 27.1 | 27.2 | 27.3 | 27.5 | 27.6 | 27.7 | 27.9 |
| 21     | 28.0 | 28.1 | 28.3 | 28.4 | 28.5 | 28.7 | 28.8 | 28.9 | 29.1 | 29.2 |
| 22     | 29.3 | 29.5 | 29.6 | 29.7 | 29.9 | 30.0 | 30.1 | 30.3 | 30.4 | 30.5 |
| 23     | 30.7 | 30.8 | 30.9 | 31.1 | 31.2 | 31.3 | 31.5 | 31.6 | 31.7 | 31.9 |
| 24     | 32.0 | 32.1 | 32.3 | 32.4 | 32.5 | 32.7 | 32.8 | 32.9 | 33.1 | 33.2 |
| 25     | 33.3 | 33.5 | 33.6 | 33.7 | 33.9 | 34.0 | 34.1 | 34.3 | 34.4 | 34.5 |
| 26     | 34.7 | 34.8 | 34.9 | 35.1 | 35.2 | 35.3 | 35.5 | 35.6 | 35.7 | 35.9 |
| 27     | 36.0 | 36.1 | 36.3 | 36.4 | 36.5 | 36.7 | 36.8 | 36.9 | 37.1 | 37.2 |
| 28     | 37.3 | 37.5 | 37.6 | 37.7 | 37.9 | 38.0 | 38.1 | 38.3 | 38.4 | 38.5 |

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 29     | 38.7 | 34.8 | 34.9 | 35.1 | 35.2 | 35.3 | 35.5 | 35.6 | 35.7 | 35.9 |
| 30     | 40.0 | 40.1 | 40.3 | 40.4 | 40.5 | 40.7 | 40.8 | 40.9 | 41.1 | 41.2 |
| 31     | 41.3 | 41.5 | 41.6 | 41.7 | 41.9 | 42.0 | 42.1 | 42.3 | 42.4 | 42.5 |
| 32     | 42.7 | 42.8 | 42.9 | 43.1 | 43.2 | 43.3 | 43.5 | 43.6 | 43.7 | 43.9 |
| 33     | 44.0 | 44.1 | 44.3 | 44.4 | 44.5 | 44.7 | 44.8 | 44.9 | 45.1 | 45.2 |
| 34     | 45.3 | 45.5 | 45.6 | 45.7 | 45.9 | 46.0 | 46.1 | 46.3 | 46.4 | 46.5 |
| 35     | 46.7 | 46.8 | 46.9 | 47.1 | 47.2 | 47.3 | 47.5 | 47.6 | 47.7 | 47.9 |
| 36     | 48.0 | 48.1 | 48.2 | 48.4 | 48.5 | 48.7 | 48.  | 48.9 | 49.1 | 49.2 |
| 37     | 49.3 | 49.5 | 49.6 | 49.7 | 49.9 | 50.0 | 50.1 | 50.3 | 50.4 | 50.5 |
| 38     | 50.7 | 50.8 | 50.9 | 51.1 | 51.2 | 51.3 | 51.5 | 51.6 | 51.7 | 51.9 |
| 39     | 52.0 | 52.1 | 52.2 | 52.4 | 52.5 | 52.7 | 52.8 | 52.9 | 53.1 | 53.2 |
| 40     | 53.3 | 53.5 | 53.6 | 53.7 | 53.9 | 54.0 | 54.1 | 54.3 | 54.4 | 54.5 |
| 41     | 54.7 | 54.8 | 54.9 | 55.1 | 55.2 | 55.3 | 55.5 | 55.6 | 55.7 | 55.9 |
| 42     | 56.0 | 56.1 | 56.2 | 56.4 | 56.5 | 56.7 | 56.8 | 56.9 | 57.1 | 57.2 |
| 43     | 57.3 | 57.5 | 57.6 | 57.7 | 57.9 | 58.0 | 58.1 | 58.3 | 58.4 | 58.5 |
| 44     | 58.7 | 58.8 | 58.9 | 59.1 | 59.2 | 59.3 | 59.5 | 59.6 | 59.7 | 59.9 |
| 45     | 60.0 | 60.1 | 60.2 | 60.4 | 60.5 | 60.7 | 60.8 | 60.9 | 61.1 | 61.2 |
| 46     | 61.3 | 61.5 | 61.6 | 61.7 | 61.9 | 62.0 | 62.1 | 62.3 | 62.4 | 62.5 |
| 47     | 62.7 | 62.8 | 62.9 | 63.1 | 63.2 | 63.3 | 63.5 | 63.6 | 63.7 | 63.9 |
| 48     | 64.0 | 64.1 | 64.2 | 64.4 | 64.5 | 64.7 | 64.8 | 64.9 | 65.1 | 65.2 |
| 49     | 65.3 | 65.5 | 65.6 | 65.7 | 65.9 | 66.0 | 66.1 | 66.3 | 66.4 | 66.5 |
| 50     | 66.7 | 66.8 | 66.9 | 67.0 | 67.2 | 67.3 | 67.4 | 67.6 | 67.7 | 67.8 |

Prepared by multiplying the BAF 40 Plot Radius Factor 1.333 \* DBH. For example, if DBH = 14.3 inches, then  $14.3 * 1.333 = 19.1$  feet.

Table 40: BAF 60 Plot Radii in Feet and Tenths of Feet from Plot Center to Face of Tree at DBH for 0% Slope

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 5      | 5.4  | 5.5  | 5.6  | 5.7  | 5.8  | 5.9  | 6.1  | 6.2  | 6.3  | 6.4  |
| 6      | 6.5  | 6.6  | 6.7  | 6.8  | 6.9  | 7.0  | 7.1  | 7.2  | 7.4  | 7.5  |
| 7      | 7.6  | 7.7  | 7.8  | 7.9  | 8.0  | 8.1  | 8.2  | 8.3  | 8.4  | 8.5  |
| 8      | 8.6  | 8.8  | 8.9  | 9.0  | 9.1  | 9.2  | 9.3  | 9.4  | 9.5  | 9.6  |
| 9      | 9.7  | 9.8  | 9.9  | 10.1 | 10.2 | 10.3 | 10.4 | 10.5 | 10.6 | 10.7 |
| 10     | 10.8 | 10.9 | 11.0 | 11.1 | 11.2 | 11.4 | 11.5 | 11.6 | 11.7 | 11.8 |
| 11     | 11.9 | 12.0 | 12.1 | 12.2 | 12.3 | 12.4 | 12.5 | 12.6 | 12.8 | 12.9 |
| 12     | 13.0 | 13.1 | 13.2 | 13.3 | 13.4 | 13.5 | 13.6 | 13.7 | 13.8 | 13.9 |
| 13     | 14.1 | 14.2 | 14.3 | 14.4 | 14.5 | 14.6 | 14.7 | 14.8 | 14.9 | 15.0 |
| 14     | 15.1 | 15.2 | 15.4 | 15.5 | 15.6 | 15.7 | 15.8 | 15.9 | 16.0 | 16.1 |
| 15     | 16.2 | 16.3 | 16.4 | 16.5 | 16.6 | 16.7 | 16.9 | 17.0 | 17.1 | 17.2 |
| 16     | 17.3 | 17.4 | 17.5 | 17.6 | 17.7 | 17.8 | 17.9 | 18.1 | 18.2 | 18.3 |
| 17     | 18.4 | 18.5 | 18.6 | 18.7 | 18.8 | 18.9 | 19.0 | 19.1 | 19.2 | 19.3 |
| 18     | 19.5 | 19.6 | 19.7 | 19.8 | 19.9 | 20.0 | 20.1 | 20.2 | 20.3 | 20.4 |
| 19     | 20.5 | 20.6 | 20.8 | 20.9 | 21.0 | 21.1 | 21.2 | 21.3 | 21.4 | 21.5 |
| 20     | 21.6 | 21.7 | 21.8 | 21.9 | 22.1 | 22.2 | 22.3 | 22.4 | 22.5 | 22.6 |
| 21     | 22.7 | 22.8 | 22.9 | 23.0 | 23.1 | 23.2 | 23.3 | 23.5 | 23.6 | 23.7 |
| 22     | 23.8 | 23.9 | 24.0 | 24.1 | 24.2 | 24.3 | 24.4 | 24.5 | 24.6 | 24.8 |
| 23     | 24.9 | 25.0 | 25.1 | 25.2 | 25.3 | 25.4 | 25.5 | 25.6 | 25.7 | 25.8 |
| 24     | 25.9 | 26.1 | 26.2 | 26.3 | 26.4 | 26.5 | 26.6 | 26.7 | 26.8 | 26.9 |
| 25     | 27.0 | 27.1 | 27.2 | 27.3 | 27.5 | 27.6 | 27.7 | 27.8 | 27.9 | 28.0 |
| 26     | 28.1 | 28.2 | 28.3 | 28.4 | 28.5 | 28.6 | 28.8 | 28.9 | 29.0 | 29.1 |
| 27     | 29.2 | 29.3 | 29.4 | 29.5 | 29.6 | 29.7 | 29.8 | 29.9 | 30.1 | 30.2 |
| 28     | 30.3 | 30.4 | 30.5 | 30.6 | 30.7 | 30.8 | 30.9 | 31.0 | 31.1 | 31.2 |

| Inches | 0    | 0.1  | 0.2  | 0.3  | 0.4  | 0.5  | 0.6  | 0.7  | 0.8  | 0.9  |
|--------|------|------|------|------|------|------|------|------|------|------|
| 29     | 31.3 | 31.5 | 31.6 | 31.7 | 31.8 | 31.9 | 32.0 | 32.1 | 32.2 | 32.3 |
| 30     | 32.4 | 32.5 | 32.6 | 32.8 | 32.9 | 33.0 | 33.1 | 33.2 | 33.3 | 33.4 |
| 31     | 33.5 | 33.6 | 33.7 | 33.8 | 33.9 | 34.1 | 34.2 | 34.3 | 34.4 | 34.5 |
| 32     | 35.7 | 35.8 | 35.9 | 36.0 | 36.1 | 36.2 | 36.3 | 36.4 | 36.5 | 36.6 |
| 33     | 35.7 | 35.8 | 35.9 | 36.0 | 36.1 | 36.2 | 36.3 | 36.4 | 36.5 | 36.6 |
| 34     | 36.8 | 36.9 | 37.0 | 37.1 | 37.2 | 37.3 | 37.4 | 37.5 | 37.6 | 37.7 |
| 35     | 37.8 | 37.9 | 38.1 | 38.2 | 38.3 | 38.4 | 38.5 | 38.6 | 38.7 | 38.8 |
| 36     | 38.9 | 39.0 | 39.1 | 39.2 | 39.3 | 39.5 | 39.6 | 39.7 | 39.8 | 39.9 |
| 37     | 40.0 | 40.1 | 40.2 | 40.3 | 40.4 | 40.5 | 40.6 | 40.8 | 40.9 | 41.0 |
| 38     | 41.1 | 41.2 | 41.3 | 41.4 | 41.5 | 41.6 | 41.7 | 41.8 | 41.9 | 42.1 |
| 39     | 42.2 | 42.3 | 42.4 | 42.5 | 42.6 | 42.7 | 42.8 | 42.9 | 43.0 | 43.1 |
| 40     | 43.2 | 43.3 | 43.5 | 43.6 | 43.7 | 43.8 | 43.9 | 44.0 | 44.1 | 44.2 |
| 41     | 44.3 | 44.4 | 44.5 | 44.6 | 44.8 | 44.9 | 45.0 | 45.1 | 45.2 | 45.3 |
| 42     | 45.4 | 45.5 | 45.6 | 45.7 | 45.8 | 45.9 | 46.1 | 46.2 | 46.3 | 46.4 |
| 43     | 46.5 | 46.6 | 46.7 | 46.8 | 46.9 | 47.0 | 47.1 | 47.2 | 47.3 | 47.5 |
| 44     | 47.6 | 47.7 | 47.8 | 47.9 | 48.0 | 48.1 | 48.2 | 48.3 | 48.4 | 48.5 |
| 45     | 48.6 | 48.8 | 48.9 | 49.0 | 49.1 | 49.2 | 49.3 | 49.4 | 49.5 | 49.6 |
| 46     | 49.7 | 49.8 | 49.9 | 50.1 | 50.2 | 50.3 | 50.4 | 50.5 | 50.6 | 50.7 |
| 47     | 50.8 | 50.9 | 51.0 | 51.1 | 51.2 | 51.3 | 51.5 | 51.6 | 51.7 | 51.8 |
| 48     | 51.9 | 52.0 | 52.1 | 52.2 | 52.3 | 52.4 | 52.5 | 52.6 | 52.8 | 52.9 |
| 49     | 53.0 | 53.1 | 53.2 | 53.3 | 53.4 | 53.5 | 53.6 | 53.7 | 53.8 | 53.9 |
| 50     | 54.1 | 54.2 | 54.3 | 54.4 | 54.5 | 54.6 | 54.7 | 54.8 | 54.9 | 55.0 |

Prepared by multiplying the BAF 60 Plot Radius Factor 1.081 \* DBH. For example, if DBH = 14.3 inches, then  $14.3 * 10.81 = 15.5$  feet.

**Table 41: Limiting Distances to Face of Tree and Slope Correction Factors for Various Basal Area Factors**

This table provides an expanded list of slope correction factors to the face of the tree for use with various basal area factors. To use the table, measure the slope and distance from plot-center to the face of the tree at DBH. To obtain the corrected limiting distance to a tree, multiply the tree's DBH by the "combined factor" shown under the appropriate BAF heading.

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 1     | 1.00000 | 3.847 | 2.708  | 2.203  | 1.902  | 1.546 | 1.333  |
| 2     | 1.00020 | 3.848 | 2.709  | 2.203  | 1.902  | 1.546 | 1.333  |
| 3     | 1.00045 | 3.489 | 2.709  | 2.204  | 1.903  | 1.547 | 1.334  |
| 4     | 1.00080 | 3.850 | 2.710  | 2.205  | 1.904  | 1.547 | 1.334  |
| 5     | 1.00125 | 3.852 | 2.711  | 2.206  | 1.904  | 1.548 | 1.335  |
| 6     | 1.00180 | 3.854 | 2.713  | 2.207  | 1.905  | 1.549 | 1.335  |
| 7     | 1.00245 | 2.856 | 2.715  | 2.208  | 1.907  | 1.550 | 1.336  |
| 8     | 1.00319 | 3.859 | 2.717  | 2.210  | 1.908  | 1.551 | 1.337  |
| 9     | 1.00404 | 3.863 | 2.719  | 2.212  | 1.910  | 1.552 | 1.338  |
| 10    | 1.00499 | 3.866 | 2.722  | 2.214  | 1.911  | 1.554 | 1.340  |
| 11    | 1.00603 | 3.870 | 2.724  | 2.216  | 1.912  | 1.555 | 1.341  |
| 12    | 1.00717 | 3.875 | 2.727  | 2.219  | 1.916  | 1.557 | 1.341  |
| 13    | 1.00841 | 3.879 | 2.731  | 2.222  | 1.918  | 1.559 | 1.344  |
| 14    | 1.00975 | 3.884 | 2.734  | 2.224  | 1.921  | 1.567 | 1.346  |
| 15    | 1.01119 | 3.890 | 2.738  | 2.228  | 1.923  | 1.563 | 1/348  |
| 16    | 1.01272 | 3.896 | 2.742  | 2.231  | 1.926  | 1.566 | 1.350  |
| 17    | 1.01435 | 3.902 | 2.747  | 2.235  | 1.921  | 1.568 | 1.352  |
| 18    | 1.01607 | 3.909 | 2.752  | 2.238  | 1.933  | 1.571 | 1.354  |
| 19    | 1.01789 | 3.916 | 2.756  | 2.245  | 1.936  | 1.574 | 1.357  |
| 20    | 1.01980 | 3.923 | 2.762  | 2.245  | 1.940  | 1.577 | 1.359  |
| 21    | 1.02181 | 3.931 | 2.767  | 2.251  | 1.943  | 1.580 | 1.362  |

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 22    | 1.02391 | 3.939 | 2.773  | 2.256  | 1.947  | 1.583 | 1.365  |
| 23    | 1.02611 | 3.947 | 2.779  | 2.261  | 1.952  | 1.586 | 1.368  |
| 24    | 1.02840 | 3.956 | 2.785  | 2.266  | 1.956  | 1.590 | 1.371  |
| 25    | 1.03078 | 3.965 | 2.791  | 2.271  | 1.967  | 1.594 | 1.374  |
| 26    | 1.03325 | 3.975 | 2.798  | 2.276  | 1.965  | 1.597 | 1.377  |
| 27    | 1.03581 | 3.985 | 2.805  | 2.282  | 1.970  | 1.601 | 1.381  |
| 28    | 1.03846 | 3.995 | 2.812  | 2.288  | 1.975  | 1.605 | 1.384  |
| 29    | 1.04120 | 4.005 | 2.820  | 2.294  | 1.980  | 1.610 | 1.388  |
| 30    | 1.04403 | 4.016 | 2.827  | 2.300  | 1.986  | 1.614 | 1.392  |
| 31    | 1.04695 | 4.028 | 2.835  | 2.306  | 1.991  | 1.619 | 1.396  |
| 32    | 1.04995 | 4.039 | 2.843  | 2.313  | 1.997  | 1.623 | 1.400  |
| 33    | 1.05304 | 4.051 | 2.852  | 2.320  | 2.003  | 1.628 | 1.404  |
| 34    | 1.05622 | 4.063 | 2.960  | 2.327  | 2.009  | 1.633 | 1.408  |
| 35    | 1.05948 | 4.076 | 2.869  | 2.334  | 2.015  | 1.638 | 1.412  |
| 36    | 1.06283 | 4.089 | 2.878  | 2.341  | 2.022  | 1.643 | 1.417  |
| 37    | 1.06626 | 4.102 | 2.887  | 2.349  | 2.028  | 1.648 | 4.421  |
| 38    | 1.06977 | 4.115 | 2.897  | 2.357  | 2.035  | 1.654 | 1.426  |
| 39    | 1.07336 | 4.129 | 2.907  | 2.365  | 2.042  | 1.659 | 1.431  |
| 40    | 1.07703 | 4.143 | 2.917  | 2.373  | 2.049  | 1.665 | 1.436  |
| 41    | 1.08079 | 4.158 | 2.927  | 2.381  | 2.056  | 1.671 | 1.441  |
| 42    | 1.08462 | 4.173 | 2.937  | 2.389  | 2.063  | 1.677 | 1.446  |
| 43    | 1.08853 | 4.188 | 2.948  | 2.398  | 2.070  | 1.683 | 1.451  |
| 44    | 1.09252 | 4.203 | 2.959  | 2.407  | 2.078  | 1.689 | 1.456  |
| 45    | 1.09659 | 4.219 | 2.970  | 2.416  | 2.086  | 1.695 | 1.462  |
| 46    | 1.10073 | 4.235 | 2.981  | 2.425  | 2.094  | 1.702 | 1.467  |

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 47    | 1.10494 | 4.251 | 2.992  | 2.434  | 2.102  | 1.708 | 1.473  |
| 48    | 1.10923 | 4.267 | 3.004  | 2.444  | 2.110  | 1.715 | 1.479  |
| 49    | 1.11360 | 4.284 | 3.016  | 2.453  | 2.118  | 1.723 | 1.484  |
| 50    | 1.11803 | 4.301 | 3.028  | 2.463  | 2.126  | 1.728 | 1.490  |
| 51    | 1.12254 | 4.318 | 3.040  | 2.473  | 2.135  | 1.735 | 1.496  |
| 52    | 1.12712 | 4.336 | 3.052  | 2.483  | 2.144  | 1.743 | 1.502  |
| 53    | 1.13177 | 4.354 | 3.065  | 2.493  | 2.153  | 1.750 | 1.509  |
| 54    | 1.13649 | 4.372 | 3.078  | 2.504  | 2.162  | 1.757 | 1.515  |
| 55    | 1.14127 | 4.390 | 3.091  | 2.514  | 2.171  | 1.764 | 1.521  |
| 56    | 1.14612 | 4.409 | 3.104  | 2.525  | 2.180  | 1.772 | 1.528  |
| 57    | 1.15104 | 4.428 | 3.117  | 2.536  | 2.189  | 1.780 | 1.534  |
| 58    | 1.15603 | 4.447 | 3.131  | 2.547  | 2.199  | 1.788 | 1.541  |
| 59    | 1.16108 | 4.467 | 3.144  | 2.558  | 2.208  | 1.795 | 1.548  |
| 60    | 1.16619 | 4.486 | 3.158  | 2.569  | 2.218  | 1.803 | 1.555  |
| 61    | 1.17137 | 4.506 | 3.172  | 2.581  | 2.228  | 1.811 | 1.561  |
| 62    | 1.17661 | 4.526 | 3.186  | 2.592  | 2.238  | 1.819 | 1.568  |
| 63    | 1.18191 | 4.547 | 3.201  | 2.604  | 2.248  | 1.827 | 1.575  |
| 64    | 1.18727 | 4.567 | 3.215  | 2.616  | 2.258  | 1.836 | 1.583  |
| 65    | 1.19269 | 4.588 | 3.230  | 2.627  | 2.268  | 1.844 | 1.590  |
| 66    | 1.19817 | 4.609 | 3.245  | 2.640  | 2.279  | 1.852 | 1.597  |
| 67    | 1.20370 | 4.631 | 3.260  | 2.652  | 2.289  | 1.861 | 1.605  |
| 68    | 1.20930 | 4.652 | 3.275  | 2.664  | 2.300  | 1.870 | 1.612  |
| 69    | 1.21499 | 4.691 | 3.302  | 2.687  | 2.319  | 1.885 | 1.626  |
| 70    | 1.22066 | 4.696 | 3.306  | 2.689  | 2.322  | 1.887 | 1.627  |
| 71    | 1.22642 | 4.718 | 3.321  | 2.702  | 2.333  | 1.896 | 1.635  |

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 72    | 1.23223 | 4.740 | 3.337  | 2.715  | 2.344  | 1.905 | 1.643  |
| 73    | 1.23810 | 4.763 | 3.353  | 2.728  | 2.355  | 1.914 | 1.650  |
| 74    | 1.24403 | 4.786 | 3.369  | 2.741  | 2.366  | 1.923 | 1.658  |
| 75    | 1.25000 | 4.809 | 3.385  | 2.754  | 2.378  | 1.933 | 1.666  |
| 76    | 1.25603 | 4.832 | 3.401  | 2.767  | 2.389  | 1.942 | 1.674  |
| 77    | 1.26210 | 4.855 | 3.418  | 2.780  | 2.401  | 1.951 | 1.682  |
| 78    | 1.26823 | 4.879 | 3.434  | 2.794  | 2.412  | 1.961 | 1.691  |
| 79    | 1.27440 | 4.903 | 3.451  | 2.808  | 2.424  | 1.970 | 1.699  |
| 80    | 1.28062 | 4.927 | 3.468  | 2.821  | 2.436  | 1.980 | 1.707  |
| 81    | 1.28690 | 4.951 | 3.485  | 2.835  | 2.448  | 1.990 | 1.715  |
| 82    | 1.29321 | 4.975 | 3.502  | 2.849  | 2.460  | 1.999 | 1.724  |
| 83    | 1.29958 | 4.999 | 3.519  | 2.863  | 2.472  | 2.009 | 1.732  |
| 84    | 1.30599 | 5.024 | 3.537  | 2.877  | 2.484  | 2.019 | 1.741  |
| 85    | 1.31244 | 5.049 | 3.554  | 2.891  | 2.496  | 2.029 | 1.749  |
| 86    | 1.31894 | 5.074 | 3.572  | 2.906  | 2.509  | 2.039 | 1.758  |
| 87    | 1.32548 | 5.099 | 3.589  | 2.920  | 2.521  | 2.049 | 1.767  |
| 88    | 1.33207 | 5.124 | 3.607  | 2.935  | 2.534  | 2.059 | 1.776  |
| 89    | 1.33870 | 5.150 | 3.625  | 2.949  | 2.546  | 2.070 | 1.784  |
| 90    | 1.34536 | 5.176 | 3.643  | 2.964  | 2.559  | 2.080 | 1.793  |
| 91    | 1.35207 | 5.201 | 3.661  | 2.979  | 2.572  | 2.090 | 1.802  |
| 92    | 1.35882 | 5.227 | 3.680  | 2.993  | 2.584  | 2.101 | 1.811  |
| 93    | 1.36561 | 5.254 | 3.698  | 3.008  | 2.597  | 2.111 | 1.820  |
| 94    | 1.37244 | 5.280 | 3.717  | 3.023  | 2.610  | 2.122 | 1.829  |
| 95    | 1.37931 | 5.306 | 3.735  | 3.039  | 2.623  | 2.132 | 1.839  |
| 96    | 1.38622 | 5.333 | 3.754  | 3.054  | 2.637  | 2.143 | 1.848  |

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 97    | 1.39316 | 5.359 | 3.773  | 3.069  | 2.650  | 2.154 | 1.875  |
| 98    | 1.40014 | 5.386 | 3.792  | 3.085  | 2.663  | 2.165 | 1.866  |
| 99    | 1.40716 | 5.413 | 3.811  | 3.100  | 2.676  | 2.175 | 1.876  |
| 100   | 1.41421 | 5.440 | 3.830  | 3.116  | 2.690  | 2.186 | 1.885  |
| 102   | 1.42843 | 5.495 | 3.868  | 3.147  | 2.717  | 2.208 | 1.904  |
| 103   | 1.43558 | 5.523 | 3.888  | 3.163  | 5.730  | 2.219 | 1.914  |
| 104   | 1.44278 | 5.550 | 3.907  | 3.178  | 2.744  | 2.231 | 1.923  |
| 105   | 1.45000 | 5.578 | 3.927  | 3.194  | 2.758  | 2.242 | 1.933  |
| 106   | 1.45726 | 5.606 | 3.946  | 3.210  | 2.772  | 2.253 | 1.943  |
| 107   | 1.46455 | 5.634 | 3.966  | 3.226  | 2.876  | 2.264 | 1.952  |
| 108   | 1.47187 | 5.662 | 3.986  | 3.243  | 2.799  | 2.276 | 1.962  |
| 109   | 1.47922 | 5.691 | 4.006  | 3.259  | 2.813  | 2.287 | 1.972  |
| 110   | 1.48661 | 5.719 | 4.026  | 3.275  | 2.828  | 2.298 | 1.982  |
| 111   | 1.49402 | 5.747 | 4.046  | 3.291  | 2.842  | 2.310 | 1.992  |
| 112   | 1.50147 | 5.776 | 4.066  | 3.308  | 2.856  | 2.321 | 2.001  |
| 113   | 1.50894 | 5.805 | 4.086  | 3.324  | 2.870  | 2.333 | 2.011  |
| 114   | 1.51644 | 5.834 | 4.107  | 3.341  | 2.884  | 2.344 | 2.021  |
| 115   | 1.52498 | 5.863 | 4.127  | 3.357  | 2.899  | 2.356 | 2.031  |
| 116   | 1.53154 | 5.892 | 4.147  | 3.374  | 2.913  | 2.368 | 2.042  |
| 117   | 1.53912 | 5.921 | 4.168  | 3.391  | 2.927  | 2.379 | 2.052  |
| 118   | 1.54674 | 5.950 | 4.189  | 3.407  | 2.942  | 2.391 | 2.062  |
| 119   | 1.55438 | 5.980 | 4.209  | 3.424  | 2.956  | 2.403 | 2.072  |
| 120   | 1.56205 | 6.000 | 4.230  | 3.441  | 2.971  | 2.415 | 2.082  |
| 121   | 1.56975 | 6.039 | 4.251  | 3.458  | 2.985  | 2.427 | 2.092  |
| 122   | 1.57747 | 6.069 | 4.272  | 3.475  | 3.000  | 2.439 | 2.103  |

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 123   | 1.58521 | 6.098 | 4.293  | 3.492  | 3.015  | 2.451 | 2.113  |
| 124   | 1.59298 | 6.128 | 4.314  | 3.509  | 3.030  | 2.463 | 2.123  |
| 125   | 1.60078 | 6.158 | 4.335  | 3.527  | 3.045  | 2.475 | 2.134  |
| 126   | 1.60860 | 6.188 | 4.356  | 3.544  | 3.060  | 2.487 | 2.144  |
| 127   | 1.61645 | 6.218 | 4.377  | 3.561  | 3.074  | 2.499 | 2.155  |
| 128   | 1.62432 | 6.249 | 4.399  | 3.578  | 3.089  | 2.511 | 2.165  |
| 129   | 1.63221 | 6.279 | 4.420  | 3.595  | 3.104  | 2.523 | 2.176  |
| 130   | 1.64012 | 6.310 | 4.441  | 3.613  | 3.120  | 2.536 | 2/186  |
| 131   | 1.64806 | 6.340 | 4.463  | 3.631  | 3.135  | 2.546 | 2.197  |
| 132   | 1.65602 | 6.370 | 4.485  | 3.648  | 3.150  | 2.560 | 2.207  |
| 133   | 1.66400 | 6.401 | 4.506  | 3.666  | 3.165  | 2.573 | 2.218  |
| 134   | 1.67200 | 6.432 | 4.528  | 3.683  | 3.180  | 2.585 | 2.229  |
| 135   | 1.68003 | 6.463 | 4.550  | 3.701  | 3.195  | 2.597 | 2.239  |
| 136   | 1.68808 | 6.494 | 4.571  | 3.719  | 3.211  | 2.261 | 2.250  |
| 137   | 1.69614 | 6.525 | 4.593  | 3.737  | 3.226  | 2.622 | 2.261  |
| 138   | 1.70423 | 6.556 | 4.615  | 3.754  | 3.241  | 2.635 | 2.272  |
| 139   | 1.71234 | 6.587 | 4.637  | 3.772  | 3.257  | 2.647 | 2.283  |
| 140   | 1.72047 | 6.619 | 4.659  | 3.790  | 3.272  | 2.660 | 2.293  |
| 141   | 1.72861 | 6.650 | 4.681  | 3.808  | 3.288  | 2.672 | 2.304  |
| 142   | 1.73678 | 6.681 | 4.703  | 3.826  | 3.303  | 2.685 | 2.315  |
| 143   | 1.74497 | 6.713 | 4.725  | 3.844  | 3.319  | 2.698 | 2.326  |
| 144   | 1.75317 | 6.744 | 4.748  | 3.862  | 3.335  | 2.710 | 2.337  |
| 145   | 1.76139 | 6.776 | 4.770  | 3.880  | 3.350  | 2.723 | 2.348  |
| 146   | 1.76963 | 6.808 | 4.792  | 3.898  | 3.366  | 2.736 | 2.359  |
| 147   | 1.77789 | 6.840 | 4.815  | 3.917  | 3.382  | 2.749 | 2.370  |

| Slope | Factor  | 5 BAF | 10 BAF | 15 BAF | 20 BAF | 30 BF | 40 BAF |
|-------|---------|-------|--------|--------|--------|-------|--------|
| 148   | 1.78617 | 6.871 | 4.837  | 3.935  | 3.397  | 2.761 | 2.381  |
| 149   | 1.79446 | 6.903 | 4.859  | 3.953  | 3.413  | 2.774 | 2.392  |

## APPENDIX K: DAMAGE CATEGORIES, AGENTS, SEVERITY RATINGS, AND TREE PARTS

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### DAMAGE CATEGORIES

Detailed descriptions and examples of the content in these tables is available using the Insect & Disease Codes links on the [FSVeg Documentation web page](#).

Table 42: Damage category codes

| Code | Description                     |
|------|---------------------------------|
| 10   | General Insects                 |
| 11   | Bark Beetles                    |
| 12   | Defoliators                     |
| 13   | Chewing Insects                 |
| 14   | Sucking Insects                 |
| 15   | Boring Insects                  |
| 16   | Seed/Cone/Flower/Fruit Insects  |
| 17   | Gallmaker Insects               |
| 18   | Insect Predators                |
| 19   | General Diseases                |
| 20   | Biotic Damage                   |
| 21   | Root/Butt Diseases              |
| 22   | Stem Decays/Cankers             |
| 23   | Parasitic/Epiphytic Plants      |
| 24   | Decline Complexes/Dieback/Wilts |

| Code | Description                   |
|------|-------------------------------|
| 25   | Foliage Diseases              |
| 26   | Stem Rusts                    |
| 27   | Broom Rusts                   |
| 30   | Fire                          |
| 40   | Animal Damage, Source Unknown |
| 41   | Wild Animals                  |
| 42   | Domestic Animals              |
| 50   | Abiotic Damage                |
| 60   | Competition                   |
| 70   | Human Activities              |
| 71   | Harvest                       |
| 80   | Multi-Damage (Insect-Disease) |
| 90   | Unknown                       |
| 99   | Physical Effects              |

## DAMAGE AGENTS

Detailed descriptions and examples of the content in these tables is available using the Insect & Disease Codes links on the [FSVeg Documentation web page](#).

Table 43: Damage agent codes

| Category  | Agent      | Common Name            | Scientific Name          |
|-----------|------------|------------------------|--------------------------|
| <b>10</b> | <b>000</b> | <b>General insects</b> | <b>n / a</b>             |
| 10        | 001        | Thrips                 | <i>n/a</i>               |
| 10        | 002        | Tip moth               | <i>n/a</i>               |
| 10        | 003        | Wasp                   | <i>n/a</i>               |
| 10        | 004        | Chinese rose beetle    | <i>Adoretus sinicus</i>  |
| 10        | 005        | Rose beetle            | <i>Adoretus versutus</i> |

| Category  | Agent      | Common Name                | Scientific Name                  |
|-----------|------------|----------------------------|----------------------------------|
| 10        | 006        | Coconut hispid beetle      | <i>Brontispa longissima</i>      |
| 10        | 007        | Clerid beetle              | <i>Cleridae</i>                  |
| 10        | 008        | Weevil                     | <i>Curculionidae</i>             |
| 10        | 009        | Green rose chafer          | <i>Dichelonyx backi</i>          |
| 10        | 010        | Allegheny mound ant        | <i>Formica exsectoides</i>       |
| 10        | 011        | Ant                        | <i>Formicidae</i>                |
| 10        | 012        | Stick insect               | <i>Graeffea crovanii</i>         |
| 10        | 013        | Hulodes cranea             | <i>Hulodes cranea</i>            |
| 10        | 014        | Conifer swift moth         | <i>Korsheltellus gracilis</i>    |
| 10        | 015        | Caroline shortnosed weevil | <i>Lophothetes spp.</i>          |
| 10        | 016        | Coconut rhinoceros beetle  | <i>Oryctes rhinoceros</i>        |
| 10        | 017        | Bagworm moth               | <i>Psychidae</i>                 |
| 10        | 018        | Coconut palm weevil        | <i>Thobdoscelus asperipennis</i> |
| 10        | 019        | Scarab                     | <i>Scarabaeidae</i>              |
| 10        | 020        | Ash white fly              | <i>Simphoninus phillyreae</i>    |
| 10        | 021        | Unknown                    | <i>Steremnius carinatu</i>       |
| 10        | 022        | Pyralid moth               | <i>Thliptoceras octoquittale</i> |
| 10        | 023        | Wood wasps                 | <i>Siricidae spp.</i>            |
| <b>11</b> | <b>000</b> | <b>Bark beetles</b>        | <b>n/a</b>                       |
| 11        | 001        | Roundheaded pine beetle    | <i>Dendroctonus adjunctus</i>    |
| 11        | 002        | Western pine beetle        | <i>Dendroctonus brevicomis</i>   |
| 11        | 003        | Southern pine beetle       | <i>Dendroctonus frontalis</i>    |
| 11        | 004        | Jeffrey pine beetle        | <i>Dendroctonus jeffreyi</i>     |
| 11        | 005        | Lodgepole pine beetle      | <i>Dendroctonus murrayanae</i>   |
| 11        | 006        | Mountain pine beetle       | <i>Dendroctonus ponderosae</i>   |

| Category | Agent | Common Name                     | Scientific Name                  |
|----------|-------|---------------------------------|----------------------------------|
| 11       | 007   | Douglas-fir beetle              | <i>Dendroctonus pseudotsugae</i> |
| 11       | 008   | Allegheny spruce beetle         | <i>Dendroctonus punctatus</i>    |
| 11       | 009   | Spruce beetle                   | <i>Dendroctonus rufipennis</i>   |
| 11       | 010   | Eastern larch beetle            | <i>Dendroctonus simplex</i>      |
| 11       | 011   | Black turpentine beetle         | <i>Dendroctonus terebrans</i>    |
| 11       | 012   | Red turpentine beetle           | <i>Dendroctonus valens</i>       |
| 11       | 013   | Unknown                         | <i>Dryocoetes affaber</i>        |
| 11       | 014   | Unknown                         | <i>Dryocoetes autographus</i>    |
| 11       | 015   | Western balsam bark beetle      | <i>Dryocoetes confuses</i>       |
| 11       | 016   | Unknown                         | <i>Dryocoetes sechelti</i>       |
| 11       | 017   | Ash bark beetle                 | <i>Hylesinus spp.</i>            |
| 11       | 018   | Native elm bark beetle          | <i>Hylurgopinus rufipes</i>      |
| 11       | 019   | Pinon ips                       | <i>Ips confuses</i>              |
| 11       | 020   | Small southern pine engraver    | <i>Ips avulsus</i>               |
| 11       | 021   | Sixspined ips                   | <i>Ips calligraphus</i>          |
| 11       | 022   | Emarginated ips                 | <i>Ips emarginatus</i>           |
| 11       | 023   | Southern pine engraver beetle   | <i>Ips grandicollis</i>          |
| 11       | 024   | Unknown                         | <i>Ips latidens</i>              |
| 11       | 025   | Arizona five-spined ips         | <i>Ips lecontei</i>              |
| 11       | 026   | Monterey pine ips               | <i>Ips mexicanus</i>             |
| 11       | 027   | California five-spined ips      | <i>Ips paraconfusus</i>          |
| 11       | 028   | Northern spruce engraver beetle | <i>Ips perturbatus</i>           |
| 11       | 029   | Pine engraver                   | <i>Ips pini</i>                  |
| 11       | 030   | Ips engraver beetles            | <i>Ips spp/</i>                  |
| 11       | 031   | Unknown                         | <i>Ips tridens</i>               |

| Category | Agent | Common Name                    | Scientific Name                   |
|----------|-------|--------------------------------|-----------------------------------|
| 11       | 032   | Western ash bark beetle        | <i>Leperisinus californicus</i>   |
| 11       | 033   | Oregon ash bark beetle         | <i>Leperisinus oregonus</i>       |
| 11       | 034   | Unknown                        | <i>Orthotomicus caelatus</i>      |
| 11       | 035   | Cedar bark beetle              | <i>Phloeosinus spp.</i>           |
| 11       | 036   | Western cedar bark beetle      | <i>Phloeosinus punctatus</i>      |
| 11       | 037   | Tip beetles                    | <i>Pityogenes spp.</i>            |
| 11       | 038   | Douglas-fir twig beetle        | <i>Pityophthorus pseudotsugae</i> |
| 11       | 039   | Twig beetles                   | <i>Pityophthorus spp.</i>         |
| 11       | 040   | Four-eyed spruce beetle        | <i>Polygraphus rufipennis</i>     |
| 11       | 041   | Fir root bark beetle           | <i>Pseudohylesinum granulates</i> |
| 11       | 042   | Unknown                        | <i>Pseudohylesinus dispar</i>     |
| 11       | 043   | Douglas-fir pole beetle        | <i>Pseudohylesinus nebulosus</i>  |
| 11       | 044   | Silver fir beetle              | <i>Pseudohylesinus sericeus</i>   |
| 11       | 045   | Small European elm bark beetle | <i>Scolytus multistriatus</i>     |
| 11       | 046   | Spruce engraver                | <i>Scolytus piceae</i>            |
| 11       | 047   | Hickory bark beetle            | <i>Scolytus quadrispinosus</i>    |
| 11       | 048   | True fir bark beetle           | <i>Scolytus spp.</i>              |
| 11       | 049   | Douglas-fir engraver           | <i>Scolytus unispinosus</i>       |
| 11       | 050   | Fir engraver                   | <i>Scolytus ventralis</i>         |
| 11       | 051   | Striped ambrosia beetle        | <i>Tryachykele lineatum</i>       |
| 11       | 052   | Sitka spruce engraver beetle   | <i>Ips conncinnus</i>             |
| 11       | 053   | Four-eyed bark beetle          | <i>Polygraphus spp.</i>           |
| 11       | 054   | Hemlock beetle                 | <i>Pseudohylesinus tsugae</i>     |
| 11       | 055   | Spruce ips                     | <i>Ips pilifrons</i>              |
| 11       | 056   | Mexican pine beetle            | <i>Dendroctonus mexicanus</i>     |

| Category  | Agent      | Common Name                 | Scientific Name                          |
|-----------|------------|-----------------------------|------------------------------------------|
| <b>12</b> | <b>000</b> | <b>Defoliators</b>          | <b>n/a</b>                               |
| 12        | 001        | Casebearer                  | <i>n/a</i>                               |
| 12        | 002        | Leaftier                    | <i>n/a</i>                               |
| 12        | 003        | Looper                      | <i>n/a</i>                               |
| 12        | 004        | Needleminer                 | <i>n/a</i>                               |
| 12        | 005        | Sawfly                      | <i>n/a</i>                               |
| 12        | 006        | Skeletonizer                | <i>n/a</i>                               |
| 12        | 007        | Larger elm leaf beetle      | <i>Monocesta coryli</i>                  |
| 12        | 008        | Spanworm                    | <i>n/a</i>                               |
| 12        | 009        | Webworm                     | <i>n/a</i>                               |
| 12        | 010        | Pine false webworm          | <i>Acantholyda erythrocephala</i>        |
| 12        | 011        | Western blackheaded budworm | <i>Acleris gloverana</i>                 |
| 12        | 012        | Eastern blackheaded budworm | <i>Acleris variana</i>                   |
| 12        | 013        | Whitefly                    | <i>Aleyrodoidae</i>                      |
| 12        | 014        | Fall cankerworm             | <i>Alsophila pometaria</i>               |
| 12        | 015        | Alder flea beetle           | <i>Altica ambiens</i>                    |
| 12        | 016        | Mountain mahogany looper    | <i>Anacamptodes clivinaria profanata</i> |
| 12        | 017        | Birch leaffolder            | <i>Ancylis disigerana</i>                |
| 12        | 018        | Oak worms                   | <i>Anisota spp.</i>                      |
| 12        | 019        | Orange-striped oakworm      | <i>Anisota senatoria</i>                 |
| 12        | 020        | Western larch sawfly        | <i>Anoplonyx occidens</i>                |
| 12        | 021        | Fruit tree leafroller       | <i>Archips argyrospila</i>               |
| 12        | 022        | Uglynest caterpillar        | <i>Archips cerasivorana</i>              |
| 12        | 023        | Boxelder defoliator         | <i>Archips negundanus</i>                |
| 12        | 024        | Oak leafroller              | <i>Archips semifera</i>                  |

| Category | Agent | Common Name               | Scientific Name                   |
|----------|-------|---------------------------|-----------------------------------|
| 12       | 025   | Birch sawfly              | <i>Arge pectoralis</i>            |
| 12       | 026   | Arborvitae leafminer      | <i>Argyresthia thuiella</i>       |
| 12       | 027   | Coconut scale             | <i>Aspidiotus destructor</i>      |
| 12       | 028   | Texas leafcutting ant     | <i>Atta texana</i>                |
| 12       | 029   | Oak skeletonizer          | <i>Bucculatrix ainsliella</i>     |
| 12       | 030   | Pear sawfly               | <i>Caliroa cerasi</i>             |
| 12       | 031   | Scarlet oak sawfly        | <i>Caliroa quercuscoccineae</i>   |
| 12       | 032   | Elm calligrapha           | <i>Calligrapha scalaris</i>       |
| 12       | 033   | Boxelder leafroller       | <i>Caloptilia negundella</i>      |
| 12       | 034   | Maple petiole borer       | <i>Caulocampus acericaulis</i>    |
| 12       | 035   | Spruce webspinning sawfly | <i>Cephalcia dascipennis</i>      |
| 12       | 036   | Two-year budworm          | <i>Choristoneura biennis</i>      |
| 12       | 037   | Large aspen tortrix       | <i>Choristoneura conflictana</i>  |
| 12       | 038   | Spruce budworm            | <i>Choristoneura fumiferana</i>   |
| 12       | 039   | Sugar pine tortrix        | <i>Choristoneura lambertiana</i>  |
| 12       | 040   | Western spruce budworm    | <i>Choristoneura occidentalis</i> |
| 12       | 041   | Jack pine budworm         | <i>Choristoneura pinus</i>        |
| 12       | 042   | Modoc budworm             | <i>Choristoneura retiniana</i>    |
| 12       | 043   | Aspen leaf beetle         | <i>Chrysomela crotchii</i>        |
| 12       | 044   | Cottonwood leaf beetle    | <i>Chrysomela scripta</i>         |
| 12       | 045   | Leafhopper                | <i>Cicadellidae</i>               |
| 12       | 046   | Poplar tentmaker          | <i>Clostera inclusa</i>           |
| 12       | 047   | Larch casebearer          | <i>Coleophora laricella</i>       |
| 12       | 048   | Birch casebearer          | <i>Coleophora serratella</i>      |
| 12       | 049   | Lodgepole needleminer     | <i>Coleotechnites milleri</i>     |

| Category | Agent | Common Name                | Scientific Name                   |
|----------|-------|----------------------------|-----------------------------------|
| 12       | 050   | Ponderosa needleminer      | <i>Coleotechnites spp.</i>        |
| 12       | 051   | Black Hills pandora moth   | <i>Coloradia doris</i>            |
| 12       | 052   | Pandora moth               | <i>Coloradia Pandora</i>          |
| 12       | 053   | Sycamore lace bug          | <i>Corythuca ciliate</i>          |
| 12       | 054   | Lace bugs                  | <i>Corythuca spp.</i>             |
| 12       | 055   | Oak leaftier               | <i>Croesia semipurpurana</i>      |
| 12       | 056   | Dusky birch sawfly         | <i>Croesus latitarus</i>          |
| 12       | 057   | Walnut caterpillar         | <i>Datana integerrima</i>         |
| 12       | 058   | Yellow-necked caterpillar  | <i>Datana ministra</i>            |
| 12       | 059   | Walkingstick               | <i>Diapheromera femorata</i>      |
| 12       | 060   | Spruce coneworm            | <i>Dioryctria reniculelloides</i> |
| 12       | 061   | Introduced pine sawfly     | <i>Diprion similis</i>            |
| 12       | 062   | Green-striped mapleworm    | <i>Dryocampa rubicunda</i>        |
| 12       | 063   | Spruce needleminer (east)  | <i>Endothenia albolineana</i>     |
| 12       | 064   | Elm spanworm               | <i>Ennomus subsignaris</i>        |
| 12       | 065   | Maple trumpet skeletonizer | <i>Epinotia aceriella</i>         |
| 12       | 066   | White fir needleminer      | <i>Epinotia meritana</i>          |
| 12       | 067   | Linden looper              | <i>Erannis tiliaria</i>           |
| 12       | 068   | Browntail moth             | <i>Euproctis chrysorrhoea</i>     |
| 12       | 069   | Pine needleminer           | <i>Exoteleia pinifoliella</i>     |
| 12       | 070   | Birch leafminer            | <i>Fenusa pusilla</i>             |
| 12       | 071   | Elm leafminer              | <i>Fenusa ulmi</i>                |
| 12       | 072   | Geometrid moth             | <i>Geometridae</i>                |
| 12       | 073   | Leafblotch miner           | <i>Gracillariidae</i>             |
| 12       | 074   | Spotted tussock moth       | <i>Halisidota maculate</i>        |

| Category | Agent | Common Name                   | Scientific Name                     |
|----------|-------|-------------------------------|-------------------------------------|
| 12       | 075   | Pale tussock moth             | <i>Halisidota tessellaris</i>       |
| 12       | 076   | Hesperiid moth                | <i>Hasora choromus</i>              |
| 12       | 077   | Brown day moth                | <i>Hemileuca eglanderina</i>        |
| 12       | 078   | Buck moth                     | <i>Hemileuca maia</i>               |
| 12       | 079   | Saddled prominent             | <i>Hererocampa guttivita</i>        |
| 12       | 080   | Variable oakleaf caterpillar  | <i>Heterocampa manteo</i>           |
| 12       | 081   | Cherry scallop shell moth     | <i>Hydria prunivorata</i>           |
| 12       | 082   | Fall webworm                  | <i>Hyphantria cunea</i>             |
| 12       | 083   | Hemlock looper                | <i>Lambdina fiscellaria</i>         |
| 12       | 084   | Unknown                       | <i>Lambdina punctate</i>            |
| 12       | 085   | Tent caterpillar moth         | <i>Lasiocampidae</i>                |
| 12       | 086   | Satin moth                    | <i>Leucoma salicis</i>              |
| 12       | 087   | Willow leafblotch miner       | <i>Lithocolletis spp.</i>           |
| 12       | 088   | Aspen blotchminer             | <i>Lithocolletis tremuloidiella</i> |
| 12       | 089   | Gypsy moth                    | <i>Lymantria dispar</i>             |
| 12       | 090   | Cottonwood leafminers         | <i>Lyonetia spp.</i>                |
| 12       | 091   | Dogwood sawfly                | <i>Macremphytus tarsatus</i>        |
| 12       | 092   | Rose chafer                   | <i>Macroductylus subspinosus</i>    |
| 12       | 093   | Eastern tent caterpillar      | <i>Malasosoma americanum</i>        |
| 12       | 094   | Western tent caterpillar      | <i>Malacosoma californicum</i>      |
| 12       | 095   | Pacific tent caterpillar      | <i>Malacosoma constrictum</i>       |
| 12       | 096   | Forest tent caterpillar       | <i>Malacosoma disstria</i>          |
| 12       | 097   | Southwestern tent caterpillar | <i>Malacosoma incurvum</i>          |
| 12       | 098   | Leafcutting bee               | <i>Megachilidae</i>                 |
| 12       | 099   | Blister beetle                | <i>Meloidae</i>                     |

| Category | Agent | Common Name                | Scientific Name                     |
|----------|-------|----------------------------|-------------------------------------|
| 12       | 100   | Early birch leaf edgeminer | <i>Messa nana</i>                   |
| 12       | 101   | Juniper sawfly             | <i>Monoctenus fulvus</i>            |
| 12       | 102   | Willow sawfly              | <i>Nematus spp.</i>                 |
| 12       | 103   | Balsam fir sawfly          | <i>Neodiprion abietis</i>           |
| 12       | 104   | Lodgepole sawfly           | <i>Neodiprion burkei</i>            |
| 12       | 105   | Blackheaded pine sawfly    | <i>Neodiprion</i>                   |
| 12       | 106   | Pine infesting sawfly      | <i>Neodiprion fulviceps</i>         |
| 12       | 107   | Redheaded pine sawfly      | <i>Neodiprion lecontei</i>          |
| 12       | 109   | Ponderosa pine sawfly      | <i>Neodiprion mundus</i>            |
| 12       | 110   | White pine sawfly          | <i>Neodiprion pinetum</i>           |
| 12       | 111   | Jack pine sawfly           | <i>Neodiprion pratti banksianae</i> |
| 12       | 112   | Virginia pine sawfly       | <i>Neodiprion pratti pratti</i>     |
| 12       | 113   | European pine sawfly       | <i>Neodiprion sertifer</i>          |
| 12       | 114   | Loblolly pine sawfly       | <i>Neodiprion taedae linearis</i>   |
| 12       | 115   | Hemlock sawfly             | <i>Neodiprion tsugae</i>            |
| 12       | 116   | Pine butterfly             | <i>Neophasia menapia</i>            |
| 12       | 117   | False hemlock looper       | <i>Nepytia canosaria</i>            |
| 12       | 118   | California tortoiseshell   | <i>Nymphalis California</i>         |
| 12       | 119   | Locust leafminer           | <i>Odontota dorsalis</i>            |
| 12       | 120   | Bruce spanworm             | <i>Operophtera bruceata</i>         |
| 12       | 121   | Rusty tussock moth         | <i>Orgyia antiqua</i>               |
| 12       | 122   | Whitemarked tussock moth   | <i>Orgyia leucostigma</i>           |
| 12       | 123   | Douglas-fir tussock moth   | <i>Orgyia pseudotsugata</i>         |
| 12       | 124   | Western tussock moth       | <i>Orgyia vetusta</i>               |
| 12       | 125   | Spring cankerworm          | <i>Paleacrita vernata</i>           |

| Category | Agent | Common Name                        | Scientific Name                    |
|----------|-------|------------------------------------|------------------------------------|
| 12       | 126   | Black citrus swallowtail butterfly | <i>Papilio polytes</i>             |
| 12       | 127   | Maple leafcutter                   | <i>Paraclemensia acerifoliella</i> |
| 12       | 128   | Pine tussock moth                  | <i>Parorygia grisefacta</i>        |
| 12       | 129   | Poinciana looper                   | <i>Pericyma cruegeri</i>           |
| 12       | 130   | Half-wing geometer                 | <i>Phigalia titea</i>              |
| 12       | 131   | Phoberia moth                      | <i>Phoberia atomaris</i>           |
| 12       | 132   | California oakworm                 | <i>Phryganidia californica</i>     |
| 12       | 133   | European snout beetle              | <i>Phyllobius oblongus</i>         |
| 12       | 134   | Citrus leafminer                   | <i>Phyllocnistis citrella</i>      |
| 12       | 135   | Aspen leafminer                    | <i>Phyllocnistis populiella</i>    |
| 12       | 136   | Yellowheaded spruce sawfly         | <i>Pikonema alaskensis</i>         |
| 12       | 137   | Tenlined June beetle               | <i>Polyphylla decemlineata</i>     |
| 12       | 138   | Japanese beetle                    | <i>Popillia japonica</i>           |
| 12       | 139   | Larch sawfly                       | <i>Pristiphora erichsonii</i>      |
| 12       | 140   | Mountain-ash sawfly                | <i>Pristiphora geniculate</i>      |
| 12       | 141   | Elm leaf beetle                    | <i>Prrhalta luetola</i>            |
| 12       | 142   | Spearmarked black moth             | <i>Rheumaptera hastate</i>         |
| 12       | 143   | Giant silkworm moth                | <i>Saturniidae</i>                 |
| 12       | 144   | Redhumped caterpillar              | <i>Schizura concinna</i>           |
| 12       | 145   | Redbanded thrips                   | <i>Selenothrips rubocinctus</i>    |
| 12       | 146   | Larch looper                       | <i>Semiothisa sexmaculata</i>      |
| 12       | 147   | Maple leafroller                   | <i>Sparganothis acerivorana</i>    |
| 12       | 148   | Redhumped oakworm                  | <i>Symmersita canicosta</i>        |
| 12       | 149   | Orangehumped mapleworm             | <i>Symmerista leucitys</i>         |
| 12       | 150   | Spruce needleminer (west)          | <i>Taniva albolineana</i>          |

| Category | Agent | Common Name              | Scientific Name                     |
|----------|-------|--------------------------|-------------------------------------|
| 12       | 151   | Maple webworm            | <i>Tetralopha asperatella</i>       |
| 12       | 152   | Pine webworm             | <i>Tetralopha robustella</i>        |
| 12       | 153   | Imported basswood thrips | <i>Thrips calcaratus</i>            |
| 12       | 154   | Bagworm                  | <i>Thyridoteryx ephemeraeformis</i> |
| 12       | 155   | Leafroller/seed moth     | <i>Tortricidae</i>                  |
| 12       | 156   | Willow defoliation       | <i>Tortricidae</i>                  |
| 12       | 157   | Euonymus caterpillar     | <i>Yponomeuta spp.</i>              |
| 12       | 158   | Spruce bud moth          | <i>Zeiraphera canadensis</i>        |
| 12       | 159   | Larch bud moth           | <i>Zieraphera improbana</i>         |
| 12       | 160   | Pine needle sheathminer  | <i>Zelleria haimbachi</i>           |
| 12       | 161   | Cypress looper           | <i>Anacamptodes pergrasilis</i>     |
| 12       | 162   | Cottonwood leaf beetle   | <i>Chrysomela spp.</i>              |
| 12       | 163   | Pine colaspis            | <i>Colaspis pini</i>                |
| 12       | 164   | Saddle-backed looper     | <i>Ectropis crepusularia</i>        |
| 12       | 165   | Leafroller               | <i>Epinotia solandriana</i>         |
| 12       | 166   | New Mexico fir looper    | <i>Gelenara cansimillis</i>         |
| 12       | 167   | Striped alder sawfly     | <i>Hemichroa crocea</i>             |
| 12       | 168   | Green-striped looper     | <i>Melanoplophia imitate</i>        |
| 12       | 169   | Willow leaf blotchminer  | <i>Micrurapteryx salicifoliella</i> |
| 12       | 170   | Unknown                  | <i>Neodiprion autmnalis</i>         |
| 12       | 171   | Pinon sawfly             | <i>Neodiprion edulicolus</i>        |
| 12       | 172   | Unknown                  | <i>Neodiprion gilletti</i>          |
| 12       | 173   | Unknown                  | <i>Neodiprion ventralis</i>         |
| 12       | 174   | Pine looper              | <i>Phaeoura mexicanaria</i>         |
| 12       | 175   | Unknown                  | <i>Zadiprion ventralis</i>          |

| Category  | Agent      | Common Name                | Scientific Name                        |
|-----------|------------|----------------------------|----------------------------------------|
| 12        | 176        | Unknown                    | <i>Zadiprion rohweri</i>               |
| 12        | 177        | Douglas-fir budmoth        | <i>Zeiraphera hesperiana</i>           |
| 12        | 178        | Western oak looper         | <i>Lambdina discellaria somniaria</i>  |
| 12        | 179        | Phantom hemlock looper     | <i>Nepytia phantasmaria</i>            |
| 12        | 180        | Tent caterpillar           | <i>Malasocoma spp.</i>                 |
| 12        | 188        | Elm sawfly                 | <i>Cimbex Americana</i>                |
| 12        | 189        | June beetle                | <i>Phyllophaga spp.</i>                |
| 12        | 190        | Hickory tussock moth       | <i>Halisidota caryae</i>               |
| 12        | 191        | Pin oak sawfly             | <i>Caliroa lineata</i>                 |
| 12        | 192        | Palmerworm                 | <i>Dichomeris ligulella</i>            |
| 12        | 193        | Pitch pine looper          | <i>Lambdina athasaria pellucidaria</i> |
| 12        | 194        | Red pine sawfly            | <i>Neodiprion annulus annulus</i>      |
| 12        | 195        | Pine tip moth              | <i>Argyrotaenia pinatubana</i>         |
| 12        | 196        | Baldcypress leafroller     | <i>Archips goyerana</i>                |
| 12        | 197        | Winter moth                | <i>Operophtera</i>                     |
| 12        | 198        | Basswood thrip             | <i>Neohydatothrips</i>                 |
| 12        | 199        | Noctuid moth               | <i>Xylomyges simplex (walker)</i>      |
| 12        | 200        | Pyralid moth               | <i>Palpita magniferalis</i>            |
| 12        | 201        | Pacific silver fir budmoth | <i>Zeiraphera sp. Destitutana</i>      |
| <b>13</b> | <b>000</b> | <b>Chewing insects</b>     | <b>n/a</b>                             |
| 13        | 001        | Grasshopper                | <i>n/a</i>                             |
| 13        | 002        | Shorthorn grasshoppers     | <i>Acrididae</i>                       |
| 13        | 003        | Black cutworm              | <i>Agrotis ipsilon</i>                 |
| 13        | 004        | Palau coconut beetle       | <i>Brontispa palauensis</i>            |
| 13        | 005        | Clearwinged grasshopper    | <i>Camnula pellucid</i>                |

| Category | Agent | Common Name                    | Scientific Name               |
|----------|-------|--------------------------------|-------------------------------|
| 13       | 006   | Cicadas                        | <i>Cicadidae</i>              |
| 13       | 007   | Eurytomids                     | <i>Eurytoma spp.</i>          |
| 13       | 008   | Cutworms                       | <i>Euxoa excellens</i>        |
| 13       | 009   | Whitefringed beetles           | <i>Graphognathus spp.</i>     |
| 13       | 010   | Pales weevil                   | <i>Hylobius pales</i>         |
| 13       | 011   | Vegetable weevil               | <i>Listroderes difficilis</i> |
| 13       | 012   | Periodical cicada              | <i>Magicicada septendecim</i> |
| 13       | 013   | Migratory grasshopper          | <i>Melanoplus sanguinipes</i> |
| 13       | 014   | Valley grasshopper             | <i>Oedaleonotus enigma</i>    |
| 13       | 015   | Strawberry root weevil         | <i>Otiorhynchus ovatus</i>    |
| 13       | 016   | Black vine weevil              | <i>Otiorhynchus sulcatus</i>  |
| 13       | 017   | Pandanus beetle                | <i>Oxycephala pandani</i>     |
| 13       | 018   | Spaeth pandanus                | <i>Oxycephala spaethi</i>     |
| 13       | 019   | Agamemnon butterfly            | <i>Papilio agememnon</i>      |
| 13       | 020   | Northern pitch twig moth       | <i>Petrova albicapitana</i>   |
| 13       | 021   | Ponderosa pine tip moth        | <i>Rhyacionia zozana</i>      |
| 13       | 022   | Pine needle weevil             | <i>Scythropus spp.</i>        |
| 13       | 023   | Coconut longhorned grasshopper | <i>Segestes unicolor</i>      |
| 13       | 024   | Clover root curculio           | <i>Sitona hispidulus</i>      |
| 13       | 025   | Unknown                        | <i>Thrips madronii</i>        |
| 13       | 026   | Ash plant bug                  | <i>Tropidosteptes amoenus</i> |
| 13       | 027   | Shorthorned grasshopper        | <i>Valanga nigricornis</i>    |
| 13       | 028   | Pitch-eating weevil            | <i>Pachylobius picivorus</i>  |
| 13       | 029   | Deodar weevil                  | <i>Pissodes nemorensis</i>    |
| 13       | 030   | Adana tip moth                 | <i>Rhyacionia adana</i>       |

| Category  | Agent      | Common Name               | Scientific Name                |
|-----------|------------|---------------------------|--------------------------------|
| <b>14</b> | <b>000</b> | <b>Sucking insects</b>    | <b>n / a</b>                   |
| 14        | 001        | Scale insect              | <i>n/a</i>                     |
| 14        | 002        | Western larch wooly aphid | <i>Adelges oregonensis</i>     |
| 14        | 003        | Balsam woolly adelgid     | <i>Adelges piceae</i>          |
| 14        | 004        | Hemlock wooly adelgid     | <i>Adelges tsugae</i>          |
| 14        | 005        | Spiraling whitefly        | <i>Aleurodicus disperses</i>   |
| 14        | 006        | Aphid                     | <i>Aphididae</i>               |
| 14        | 007        | Pine spittlebug           | <i>Aphrophora parallela</i>    |
| 14        | 008        | Western pine spittlebug   | <i>Aphrophora permutata</i>    |
| 14        | 009        | Saratoga spittlebug       | <i>Aphrophora saratogensis</i> |
| 14        | 010        | Spittlebug                | <i>Cercopidae</i>              |
| 14        | 011        | Wax scale                 | <i>Ceroplastes spp.</i>        |
| 14        | 012        | Pine needle scale         | <i>Chionaspis pinifoliae</i>   |
| 14        | 014        | Giant conifer aphid       | <i>Cinara spp.</i>             |
| 14        | 015        | White pine aphid          | <i>Cinara strobe</i>           |
| 14        | 016        | Beech scale               | <i>Cryptococcus fagisuga</i>   |
| 14        | 017        | Spruce aphid              | <i>Elatobium anatinum</i>      |
| 14        | 018        | Woolly apple aphid        | <i>Eriosoma lanigerum</i>      |
| 14        | 019        | Striped mealybug          | <i>Ferrisia vergata</i>        |
| 14        | 020        | Elongate hemlock scale    | <i>Fiorinia externa</i>        |
| 14        | 021        | Coconut red scale         | <i>Furcaspis oceanica</i>      |
| 14        | 022        | Pine thrips               | <i>Gnophothrips spp.</i>       |
| 14        | 023        | Leucaena psyllid          | <i>Heteropsylla cubana</i>     |
| 14        | 024        | Honeysuckle aphid         | <i>Hyadaphis tataricae</i>     |
| 14        | 025        | Egyptian fluted scale     | <i>Icerya aegyptiaca</i>       |

| Category | Agent | Common Name               | Scientific Name                     |
|----------|-------|---------------------------|-------------------------------------|
| 14       | 026   | Lecanium scale            | <i>Lecanium spp.</i>                |
| 14       | 027   | Common falsepit scale     | <i>Lecanodiaspis prosopidis</i>     |
| 14       | 028   | Oystershell scale         | <i>Lepidosaphes ulmi</i>            |
| 14       | 029   | Pinyon needle scale       | <i>Matsucoccus acalyptus</i>        |
| 14       | 030   | Ponderosa pine twig scale | <i>Matsucoccus bisetosus</i>        |
| 14       | 031   | Pine twig scale           | <i>Matsucoccus californicus</i>     |
| 14       | 032   | Ponderosa pine scale      | <i>Matsucoccus degeratus</i>        |
| 14       | 033   | Red pine scale            | <i>Matsucoccus resinosae</i>        |
| 14       | 034   | Prescott scale            | <i>Matsucoccus vexillorum</i>       |
| 14       | 035   | Treehoppers               | <i>Membracidae</i>                  |
| 14       | 036   | Hibiscus psyllid          | <i>Mesohomotoma hibisci</i>         |
| 14       | 037   | Balsam twig aphid         | <i>Mindarus abietinus</i>           |
| 14       | 038   | Hibiscus mealybug         | <i>Nipaecoccus vastator</i>         |
| 14       | 039   | Black pineleaf scale      | <i>Nuculaspis California</i>        |
| 14       | 040   | Spruce spider mite        | <i>Oligonychus ununquis</i>         |
| 14       | 041   | Twig girdler              | <i>Oncideres cingulate</i>          |
| 14       | 042   | Woolly alder aphid        | <i>Paraprociophilus tessellatus</i> |
| 14       | 043   | Maple aphid               | <i>Periphyllus spp.</i>             |
| 14       | 044   | Spruce bud scale          | <i>Physokermes piceae</i>           |
| 14       | 045   | Red pine adelgid          | <i>Pineus borneri</i>               |
| 14       | 046   | Pine leaf adelgid         | <i>Pineus pinifoliae</i>            |
| 14       | 047   | White pine adelgid        | <i>Pineus spp.</i>                  |
| 14       | 048   | Pine bark adelgid         | <i>Pineus strobe</i>                |
| 14       | 049   | Root aphid                | <i>Prociphilus americanus</i>       |
| 14       | 050   | Mealybug                  | <i>Pseudococcidae</i>               |

| Category  | Agent      | Common Name               | Scientific Name                     |
|-----------|------------|---------------------------|-------------------------------------|
| 14        | 051        | Cottony maple scale       | <i>Pulvinaria innumerabilis</i>     |
| 14        | 052        | Fir mealybug              | <i>Puto cupressi</i>                |
| 14        | 053        | Douglas-fir mealybug      | <i>Puto profusus</i>                |
| 14        | 054        | Spruce mealybug           | <i>Puto sandini</i>                 |
| 14        | 055        | Hemispherical scale       | <i>Saissetia coffeae</i>            |
| 14        | 056        | Woolly pine needle aphid  | <i>Schizolachnus piniradiatae</i>   |
| 14        | 057        | Steatococcus scale        | <i>Steatococcus samaraius</i>       |
| 14        | 058        | Pear thrip                | <i>Taeniothrips inconsequens</i>    |
| 14        | 059        | Mulberry whitefly         | <i>Tetraleurodes mori</i>           |
| 14        | 060        | Tuliptree scale           | <i>Toumeyella liriodendra</i>       |
| 14        | 061        | Pine tortoise scale       | <i>Toumeyella parvicornis</i>       |
| 14        | 062        | Citrus snow scale         | <i>Unaspis citri</i>                |
| 14        | 063        | Birch aphid               | <i>Euceraphis betulae</i>           |
| 14        | 067        | Woolly pine scale         | <i>Pseudophilippia quaintancii</i>  |
| 14        | 068        | European elm scale        | <i>Gossyparia spuria</i>            |
| 14        | 069        | Elm scurfy scale          | <i>Chionaspis Americana</i>         |
| 14        | 070        | Magnolia scale            | <i>Neolecanium cornuparvum</i>      |
| 14        | 071        | Beech blight aphid        | <i>Grylloprociphilus imbricator</i> |
| 14        | 072        | Beech woolly aphid        | <i>Phyllaphis fagi</i>              |
| <b>15</b> | <b>000</b> | <b>Boring insects</b>     | <b>n/a</b>                          |
| 15        | 001        | Shoot borer               | <i>n/a</i>                          |
| 15        | 002        | Termite                   | <i>n/a</i>                          |
| 15        | 003        | Ponderosa pine bark borer | <i>Acanthocinus princeps</i>        |
| 15        | 004        | Bronze birch borer        | <i>Agrilus anxius</i>               |
| 15        | 005        | Twolined chestnut borer   | <i>Agrilus bilineatus</i>           |

| Category | Agent | Common Name                 | Scientific Name                  |
|----------|-------|-----------------------------|----------------------------------|
| 15       | 006   | Bronze poplar borer         | <i>Agrilus liragus</i>           |
| 15       | 007   | Carpenter bees              | <i>Apidae</i>                    |
| 15       | 008   | Flatheaded borer            | <i>Buprestidae</i>               |
| 15       | 009   | Golden buprestid            | <i>Buprestis aurulenta</i>       |
| 15       | 010   | Carpenter ants              | <i>Camponotus spp.</i>           |
| 15       | 011   | Gouty pitch midge           | <i>Cecidomyia piniinopis</i>     |
| 15       | 012   | Shootboring sawflies        | <i>Cephidae</i>                  |
| 15       | 013   | Roundheaded borer           | <i>Cermbycidae</i>               |
| 15       | 014   | Flatheaded apple tree borer | <i>Chrysobothris femorata</i>    |
| 15       | 015   | Cranberry girdler           | <i>Chrysoteuchia topiaria</i>    |
| 15       | 016   | Columbian timber beetle     | <i>Corthylus columbianus</i>     |
| 15       | 017   | Pitted ambrosia beetle      | <i>Corthylus punctatissimus</i>  |
| 15       | 018   | Carpenterworm moth          | <i>Cossidae</i>                  |
| 15       | 019   | Poplar and willow borer     | <i>Cryptorhynchus lapathi</i>    |
| 15       | 020   | Pine reproduction weevil    | <i>Cylindrocopturus eatoni</i>   |
| 15       | 021   | Douglas-fir twig weevil     | <i>Cylindrocopturus furnissi</i> |
| 15       | 022   | Zimmerman pine moth         | <i>Dioryctria zimmermani</i>     |
| 15       | 023   | Oak twig pruners            | <i>Elaphidionoides spp.</i>      |
| 15       | 024   | Twig pruner                 | <i>Elaphidionoides villosus</i>  |
| 15       | 025   | Lesser cornstalk borer      | <i>Elasmopalpus lignosellus</i>  |
| 15       | 026   | Red oak borer               | <i>Enaphalodes rufulus</i>       |
| 15       | 027   | Ponderous borer             | <i>Ergates spiculatus</i>        |
| 15       | 028   | Eastern pine shoot borer    | <i>Eucoma glorirole</i>          |
| 15       | 029   | Western pine shoot borer    | <i>Eucosma sonomana</i>          |
| 15       | 030   | Eucosma species             | <i>Eucosma spp.</i>              |

| Category | Agent | Common Name                 | Scientific Name                 |
|----------|-------|-----------------------------|---------------------------------|
| 15       | 031   | Sugar maple borer           | <i>Glycobius speciosus</i>      |
| 15       | 032   | Goes borer                  | <i>Goes spp.</i>                |
| 15       | 033   | Pine root collar weevil     | <i>Hylobius radices</i>         |
| 15       | 034   | Warren's collar weevil      | <i>Hylobius warren</i>          |
| 15       | 035   | Powderpost beetle           | <i>Lyctidae</i>                 |
| 15       | 036   | Tarnished plant bug         | <i>Lygus lineolaris</i>         |
| 15       | 037   | Unknown                     | <i>Magdalis spp.</i>            |
| 15       | 038   | White pine bark miner       | <i>Marmara fasciella</i>        |
| 15       | 039   | Locust borer                | <i>Megacyclene robiniae</i>     |
| 15       | 040   | California flathead borer   | <i>Melanophila californica</i>  |
| 15       | 041   | Flatheaded fir borer        | <i>Melanophila drummondi</i>    |
| 15       | 042   | Whitespotted sawyer         | <i>Monochamus scutellatus</i>   |
| 15       | 043   | Redheaded ash borer         | <i>Neoclytus acuminatus</i>     |
| 15       | 044   | Western ash borer           | <i>Neoclytus conjunctus</i>     |
| 15       | 045   | Oberea shoot borer          | <i>Oberea spp.</i>              |
| 15       | 046   | Eucalyptus longhorned borer | <i>Phoracantha semipunctata</i> |
| 15       | 047   | Northern pine weevil        | <i>Pissodes approximatus</i>    |
| 15       | 048   | Unknown                     | <i>Pissodes dubias</i>          |
| 15       | 049   | Monterey pine weevil        | <i>Pissodes radiatae</i>        |
| 15       | 050   | White pine weevil           | <i>Pissodes radiatae</i>        |
| 15       | 051   | Lodgepole terminal weevil   | <i>Pissodes terminalis</i>      |
| 15       | 052   | Ambrosia beetles            | <i>Platypus spp.</i>            |
| 15       | 053   | Cottonwood borer            | <i>Plectrodera scalator</i>     |
| 15       | 054   | Balsam shootboring sawfly   | <i>Pleroneura brunneicornis</i> |
| 15       | 055   | Pine gall weevil            | <i>Podapion gallicola</i>       |

| Category | Agent | Common Name                  | Scientific Name                   |
|----------|-------|------------------------------|-----------------------------------|
| 15       | 056   | Ash borer                    | <i>Podsesia syringae</i>          |
| 15       | 057   | Lilac borer                  | <i>Podsesia syringae</i>          |
| 15       | 058   | Carpenterworm                | <i>Prionoxystus robiniae</i>      |
| 15       | 059   | Maple shoot borer            | <i>Proterteras spp.</i>           |
| 15       | 060   | Western subterranean termite | <i>Reticulitermes Hesperus</i>    |
| 15       | 061   | Coconut trunk weevil         | <i>Rhabdoscelus asperipennis</i>  |
| 15       | 062   | New Guinea sugarcane weevil  | <i>Rhabdoscelus obscurus</i>      |
| 15       | 063   | European pine shoot moth     | <i>Rhyacionia buoliana</i>        |
| 15       | 064   | Western pine tip moth        | <i>Rhyacionia bushnelli</i>       |
| 15       | 065   | Nantucket pine tip moth      | <i>Rhyacionia frustrana</i>       |
| 15       | 066   | Lodgepole pine tip moth      | <i>Rhyacionia montana</i>         |
| 15       | 067   | Southwestern pine tip moth   | <i>Rhyacionia neomexicana</i>     |
| 15       | 068   | Poplar borer                 | <i>Saperda calcarata</i>          |
| 15       | 069   | Roundheaded appletree borer  | <i>Saperda candida</i>            |
| 15       | 070   | Saperda shoot borer          | <i>Saperda spp.</i>               |
| 15       | 071   | Clearwing moths              | <i>Sesiidae</i>                   |
| 15       | 072   | Dogwood borer                | <i>Synanthedon scitula</i>        |
| 15       | 073   | Roundheaded fir borer        | <i>Tetropium abietis</i>          |
| 15       | 074   | Western larch borer          | <i>Tetropium velutinum</i>        |
| 15       | 075   | Western cedar borer          | <i>Trachykele blondeli</i>        |
| 15       | 076   | Douglas-fir pitch moth       | <i>Vespamima novaroensis</i>      |
| 15       | 077   | Sequoia pitch moth           | <i>Vespamima sequoia</i>          |
| 15       | 078   | Black twig borer             | <i>Xylosandrus compactus</i>      |
| 15       | 079   | Pacific dampwood termite     | <i>Zootermopsis angusticollis</i> |
| 15       | 080   | Subtropical pine tip moth    | <i>Rhyacionia subtropica</i>      |

| Category  | Agent      | Common Name                                 | Scientific Name                   |
|-----------|------------|---------------------------------------------|-----------------------------------|
| 15        | 081        | Asian ambrosia beetle                       | <i>Xylosandrus crassifusculus</i> |
| 15        | 082        | Asian longhorned beetle                     | <i>Anoplophora glabripennis</i>   |
| 15        | 083        | Cottonwood twig borer                       | <i>Gypsonoma haimbachiana</i>     |
| 15        | 084        | Southern pine sawyer                        | <i>Monochamus titillator</i>      |
| 15        | 085        | Banded as borer                             | <i>Neoclytus capraea</i>          |
| 15        | 086        | Sitka spruce weevil                         | <i>Pissodes sitchensis</i>        |
| 15        | 087        | Emerald ash borer                           | <i>Agrilus planipennis</i>        |
| 15        | 088        | Hemlock borer                               | <i>Melanophila fullvoguttata</i>  |
| <b>16</b> | <b>000</b> | <b>Seed / Cone / Flower / Fruit Insects</b> | <b>n / a</b>                      |
| 16        | 001        | Douglas-fir cone moth                       | <i>Barbara colfaxiana</i>         |
| 16        | 002        | Lodgepole cone beetle                       | <i>Conophthorus contortae</i>     |
| 16        | 003        | Limber pine cone beetle                     | <i>Conophthorus flexilis</i>      |
| 16        | 004        | Mountain pine cone beetle                   | <i>Conophthorus monticolae</i>    |
| 16        | 005        | Ponderosa pine cone beetle                  | <i>Conophthorus ponderosae</i>    |
| 16        | 006        | Monterey pine cone beetle                   | <i>Conophthorus radiatae</i>      |
| 16        | 007        | Red pine cone beetle                        | <i>Conophthorus resinosae</i>     |
| 16        | 008        | White pine cone beetle                      | <i>Conophthorus coniperda</i>     |
| 16        | 009        | Black walnut curculio                       | <i>Conotrachelus retentus</i>     |
| 16        | 010        | Douglas-fir cone midge                      | <i>Contarinia oregonesis</i>      |
| 16        | 011        | Cone scale midge                            | <i>Contarinia washingtonensis</i> |
| 16        | 012        | Pecan                                       | <i>Curculio spp.</i>              |
| 16        | 013        | Caroline fruitfly                           | <i>Dacus frauenfeldi</i>          |
| 16        | 014        | Spruce bud midge                            | <i>Dasineura swainei</i>          |
| 16        | 015        | Fir coneworm                                | <i>Dioryctria abietivorella</i>   |
| 16        | 016        | Southern pine cone worm                     | <i>Dioryctria amatella</i>        |

| Category | Agent | Common Name                   | Scientific Name                  |
|----------|-------|-------------------------------|----------------------------------|
| 16       | 017   | Pine cone worm                | <i>Dioryctria merkei</i>         |
| 16       | 018   | Loblolly pine cone worm       | <i>Dioryctria ponderosae</i>     |
| 16       | 019   | Ponderosa twig moth           | <i>Dioryctria ponderosae</i>     |
| 16       | 020   | Unknown                       | <i>Dioryctria pseudotsugella</i> |
| 16       | 021   | Dioryctria moths              | <i>Dioryctria spp.</i>           |
| 16       | 022   | Lodgepole cone moth           | <i>Eucosma rescissoriana</i>     |
| 16       | 023   | Seed chalcid                  | <i>Eurytomidae</i>               |
| 16       | 024   | Slash pine flower thrip       | <i>Gnophothrips fuscus</i>       |
| 16       | 025   | Cone maggot                   | <i>Hylemya anthracina</i>        |
| 16       | 026   | Longleaf pine seed worm/moth  | <i>Laspeyrsia ingens</i>         |
| 16       | 027   | Ponderosa pine seed worm/moth | <i>Laspeyresia piperana</i>      |
| 16       | 028   | Spruce seed moth              | <i>Laspeyresia youngana</i>      |
| 16       | 029   | Boxelder bug                  | <i>Leptocoris trivittatus</i>    |
| 16       | 030   | Leaffooted pine seed bug      | <i>Leptoglossus corculus</i>     |
| 16       | 031   | Western conifer seed bug      | <i>Leptoglossus occidentalis</i> |
| 16       | 032   | Hollyhock thrip               | <i>Liothrips varicornis</i>      |
| 16       | 033   | Unknown                       | <i>Magastigmus lasiocarpae</i>   |
| 16       | 034   | Spruce seed chalcid           | <i>Magastigmus piceae</i>        |
| 16       | 035   | Ponderosa pine seed chalcid   | <i>Megastigmus albifrons</i>     |
| 16       | 036   | Fir seed chalcid              | <i>Megastigmus pinus</i>         |
| 16       | 037   | Douglas-fir seed chalcid      | <i>Megastigmus spermotrophs</i>  |
| 16       | 038   | Yellow poplar weevil          | <i>Odontopus calceatus</i>       |
| 16       | 039   | Fruitpiercing moth            | <i>Othreis fullonia</i>          |
| 16       | 040   | Roundheaded cone borer        | <i>Paratimia conicola</i>        |
| 16       | 041   | Mango shoot caterpillar       | <i>Penicillaria jocosatrix</i>   |

| Category  | Agent      | Common Name                   | Scientific Name                    |
|-----------|------------|-------------------------------|------------------------------------|
| 16        | 042        | Coneworm                      | <i>Phycitidae</i>                  |
| 16        | 043        | Harvester ants                | <i>Pogonomyrmex spp.</i>           |
| 16        | 044        | Citrus flower moth            | <i>Prays citri</i>                 |
| 16        | 045        | Fir cone maggot               | <i>Strobilomyia abietis</i>        |
| 16        | 046        | Spruce cone maggot            | <i>Strobilomyia anthracina</i>     |
| 16        | 047        | Shieldbacked pine seed bug    | <i>Tetyra bipunctata</i>           |
| 16        | 048        | Coneworm                      | <i>Hylemia spp.</i>                |
| 16        | 049        | Prairie tent caterpillar      | <i>Malacosoma lutescens</i>        |
| 16        | 050        | Jack pine tip beetle          | <i>Conophthorus banksianae</i>     |
| <b>17</b> | <b>000</b> | <b>Gallmarker insects</b>     | <b>n / a</b>                       |
| 17        | 001        | Birch budgall mite            | <i>Aceria rudis</i>                |
| 17        | 002        | Eastern spruce gall adelgid   | <i>Adelges abietis</i>             |
| 17        | 003        | Cooley spruce gall adelgid    | <i>Adelges cooleyi</i>             |
| 17        | 004        | Horned oak gall               | <i>Callirhytis cornigera</i>       |
| 17        | 005        | Gouty oak gall                | <i>Callirhytis quercuspunctata</i> |
| 17        | 006        | Gall midge                    | <i>Cecidomyiidae</i>               |
| 17        | 007        | Douglas-fir needle gall midge | <i>Contarinia pseudotsugae</i>     |
| 17        | 008        | Gall mite                     | <i>Eriophyidae</i>                 |
| 17        | 009        | Spruce gall mite              | <i>Mayetiola piceae</i>            |
| 17        | 010        | Hackberry nipplegall maker    | <i>Pachypsylla celtidismamma</i>   |
| 17        | 011        | Balsam gall midge             | <i>Paradiplosis tumifex</i>        |
| 17        | 012        | Leaf stem gall adelgid        | <i>Phylloxera caryaecaulis</i>     |
| 17        | 013        | Gall aphid                    | <i>Phylloxeridae</i>               |
| 17        | 014        | Alder gall mite               | <i>Phytoptus laevis</i>            |
| 17        | 015        | Psyllid                       | <i>Psyllidae</i>                   |

| Category  | Agent      | Common Name                  | Scientific Name               |
|-----------|------------|------------------------------|-------------------------------|
| 17        | 016        | Sugarberry psyllid           | <i>Tetragonocephela flava</i> |
| 17        | 017        | Mountain apple psyllid       | <i>Trioza vitiensis</i>       |
| 17        | 018        | Gouty pitch midge            | <i>Cecidomyia piniinopsis</i> |
| 17        | 019        | Spider mites                 | <i>Oligonychus spp.</i>       |
| 17        | 021        | Jumping oak gall wasp        | <i>Neuroterus saltatorius</i> |
| <b>18</b> | <b>000</b> | <b>Insect predators</b>      | <b>n / a</b>                  |
| 18        | 001        | Lacewing                     | <i>n/a</i>                    |
| 18        | 002        | Blackbellied clerid          | <i>Enoclerus lecontei</i>     |
| 18        | 003        | Redbellied clerid            | <i>Enoclerus sphegeus</i>     |
| 18        | 004        | Unknown                      | <i>Formica rufa</i>           |
| 18        | 005        | Western yellowjacket         | <i>Vespula pennsylvanica</i>  |
| <b>19</b> | <b>000</b> | <b>General diseases</b>      | <b>n / a</b>                  |
| <b>20</b> | <b>000</b> | <b>Biotic damage</b>         | <b>n / a</b>                  |
| 20        | 001        | Damping off                  | <i>n/a</i>                    |
| 20        | 002        | Gray mold                    | <i>Botrytis cinerea</i>       |
| 20        | 003        | Cassytha                     | <i>Cassytha filiformis</i>    |
| 20        | 004        | Hemlock fluting              | <i>n/a</i>                    |
| <b>21</b> | <b>000</b> | <b>Root / butt diseases</b>  | <b>n / a</b>                  |
| 21        | 001        | Armillaria root disease      | <i>Amillaria spp.</i>         |
| 21        | 002        | Yellow stringy rot           | <i>Corticium galactimum</i>   |
| 21        | 003        | Cylindrocladium root disease | <i>Cylindrocladium spp.</i>   |
| 21        | 004        | Brown crumbly rot            | <i>Fomitopsis pinicola</i>    |
| 21        | 005        | Black root rot of pine       | <i>Fusarium oxysporum</i>     |
| 21        | 006        | Fusarium root rot            | <i>Fusarium spp.</i>          |
| 21        | 007        | White mottled rot            | <i>Ganoderma applanatum</i>   |

| Category  | Agent      | Common Name                      | Scientific Name                        |
|-----------|------------|----------------------------------|----------------------------------------|
| 21        | 008        | Ganoderma rot of hardwoods       | <i>Ganoderma lucidum</i>               |
| 21        | 009        | Ganoderma rot of conifers        | <i>Ganoderma tsugae</i>                |
| 21        | 010        | Annosus root disease             | <i>Heterobasidion annosum</i>          |
| 21        | 011        | Circinatus root rot              | <i>Inonotus circinatus</i>             |
| 21        | 012        | Tomentosus root disease          | <i>Inonotus tomentosus</i>             |
| 21        | 013        | Charcoal root rot                | <i>Macrophomina phaseolina</i>         |
| 21        | 014        | Black stain root disease         | <i>Ophiostoma wagneri</i>              |
| 21        | 015        | Schweinitzii butt rot            | <i>Phaeolus schweinitzii</i>           |
| 21        | 016        | Flame tree root disease          | <i>Phellinus noxious</i>               |
| 21        | 017        | Laminated root rot               | <i>Phellinus weirii</i>                |
| 21        | 018        | Phytophthora root rot            | <i>Phytophthora cinnamomi</i>          |
| 21        | 019        | Littleleaf disease               | <i>Phytophthora cinnamomi</i> /Pythium |
| 21        | 020        | Port-Orchard-Cedar root disease  | <i>Phytophthora lateralis</i>          |
| 21        | 022        | Pythium root rot                 | <i>Pythium spp.</i>                    |
| 21        | 023        | Procera root disease of conifers | <i>Verticicladiella procera</i>        |
| 21        | 024        | Crown gall                       | <i>Agrobacterium timefaciens</i>       |
| 21        | 025        | Borealis conk                    | <i>Climacocystis borealis</i>          |
| 21        | 026        | Yellow pitted rot                | <i>Hericius abietis</i>                |
| 21        | 027        | Brown cubical rot                | <i>Laetiporus sulphureus</i>           |
| 21        | 028        | Sudden oak death                 | <i>Phytophthora ramorum</i>            |
| <b>22</b> | <b>000</b> | <b>Stem decays/cankers</b>       | <b>n/a</b>                             |
| 22        | 001        | Heart rot                        | n/a                                    |
| 22        | 002        | Stem rot                         | n/a                                    |
| 22        | 003        | Sap rot                          | n/a                                    |
| 22        | 004        | Slime flux                       | n/a                                    |

| Category | Agent | Common Name                    | Scientific Name                             |
|----------|-------|--------------------------------|---------------------------------------------|
| 22       | 005   | Virus                          | <i>n/a</i>                                  |
| 22       | 006   | Black knot of cherry           | <i>Apiosporina morbosa</i>                  |
| 22       | 007   | Atropellis canker              | <i>Atropellis piniphila</i>                 |
| 22       | 008   | Siberian elm canker            | <i>Botryodiplodia hypodermia</i>            |
| 22       | 009   | Botryosphaeria canker          | <i>Botryosphaeria ribis</i>                 |
| 22       | 010   | Black rot fungus               | <i>Botryosphaeria stevensii</i>             |
| 22       | 011   | Caliciopsis canker             | <i>Caliciopsis pinea</i>                    |
| 22       | 012   | Black canker of aspen          | <i>Ceratocystis fimbriata</i>               |
| 22       | 013   | Sycamore canker stain          | <i>Ceratocystis fimbriata f.sp. platani</i> |
| 22       | 023   | Chestnut blight                | <i>Cryphonectria parasitica</i>             |
| 22       | 024   | Gray-brown saprot              | <i>Cryptoporus volvatus</i>                 |
| 22       | 025   | Cryptosphaeria canker of aspen | <i>Cryptosphaeria populina</i>              |
| 22       | 026   | Cytospora canker of fir        | <i>Cytospora abietis</i>                    |
| 22       | 027   | Western red rot                | <i>Dichomitus squalens</i>                  |
| 22       | 028   | Rust-red stringy rot           | <i>Echinodontium tinctorium</i>             |
| 22       | 029   | Sooty-bark canker              | <i>Encoelia pruinosa</i>                    |
| 22       | 030   | Eutypella canker               | <i>Eutypella parasitica</i>                 |
| 22       | 031   | Fusarium cortical stem rot     | <i>Fusarium avenaceum</i>                   |
| 22       | 032   | Pitch canker                   | <i>Fusarium subglutinans</i>                |
| 22       | 033   | Fusicoccum canker              | <i>Fusicoccum spp.</i>                      |
| 22       | 034   | Scleroderris canker            | <i>Gremmeniella abietina</i>                |
| 22       | 035   | Amelanchier rust               | <i>Gymnosporangium harknessianum</i>        |
| 22       | 036   | Cedar apple rust               | <i>Gymnosporangium juniper-virginianae</i>  |
| 22       | 037   | Hypoxylon canker of oak        | <i>Hypoxylon atopunctatum</i>               |

| Category | Agent | Common Name                     | Scientific Name                       |
|----------|-------|---------------------------------|---------------------------------------|
| 22       | 038   | Hypoxylon canker of aspen       | <i>Hypoxylon mammatum</i>             |
| 22       | 039   | Canker rot of oak               | <i>Inonotus hispidus</i>              |
| 22       | 040   | Sterile conk trunk rot of birch | <i>Inonotus obliquus</i>              |
| 22       | 041   | European larch canker           | <i>Lachnellula willkommii</i>         |
| 22       | 042   | Beech bark disease              | <i>Nectia coccinea</i>                |
| 22       | 043   | Nectria canker                  | <i>Nectria galligena</i>              |
| 22       | 044   | Ash heart rot                   | <i>Pereniporia fraxinophila</i>       |
| 22       | 047   | Red ring rot                    | <i>Phellinus pini</i>                 |
| 22       | 048   | Aspen trunk rot                 | <i>Phellinus tremulae</i>             |
| 22       | 049   | Stem decay of black walnut      | <i>Phellinus weirianus</i>            |
| 22       | 050   | Phomopsis canker                | <i>Phomopsis occulta</i>              |
| 22       | 051   | Phomopsis canker                | <i>Phomopsis spp.</i>                 |
| 22       | 052   | Leyland cypress canker          | <i>Seriridium cardinal</i>            |
| 22       | 053   | Butternut canker                | <i>Sirococcus clavigignenti-jugl.</i> |
| 22       | 054   | Maple canker                    | <i>Steganosporium spp.</i>            |
| 22       | 055   | Thyronectria canker             | <i>Thyronectria austro-americana</i>  |
| 22       | 056   | Citrus canker                   | <i>Xanthomonas citri</i>              |
| 22       | 057   | Cytospora canker of aspen       | <i>Cytospora chrysosperma</i>         |
| 22       | 058   | Dothichiza canker               | <i>Dothichiza populae</i>             |
| 22       | 059   | Red belt fungus                 | <i>Fomitopsis pinicola</i>            |
| 22       | 060   | Leucocytospora canker of spruce | <i>Leucocytospora kunzei</i>          |
| 22       | 061   | Sooty bark canker               | <i>Phialis singular</i>               |
| 22       | 062   | Brown heartrot                  | <i>Fomitopsis officinalis</i>         |
| 22       | 063   | Unknown                         | <i>Coniophora puteana</i>             |
| 22       | 064   | Tinder fungus                   | <i>Fomes formntarius</i>              |

| Category | Agent | Common Name                      | Scientific Name                                 |
|----------|-------|----------------------------------|-------------------------------------------------|
| 22       | 065   | Purple conk                      | <i>Hirschioporus abietinus</i>                  |
| 22       | 066   | Pinyon black stain               | <i>Leptographium wagnerii</i>                   |
| 22       | 067   | Unknown                          | <i>Phelinus hartigii</i>                        |
| 22       | 068   | False tinder fungus              | <i>Phellinus igniarius</i>                      |
| 22       | 069   | Robustus conk                    | <i>Phellinus robustus</i>                       |
| 22       | 070   | Yellow cap fungus                | <i>Pholiota spp.</i>                            |
| 22       | 071   | Oyster mushroom                  | <i>Pleurotus ostreatus</i>                      |
| 22       | 072   | White ring rot                   | <i>Poria albipellucida</i>                      |
| 22       | 073   | Hemlock canker                   | <i>Xenomeris abietis</i>                        |
| 22       | 074   | Cedar brown pocket rot           | <i>Poria serceomollis</i>                       |
| 22       | 075   | Lachnellula canker               | <i>Lachnellula flavovirens</i>                  |
| 22       | 076   | Strumella canker                 | <i>Strumella coryneoidea</i>                    |
| 22       | 077   | Phomopsis blight                 | <i>Phomopsis juniperovora</i>                   |
| 22       | 078   | Fusarium canker of yellow poplar | <i>Fusarium solani</i>                          |
| 22       | 079   | Sterile conk of maple and beech  | <i>Inonotus glomeratus</i>                      |
| 22       | 080   | Canker of spruce                 | <i>Aleurodiscus spp.</i>                        |
| 22       | 081   | Birch conk                       | <i>Piptoporus betulinusai</i>                   |
| 22       | 082   | Canker                           | <i>Discocainia treleasei</i>                    |
| 23       | 000   | Parasitic/epiphytic plants       | <i>n/a</i>                                      |
| 23       | 001   | Mistletoe                        | <i>n/a</i>                                      |
| 23       | 002   | Parasitic plants                 | <i>n/a</i>                                      |
| 23       | 003   | Vine damage                      | <i>n/a</i>                                      |
| 23       | 004   | White fir dwarf mistletoe        | <i>Arceuthobium abietinum f. sp. Concoloris</i> |
| 23       | 006   | Lodgepole pine dwarf mistletoe   | <i>Arceuthobium americanum</i>                  |
| 23       | 007   | Apache dwarf mistletoe           | <i>Arceuthobium apachecum</i>                   |

| Category  | Agent      | Common Name                                    | Scientific Name                                            |
|-----------|------------|------------------------------------------------|------------------------------------------------------------|
| 23        | 008        | Western dwarf mistletoe                        | <i>Arceuthobium compylopodum</i>                           |
| 23        | 009        | Limber pine dwarf mistletoe                    | <i>Arceuthobium cyanocarpum</i>                            |
| 23        | 010        | Pinyon dwarf mistletoe                         | <i>Arceuthobium divaricatum</i>                            |
| 23        | 011        | Douglas-fir dwarf mistletoe                    | <i>Arceuthobium douglasii</i>                              |
| 23        | 012        | Chihuahua pine dwarf mistletoe                 | <i>Arceuthobium gillii</i>                                 |
| 23        | 013        | Larch dwarf mistletoe                          | <i>Arceuthobium laricis</i>                                |
| 23        | 014        | Western spruce dwarf mistletoe                 | <i>Arceuthobium microcarpum</i>                            |
| 23        | 015        | Eastern dwarf mistletoe                        | <i>Arceuthobium pusillum</i>                               |
| 23        | 016        | Hemlock dwarf mistletoe                        | <i>Arceuthobium tsugense</i>                               |
| 23        | 017        | Southwestern dwarf mistletoe                   | <i>Arceuthobium vaginatum</i><br><i>subsp. Cryptopodum</i> |
| 23        | 018        | Dodder                                         | <i>Cuscuta spp.</i>                                        |
| 23        | 019        | White fir mistletoe                            | <i>Phoradendron bolleanum</i> sbsp.<br><i>Pauciflorum</i>  |
| 23        | 020        | True mistletoe (other)                         | <i>n/a</i>                                                 |
| 23        | 021        | Red fir dwarf mistletoe                        | <i>Arceuthobium abietinum</i> f. sp.<br><i>Pauciflorum</i> |
| 23        | 022        | Juniper true mistletoe                         | <i>Phoradendron junipeum</i>                               |
| <b>24</b> | <b>000</b> | <b>Decline complexes /<br/>dieback / wilts</b> | <b>n / a</b>                                               |
| 24        | 001        | Alaska-yellow cedar decline                    | <i>n/a</i>                                                 |
| 24        | 002        | Norfolk Island pine decline                    | <i>n/a</i>                                                 |
| 24        | 003        | Stillwell's syndrome                           | <i>n/a</i>                                                 |
| 24        | 004        | Ash decline/yellows                            | <i>n/a</i>                                                 |
| 24        | 005        | Birch dieback                                  | <i>n/a</i>                                                 |
| 24        | 006        | Cadang-cadang yellow mottle<br>virus           | <i>n/a</i>                                                 |
| 24        | 007        | Complex                                        | <i>n/a</i>                                                 |

| Category  | Agent      | Common Name                      | Scientific Name                              |
|-----------|------------|----------------------------------|----------------------------------------------|
| 24        | 008        | Decline                          | <i>n/a</i>                                   |
| 24        | 009        | Fall hardwood defoliator complex | <i>n/a</i>                                   |
| 24        | 010        | Joga decline                     | <i>n/a</i>                                   |
| 24        | 011        | Larch decline                    | <i>n/a</i>                                   |
| 24        | 012        | Looper; abiotic complex          | <i>n/a</i>                                   |
| 24        | 013        | Maple decline                    | <i>n/a</i>                                   |
| 24        | 014        | Oak decline                      | <i>n/a</i>                                   |
| 24        | 015        | Pingelap disease                 | <i>n/a</i>                                   |
| 24        | 016        | Sprout dieback                   | <i>n/a</i>                                   |
| 24        | 017        | True fir pest complex            | <i>n/a</i>                                   |
| 24        | 018        | Western X disease                | <i>n/a</i>                                   |
| 24        | 019        | Pinewood nematode                | <i>Bursaphelenchus xylophilus</i>            |
| 24        | 020        | Sapstreak disease of sugar maple | <i>Ceratocystis coerulescens</i>             |
| 24        | 021        | Oak wilt                         | <i>Ceratocystis fagacearum</i>               |
| 24        | 022        | Dutch elm disease                | <i>Ceratocystis ulmi</i>                     |
| 24        | 023        | Bacterial wetwood                | <i>Erwinia nimipressuralis</i>               |
| 24        | 024        | Mimosa wilt                      | <i>Fusarium oxysporum f. sp. Perniciosum</i> |
| 24        | 025        | Verticillium wilt                | <i>Verticillium albo-atrum</i>               |
| 24        | 026        | Unknown                          | <i>Xyella fastidiosa</i>                     |
| 24        | 027        | Wetwood                          | <i>n/a</i>                                   |
| 24        | 028        | Hemlock decline                  | <i>n/a</i>                                   |
| 24        | 029        | Pacific madrone decline          | <i>n/a</i>                                   |
| 24        | 030        | Elm phloem necrosis              | <i>Mycoplasma</i>                            |
| <b>25</b> | <b>000</b> | <b>Foliage diseases</b>          | <b>n / a</b>                                 |
| 25        | 001        | Blight                           | <i>n/a</i>                                   |

| Category | Agent | Common Name                            | Scientific Name              |
|----------|-------|----------------------------------------|------------------------------|
| 25       | 002   | Broom rust                             | <i>n/a</i>                   |
| 25       | 003   | Juniper blights                        | <i>n/a</i>                   |
| 25       | 004   | Leaf spots                             | <i>n/a</i>                   |
| 25       | 005   | Needlecast                             | <i>n/a</i>                   |
| 25       | 006   | Powdery mildew                         | <i>n/a</i>                   |
| 25       | 007   | Tobacco mosaic virus                   | <i>n/a</i>                   |
| 25       | 008   | Tobacco ringspot virus of ash          | <i>n/a</i>                   |
| 25       | 009   | True fir needlecast                    | <i>n/a</i>                   |
| 25       | 010   | Sycamore anthracnose                   | <i>Apignomonina veneta</i>   |
| 25       | 011   | Cercospora blight of juniper           | <i>Cercospora sequoia</i>    |
| 25       | 013   | Large-spored spruce-laborador tea rust | <i>Chrysomyxa ledicola</i>   |
| 25       | 014   | Ink spot of aspen                      | <i>Ciborinia whetzellii</i>  |
| 25       | 015   | Pine needle rust                       | <i>Coleosporium spp.</i>     |
| 25       | 016   | Anthracnose on Russian olive           | <i>Colletotrichum spp.</i>   |
| 25       | 017   | Coronado limb rust                     | <i>Coleosporium spp.</i>     |
| 25       | 018   | Leaf shothole                          | <i>Cylindrosporium spp.</i>  |
| 25       | 019   | Cedar leaf blight                      | <i>Didymascella thujina</i>  |
| 25       | 020   | Dogwood anthracnose                    | <i>Discula spp.</i>          |
| 25       | 021   | Mango scab                             | <i>Elsinoe magiferae</i>     |
| 25       | 022   | Elytroderma disease                    | <i>Elytroderma deformans</i> |
| 25       | 023   | Fire blight                            | <i>Erwinia amylovora</i>     |
| 25       | 024   | Walnut anthracno                       | <i>Gnomonia leptostyla</i>   |
| 25       | 025   | Anthracnose                            | <i>Gnomonia spp.</i>         |
| 25       | 027   | Brown felt blight                      | <i>Herpotrichia juniper</i>  |
| 25       | 028   | Larch needle blight                    | <i>Hypodermella laricis</i>  |

| Category | Agent | Common Name                | Scientific Name                 |
|----------|-------|----------------------------|---------------------------------|
| 25       | 029   | Hardwood anthracnose       | <i>Kabatiella apocrypta</i>     |
| 25       | 030   | Cone damage                | <i>Lasiodiplodia spp.</i>       |
| 25       | 031   | Spruce needle cast         | <i>Lirula macrospora</i>        |
| 25       | 032   | Fir needle cast            | <i>Lirula spp.</i>              |
| 25       | 033   | White pine needle cast     | <i>Lophodermella arcuata</i>    |
| 25       | 034   | Lophodermella needle cast  | <i>Lophodermella spp.</i>       |
| 25       | 035   | Lophodermium needle cast   | <i>Lophodermium spp.</i>        |
| 25       | 036   | Marssonina blight          | <i>Marssonina populi</i>        |
| 25       | 037   | Melampsora rusts           | <i>Melampsora medusa</i>        |
| 25       | 039   | Larch needle cast          | <i>Meria laricis</i>            |
| 25       | 040   | Dothistroma needle blight  | <i>Mycosphaerella pini</i>      |
| 25       | 041   | Brown felt blight of pines | <i>Neopeckia coulteri</i>       |
| 25       | 042   | Snow blight                | <i>Phacidum abietis</i>         |
| 25       | 043   | Swiss needle cast          | <i>Phaeocryptopus gaumannii</i> |
| 25       | 044   | Phoma blight               | <i>Phome spp.</i>               |
| 25       | 045   | Phyllosticta leaf spot     | <i>Phyllosticta spp.</i>        |
| 25       | 046   | Bud rot                    | <i>Phytophthora palmivora</i>   |
| 25       | 047   | Ploioderma needle cast     | <i>Ploioderma spp.</i>          |
| 25       | 048   | Ash rust                   | <i>Puccinia sparganioides</i>   |
| 25       | 049   | Fir needle rust            | <i>Pucciniastrum spp.</i>       |
| 25       | 050   | Douglas-fir needle cast    | <i>Rhabdocline spp.</i>         |
| 25       | 051   | Rhizoctonia needle blight  | <i>Rhizoctonia spp.</i>         |
| 25       | 052   | Rhizophaeria needle cast   | <i>Rhizophaeria spp.</i>        |
| 25       | 053   | Rhizopus rot               | <i>Rhizopus artocarp</i>        |
| 25       | 054   | Brown spot needle blight   | <i>Scirrhia acicula</i>         |

| Category  | Agent      | Common Name                   | Scientific Name                    |
|-----------|------------|-------------------------------|------------------------------------|
| 25        | 055        | Septoria leaf spot            | <i>Septoria alnifolia</i>          |
| 25        | 056        | Septoria leaf spot and canker | <i>Septoria musiva</i>             |
| 25        | 057        | Sirococcus tip blight         | <i>Sirococcus conigenus</i>        |
| 25        | 058        | Diplodia blight               | <i>Sphaeropsis sapinea</i>         |
| 25        | 059        | Leaf blister of oak           | <i>Taphrina caerulescens</i>       |
| 25        | 060        | Venturia leaf blight of maple | <i>Venturia acerina</i>            |
| 25        | 061        | Shepherd's crook              | <i>Venturia tremulae</i>           |
| 25        | 062        | Dothistroma needle blight     | <i>Dothistroma septospora</i>      |
| 25        | 063        | Yellow-cedar shoot blight     | <i>Apostrasseria spp.</i>          |
| 25        | 064        | Broom rust                    | <i>Chrysomyxa arctostaphyli</i>    |
| 25        | 065        | Spruce needle rust            | <i>Lophodermium picea</i>          |
| 25        | 066        | Cedar leaf blight             | <i>Gymnosporangium nootkatense</i> |
| 25        | 067        | Spruce needle cast            | <i>Lophodermium picea</i>          |
| 25        | 068        | Hardwood leaf rust            | <i>Rhizosphaera pini</i>           |
| 25        | 070        | Hemlock needle rust           | <i>Pucciniastrum vaccinii</i>      |
| 25        | 071        | Spruce needle cast            | <i>Rhizosphaera pini</i>           |
| 25        | 072        | Sirococcus shoot blight       | <i>Sirococcus strobilinus</i>      |
| 25        | 073        | Shepards crook                | <i>Ventirua populina</i>           |
| 25        | 074        | Delphinella shoot blight      | <i>Delphinella abietis</i>         |
| 25        | 075        | Tar spot                      | <i>Rhytisma acerinum</i>           |
| <b>26</b> | <b>000</b> | <b>Stem rusts</b>             | <b>n/a</b>                         |
| 26        | 001        | White pine blister rust       | <i>Cronartium ribicola</i>         |
| 26        | 002        | Western gall rust             | <i>Peridermium harknessii</i>      |
| 26        | 003        | Stalactiform blister rust     | <i>Cronartium coleosporioides</i>  |
| 26        | 004        | Comandra blister rust         | <i>Cronartium comandrae</i>        |

| Category  | Agent      | Common Name                          | Scientific Name                               |
|-----------|------------|--------------------------------------|-----------------------------------------------|
| 26        | 005        | Pinyon blister rust                  | <i>Cronartium occidentale</i>                 |
| 26        | 006        | Eastern gall rust                    | <i>Cronartium quercuum</i>                    |
| 26        | 007        | Gall rust of jack pine               | <i>Cronartium quercuum f. sp. Banksinae</i>   |
| 26        | 008        | Gall rust of shortleaf pine          | <i>Cronartium quercuum f. sp. Echinatae</i>   |
| 26        | 009        | Fusiform rust                        | <i>Cronartium quercuum f. sp. Fusiforme</i>   |
| 26        | 010        | Gall rust of Virginia pine           | <i>Cronartium quercuum f. sp. Virginianae</i> |
| 26        | 011        | Bethuli rust                         | <i>Peridermium bethuli</i>                    |
| 26        | 012        | Limb rust                            | <i>Peridermium filamentosum</i>               |
| 26        | 013        | Southern cone rust                   | <i>Cronartium strobilinum</i>                 |
| <b>27</b> | <b>000</b> | <b>Broom rusts</b>                   | <b>n / a</b>                                  |
| 27        | 001        | Spruce broom rust                    | <i>Chrysomyxa arctostaphyll</i>               |
| 27        | 002        | Incense cedar broom rust             | <i>Gymnosporangium libocedri</i>              |
| 27        | 003        | Juniper broom rust                   | <i>Gymnosporangium nidus-avis</i>             |
| 27        | 004        | Fir broom rust                       | <i>Melampsorella caryophyllacearum</i>        |
| <b>30</b> | <b>000</b> | <b>Fire</b>                          | <b>n / a</b>                                  |
| 30        | 001        | Wild-fire                            | <i>n/a</i>                                    |
| 30        | 002        | Human caused fire                    | <i>n/a</i>                                    |
| 30        | 003        | Crown fire damage                    | <i>n/a</i>                                    |
| 30        | 004        | Ground fire damage                   | <i>n/a</i>                                    |
| <b>40</b> | <b>000</b> | <b>Animal damage, source unknown</b> | <b>n / a</b>                                  |
| <b>41</b> | <b>000</b> | <b>Wild animals</b>                  | <b>n / a</b>                                  |
| 41        | 001        | Bear                                 | <i>n/a</i>                                    |

| Category  | Agent      | Common Name             | Scientific Name    |
|-----------|------------|-------------------------|--------------------|
| 41        | 002        | Beaver                  | <i>n/a</i>         |
| 41        | 003        | Big game (deer)         | <i>n/a</i>         |
| 41        | 004        | Mice or voles           | <i>n/a</i>         |
| 41        | 005        | Pocket gophers          | <i>n/a</i>         |
| 41        | 006        | Porcupines              | <i>n/a</i>         |
| 41        | 007        | Rabbits or hares        | <i>n/a</i>         |
| 41        | 008        | Sapsucker               | <i>n/a</i>         |
| 41        | 009        | Squirrels               | <i>n/a</i>         |
| 41        | 010        | Woodpeckers             | <i>n/a</i>         |
| 41        | 011        | Moose                   | <i>n/a</i>         |
| 41        | 012        | Elk                     | <i>n/a</i>         |
| 41        | 013        | Deer                    | <i>n/a</i>         |
| 41        | 014        | Feral pigs              | <i>n/a</i>         |
| 41        | 015        | Mountain beaver         | <i>n/a</i>         |
| 41        | 016        | Deer or elk             | <i>n/a</i>         |
| 41        | 017        | Earthworm               | <i>Lumbricidae</i> |
| <b>42</b> | <b>000</b> | <b>Domestic animals</b> | <b>n / a</b>       |
| 42        | 001        | Cattle                  | <i>n/a</i>         |
| 42        | 002        | Goats                   | <i>n/a</i>         |
| 42        | 003        | Horses                  | <i>n/a</i>         |
| 42        | 004        | Sheep                   | <i>n/a</i>         |
| <b>50</b> | <b>000</b> | <b>Abiotic damage</b>   | <b>n / a</b>       |
| 50        | 001        | Air pollutants          | <i>n/a</i>         |
| 50        | 002        | Chemical                | <i>n/a</i>         |
| 50        | 003        | Drought                 | <i>n/a</i>         |

| Category  | Agent      | Common Name                   | Scientific Name |
|-----------|------------|-------------------------------|-----------------|
| 50        | 004        | Flooding/high water           | <i>n/a</i>      |
| 50        | 005        | Frost                         | <i>n/a</i>      |
| 50        | 006        | Hail                          | <i>n/a</i>      |
| 50        | 007        | Heat                          | <i>n/a</i>      |
| 50        | 008        | Lightning                     | <i>n/a</i>      |
| 50        | 009        | Nutrient imbalances           | <i>n/a</i>      |
| 50        | 010        | Radiation                     | <i>n/a</i>      |
| 50        | 011        | Snow/ice                      | <i>n/a</i>      |
| 50        | 013        | Wind-tornado                  | <i>n/a</i>      |
| 50        | 014        | Winter injury                 | <i>n/a</i>      |
| 50        | 015        | Avalanche                     | <i>n/a</i>      |
| 50        | 016        | Mud-land slide                | <i>n/a</i>      |
| 50        | 017        | Volcano                       | <i>n/a</i>      |
| 50        | 018        | Other geologic events         | <i>n/a</i>      |
| 50        | 019        | Mechanical (non-human caused) | <i>n/a</i>      |
| <b>60</b> | <b>000</b> | <b>Competition</b>            | <b>n / a</b>    |
| <b>70</b> | <b>000</b> | <b>Human activities</b>       | <b>n / a</b>    |
| 70        | 001        | Herbicides                    | <i>n/a</i>      |
| 70        | 003        | Imbedded objects              | <i>n/a</i>      |
| 70        | 004        | Improper planting technique   | <i>n/a</i>      |
| 70        | 005        | Land clearing                 | <i>n/a</i>      |
| 70        | 006        | Land use conversion           | <i>n/a</i>      |
| 70        | 007        | Logging damage                | <i>n/a</i>      |
| 70        | 008        | Mechanical                    | <i>n/a</i>      |
| 70        | 009        | Pesticides                    | <i>n/a</i>      |

| Category  | Agent      | Common Name                                                  | Scientific Name |
|-----------|------------|--------------------------------------------------------------|-----------------|
| 70        | 010        | Roads                                                        | <i>n/a</i>      |
| 70        | 011        | Soil compaction                                              | <i>n/a</i>      |
| 70        | 012        | Suppression                                                  | <i>n/a</i>      |
| 70        | 013        | Vehicle damage                                               | <i>n/a</i>      |
| 70        | 014        | Road salt                                                    | <i>n/a</i>      |
| <b>71</b> | <b>000</b> | <b>Harvest</b>                                               | <b>n / a</b>    |
| <b>80</b> | <b>000</b> | <b>Multi-damage<br/>(insect / disease)</b>                   | <b>n / a</b>    |
| 80        | 001        | Aspen defoliation                                            | <i>n/a</i>      |
| 80        | 002        | Subalpine fir mortality                                      | <i>n/a</i>      |
| 80        | 003        | Five needle pine decline                                     | <i>n/a</i>      |
| 80        | 004        | Pinion pine decline                                          | <i>n/a</i>      |
| <b>90</b> | <b>000</b> | <b>Unknown</b>                                               | <b>n / a</b>    |
| <b>99</b> | <b>000</b> | <b>Physical effects</b>                                      | <b>n / a</b>    |
| 99        | 001        | Broken or top missing                                        | <i>n/a</i>      |
| 99        | 002        | Dead top                                                     | <i>n/a</i>      |
| 99        | 003        | Limby (large limbs top to ground)                            | <i>n/a</i>      |
| 99        | 004        | Forked top                                                   | <i>n/a</i>      |
| 99        | 005        | Forked below merch top                                       | <i>n/a</i>      |
| 99        | 006        | Crook or sweep                                               | <i>n/a</i>      |
| 99        | 007        | Checks, bole cracks                                          | <i>n/a</i>      |
| 99        | 008        | Foliage discoloration                                        | <i>n/a</i>      |
| 99        | 009        | Mortality (for plantation surveys only)                      | <i>n/a</i>      |
| 99        | 010        | Lack of seed source or dieback (for plantation surveys only) | <i>n/a</i>      |

| Category | Agent | Common Name                                                              | Scientific Name                                           |
|----------|-------|--------------------------------------------------------------------------|-----------------------------------------------------------|
| 99       | 011   | Poor planting stock (for plantation surveys only)                        | <i>n/a</i>                                                |
| 99       | 012   | Poor growth/fading/foilage is yellowing and loss of needles is occurring | <i>n/a</i>                                                |
| 99       | 013   | Total board foot volume loss                                             | <i>n/a</i>                                                |
| 99       | 014   | Total cubic foot volume loss                                             | <i>n/a</i>                                                |
| 99       | 015   | Bark removal                                                             | <i>n/a</i>                                                |
| 99       | 016   | Foliage loss                                                             | <i>n/a</i>                                                |
| 99       | 017   | Sunscald                                                                 | <i>n/a</i>                                                |
| 99       | 018   | Uproot                                                                   | <i>n/a</i>                                                |
| 99       | 019   | Scorched foliage                                                         | <i>n/a</i>                                                |
| 99       | 020   | Scorched bark                                                            | <i>n/a</i>                                                |
| 99       | 021   | Dieback (for plantation surveys only)                                    | <i>n/a</i>                                                |
| 99       | 022   | Poor crown form                                                          | <i>n/a</i>                                                |
| 99       | 023   | Severe forking                                                           | <i>n/a</i>                                                |
| 99       | 026   | Open wound                                                               | <i>n/a</i>                                                |
| 99       | 031   | Broken or dead branches                                                  | <i>n/a</i>                                                |
| 99       | 033   | Damaged shoots, buds, or foliage (for plantation surveys only)           | <i>n/a</i>                                                |
| 99       | 034   | Excessively deformed sapling                                             | <i>n/a</i>                                                |
| 99       | 036   | Fire scar                                                                | <i>n/a</i>                                                |
| 99       | 037   | Leaning tree                                                             | <i>&gt;15% and self-supporting</i>                        |
| 99       | 038   | Charred bark                                                             | <i>Not recorded unless cambium is killed from heating</i> |

## DAMAGE SEVERITY RATINGS

Table 44: Damage severity rating codes

| Category  | Severity     | Description                                                                                                                                      |
|-----------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10</b> | <b>n / a</b> | <b>General insects</b>                                                                                                                           |
| 10        | 1            | Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected, OR <50% of bole with visible larval galleries          |
| 10        | 2            | Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead, OR 50% or more of bole with visible larval galleries |
| <b>11</b> | <b>n / a</b> | <b>Bark beetles</b>                                                                                                                              |
| 11        | 1            | Unsuccessful bole attack: pitchout and beetle brood absent                                                                                       |
| 11        | 2            | Strip attacks: galleries and brood present                                                                                                       |
| 11        | 3            | Successful current bole attack                                                                                                                   |
| 11        | 4            | Topkill                                                                                                                                          |
| 11        | 5            | Successful attack last year                                                                                                                      |
| 11        | 6            | Older dead                                                                                                                                       |
| <b>12</b> | <b>n / a</b> | <b>Defoliators</b>                                                                                                                               |
| 12        | 1            | Light defoliation (1-25%), no topkill                                                                                                            |
| 12        | 2            | Light defoliation (1-25%), topkill ≤10%                                                                                                          |
| 12        | 3            | Light defoliation (1-25%), topkill >10%                                                                                                          |
| 12        | 4            | Moderate defoliation (26-75%), no topkill                                                                                                        |
| 12        | 5            | Moderate defoliation (26-75%), topkill ≤10%                                                                                                      |
| 12        | 6            | Moderate defoliation (26-75%), topkill >10%                                                                                                      |
| 12        | 7            | Heavy defoliation (76-100%), no topkill                                                                                                          |
| 12        | 8            | Heavy defoliation (76-100%), topkill ≤10%                                                                                                        |

| Category  | Severity     | Description                                                                                |
|-----------|--------------|--------------------------------------------------------------------------------------------|
| 12        | 9            | Heavy defoliation (76-100%), topkill >10%                                                  |
| <b>13</b> | <b>n / a</b> | <b>Chewing insects</b>                                                                     |
| 13        | 1            | Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected   |
| 13        | 2            | Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead |
| <b>14</b> | <b>n / a</b> | <b>Sucking insects</b>                                                                     |
| 14        | 1            | Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected   |
| 14        | 2            | Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead |
| <b>15</b> | <b>n / a</b> | <b>Boring insects</b>                                                                      |
| 15        | 1            | Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected   |
| 15        | 2            | Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead |
| <b>16</b> | <b>n / a</b> | <b>Seed / cone / flower / fruit insects</b>                                                |
| 16        | 1            | Minor                                                                                      |
| 16        | 2            | Severe                                                                                     |
| <b>17</b> | <b>n / a</b> | <b>Gallmaker insects</b>                                                                   |
| 17        | 1            | Minor                                                                                      |
| 17        | 2            | Severe                                                                                     |
| <b>18</b> | <b>n / a</b> | <b>Insect predators</b>                                                                    |
| 18        | 1            | Minor                                                                                      |
| 18        | 2            | Severe                                                                                     |
| <b>19</b> | <b>n / a</b> | <b>General diseases</b>                                                                    |
| 19        | 1            | Minor                                                                                      |

| Category  | Severity     | Description                                                                                                                                         |
|-----------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| 19        | 2            | Severe                                                                                                                                              |
| <b>20</b> | <b>n / a</b> | <b>Biotic damage</b>                                                                                                                                |
| 20        | 1            | Minor                                                                                                                                               |
| 20        | 2            | Severe                                                                                                                                              |
| <b>21</b> | <b>n / a</b> | <b>Root / butt diseases</b>                                                                                                                         |
| 21        | 1            | (for individual trees) Tree within 30 feet of tree with deteriorating crown, tree with diagnostic symptoms or signs, or tree killed by root disease |
| 21        | 2            | (for individual trees) Pathogen (sign) or diagnostic symptom detected – no crown deterioration                                                      |
| 21        | 3            | (for individual trees) Crown deterioration detected – no diagnostic symptom or signs                                                                |
| 21        | 4            | (for individual trees) Both crown deterioration and diagnostic signs symptoms detected                                                              |
| 21        | 5            | (for individual trees) Bleeding present on bole                                                                                                     |
| 21        | 6            | (for individual trees) Bleeding present on bole and adjacent mortality present                                                                      |
| 21        | 7            | (for individual trees) Laboratory confirmed Sudden Oak Death                                                                                        |
| 21        | G2           | (for setting level) Minor evidence of RDS on plot                                                                                                   |
| 21        | G3           | (for setting level) RDS present, canopy reduction less than 20%                                                                                     |
| 21        | G4           | (for setting level) RDS present, canopy reduction 20-30%                                                                                            |
| 21        | G5           | (for setting level) RDS present, canopy reduction 30-50%                                                                                            |
| 21        | G6           | (for setting level) RDS present, canopy reduction 50-75%, most ground area infested                                                                 |
| 21        | G7           | (for setting level) RDS present, 76+ % canopy reduction                                                                                             |

| Category  | Severity     | Description                                                                                    |
|-----------|--------------|------------------------------------------------------------------------------------------------|
| 21        | G8           | (for setting level) Entire area infested with RDS, one or very few susceptible overstory trees |
| 21        | G9           | (for setting level) Entire area infested with RDA, no susceptible overstory trees present      |
| <b>22</b> | <b>n / a</b> | <b>Stem decay / canker</b>                                                                     |
| 22        | 0            | 0-4% rotten                                                                                    |
| 22        | 1            | 5-15% rotten                                                                                   |
| 22        | 2            | 16-25% rotten                                                                                  |
| 22        | 3            | 26-35% rotten                                                                                  |
| 22        | 4            | 36-45% rotten                                                                                  |
| 22        | 5            | 46-55% rotten                                                                                  |
| 22        | 6            | 56-65% rotten                                                                                  |
| 22        | 7            | 66-75% rotten                                                                                  |
| 22        | 8            | 76-85% rotten                                                                                  |
| 22        | 9            | 86-100% rotten                                                                                 |
| <b>23</b> | <b>n / a</b> | <b>Parasitic / epiphytic plants</b>                                                            |
| 23        | 1            | Hawksworth tree DMR rating = 1; light infection                                                |
| 23        | 2            | Hawksworth tree DMR rating = 2; light infection                                                |
| 23        | 3            | Hawksworth tree DMR rating = 3; medium infection                                               |
| 23        | 4            | Hawksworth tree DMR rating = 4; medium infection                                               |
| 23        | 5            | Hawksworth tree DMR rating = 5; heavy infection                                                |
| 23        | 6            | Hawksworth tree DMR rating = 6; heavy infection                                                |
| 23        | 7            | Vine damage: less than 50% of crown involved                                                   |
| 23        | 8            | Vine damage: 50% or more of crown involved                                                     |
| <b>24</b> | <b>n / a</b> | <b>Decline complexes / diebacks / wilts</b>                                                    |

| Category  | Severity     | Description                                                          |
|-----------|--------------|----------------------------------------------------------------------|
| 24        | 1            | Minor: minor crown symptoms                                          |
| 24        | 2            | Severe: severe crown symptoms                                        |
| <b>25</b> | <b>n / a</b> | <b>Foliage diseases</b>                                              |
| 25        | 1            | Minor: <20% of foliage affected or <20% of crown in brooms           |
| 25        | 2            | Severe: >20% of foliage affected or >20% of crown in brooms          |
| <b>26</b> | <b>n / a</b> | <b>Rust Stems</b>                                                    |
| 26        | 1            | Branch infections located greater than 2 feet from tree bole         |
| 26        | 2            | Branch infections located between 6 inches and 2 feet from tree bole |
| 26        | 3            | Bole infections or branch infections located within 6 inches of bole |
| 26        | 4            | Topkill                                                              |
| <b>27</b> | <b>n / a</b> | <b>Broom rusts</b>                                                   |
| 27        | 1            | Minor: <20% of crown in brooms                                       |
| 27        | 2            | Severe: >20% of crown in brooms                                      |
| <b>30</b> | <b>n / a</b> | <b>Fire</b>                                                          |
| 30        | 1            | Minor: <20% of crown affected                                        |
| 30        | 2            | Severe: >20% of crown affected or any damage to the bole             |
| <b>40</b> | <b>n / a</b> | <b>Animal damage, source unknown</b>                                 |
| 40        | 1            | Minor                                                                |
| 40        | 2            | Severe                                                               |
| <b>41</b> | <b>n / a</b> | <b>Wild animals</b>                                                  |

| Category  | Severity     | Description                                                                                            |
|-----------|--------------|--------------------------------------------------------------------------------------------------------|
| 41        | 1            | Minor: <20% of crown affected, bole damage is <50% circumference                                       |
| 41        | 2            | Severe: >20% of crown affected, bole damage is >50% circumference, upper 1/3 of crown is killed        |
| 41        | 5            | Earthworms are present                                                                                 |
| 41        | 6            | Earthworms are absent                                                                                  |
| <b>50</b> | <b>n / a</b> | <b>Abiotic damage</b>                                                                                  |
| 50        | 1            | Minor: <20% of crown affected, bole damage is <50% circumference                                       |
| 50        | 2            | Severe: >20% of crown affected, bole damage is >50% circumference, upper 1/3 of crown is killed        |
| <b>60</b> | <b>n / a</b> | <b>Competition</b>                                                                                     |
| 60        | 1            | Minor: tree slightly deformed and has some live, terminal growth                                       |
| 60        | 2            | Severe: tree extremely deformed or has no live terminal, growth severely reduced relative to neighbors |
| <b>70</b> | <b>n / a</b> | <b>Human activities</b>                                                                                |
| 70        | 1            | Minor                                                                                                  |
| 70        | 2            | Severe                                                                                                 |
| <b>71</b> | <b>n / a</b> | <b>Harvest</b>                                                                                         |
| 71        | 1            | Minor                                                                                                  |
| 71        | 2            | Severe                                                                                                 |
| <b>80</b> | <b>n / a</b> | <b>Multi-damage (insect / disease)</b>                                                                 |
| 80        | 1            | Minor                                                                                                  |
| 80        | 2            | Severe                                                                                                 |
| <b>90</b> | <b>n / a</b> | <b>Unknown</b>                                                                                         |

| Category  | Severity     | Description             |
|-----------|--------------|-------------------------|
| 90        | 0            | 0 – 9% affected         |
| 90        | 1            | 10 – 19% affected       |
| 90        | 2            | 20 – 29% affected       |
| 90        | 3            | 30 – 39% affected       |
| 90        | 4            | 40 – 49% affected       |
| 90        | 5            | 50 – 59% affected       |
| 90        | 6            | 60 – 69% affected       |
| 90        | 7            | 70 – 79% affected       |
| 90        | 8            | 80 – 89% affected       |
| 90        | 9            | 90 – 100% affected      |
| <b>99</b> | <b>n / a</b> | <b>Physical effects</b> |
| 99        | 001          | Broken top              |
| 99        | 002          | Dead top                |

Table 45: Category 99 damage severity rating codes

| Category  | Severity     | Description                       | Actual percent of tree affected                                                                                                                                         |
|-----------|--------------|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>99</b> | <b>n / a</b> | <b>Physical effects</b>           | <b>n / a</b>                                                                                                                                                            |
| 99        | 001          | Broken top                        | % of original height that is missing; for example, if a tree was originally 100 feet high, but 15 feet of the top is broken or missing; enter “15” in the severity code |
| 99        | 002          | Dead top                          | % of total tree height that is dead                                                                                                                                     |
| 99        | 003          | Limby (large limbs top to bottom) | % of total tree height with many limbs/knots                                                                                                                            |
| 99        | 004          | Forked top                        | % of total tree height above fork                                                                                                                                       |
| 99        | 005          | Forked below merch top            | % of the total length of the bole affected                                                                                                                              |

| Category | Severity | Description                  | Actual percent of tree affected                                                                                                                                              |
|----------|----------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 99       | 006      | Crook or sweep               | % of total tree height, which contains the crook or sweep                                                                                                                    |
| 99       | 007      | Checks, bole cracks          | % of total tree height, which contains a crack or check                                                                                                                      |
| 99       | 008      | Foliage discoloration        | % of foliage discolored                                                                                                                                                      |
| 99       | 009      | Mortality                    | 1 = dead tree                                                                                                                                                                |
| 99       | 010      | Lack of seed source          | If present, 100%                                                                                                                                                             |
| 99       | 011      | Poor planting stock source   | If present, 100%                                                                                                                                                             |
| 99       | 012      | Poor growth                  | 1 = minor (reduced growth);<br>2 = severe (affecting survival)                                                                                                               |
| 99       | 013      | Total board foot volume loss | % of total board foot volume loss                                                                                                                                            |
| 99       | 014      | Total cubic foot volume loss | % of total cubic foot volume loss                                                                                                                                            |
| 99       | 015      | Bark removal                 | % of tree circumference missing bark                                                                                                                                         |
| 99       | 016      | Foliage loss                 | 1 = minor; 2 = severe                                                                                                                                                        |
| 99       | 017      | Sunscald                     | 1 = minor; 2 = severe                                                                                                                                                        |
| 99       | 018      | Uproot                       | 1 = uprooted                                                                                                                                                                 |
| 99       | 019      | Scorched foliage             | % of foliage scorched                                                                                                                                                        |
| 99       | 020      | Scorched bark                | % of bark scorched                                                                                                                                                           |
| 99       | 021      | Dieback source               | 1 = minor; 2 = severe                                                                                                                                                        |
| 99       | 022      | Poor crown form              | 1 = minor; 2 = severe                                                                                                                                                        |
| 99       | 023      | Severe forking               | % of bole with forks                                                                                                                                                         |
| 99       | 026      | Open wound                   | % of bole or trunk affected using the height and width of the wound; for example, if a tree is 100 feet tall and the wound covers 15 feet of the bole, enter a value of "15" |
| 99       | 031      | Broken or dead branches      | % of branches broken or dead                                                                                                                                                 |

| Category | Severity | Description                            | Actual percent of tree affected                    |
|----------|----------|----------------------------------------|----------------------------------------------------|
| 99       | 033      | Damage shoots, buds, or foliage source | 1 = minor; 2 = severe                              |
| 99       | 034      | Excessively deformed sapling           | % of sapling deformed                              |
| 99       | 036      | Fire scar                              | % of bole covered by fire scar                     |
| 99       | 037      | Leaning tree                           | % lean from vertical                               |
| 99       | 038      | Charred bark                           | Not recorded unless cambium is killed from heating |

## TREE PARTS

Table 46: Tree part codes

| Code | Description                  |
|------|------------------------------|
| UN   | Unspecified                  |
| TO   | Top                          |
| FO   | Foliar (crown)               |
| LI   | Limb                         |
| BO   | Bole, other than Top or Base |
| BA   | Base                         |
| RO   | Roots                        |
| WT   | Whole tree                   |
| TT   | Top third of crown           |
| MT   | Middle third of crown        |
| BT   | Bottom third of crown        |

## APPENDIX L: ACCURACY STANDARDS

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Table 47: Settings Measurements

| Field                                | Tolerance             |
|--------------------------------------|-----------------------|
| Project Name                         | No errors             |
| Region                               | No errors             |
| Proclaimed Forest                    | No errors             |
| District                             | No errors             |
| Location                             | No errors             |
| Stand Number                         | No errors             |
| Ownership                            | No errors             |
| State                                | No errors             |
| County                               | No errors             |
| Administrative Forest                | No errors             |
| Date                                 | No errors             |
| Photo ID                             | No errors             |
| Exam Level                           | No errors             |
| Exam Purpose                         | No errors             |
| Stratum                              | No errors             |
| Existing Vegetation Composition Type | No errors             |
| Potential Vegetation Reference       | No errors             |
| Potential Vegetation                 | No errors             |
| Structure                            | No errors             |
| Capable Growing Area                 | ± 10 percent          |
| Fuel Model                           | No errors             |
| Elevation                            | ± 2 contour intervals |

| Field                          | Tolerance    |
|--------------------------------|--------------|
| Aspect                         | ± 45 degrees |
| Slope                          | ± 10 percent |
| Slope Position                 | ± 1 class    |
| Acres                          | No errors    |
| Radial Growth Interval         | No errors    |
| Radial Growth Interval #2      | No errors    |
| Height Growth Interval         | No errors    |
| Fuel Photo Reference           | No errors    |
| Precision Protocol             | No errors    |
| Examiner                       | No errors    |
| Stand Remarks                  | No errors    |
| Damage Category                | No errors    |
| Damage Agent                   | No errors    |
| Damage Severity                | No errors    |
| Species of Management Interest | No errors    |
| Sketch Map and Traverse Notes  | n/a          |

Table 48: Sample Design Criteria

| Field                   | Tolerance |
|-------------------------|-----------|
| Form Type               | n/a       |
| Selection Method Type   | No errors |
| Sample Expansion Factor | No errors |
| Plots Installed         | No errors |
| Sub-population Filter   | No errors |
| Starting Azimuth        | No errors |
| Sample Design Remarks   | No errors |

| Field                     | Tolerance |
|---------------------------|-----------|
| Selection Criteria Number | No errors |
| Sub-pop Variable          | No errors |
| Sub-pop Minimum Value     | No errors |
| Sub-pop Maximum Value     | No errors |

Table 49: Plot Data

| Field                     | Tolerance                                                |
|---------------------------|----------------------------------------------------------|
| Plot Number               | No errors                                                |
| Plot Latitude             | No errors                                                |
| Plot Longitude            | No errors                                                |
| Capable Grow Area         | ± 10 percent                                             |
| Plot Aspect               | ± 45                                                     |
| Plot Scope                | ± 10 percent                                             |
| Slope Position            | ± 1 class                                                |
| Slope Horizontal Shape    | ± 1 class                                                |
| Slope Vertical Shape      | ± 1 class                                                |
| Plot Elevation            | ± 2 contour intervals                                    |
| Existing Vegetation       | No errors                                                |
| Potential Vegetation      | Accurate to series understory union and phases           |
| Plot History              | No errors                                                |
| Plot History Date         | Year required in field 12 is other than code 10 or blank |
| Fuel Model                | No errors                                                |
| Residual Descriptive Code | No errors                                                |
| Distance to Seed Wall     | ± 100 feet                                               |
| Plot Remarks              | n/a                                                      |

Table 50: Tree Data

| Field                  | Tolerance                                                                                                                      |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Plot Number            | No errors                                                                                                                      |
| Tag ID Number          | No errors                                                                                                                      |
| Tree Status            | No errors allowed in recognizing and coding down trees                                                                         |
| Site/Growth Trees      | No errors                                                                                                                      |
| Tree Species           | No errors                                                                                                                      |
| Tree Count             | See specifics in <a href="#">Table 51</a>                                                                                      |
| Number Stems           | No errors                                                                                                                      |
| DBH/DRC Intensive Exam | See specifics in <a href="#">Table 52</a>                                                                                      |
| DBH/DRC Extensive Exam | See specifics in <a href="#">Table 53</a>                                                                                      |
| DBH/DRC Quick Exam     | See specifics in <a href="#">Table 54</a>                                                                                      |
| Height                 | 10 percent                                                                                                                     |
| Height to Crown        | 10 percent                                                                                                                     |
| Radial Growth          | 1/20 <sup>th</sup> inch                                                                                                        |
| Radial Growth #2       | 1/20 <sup>th</sup> inch                                                                                                        |
| Height Growth          | See specifics in <a href="#">Table 55</a>                                                                                      |
| Tree Age               | 10 percent (based on actual tree ring count at breast height for trees $\geq 3.0$ " DBH otherwise based on total age recorded) |
| Crown Ratio            | 10 percent                                                                                                                     |
| Crown Class            | No errors                                                                                                                      |
| Crown Width            | No errors                                                                                                                      |
| Wildlife Use           | No errors                                                                                                                      |

| Field           | Tolerance                               |
|-----------------|-----------------------------------------|
| Log/Snag Decay  | No errors                               |
| Cone Serenity   | No errors                               |
| Damage Category | No errors, specifics listed in Table 56 |
| Damage Agent    | No errors                               |
| Damage Part     | No errors                               |
| Damage Severity | No errors                               |
| Tree Remarks    | n/a                                     |

Table 51: Tree Data, Tree Count

| Height Range | Diameter Range       | Trees on Point | Tolerance    |
|--------------|----------------------|----------------|--------------|
| *All         | All                  | 0              | 0 trees      |
| ≤ 0.5 feet   | All                  | 1-5            | ± 2 trees    |
| ≤ 0.5 feet   | All                  | 6+             | ± 50 percent |
| > 0.5 feet   | < 0.5 in.            | 1-5            | ± 1 tree     |
| > 0.5 feet   | < 0.5 in.            | 6+             | ± 20 percent |
| All          | .5" – breakpoint DBH | 1-5            | ± 1 tree     |
| All          | .5" – breakpoint DBH | 6+             | ± 10 percent |
| All          | Breakpoint DBH +     | 1+             | 0 trees      |

\* There is no tolerance for recording a tree when none are actually present in any of the above size classes. The recording of a fixed plot tree when none are present will result in a single discrepancy. The recording of a variable plot tree when none are present will result in an unacceptable unit.

Group criteria are standardized to facilitate stand exam contract inspection and payment. However, distinguishing characteristics other than tree class, species, and size class may warrant individual tree recording or more refined grouping criteria. Such characteristics include: age, crown ratio, crown class, or incident of damage.

Table 52: Tree Data, DBH/DRC Intensive Exam

| <b>Tolerance</b> | <b>Diameter</b>                |
|------------------|--------------------------------|
| No errors        | <.5 inch                       |
| ± .1 inch        | .5 inch – 13.9 inches          |
| ± .2 inch        | 14.0 inches – 23.9 inches      |
| ± .3 inch        | 24.0 inches – 34.9 inches      |
| ± .5 inch        | 35.0 inches +                  |
| ± .1 inch        | Borderline variable plot trees |
| ± .1 inch        | Estimated DRC                  |

Table 53: Tree Data, DBH/DRC Extensive Exam

| <b>Tolerance</b> | <b>Diameter</b> |
|------------------|-----------------|
| ± 1 inch         | ≤ 20 inches     |
| ± 5% of diameter | > 20 inches     |

Table 54: Tree Data, DBH/DRC Quick Exam

| <b>Tolerance</b>  | <b>Diameter</b> |
|-------------------|-----------------|
| ± 2 inches        | ≤ 20 inches     |
| ± 10% of diameter | > 20 inches     |

Table 55: Tree Data, Height Growth

| <b>Tolerance</b> | <b>Diameter</b> |
|------------------|-----------------|
| ± 1 foot         | Trees > 6 feet  |
| ± 0.1 foot       | Trees ≤ 6 feet  |

Table 56: Tree Data, Damage Category

| Damage Category | Damage Category Description | Tolerance                                                                                                                                                                       |
|-----------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11              | Bark Beetles                | No misses on live trees with a severity of 2 or greater                                                                                                                         |
| 12              | Defoliators                 | No misses on live trees with a severity of 3 or greater                                                                                                                         |
| 13-17           | Other Insects               | No misses of shoot moths or weevils on live trees                                                                                                                               |
| 21              | Root/Butt Diseases          | No misses on live trees with a severity of 2 or greater                                                                                                                         |
| 22              | Stem Decays/Cankers         | No misses on live trees with a severity of 3 or greater                                                                                                                         |
| 25              | Foliage Diseases            | No misses on Elytroderma on live trees                                                                                                                                          |
| 41-42           | Animal Damage               | No misses on live trees with terminal leader damage or with greater than $\frac{1}{4}$ of bole circumference affected                                                           |
| 50              | Abiotic Damage              | No misses on wind, snow, or ice bending, breakage, or bole cracks and frost damage to shoots on trees less than 1-inch diameter and lightning                                   |
| 70              | Human Damage                | No misses on live trees for logging damage or fire if the damage affects greater than $\frac{1}{4}$ of the bole circumference or if an open wound is in contact with the ground |

Table 57: Ground Surface Cover

| Field         | Tolerance        |
|---------------|------------------|
| Plot Number   | No errors        |
| Cover Type    | No errors        |
| Cover Percent | $\pm 10$ percent |

Table 58: Vegetation Composition

| Field            | Tolerance                                                                                                                                       |
|------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Plot Number      | No errors                                                                                                                                       |
| Live/Dead        | No errors                                                                                                                                       |
| Layer            | No errors                                                                                                                                       |
| Life form        | No errors                                                                                                                                       |
| Species          | No error in species-level identification for dominant, common, or community type indicator plants; no plant name can be repeated within a layer |
| Minimum Height   | ± 10 percent of height                                                                                                                          |
| Average Height   | ± 10 percent of height                                                                                                                          |
| Maximum Height   | ± 10 percent of height                                                                                                                          |
| Canopy Cover     | ± 10 percent                                                                                                                                    |
| Average Diameter | No errors                                                                                                                                       |
| Maturity         | No errors                                                                                                                                       |
| Cover Remarks    | n/a                                                                                                                                             |
| User Field       | n/a                                                                                                                                             |

Table 59: Down Woody

| Field           | Tolerance    |
|-----------------|--------------|
| Plot Number     | No errors    |
| First Duff      | ± ½ inch     |
| Second Duff     | ± ½ inch     |
| Fuel Depth      | No errors    |
| Twigs 0 – .24   | ± 40 percent |
| Twigs .25 - .99 | ± 30 percent |

| Field            | Tolerance                |
|------------------|--------------------------|
| Twigs 1.0 – 2.99 | ± 20 percent             |
| Volume 1         | n/a                      |
| Weight 1         | n/a                      |
| Volume 2         | n/a                      |
| Weight 2         | n/a                      |
| Volume 3         | n/a                      |
| Weight 3         | n/a                      |
| Volume 4         | n/a                      |
| Weight 4         | n/a                      |
| Piece Count      | No missed pieces         |
| Decay Class      | No errors                |
| Diameter         | ± 1 inch on measurements |
| Piece Length     | No errors                |

## APPENDIX M: GLOSSARY OF TERMS

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Table 60: Glossary

| Term       | Definition                                                                                                                                                                                                                             |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Aspect     | A position facing or commanding a given direction; exposure. Aspect is the compass direction of the prevailing slope with respect to true north.                                                                                       |
| Azimuth    | A horizontal angular measure from true north to an object of interest.                                                                                                                                                                 |
| Basal Area | The cross-sectional area of the stem or stems of a plant or of all plants in a stand; generally expressed as square units per unit area. For trees, measured at 4.5 feet above ground; forbs and grasses are measure at the root crown |

| Term                       | Definition                                                                                                                                                                                                                                                                                              |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bole Length                | The straight-line distance measured parallel to the main bole of a tree, from its base to its tip.                                                                                                                                                                                                      |
| Breast Height              | A point located on the uphill side of the main stem, by measuring 4.5 feet along the uphill side of the bole from ground level or the predominant root collar. Preclude slight, non-compacted litter accumulations when establishing breast height.                                                     |
| CALVEG                     | Classification and Assessment with LANDSAT of Visible Ecological Groupings. It is a California-wide system for classifying vegetative and non-vegetative cover types. The primary cover type relates to life form and uses a 3-character alpha code.                                                    |
| Canopy Cover               | The percent of a fixed area covered by the crown of an individual plant species or delimited by the vertical projection of its outermost perimeter; small openings in the crown are included.                                                                                                           |
| Compacted Live Crown Ratio | The percent of the total height of the tree that supports a full, live crown. For trees that have uneven length crowns, occularly transfer lower branches to fill holes in the upper portions of the crown, until a full, even crown is created.                                                        |
| Compartment                | A land area, usually between 3,000 and 8,000 acres, easily identified on the ground by physical features. A compartment tis comparable in size to a sub-watershed, or landscape management unit. It is used as a convenience for maintaining stand records and planning vegetation management projects. |
| Crown Class                | The relative position of the tree or shrub crown with respect to the competing vegetation around it. Crown class for each tree or shrub is judged in the context of its immediate environment, that is those trees or shrubs which are competing for sunlight with the subject tree or shrub.           |
| Crown Length               | The vertical distance from the top of the leader to the base of the crown, measured to the lowest live branch-whorl with live branches in at least three quadrants, and continuous with the main crown.                                                                                                 |
| Crown Ratio                | The ratio of compacted live crown length to bole length. Lengths are measured parallel to the bole from the base of the tree to the tip.                                                                                                                                                                |

| Term                            | Definition                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| DEM                             | Digital Elevation Model. USGS geographic elevation data distributed in raster form. Digital representation of the shape of the earth's surface. Typically, digital elevation data consists of arrays of values that represent topographic elevations measured at equal intervals on the Earth's surface.                                                                                                                                                                      |
| Diameter                        | The length of a straight-line segment passing through the center of an item and terminating at its periphery.                                                                                                                                                                                                                                                                                                                                                                 |
| Diameter at Breast Height (DBH) | A measure at breast height (4.5 feet), outside bark, of the tree bole, perpendicular to the tree bole.                                                                                                                                                                                                                                                                                                                                                                        |
| Diameter at Root Collar (DRC)   | The straight line passing through the center of a cross section of a bole measured at the root collar of a shrub or tree.                                                                                                                                                                                                                                                                                                                                                     |
| Down Log                        | Stem material (conifer or hardwood) that is lying on the ground. If a stem material is leaning more than 45 degrees from vertical, is not self-supporting, and/or in contact with the ground, it is considered a down log.                                                                                                                                                                                                                                                    |
| Down Woody Material             | Woody pieces of trees and shrubs that have been uprooted (no longer supporting growth) or severed from their root system, not self-supporting, and are lying on the ground.                                                                                                                                                                                                                                                                                                   |
| Duff Layer                      | Duff is the fermentation and humus layer of the forest floor. It does not include the freshly cast material in the litter layer. The top of the duff is where needles, leaves, and other cast-off vegetative material have noticeably begun to decompose. Individual particles usually will be bound by fungi mycelium. When moss is present, the top of the duff is just below the green portion of the moss. The bottom of the duff is the start of the soil ("A" horizon). |
| Elevation                       | Vertical distance from a datum, usually mean sea level, to a point or object on the earth's surface. Not to be confused with altitude, this refers to points above the earth's surface.                                                                                                                                                                                                                                                                                       |
| Fuel Bed                        | The fuel bed is accumulation of dead, woody residue on the forest floor. It begins at the top of the duff layer and above. It includes litter, dead limb wood, and bole wood from tree species, as well as dead material from shrub, herbaceous, and grass species.                                                                                                                                                                                                           |

| Term               | Definition                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Fuel Model         | Mathematical descriptions of fuel properties (e.g., fuel load and fuel depth) that are used as inputs to calculations of fire danger indices and fire behavior potential.                                                                                                                                                                                                                                                |
| GPS                | Global Positioning System. A network of radio-emitting satellites deployed by the U.S. Department of Defense. Ground-based GPS receivers can automatically derive accurate surface coordinates for all kinds of GIS, mapping, and surveying data collection.                                                                                                                                                             |
| Ground Level       | The forest floor, made up by soil and duff layer. It does not include unincorporated woody debris that may rise above the ground line. In reference to a point of measure, it is the highest point of the ground touching the base of the object being referenced.                                                                                                                                                       |
| Group Tally        | A count of one or more items of the same type or species and recorded as a single line entry.                                                                                                                                                                                                                                                                                                                            |
| Growth             | A measure of the increase in growth layers for a specified time frame.                                                                                                                                                                                                                                                                                                                                                   |
| Height Growth      | The increase in height over a set period of time.                                                                                                                                                                                                                                                                                                                                                                        |
| Intersect Diameter | Measurement of diameter at a point where the sampling plane intersects the geometric center of the object being tallied. No adjustment is made for stem irregularities at the point of intersection.                                                                                                                                                                                                                     |
| Lean (Tree)        | The deflection from vertical, > 15 degrees of a straight line passing through the geometric center of the base and top of the main stem.                                                                                                                                                                                                                                                                                 |
| Length             | The measurement of the extent of something along its greatest dimension.                                                                                                                                                                                                                                                                                                                                                 |
| Life Form          | Species and individuals that are grouped into classes on the basis of their similarities in structure and function. A growth form that displays an obvious relationship to important environmental factors.                                                                                                                                                                                                              |
| Limiting Distance  | <p>A comparative measurement between the subplot radius and the distance from the subplot center to the center of the object. The comparison is used to determine whether the object is in or out of the fixed area subplot.</p> <p>The object is "IN" if the measured distance is equal to or less than the subplot radius.</p> <p>The object is "OUT" if the measured distance is greater than the subplot radius.</p> |

| Term                    | Definition                                                                                                                                                                                                                                                                            |
|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Live Crown Length       | The straight-line distance measured parallel to the main bole of a tree, from the top of the live crown to the base of the live crown.                                                                                                                                                |
| Ownership               | The identification of the legal owner/administrator on both the surface and subsurface estates.                                                                                                                                                                                       |
| Plant Species           | The major subdivision of a genus or subgenus of a plant being described or measured.                                                                                                                                                                                                  |
| Plot Configuration      | The size and shape of the sampling unit (plot) and the spatial arrangement of subplots within that unit.                                                                                                                                                                              |
| Plot                    | A sub-sample of a plot or stand exam. This is the unit on which data are recorded to individual trees, snags, logs, understory vegetation, and fuels. Data can be collected on either a fixed area or variable radius area.                                                           |
| Proclaimed Forest       | Units of the National Forest System as originally proclaimed or designated by Congress.                                                                                                                                                                                               |
| Quadratic Mean Diameter | The diameter of the tree of average basal area.                                                                                                                                                                                                                                       |
| Radial Growth Increment | The increase in tree radius over a period of time at breast height, or occasionally at the base/.                                                                                                                                                                                     |
| Random Sample           | Any method of sample selection based on the theory of probability (degree of certainty). At any stage of the operation of selection, the probability of any set of units being selected must be known. It is the only method that can provide a measure of precision of the estimate. |
| Reconciliation Code     | A code used to reflect the status of an individually tallied item with regards to previous surveys.                                                                                                                                                                                   |
| Slope                   | A deviation from the horizontal.                                                                                                                                                                                                                                                      |
| Species                 | A code that represents a fundamental category of taxonomic classification of an organism.                                                                                                                                                                                             |
| Stand                   | A spatially continuous group of trees and associated vegetation having similar structures and growing under similar soil and climatic conditions.                                                                                                                                     |

| Term              | Definition                                                                                                                                                                                                                                                                                                                                            |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stand Exam Grid   | Basic data collection method for stand exams. It consists of a set of plots, separated by equal distances on a grid pattern. The lines of the grid (transects) are oriented in cardinal directions. There is a predetermined distance between plots. The number of transects and grid plots will vary depending upon the size and shape of the stand. |
| Stratified Sample | A method of sampling forest resources where stands or polygons of similar properties are lumped into strata. This improves the efficiency of an inventory by reducing the variability within a given population. The less variability there is within a strata, the fewer samples will need to be taken to achieve a statistically valid result.      |
| Stratum           | A group of stands within a condition class; similar characteristics such as forest type, tree size class, and canopy density.                                                                                                                                                                                                                         |
| Stump             | The woody base of a tree remaining in contact with the soil after the trunk or main stem has been severed at a point less than 4.5 feet above ground height (measured on the uphill side).                                                                                                                                                            |
| Tree              | A woody perennial plant, typically large, with a single well-defined stem carrying a more or less definite crown.                                                                                                                                                                                                                                     |
| Tree Age          | Total age of the above-ground stem of a tree (not age of the root stock or the total age from seed). Total age is usually the annual ring count to the pith of the tree at breast height plus an estimate of the number of years it took the tree to reach breast height.                                                                             |

## APPENDIX N: FUEL MODELS

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The original 13 fuel models are from “Aids to Determining Fuel Models for Estimating Fire Behavior,” Hal E. Anderson, INT-122, 1982. The remaining fuel models are from “Standard Fire Behavior Fuel Models: A Comprehensive Set for Use with Rothermel's Surface Fire Spread Model” by Joe H. Scott and Robert E. Burgan. RMRS – GTR-153. June 2005.

Table 61: Fuel Models

| Fuel Model | Fuel Model Code | Fuel Model Name                | Fuel Type                  | Model Set   | Fuel 1-hr | Fuel 10-hr | Fuel 100-hr | Fuel Bed Depth |
|------------|-----------------|--------------------------------|----------------------------|-------------|-----------|------------|-------------|----------------|
| 1          | n/a             | Short grass (1 foot)           | Grass and grass-dominated  | Original 13 | 0.74      | 0          | 0           | 1              |
| 2          | n/a             | Timber (grass and understory)  | Grass and grass-dominated  | Original 13 | 2         | 1          | 0.500       | 1              |
| 3          | n/a             | Tall grass (2.5 feet)          | Grass and grass-dominated  | Original 13 | 3.01      | 0          | 0           | 2.50           |
| 4          | n/a             | Chaparral (6 feet)             | Chaparral and shrub fields | Original 13 | 5.01      | 4.010      | 2           | 6              |
| 5          | n/a             | Brush (2 feet)                 | Chaparral and shrub fields | Original 13 | 1         | 0.500      | 0           | 2              |
| 6          | n/a             | Dormant brush, hardwood slash  | Chaparral and shrub fields | Original 13 | 1.50      | 2.500      | 2           | 2.50           |
| 7          | n/a             | Southern rough                 | Chaparral and shrub fields | Original 13 | 1.13      | 1.870      | 1.500       | 2.50           |
| 8          | n/a             | Closed timber litter           | Timber litter              | Original 13 | 1.50      | 1          | 2.500       | 0.20           |
| 9          | n/a             | Hardwood litter                | Timber litter              | Original 13 | 2.92      | 0.410      | 0.150       | 0.20           |
| 10         | n/a             | Timber (litter and understory) | Timber litter              | Original 13 | 3.01      | 2          | 5.010       | 1              |
| 11         | n/a             | Light logging slash            | Slash                      | Original 13 | 1.50      | 4.51       | 5.510       | 1              |
| 12         | n/a             | Medium logging slash           | Slash                      | Original 13 | 4.01      | 14.03      | 16.53       | 2.30           |
| 13         | n/a             | Heavy logging slash            | Slash                      | Original 13 | 7.01      | 23.04      | 28.05       | 3              |

| Fuel Model | Fuel Model Code | Fuel Model Name                                      | Fuel Type    | Model Set        | Fuel 1-hr | Fuel 10-hr | Fuel 100-hr | Fuel Bed Depth |
|------------|-----------------|------------------------------------------------------|--------------|------------------|-----------|------------|-------------|----------------|
| 91         | NB1             | Urban/ Developed                                     | Non-burnable | Scott and Burgan | 0         | 0          | 0           | 0              |
| 92         | NB2             | Snow/Ice                                             | Non-burnable | Scott and Burgan | 0         | 0          | 0           | 0              |
| 93         | NB3             | Agricultural                                         | Non-burnable | Scott and Burgan | 0         | 0          | 0           | 0              |
| 98         | NB4             | Open Water                                           | Non-burnable | Scott and Burgan | 0         | 0          | 0           | 0              |
| 99         | NB5             | Bare Ground                                          | Non-burnable | Scott and Burgan | 0         | 0          | 0           | 0              |
| 101        | GR1             | Short, Sparse Dry Climate Grass (Dynamic)            | Grass        | Scott and Burgan | 0.10      | 0          | 0           | 0.40           |
| 102        | GR2             | Low Load, Dry Climate (Dynamic)                      | Grass        | Scott and Burgan | 0.10      | 0          | 0           | 1              |
| 103        | GR3             | Low Load, Very Coarse, Humid Climate Grass (Dynamic) | Grass        | Scott and Burgan | 0.10      | 0.40       | 0           | 2              |
| 104        | GR4             | Moderate Load, Dry Climate Grass (Dynamic)           | Grass        | Scott and Burgan | 0.25      | 0          | 0           | 2              |
| 105        | GR5             | Low Load, Humid Climate Grass (Dynamic)              | Grass        | Scott and Burgan | 0.40      | 0          | 0           | 1.50           |
| 106        | GR6             | Moderate Load, Humid Climate Grass (Dynamic)         | Grass        | Scott and Burgan | 0.10      | 0          | 0           | 1.50           |

| Fuel Model | Fuel Model Code | Fuel Model Name                                       | Fuel Type   | Model Set        | Fuel 1-hr | Fuel 10-hr | Fuel 100-hr | Fuel Bed Depth |
|------------|-----------------|-------------------------------------------------------|-------------|------------------|-----------|------------|-------------|----------------|
| 107        | GR7             | High Load, Dry Climate Grass (Dynamic)                | Grass       | Scott and Burgan | 1         | 0          | 0           | 3              |
| 108        | GR8             | High Load, Very Coarse, Humid Climate Grass (Dynamic) | Grass       | Scott and Burgan | 0.50      | 1          | 0           | 4              |
| 109        | GR9             | Very High Load, Humid Climate Grass (Dynamic)         | Grass       | Scott and Burgan | 1         | 1          | 0           | 5              |
| 121        | GS1             | Low Load, Dry Climate Grass-Shrub (Dynamic)           | Grass-Shrub | Scott and Burgan | 0.20      | 0          | 0           | 0.90           |
| 122        | GS2             | Moderate load, Dry Climate Grass-Shrub (Dynamic)      | Grass-Shrub | Scott and Burgan | 0.50      | 0.500      | 0           | 1.50           |
| 123        | GS3             | Moderate Load, Humid Climate Grass-Shrub (Dynamic)    | Grass-Shrub | Scott and Burgan | 0.30      | 0.250      | 0           | 1.80           |
| 124        | GS4             | High Load, Humid Climate Grass-Shrub (Dynamic)        | Grass-Shrub | Scott and Burgan | 1.90      | 0.300      | 0.100       | 2.10           |
| 141        | SH1             | Low Load, Dry Climate Shrub (Dynamic)                 | Shrub       | Scott and Burgan | 0.25      | 0.250      | 0           | 1              |
| 142        | SH2             | Moderate Load, Dry Climate Shrub                      | Shrub       | Scott and Burgan | 1.35      | 2.400      | 0.750       | 1              |
| 143        | SH3             | Moderate Load, Humid Climate Shrub                    | Shrub       | Scott and Burgan | 0.45      | 3          | 0           | 2.40           |
| 144        | SH4             | Low Load, Humid Climate Timber-Shrub                  | Shrub       | Scott and Burgan | 0.85      | 1.150      | 0.200       | 3              |

| Fuel Model | Fuel Model Code | Fuel Model Name                                           | Fuel Type           | Model Set        | Fuel 1-hr | Fuel 10-hr | Fuel 100-hr | Fuel Bed Depth |
|------------|-----------------|-----------------------------------------------------------|---------------------|------------------|-----------|------------|-------------|----------------|
| 145        | SH5             | High Load, Dry Climate Shrub                              | Shrub               | Scott and Burgan | 3.60      | 2.100      | 0           | 6              |
| 146        | SH6             | Low Load, Humid Climate Shrub                             | Shrub               | Scott and Burgan | 2.90      | 1.450      | 0           | 2              |
| 147        | SH7             | Very High Load, Dry Climate Shrub                         | Shrub               | Scott and Burgan | 3.5       | 5.300      | 2.200       | 6              |
| 148        | SH8             | High Load, Humid Climate Shrub                            | Shrub               | Scott and Burgan | 2.05      | 3.400      | 0.850       | 3              |
| 149        | SH9             | Very High Load, Humid Climate Shrub (Dynamic)             | Shrub               | Scott and Burgan | 4.50      | 2.450      | 0           | 4.40           |
| 161        | TU1             | Low Load, Dry Climate Timber-Grass-Shrub (Dynamic)        | Timber - Understory | Scott and Burgan | 0.20      | 0.900      | 1.500       | 0.60           |
| 162        | TU2             | Moderate Load, Humid Climate Timber-Grass-Shrub (Dynamic) | Timber - Understory | Scott and Burgan | 0.95      | 1.800      | 1.250       | 1              |
| 163        | TU3             | Moderate Load, Humid Climate Timber-Grass-Shrub (Dynamic) | Timber – Understory | Scott and Burgan | 1.10      | 0.150      | 0.250       | 1.30           |
| 164        | TU4             | Dwarf Conifer with Understory                             | Timber – Understory | Scott and Burgan | 4.50      | 0          | 0           | 0.50           |
| 165        | TU5             | Very High Load, Dry Climate Timber-Shrub                  | Timber – Understory | Scott and Burgan | 4         | 4          | 3           | 1              |
| 181        | TL1             | Low Load Compact Conifer Litter                           | Timber Litter       | Scott and Burgan | 1         | 2.200      | 3.600       | 0.20           |

| Fuel Model | Fuel Model Code | Fuel Model Name                                   | Fuel Type      | Model Set        | Fuel 1-hr | Fuel 10-hr | Fuel 100-hr | Fuel Bed Depth |
|------------|-----------------|---------------------------------------------------|----------------|------------------|-----------|------------|-------------|----------------|
| 182        | TL2             | Low Load Broadleaf Litter                         | Timber Litter  | Scott and Burgan | 1.40      | 2.300      | 2.200       | 0.200          |
| 183        | TL3             | Moderate Load Conifer Litter                      | Timber Litter  | Scott and Burgan | 0.50      | 2.200      | 2.800       | 0.30           |
| 184        | TL4             | Small Downed Logs                                 | Timber Litter  | Scott and Burgan | 0.50      | 1.500      | 4.200       | 0.40           |
| 185        | TL5             | High Load Conifer Litter                          | Timber Litter  | Scott and Burgan | 1.15      | 2.500      | 4.400       | 0.60           |
| 186        | TL6             | Moderate Load Broadleaf Litter                    | Timber Litter  | Scott and Burgan | 2.40      | 1.200      | 1.200       | 0.30           |
| 187        | TL7             | Large Downed Logs                                 | Timber Litter  | Scott and Burgan | 0.30      | 1.400      | 8.100       | 0.40           |
| 188        | TL8             | Long-Needle Litter                                | Timber Litter  | Scott and Burgan | 5.80      | 1.400      | 1.100       | 0.30           |
| 189        | TL9             | Very High Load Broadleaf Litter                   | Timber Litter  | Scott and Burgan | 6.65      | 3.300      | 4.150       | 0.60           |
| 201        | SB1             | Low Load Activity Fuel                            | Slash-Blowdown | Scott and Burgan | 1.50      | 3          | 11          | 1              |
| 202        | SB2             | High Load Activity Fuel or Moderate Load Blowdown | Slash-Blowdown | Scott and Burgan | 4.50      | 4.250      | 4           | 1              |
| 203        | SB3             | High Load Activity Fuel or Moderate Load Blowdown | Slash-Blowdown | Scott and Burgan | 5.50      | 2.750      | 3           | 1.20           |

| Fuel Model | Fuel Model Code | Fuel Model Name    | Fuel Type      | Model Set        | Fuel 1-hr | Fuel 10-hr | Fuel 100-hr | Fuel Bed Depth |
|------------|-----------------|--------------------|----------------|------------------|-----------|------------|-------------|----------------|
| 204        | SB4             | High Load Blowdown | Slash-Blowdown | Scott and Burgan | 5.25      | 3.500      | 5.250       | 2.70           |

Table 62: Detailed Descriptions of the Fuel Models

| Code | Detailed Description                                                                                                                                                                                                                                                                                                                                          |
|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Contains fine, very porous, and continuous herbaceous fuels that have cured or are nearly cured. Generally less than one-third of the area contains shrubs or timber. Grasslands and savanna are represented along with stubble, grass-tundra, and grass-shrub combinations. Annual and perennial grasses are included in this fuel model.                    |
| 2    | Herbaceous material with litter and dead-down stem wood from the open shrub or timber overstory. Open shrub lands and pine stands or scrub oak stands that cover one-third to two-thirds of the area. Stand many include clumps and may include pinyon-juniper.                                                                                               |
| 3    | Stands are tall, averaging about three feet, but considerable variation may occur. Approximately one-third or more of the stand is considered dead and cured. May include cultivated grains that have not been harvested, tall prairie, and marshland grasses.                                                                                                |
| 4    | Stands of mature shrubs, 6 feet or more tall such as California mixed chaparral, the high pocosin along the east coast, the pine barrens of New Jersey, or the closed jack pine stands of the north-central states. Besides flammable foliage, stand may contain dead woody material. May contains a deep litter layer.                                       |
| 5    | Shrubs are young with little dead material, and the foliage contains little volatile material. Usually shrubs are short and almost totally cover the area. Young, green stands with no dead wood qualify: laurel, vine maple, alder, or even chaparral, manzanita, or chamise.                                                                                |
| 6    | The shrubs are older, but not as tall as model 4, nor do they contain as much fuel as model 4. This model covers a broad range of shrub conditions: intermediate stands of chamise, chaparral, oak brush, low pocosin, Alaskan spruce taiga, and shrub tundra. May include hardwood slash that has been cured. Pinyon-juniper shrub lands may be represented. |
| 7    | Stands of shrubs are generally between 2 and 6 feet high. Palmetto-galliberry understory, with a pine overstory are typical. Low pocosin may be represented. Black spruce shrub combinations in Alaska may also be represented.                                                                                                                               |

| Code | Detailed Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8    | Contains closed canopy stands of short needle conifers or hardwoods that have leafed out. The compact litter layer is mainly needles, leaves, and occasionally twigs because little undergrowth is present. Representative conifer types are white pine, lodgepole pine, spruce, fir, and larch.                                                                                                                                                                                                                      |
| 9    | Both long-needle conifer stands and hardwood stands, especially the oak-hickory types, are typical. Closed stands of long-needled pine like ponderosa, Jeffrey, red pines, or southern pine plantations are grouped in this model. May contain concentrations of dead-down woody material.                                                                                                                                                                                                                            |
| 10   | Dead-down fuels include quantities of 3-inch or larger limb wood resulting from over maturity or natural events that create a large load of dead material on the forest floor. Any forest type may be considered if heavy down material is present; examples are insect- or disease-ridden stands, wind thrown stands, over-mature situations with deadfall, and aged light thinning or partial cut slash.                                                                                                            |
| 11   | Contains slash and herbaceous material intermixed with slash. Light partial cuts or thinning operations in mixed conifer stands, hardwood stands, and southern pine harvests are considered. Clearcuts generally produce more slash than represented here. The less than 3-inch material load is less than 12 tons per acre. The greater than 3 inch is represented by not more than 10 pieces, 4 inches in diameter, along a 60 foot transect.                                                                       |
| 12   | The visual impression is dominated by slash and much of it is less than 3 inches in diameter. The fuels are well distributed. Heavily thinned conifer stands, clearcuts, and medium or heavy partial cuts are represented. The material larger than 3 inches is represented by encountering 11 pieces, 6 inches in diameter along a 50 foot transect.                                                                                                                                                                 |
| 13   | There is a continuous layer of slash. Large quantities of material larger than 3 inches are present. Clearcuts and heavy partial cuts in mature and over-mature stands are depicted where the slash load is dominated by the greater than 3 inch diameter material. Fuels less than 3 inches are generally only 10 percent of the total load. May include situations where the slash still has "red" needles attached.                                                                                                |
| 91   | Land covered by urban and suburban development. The area must not support wildland fire spread. In some cases the area may experience structural fire losses during a wildland fire incident; however, structure ignition in those cases is either house-to-house or by firebrands, neither of which is directly modeled using fire behavior fuel models. If sufficient vegetation surrounds structures such that wildland fire spread is possible, then choose a fuel model appropriate for the wildland vegetation. |
| 92   | Land covered by permanent snow and ice. Areas covered by seasonal snow and ice can be mapped to two different fuel models.                                                                                                                                                                                                                                                                                                                                                                                            |

| Code | Detailed Description                                                                                                                                                                                                                                                                                                                                                                                                               |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 93   | Agricultural land maintained in a non-burnable condition, examples include irrigated annual crops, mowed or tilled orchards, and so forth. However, there are many agricultural areas that are not kept in a non-burnable condition. For example, grass is often allowed to grow beneath vines or orchard trees, and wheat and similar crops are allowed to cure before harvest; in those cases use a different fuel model.        |
| 98   | Land covered by open bodies of water such as lakes, rivers, and oceans.                                                                                                                                                                                                                                                                                                                                                            |
| 99   | Land devoid of enough fuel to support wildland fire spread. Such areas include: gravel pits, arid deserts with little vegetation, sand dunes, rock outcroppings, beaches, and so forth.                                                                                                                                                                                                                                            |
| 101  | The primary carrier of fire in sparse grass, though small amounts of fine fuel may be present. The grass is generally short, either naturally or by grazing, and may be sparse or discontinuous. The moisture extraction is indicative of a dry climate fuelbed, but may also be applied in high-extinction moisture fuelbeds because in both cases predicted spread rate and flame length are low compared to other grass models. |
| 102  | The primary carrier of fire is grass, though small amounts of fine dead fuel may be present. Load is greater than 101, and fuelbed may be more continuous. Shrubs, if present, do not affect fire behavior.                                                                                                                                                                                                                        |
| 103  | The primary carrier of fire is continuous, coarse, humid-climate grass. Grass and herb fuel load is relatively light; fuelbed depth is about 2 feet. Shrubs are not present in significant quantity to affect fire behavior.                                                                                                                                                                                                       |
| 104  | The primary carrier of fire is continuous, dry-climate grass. Load and depth are greater than 102; fuelbed depth is about 2 feet.                                                                                                                                                                                                                                                                                                  |
| 105  | The primary carrier of fire is humid-climate grass. Load is greater than 103 but depth is lower, about 1-2 feet.                                                                                                                                                                                                                                                                                                                   |
| 106  | The primary carrier of fire is continuous humid-climate grass. Load is greater than 105 but depth is about the same. Grass is less coarse than 105.                                                                                                                                                                                                                                                                                |
| 107  | The primary carrier of fire is continuous dry-climate grass. Load and depth are greater than 104. Grass is about 3 feet tall.                                                                                                                                                                                                                                                                                                      |
| 108  | The primary carrier of fire is continuous, very coarse, humid-climate grass. Load and depth are greater than 106. Spread rate and flame length can be extreme if grass is fully cured.                                                                                                                                                                                                                                             |
| 109  | The primary carrier of fire is dense, tall, humid-climate grass. Load and depth are greater than 108, about 6 feet tall. Spread rate and flame length can be extreme if grass is fully more mostly cured.                                                                                                                                                                                                                          |

| Code | Detailed Description                                                                                                                                                                                          |
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| 121  | The primary carrier of fire is grass and shrubs combined. Shrubs are about 1 foot height, grass load is low. Spread rate is moderate; flame length is low. Moisture of extinction is low.                     |
| 122  | The primary carrier of fire is grass and shrubs combined. Shrubs are 1 to 3 feet high, grass load is moderate. Spread rate is high; flame length moderate. Moisture of extinction is low.                     |
| 123  | The primary carrier of fire is grass and shrubs combined. Moderate grass/shrub load, average grass/shrub depth less than 2 feet. Spread rate is high; flame length moderate. Moisture of extinction is high.  |
| 124  | The primary carrier of fire is grass and shrubs combined. Heavy grass/shrub load, depth greater than 2 feet. Spread rate high; flame length very high. Moisture of extinction is high.                        |
| 141  | The primary carrier of fire is woody shrubs and shrub litter. Low shrub fuel load, fuelbed about 1 foot; some grass may be present. Spread rate is very low; flame length very low.                           |
| 142  | The primary carrier of fire is woody shrubs and shrub litter. Moderate shrub fuel load (higher than 141), depth about 1 foot, no grass fuel present. Spread rate is very low; flame length low.               |
| 143  | The primary carrier of fire is woody shrubs and shrub litter. Moderate shrub load, possibly with pine overstory or herbaceous fuel, fuel bed depth 2 to 3 feet. Spread rate is low; flame length low.         |
| 144  | The primary carrier of fire is woody shrubs and shrub litter. Low to moderate shrub and litter load, possibly with pine overstory, fuel bed depth about 3 feet. Spread rate is high; flame length moderate.   |
| 145  | The primary carrier of fire is woody shrubs and shrub litter. Heavy shrub load, depth 4-6 feet. Spread rate is very high; flame length very high. Moisture of extinction is high.                             |
| 146  | The primary carrier of fire is woody shrubs and shrub litter. Dense shrubs, little or no herbaceous fuel, fuelbed depth about 2 feet. Spread rate is high; flame length high.                                 |
| 147  | The primary carrier of fire is woody shrubs and shrub litter. Very heavy shrub load, depth 4 to 6 feet. Spread rate lower than 146, but flame length similar. Spread rate is high, flame length is very high. |
| 148  | The primary carrier of fire is woody shrubs and shrub litter. Dense shrubs, little or no herbaceous fuel, fuelbed depth about 3 feet. Spread rate is high; flame length high.                                 |

| Code | Detailed Description                                                                                                                                                                                                                      |
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| 149  | The primary carrier of fire is woody shrubs and shrub litter. Dense, finely branched shrubs with significant fine dead fuel, about 4 to 6 feet tall; some herbaceous fuel may be present. Spread rate is high; flame length is very high. |
| 161  | The primary carrier of fire is low load of grass and/or shrub with litter. Spread rate is low; flame length is low.                                                                                                                       |
| 162  | The primary carrier of fire is moderate litter load with shrub component. High extinction moisture. Spread rate is moderate; flame length is low.                                                                                         |
| 163  | The primary carrier of fire is moderate forest litter. High extinction moisture. Spread rate is high; flame length is moderate.                                                                                                           |
| 164  | The primary carrier of fire is short conifer trees with grass or moss understory. Spread rate is moderate; flame length is moderate.                                                                                                      |
| 165  | The primary carrier of fire is heavy forest litter with a shrub or small tree understory. Spread rate is moderate; flame length is moderate.                                                                                              |
| 181  | The primary carrier of fire is compact forest litter. Light to moderate loads, fuels 1 to 2 inches deep. May be used to represent a recently burned forest. Spread rate is very low; flame length is very low.                            |
| 182  | The primary carrier of fire is broadleaf (hardwood) litter. Low load, compact broadleaf litter. Spread rate is very low; flame length is very low.                                                                                        |
| 183  | The primary carrier of fire is moderate load conifer litter, light load of coarse fuels. Spread rate is very low; flame length low.                                                                                                       |
| 184  | The primary carrier of fire is moderate load of fine litter and coarse fuels. Includes small diameter downed logs. Spread rate is low; flame length low.                                                                                  |
| 185  | The primary carrier of fire is high load of fine litter; light slash or mortality fuel. Spread rate is low; flame length low.                                                                                                             |
| 186  | The primary carrier of fire is moderate load broadleaf litter, less compact than 182. Spread rate is very moderate; flame length is low.                                                                                                  |
| 187  | The primary carrier of fire is heavy load of forest litter, includes large diameter downed logs. Spread rate is low; flame length low.                                                                                                    |
| 188  | The primary carrier of fire is moderate load long-needle pine litter, may include small amount of herbaceous load. Spread rate is moderate; flame length low.                                                                             |
| 189  | The primary carrier of fire is very high load, fluffy broadleaf litter. This can also be used to represent heavy needle-drape. Spread rate is very moderate; flame length moderate.                                                       |

| Code | Detailed Description                                                                                                                                                                                                                                                                                                                     |
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| 201  | The primary carrier of fire is light dead and down activity fuel. Fine fuel load is 10 to 20 t/ac weighted towards fuels 1 to 3 inch diameter class; depth is less than 1 foot. Spread rate is moderate; flame length moderate.                                                                                                          |
| 202  | The primary carrier of fire is moderate dead and downed activity fuel or light blowdown. Fine fuel load is 7 to 12 t/ac, evenly distributed across 0 to 0.25, 0.25 to 1, and 1 to 3 inch diameter classes, depth is about 1 foot. Blowdown is scattered, with many trees still standing. Spread rate is moderate; flame length moderate. |
| 203  | The primary carrier of fire is heavy dead and down activity fuel or moderate blowdown. Fine fuel load is 7 to 12 t/ac, weighted toward 0 to 0.25 inch diameter class, depth is more than 1 foot. Blowdown is moderate; trees compacted to near the ground. Spread rate is high; flame length high.                                       |
| 204  | The primary carrier of fire is heavy blowdown fuel. Blowdown is total, fuelbed is not compacted, most foliage and fine fuel still attached to blowdown. Spread rate is very high; flame length very high.                                                                                                                                |