APPENDIX E: EXISTING VEGETATION REFERENCES AND CODES

February 2014

Code	Name	Author
1001	Region 10; Resource Information Management: Data Dictionary for the Chugach National Forest	
1003	Yakutat Existing Veg Classification, 1995	Michael Shepard, Chatham Area Ecologist

Ref. Code	EV Code	Common Name	Scientific Name
1001	1001	Lutz's spruce/Sitka alder	PILU/ALVIS
1001	1002	Lutz's spruce/Sitka alder-rusty menziesia	PILU/ALVIS-MEFE
1001	1003	Lutz's spruce/bluejoint	PILU/CACA4
1001	1004	Lutz's spruce/spreading woodfern	PILU/DREX2
1001	1005	Lutz's spruce/devilsclub	PILU/OPHO
1001	1006	Lutz's spruce/field horsetail	PILU/EQAR
1001	1007	Lutz's spruce/western oakfern	PILU/GYDR
1001	1008	Lutz's spruce/twinflower	PILU/LIBO3
1001	1009	Lutz's spruce/rusty menziensia	PILU/MEFE
1001	1010	Lutz's spruce/rusty menziensia (sparse)	PILU/MEFE
1001	1011	Lutz's spruce/lingonberry	PILU/VAVI
1001	1012	Lutz's spruce/Sitka alder-devilsclub	PILU/ALVIS-OPHO
1001	1013	Lutz's spruce/Sitka alder/bluejoint/field horsetail	PILU/ALVIS/CACA4/EQAR
1001	1014	Lutz's spruce/bluejoint/field horsetail	PILU/CACA4/EQAR
1001	1015	Lutz's spruce/bluejoint/western oakfern	PILU/CACA4/GYDR
1001	1016	Lutz's spruce/rusty menziensia/strawberryleaf raspberry	PILU/MEFE/RUPE
1001	1017	Lutz's spruce/rusty menziensia/strawberryleaf raspberry-bluejoint	PILU/MEFE/RUPE-CACA4
1001	1018	Lutz's spruce/Barclay's willow	PILU/SABA3
1001	1019	Lutz's spruce/red elderberry/fireweed	PILU/SARA2/CHANA2
1001	1020	Lutz's spruce/dwarf bilberry	PILU/VACA13
1001	1021	Lutz's spruce/bog blueberry	PILU/VAUL
1001	1101	black spruce/Sitka alder	PIMA/ALVIS
1001	1102	black spruce/lingonberry	PIMA/VAVI
1001	1103	black spruce/Sitka alder/bluejoint/field horsetail	PIMA/ALVIS/CACA4/EQAR
1001	1104	black spruce/Sitka alder/shrubby cinquefoil	PIMA/ALVIS/DAFL3
1001	1105	black spruce/black crowberry	PIMA/EMNI
1001	1106	black spruce/marsh Labrador tea/cloudberry	PIMA/LEPA11/RUCH
1001	1107	black spruce/shrubby cinquefoil/beachhead iris	PIMA/DAFL3/IRSE
1001	1108	black spruce/cloudberry/field horsetail	PIMA/RUCH/EQAR
1001	1109	black spruce/bog blueberry	PIMA/VAUL
1001	1201	Sitka spruce/Sitka alder	PISI/ALVIS
1001	1202	Sitka spruce/Sitka alder-devilsclub	PISI/ALVIS-OPHO
1001	1203	Sitka spruce/devilsclub	PISI/OPHO

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1001	1204	Sitka spruce/field horsetail	PISI/EQAR
1001	1205	Sitka spruce/splendid feather moss	PISI/HYSP70
1001	1206	Sitka spruce/American skunkcabbage	PISI/LYAM3
1001	1207	Sitka spruce/salmonberry-devilsclub	PISI/RUSP-OPHO
1001	1208	Sitka spruce/Barclay's willow	PISI/SABA3
1001	1209	Sitka spruce/oval-leaf blueberry	PISI/VAOV
1001	1210	Sitka spruce/oval-leaf blueberry-devilsclub	PISI/VAOV-OPHO
1001	1211	Sitka spruce/oval-leaf blueberry/spreading woodfern	PISI/VAOV/DREX2
1001	1301	western hemlock/splendid feather moss	TSHE/HYSP70
1001	1302	western hemlock/oval-leaf blueberry	TSHE/VAOV
1001	1303	western hemlock/oval-leaf blueberry-devilsclub	TSHE/VAOV-OPHO
1001	1304	western hemlock/oval-leaf blueberry/spreading woodfern	TSHE/VAOV/DREX2
1001	1305	western hemlock/oval-leaf blueberry/Amercian skunkcabbage	TSHE/VAOV/LYAM3
1001	1306	western hemlock/oval-leaf blueberry/grass	TSHE/VAOV/2GRAM
1001	1307	western hemlock/oval-leaf blueberry/grass	TSHE/VAOV/2GRAM
1001	1401	western hemlock-Sitka spruce/devilsclub	TSHE-PISI/OPHO
1001	1402	western hemlock-Sitka spruce/salmonberry-devilsclub	TSHE-PISI/RUSP-OPHO
1001	1403	western hemlock-Sitka spruce/oval-leaf blueberry	TSHE-PISI/VAOV
1001	1404	western hemlock-Sitka spruce/oval-leaf blueberry-devilsclub	TSHE-PISI/VAOV-OPHO
1001	1405	western hemlock-Sitka spruce/oval-leaf blueberry/American skunkcabbage	TSHE-PISI/VAOV/LYAM3
1001	1406	western hemlock-Sitka spruce/oval-leaf blueberry/grass	TSHE-PISI/VAOV/2GRAM
1001	1501	mountain hemlock/Sitka alder	TSME/ALVIS
1001	1502	mountain hemlock/Sitka alder-rusty menziesia	TSME/ALVIS-MEFE
1001	1503	mountain hemlock/Alaska bellheather	TSME/HAST3
1001	1504	mountain hemlock/spreading woodfern	TSME/DREX2
1001	1505	mountain hemlock/devilsclub	TSME/OPHO
1001	1506	mountain hemlock/splendid feather moss	TSME/HYSP70
1001	1507	mountain hemlock/rusty menziesia	TSME/MEFE
1001	1508	mountain hemlock/rusty menziesia-lingonberry	TSME/MEFE-VAVI
1001	1509	mountain hemlock/rusty menziesia (sparse)	TSME/MEFE
1001	1510	mountain hemlock/Aleutian mountainheath	TSME/PHAL4
1001	1511	mountain hemlock/oval-leaf blueberry	TSME/VAOV
1001	1512	mountain hemlock/oval-leaf blueberry/Alaska bellheather	TSME/VAOV/HAST3
1001	1513	mountain hemlock/oval-leaf blueberry/copperbush	TSME/VAOV/ELPY
1001	1514	mountain hemlock/oval-leaf blueberry-devilsclub	TSME/VAOV-OPHO
1001	1515	mountain hemlock/oval-leaf blueberry-rusty menziesia	TSME/VAOV-MEFE
1001	1516	mountain hemlock/oval-leaf blueberry/Pacific reedgrass	TSME/VAOV/CANU
1001	1517	mountain hemlock/oval-leaf blueberry/deercabbage	TSME/VAOV-NECR2
1001	1518	mountain hemlock/bog blueberry	TSME/VAUL
1001	1519	mountain hemlock/lingonberry	TSME/VAVI

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1001	1520	mountain hemlock (krumholtz)	TSME
1001	1521	mountain hemlock/black crowberry-blueberry (dwarf tree scrub)	TSME/EMNI-VACCI
1001	1522	mountain hemlock/rusty menziesia-black crowberry	TSME/MEFE-EMNI
1001	1523	mountain hemlock/rusty menziesia-twinflower	TSME/MEFE-LIBO3
1001	1524	mountain hemlock/oval-leaf blueberry/grass	TSME/VAOV/2GRAM
1001	1525	mountain hemlock/oval-leaf blueberry/grass (etc.)	TSME/VAOV/2GRAM
1001	1601	mountain hemlock-Alaska cedar/oval-leaf blueberry-Alaska bellheather	TSME-CHNO/VAOV-HAST3
1001	1701	mountain hemlock-Lutz's spruce/devilsclub	TSME-PILU/OPHO
1001	1702	mountain hemlock-Lutz's spruce/splendid feather moss	TSME-PILU/HYSP70
1001	1703	mountain hemlock-Lutz's spruce/rusty menziesia	TSME-PILU/MEFE
1001	1704	mountain hemlock-Lutz's spruce/rusty menziesia-lingonberry	TSME-PILU/MEFE-VAVI
1001	1705	mountain hemlock-Lutz's spruce/rusty menziesia (sparse)	TSME-PILU/MEFE
1001	1706	mountain hemlock-Lutz's spruce/rusty menziesia-blueberry	TSME-PILU/MEFE-VACCI
1001	1751	mountain hemlock-black spruce/rusty menziesia/strawberryleaf raspberry	TSME-PIMA/MEFE/RUPE
1001	1801	mountain hemlock-Sitka spruce/devilsclub	TSME-PISI/OPHO
1001	1802	mountain hemlock-Sitka spruce/oval-leaf blueberry	TSME-PISI/VAOV
1001	1803	mountain hemlock-Sitka spruce/oval-leaf blueberry-devilsclub	TSME-PISI/VAOV-OPHO
1001	1804	mountain hemlock-Sitka spruce/oval-leaf blueberry-strawberrleaf raspberry	TSME-PISI/VAOV-RUPE
1001	1805	mountain hemlock-Sitka spruce/oval-leaf blueberry/spreading woodfern ssp. dilatata	TSME-PISI/VAOV/DREX2
1001	1806	mountain hemlock-Sitka spruce/oval-leaf blueberry/American skunkcabbage	TSME-PISI/VAOV/LYAM3
1001	1807	mountain hemlock-Sitka spruce/American skunkcabbage/grass	TSME-PISI/LYAM3/2GRAM
1001	1901	mountain hemlock-western hemlock/oval-leaf blueberry	TSME-TSHE/VAOV
1001	1902	mountain hemlock-western hemlock/oval-leaf blueberry-Alaska bellheather	TSME-TSHE/VAOV-HAST3
1001	1903	mountain hemlock-western hemlock/oval-leaf blueberry-copperbush	TSME-TSHE/VAVO-ELPY
1001	1904	mountain hemlock-western hemlock/oval-leaf blueberry-devilsclub	TSME-TSHE/VAOV-OPHO
1001	1905	mountain hemlock-western hemlock/oval-leaf blueberry-rusty meniesia	TSME-TSHE/VAOV-MEFE
1001	1906	mountain hemlock-western hemlock/oval-leaf blueberry/Pacific reedgrass	TSME-TSHE/VAOV/CANU
1001	1907	mountain hemlock-western hemlock/oval-leaf blueberry/deercabbage	TSME-TSHE/VAOV/NECR2
1001	1909	western hemlock-mountain hemlock/oval-leaf blueberry	TSHE-TSME/VAOV

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1001	1910	western hemlock-mountain hemlock/oval-leaf blueberry-devilsclub	TSHE-TSME/VAOV-OPHO
1001	1911	western hemlock-mountain hemlock/oval-leaf blueberry/grass	TSHE-TSME/VAOV/2GRAM
1001	1912	western hemlock-mountain hemlock/oval-leaf blueberry/American skunkcabbage	TSHE-TSME/VAOV/LYAM3
1001	1913	mountain hemlock-western hemlock/oval-leaf blueberry/grass	TSME-TSHE/VAOV/2GRAM
1001	1914	mountain hemlock-western hemlock/oval-leaf blueberry/grass (etc.)	TSME-TSHE/VAOV/2GRAM
1001	2001	paper birch/Sitka alder	BEPA/ALVIS
1001	2002	paper birch/Pacific reedgrass	BEPA/CANU
1001	2003	paper birch/devilsclub	BEPA/OPHO
1001	2004	paper birch/twinflower	BEPA/LIBO3
1001	2005	paper birch/rusty mensiesia	BEPA/MEFE
1001	2006	paper birch/rusty menziesia (sparse)	BEPA/MEFE
1001	2007	paper birch/lingonberry	BEPA/VAVI
1001	2008	paper birch/Sitka alder/bluejoint	BEPA/ALVIS/CACA4
1001	2009	paper birch/dwarf birch/bog blueberry	BEPA/BENA/VAUL
1001	2010	paper birch/willow-sweetgale/bluejoint	BEPA/SALIX-MYGA/CACA4
1001	2011	paper birch/willow/bog blueberry	BEPA/SALIX/VAUL
1001	2012	paper birch/red elderberry/spreading woodfern	BEPA/SARA2/DREX2
1001	2051	paper birch-balsam poplar/mountain alder/bluejoint	BEPA-POBA2/ALVIC/CACA4
1001	2101	black cottonwood/Sitka alder	POBAT/ALVIS
1001	2102	black cottonwood/devilsclub	POBAT/OPHO
1001	2103	black cottonwood/Sitka alder-willow	POBAT/ALVIS-SALIX
1001	2104	black cottonwood/Sitka alder/bluejoint	POBAT/ALVIS/CACA4
1001	2105	black cottonwood/Sitka alder/devilsclub	POBAT/ALVIS/OPHO
1001	2106	black cottonwood/devilsclub/common cowparsnip	POBAT/OPHO/HEMA80
1001	2107	black cottonwood/willow/lichen	POBAT/SALIX/2LICHN
1001	2201	quaking aspen/russet buffaloberry	POTR5/SHCA
1001	2202	quaking aspen/bluejoint/western oakfern	POTR5/CACA4/GYDR
1001	2203	quaking aspen/russet buffaloberry-squashberry	POTR5/SHCA-VIED
1001	2204	quaking aspen/russet buffaloberry/kinnikinnick	POTR5/SHCA/ARUV
1001	2205	quaking aspen/lingonberry	POTR5/VAVI
1001	3001	Lutz's spruce-paper birch/bluejoint	PILU-BEPA/CACA4
1001	3002	Lutz's spruce-paper birch/splendid feather moss	PILU-BEPA/HYSP70
1001	3003	Lutz's spruce-paper birch/stiff clubmoss	PILU-BEPA/LYAN2
1001	3004	Lutz's spruce-paper birch/rusty menziesia	PILU-BEPA/MEFE
1001	3005	Lutz's spruce-paper birch/rusty menziesia (sparse)	PILU-BEPA/MEFE
1001	3006	Lutz's spruce-paper birch/lingonberry	PILU-BEPA/VAVI
1001	3007	Lutz's spruce-paper birch/Sitka alder	PILU-BEPA/ALVIS
1001	3101	Lutz's spruce-black cottonwood/Sitka alder	PILU-POBAT/ALVIS
1001	3102	Lutz's spruce-black cottonwood/bluejoint	PILU-POBAT/CACA4
1001	3103	Lutz's spruce-black cottonwood/devilsclub	PILU-POBAT/OPHO
1001	3104	Lutz's spruce-black cottonwood/field horsetail	PILU-POBAT/EQAR
1001	3105	Lutz's spruce-black cottonwood/splendid feather moss	PILU-POBAT/HYSP70

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1001	3201	Lutz's spruce-quaking aspen/lingonberry	PILU-POTR5/VAVI
1001	3301	Sitka spruce-black cottonwood/Sitka alder	PISI-POBAT/ALVIS
1001	3302	black cottonwood-Lutz's spruce/Sitka alder	POBAT-PILU/ALVIS
1001	3303	black cottonwood-Lutz's spruce/moutain alder/devilsclub	POBAT-PILU/ALVIC/OPHO
1001	3304	black cottonwood-Lutz's spruce/willow/lichen	POBAT-PILU/SALIX/2LICHN
1001	3401	mountain hemlock-paper birch/splendid feather moss	TSME-BEPA/HYSP70
1001	3402	mountain hemlock-paper birch/stiff clubmoss	TSME-BEPA/LYAN2
1001	3403	mountain hemlock-paper birch/rusty menziesia	TSME-BEPA/MEFE
1001	3404	mountain hemlock-paper birch/rusty menziesia (sparse)	TSME-BEPA/MEFE
1001	4000	Sitka alder	ALVIS
1001	4001	Sitka alder-devilsclub	ALVIS-OPHO
1001	4002	Sitka alder-undergreen willow	ALVIS-SACO2
1001	4003	Sitka alder/common ladyfern	ALVIS/ATFI
1001	4004	Sitka alder/bluejoint	ALVIS/CACA4
1001	4005	Sitka alder/spreading woodfern	ALVIS/DREX2
1001	4006	Sitka alder/field horsetail	ALVIS/EQAR
1001	4007	Sitka alder-salmonberry	ALVIS-RUSP
1001	4008	Sitka alder-salmonberry/common ladyfern	ALVIS-RUSP/ATFI
1001	4009	Sitka alder/feltleaf willow	ALVIS/SAAL
1001	4010	Sitka alder-feltleaf willow/bluejoint	ALVIS-SAAL/CACA4
1001	4011	Sitka alder-Barclay's willow	ALVIS-SABA3
1001	4012	Sitka alder-Sitka willow	ALVIS-SASI2
1001	4013	Sitka alder-Sitka willow/bluejoint	ALVIS-SASI2/CACA4
1001	4014	feltleaf willow	SAAL
1001	4015	Barclay's willow/bluejoint	SABA3/CACA4
1001	4016	Barclay's willow/Sitka sedge	SABA3/CAAQD
1001	4017	Barclay's willow/forb	SABA3/2FORB
1001	4018	undergreen willow	SACO2
1001	4019	dune willow	SAHO
1001	4020	Sitka willow	SASI2
1001	4021	Sitka alder-willow	ALVIS-SALIX
1001	4022	Sitka alder-willow/bluejoint	ALVIS-SALIX/CACA4
1001	4023	Sitka alder-willow/black cottonwood	ALVIS-SALIX/POBAT
1001	4024	Sitka alder/black cottonwood	ALVIS/POBAT
1001	4025	willow	SALIX
1001	4026	willow/bluejoint	SALIX/CACA4
1001	4027	willow/horsetail	SALIX/EQUIS
1001	4028	Sitka willow/purple marshlocks/bluejoint	SASI2/POPA28/CACA4
1001	4101	dwarf birch	BENA
1001	4102	copperbush	ELPY
1001	4103	sweetgale-Barclay's willow	MYGA-SABA3
1001	4104	sweetgale-undergreen willow	MYGA-SASI2
1001	4105	sweetgale-dune willow	MYGA-SAHO
1001	4106	sweetgale/bluejoint	MYGA/CACA4
1001	4107	sweetgale/Lyngbye's sedge	MYGA/CALY3
1001	4108	sweetgale/Sitka sedge	MYGA/CAAQD

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1001	4109	sweetgale/tall cottongrass	MYGA/ERAN6
1001	4110	salmonberry	RUSP
1001	4111	salmonberry/common ladyfern	RUSP/ATFI
1001	4112	salmonberry/bluejoint	RUSP/CACA4
1001	4113	dwarf birch/sedge	BENA/CAREX
1001	4114	heath (bog, open low scrub)	ERICA
1001	4115	sweetgale	MYGA
1001	4116	willow-sweetgale	SALIX-MYGA
1001	4117	willow-sweetgale/bluejoint	SALIX-MYGA/CACA4
1001	4118	willow-sweetgale/sedge	SALIX-MYGA/CAREX
1001	4119	willow-sweetgale/horsetail	SALIX-MYGA/EQUIS
1001	4201	Alaska bellheather-partridgefoot	HAST3-LUPE
1001	4202	Alaska bellheather-partridgefoot/deercabbage	HAST3-LUPE/NECR2
1001	4203	eightpetal mountain-avens/alpine sweetgrass	DROC/HIAL3
1001	4204	black crowberry	EMNI
1001	4205	black crowberry-alpine kinnikinnick	EMNI-ARAL2
1001	4206	black crowberry-bog blueberry	EMNI-VAUL
1001	4207	black crowberry-bog blueberry-manyflower sedge	EMNI-VAUL-CAPL6
1001	4208	black crowberry-bog blueberry/deercabbage	EMNI-VAUL/NECR2
1001	4209	black crowberry-bog blueberry/tufted bulrush	EMNI/VAUL/TRCA30
1001	4210	Aleutian mountainheath-Alaska bellheather	PHAL4-HAST3
1001	4211	Aleutian mountainheath/deercabbage	PHAL4/NECR2
1001	4212	arctic willow-black crowberry	SAAR27-EMNI
1001	4213	arctic willow/Lyngbye's sedge	SAAR27/CALY3
1001	4214	netleaf willow/Altai fescue	SARE2/FEAL
1001	4215	least willow/smallawned sedge	SARO2/CAMI4
1001	5001	pendantgrass	ARFU2
1001	5002	bluejoint	CACA4
1001	5003	bluejoint/willow	CACA4/SALIX
1001	5004	water sedge	CAAQ
1001	5005	Lyngbye's sedge	CALY3
1001	5006	Lyngbye's sedge/marsh pea	CALY3/LAPA4
1001	5007	Lyngbye's sedge/alkali buttercup	CALY3/RACY
1001	5008	Lyngbye's sedge/forbs	CALY3/2FORB
1001	5009	longawn sedge	CAMA11
1001	5010	smallawned sedge	CAMI4
1001	5011	fewflower sedge	CAPA19
1001	5012	manyflower sedge	CAPL6
1001	5013	beaked sedge	CARO6
1001	5014	Sitka sedge	CAAQD
1001	5015	tufted hairgrass	DECA18
1001	5016	common spikerush	ELPA3
1001	5017	sand ryegrass	LEAR11
1001	5018	sand ryegrass/boreal yarrow	LEAR11/ACMIB
1001	5019	tall cottongrass-fewflower sedge	ERAN6-CAPA19
1001	5020	tall cottongrass-manyflower sedge	ERAN6-CAPL6
1001	5021	tall cottongrass-tufted bulrush	ERAN6-TRCA30
1001	5022	Altai fescue	FEAL
1001	5023	Altai fescue/woolly geranium	FEAL/GEER2

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1001	5024	Wahlenberg's woodrush	LUWA
1001	5025	dwarf alkaligrass	PUPU3
1001	5026	tufted bulrush	TRCA30
1001	5027	sedge	CAREX
1001	5028	sedge-tufted bulrush	CAREX-TRCA30
1001	5029	sedge/water horsetail	CAREX/EQFL
1001	5030	sedge/shrub	CAREX/2SHRUB
1001	5031	tufted hairgrass	DECA18
1001	5032	tall cottongrass	ERAN6
1001	5101	common ladyfern	ATFI
1001	5102	fireweed	CHANA2
1001	5103	field horsetail	EQAR
1001	5104	water horsetail	EQFL
1001	5105	variegated scouringrush	EQVA
1001	5106	deercabbage	NECR2
1001	5107	deercabbabe/tufted bulrush	NECR2/TRCA30
1001	5108	beach strawberry	FRCH
1001	5109	beach pea	LAJAM
1001	5110	Nootka lupine	LUNO
1001	5111	buckbean	METR3
1001	5112	Pacific silverweed	AREGE
1001	5113	purple marshlocks	COPA28
1001	5114	Sitka valerian	VASI
1001	5115	green false hellebore	VEVI
1001	5116	fireweed/bluejoint	CHANA2/CACA4
1001	5117	fireweed/bluejoint/field horsetail/western oakfern	CHANA2/CACA4/EQAR/GYDR
1001	5118	horsetail	EQUIS
1001	5119	horsetail-purple marshlocks	EQUIS-COPA28
1001	5120	buckbean-horsetail	METR3-EQUIS
1001	5121	buckbean-purple marshlocks	METR3-COPA28
1001	5201	northern water-starwort	CAHE2
1001	5202	common mare's-tail	HIVU2
1001	5203	shortspike watermilfoil	MYSI
1001	5204	fineleaf pondweed	STFIF
1001	5205	claspingleaf pondweed	POPE7
1001	5206	threadleaf crowfoot	RATR
1001	5207	bur-reed	SPARG
1001	5208	waterawlwort	SUAQ
1001	5209	common bladderwort	UTMA
1001	6000	water	2W
1001	7000	barren	2BARE
1003	125005	Picea sitchensis-Populus balsamifera ssp. trichocarpa/Alnus crispa ssp. sinuate	PISI-POBAT/ALCRS
1003	125010	Picea sitchensis-Populus balsamifera ssp. trichocarpa/Echinopanax horridum	PISI-POBAT/ECHO2
1003	125015	Picea sitchensis-Populus balsamifera ssp. trichocarpa/seral	PISI-POBAT/seral
1003	140015	Alnus crispa ssp. sinuata-Malus fusca	ALCRS/MAFU
1003	140020	Alnus crispa ssp. sinuata-Rubus spectabilis	ALCRS-RUSP

Existing Vegetation Codes (cont.)

Ref. Code	PV Code	Common Name	Scientific Name
1003	140030	Alnus crispa ssp. sinuate/Athyrium-femina	ALCRS/ATFI
1003	140035	Alnus crispa ssp. sinuate/Calamagrostis Canadensis	ALCRS/CACA4
1003	145030	Alnus crispa ssp. sinuata-Salix sitchensis	ALCRS-SASI2
1003	147005	Alnus crispa ssp. sinuate/graminoid	ALCRS/2GRAM
1003	150030	Salix barclayi/Carex pluriflora	SABA3/ACPL6
1003	150045	Salix barclayi/Fragaria chiloensis	SABA3/FRCH
1003	15005	Picea sitchensis/Alnus crispa ssp. sinuata	PISI/ALCRS
1003	150055	Salix barclayi/mixed herb	SABA3/mixed herb
1003	150065	Salix hookeriana	SAHO
1003	150070	Salix sitchensis	SASI2
1003	15030	Picea sitchensis/Echinopanax horridum	PISI/ECHO2
1003	15060	Picea sitchensis/Hylocomium splendens	PISI/HYSP70
1003	15070	Picea sitchensis/Rubus spectabilis-Echinopanax horridum	PISI/RUSP-ECHO2
1003	15080	Picea sitchensis/Vaccinium ovalifolium	PISI/VAOV
1003	15085	Picea sitchensis/Vaccinium ovalifolium-Echinopanax horridum	PISI/VAOV-ECHO2
1003	15095	Picea sitchensis/Vaccinium ovalifolium/Dryopteris dilatata	PISI/VAOV/DRDI2
1003	15105	Picea sitchensis/seral	PISI/seral
1003	15110	Picea sitchensis/Sphagnum spp.	PISI/SPAG2
1003	165015	Myrica gala/Carex sitchensis	MYGA/CASI3
1003	170015	Myrica gala/Carex livida	MYGA/CALI
1003	170020	Myrica gala/Carex pluriflora	MYGA/CAPL6
1003	170025	Myrica gala/Epilobium angustifolium	MYGA/EPAN2
1003	170030	Myrica gala/Equisetum Variegatum	MYGA/EQVA
1003	190005	Andromena polifolia/Carex pluriflora	ANPO/CAPL6
1003	190020	Empetrum nigrum-Vaccinium uliginosum	EMNI-VAUL
1003	190040	Empetrum nigrum/Carex Pluriflora	EMNI/CAPL6
1003	20010	Pinus contorta/empetrum nigrum	PICO/EMNI
1003	20005	Elymus arenarius	ELARM
1003	24005	Clamagrostis Canadensis	CACA4

APPENDIX F: POTENTIAL VEGETATION REFERENCES

Code	Name	Author
1002	A combination of R10-MB-210 (Ketchikan Area); R10-TP-57 (Chatham Area); R-10-TP-72 (Stikine Area); and R10-TP-56 (Yakutat Foreland).	

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APPENDIX G: POTENTIAL VEGETATION CODES

Reference Code 1002

PV Code	Common Name	Scientific Name
100	western hemlock series	TSHE Series
110	western hemlock/blueberry	TSHE/VACCI
115	western hemlock/blueberry-rusty menziesia	TSHE/VACCI-MEFE
120	western hemlock/blueberry/mountain woodfern	TSHE/VACCI/DRCA3
130	western hemlock/blueberry/American skunkcabbage	TSHE/VACCI/LYAM3
140	western hemlock/blueberry-devilsclub	TSHE/VACCI-OPHO
150	western hemlock/devilsclub-salmonberry	TSHE/OPHO-RUSP
160	western hemlock/devilsclub	TSHE/OPHO
165	western hemlock/devilsclub (low production)	TSHE/OPHO
170	western hemlock/devilsclub/American skunkcabbage	TSHE/OPHO/LYAM3
175	western hemlock/salmonberry	TSHE/RUSP
200	western hemlock-Alaska cedar series	TSHE-CHNO
210	western hemlock-Alaska cedar/blueberry	TSHE-CHNO/VACCI
220	western hemlock-Alaska cedar/blueberry/American skunkcabbage	TSHE-CHNO/VACCI/LYAM3
230	western hemlock-Alaska cedar/blueberry-rusty menziesia	TSHE-CHNO/VACCI-MEFE
250	western hemlock-Alaska cedar/blueberry-devilsclub	TSHE-CHNO/VACCI-OPHO
300	Sitka spruce Series	PISI
310	Sitka spruce/blueberry	PISI/VACCI
320	Sitka spruce/blueberry-devilsclub	PISI/VACCI-OPHO
330	Sitka spruce/devilsclub	PISI/OPHO
333	Sitka spruce/devilsclub/small enchanter's nightshade	PISI/OPHO/CIAL
335	Sitka spruce/devilsclub-salmonberry	PISI/OPHO-RUSP
340	Sitka spruce/devilsclub/American skunkcabbage	PISI/OPHO/LYAM3
345	Sitka spruce/devilsclub (upland)	PISI/OPHO
350	Sitka spruce/red alder	PISI/ALRU2
352	Sitka spruce-red alder/salmonberry	PISI-ALRU2/RUSP
353	Sitka spruce/simil onion	PISI/ALSI
360	Sitka spruce/Pacific reedgrass	PISI/CANU
370	Sitka spruce/blueberry/American skunkcabbage	PISI/VACCI/LYAM3
380	Sitka spruce/salmonberry	PISI/RUSP
390	Sitka spruce-mountain hemlock/blueberry	PISI-TSME/VACCI
391	Sitka spruce-mountain hemlock/blueberry/Howell's marsh marigold	PISI-TSME/VACCI/CALEH2
395	Sitka spruce-mountain hemlock/blueberry-devilsclub	PISI-TSME/VACCI-OPHO
400	Mixed Conifer Series	2TE
410	mixed conifer/blueberry	2TE/VACCI

REFERENCE CODE 1002 (CONT.)

PV Code	Common Name	Scientific Name
420	mixed conifer/blueberry/American skunkcabbage	2TE/VACCI/LYAM3
430	mixed conifer/blueberry/deercabbage	2TE/VACCI/NECR2
440	mixed conifer/American skunkcabbage-common ladyfern	2TE/LYAM3-ATFI
460	mixed conifer/blueberry-salal	2TE/VACCI-GASH
465	mixed conifer/blueberry-salal/deercabbage	2TE/VACCI-GASH/NECR2
470	mixed conifer/salal/American skunkcabbage	2TE/GASH/LYAM3
480	mixed conifer/salal	2TE/GASH
490	mixed conifer/copperbush/deercabbage	2TE/ELPY/NECR2
491	mixed conifer/copperbush	2TE/ELPY
500	mountain hemlock Series	TSME
510	mountain hemlock/blueberry	TSME/VACCI
520	mountain hemlock/copperbush	TSME/ELPY
525	mountain hemlock/copperbush-cassia	TSME/ELPY-CASSI
530	mountain hemlock/cassia	TSME/CASSI
535	mountain hemlock/cassia/deercabbage	TSME/CASSI/NECR2
540	mountain hemlock/blueberry/deercabbage	TSME/VACCI/NECR2
570	mountain hemlock/blueberry/Howells marsh marigold	TSME/VACCI/CALEH2
580	western hemlock/blueberry/American skunkcabbage	TSME/VACCI/LYAM3
600	lodgepole pine Series	PICO
610	lodgepole pine/black crowberry	PICO/EMNI
620	lodgepole pine/blueberry	PICO/VACCI
630	lodgepole pine/Sitka sedge	PICO/CAAQD
640	lodgepole pine/tufted bulrush	PICO/TRCA30
650	lodgepole pine/salal	PICO/GASH
700	western hemlock-western red cedar series	TSHE-THPL
710	western hemlock-western red cedar/blueberry	TSHE-THPL/VACCI
720	western hemlock-western red cedar/western swordfern	TSHE-THPL/POMU
730	western hemlock-western red cedar/blueberry/American skunkcabbage	TSHE-THPL/VACCI/LYAM3
750	western hemlock-western red cedar/blueberry (well-drained variant)	TSHE-THPL/VACCI
760	western hemlock-western red cedar/blueberry-salal	TSHE-THPL/VACCI-GASH
765	western hemlock-western red cedar/blueberry-salal/American skunkcabbage	TSHE-THPL/VACCI-GASH/LYAM3
780	western hemlock-western red cedar/salal	TSHE-THPL/GASH
800	Sitka spruce-black cottonwood series	PISI-POBAT
830	Sitka spruce-black cottonwood/devilsclub	PISI-POBAT/OPHO
833	Sitka spruce-black cottonwood/devilsclub/enchanter's nightshade	PISI-POBAT/OPHO/CIAL
865	Sitka spruce-black cottonwood/Sitka alder-salmonberry	PISI-POBAT/ALSI-RUSP
885	Sitka-spruce-black cottonwood/Sitka alder-devilsclub	PISI-POBAT/ALSI-OPHO

APPENDIX H: FUEL PHOTO REFERENCES AND CODES

Fuel Photo References

Code	Reference
8	Maxwell, Wayne G. and Ward, Franklin R. **Photo Series for Quantifying Natural Forest Residues in Common Vegetation Types of the Pacific Northwest**. USDA For. Serv. Gen Tech Rept. PNW-105. Pacific Northwest Forest and Range Expt. Stn., Portland, OR. 1980. 229 p.
9	Ottmar, Roger D. and Hardy, Colin C. **Stereo Photo Series for Quantifying Forest Residues in Coastal Oregon Forests: Second Growth Douglas-fir--Western Hemlock Type, Western Hemlock--Sitka Spruce Type, and Red Alder Type**. USDA For.Serv. Gen.Tech.Rept. PNW-231, Pacific Northwest Range Exp. Stn., Portland, OR. 1989 67 p.
13	Wayne G. Maxwell, Franklin R. Ward. 1976. **Photo Series for Quantifying Forest Residues in the Coastal Douglas-fir-Hemlock Type, Coastal Douglas-fir-Hardwood Type**. USDA Forest Service Gen. Tech. Rep. PNW-51. Northwest Forest and Range Experiment Station, Portland, Oregon.
16	Ottmar, Roger D., Vihnanek, and C. S. Wright. 1998. **Stereo Photo Series for Quantifying Natural Fuels in Black Spruce and White Spruce Types in Alaska**.

Fuel Photo Codes

Fuel Photo Codes For Reference 8

1BR		1LP3		1SA2		2JU2		2PP3		3LP3		4DF4		5PP4
1DF2		1MC2		1SA3		2LP1		2PP4		3MC2		4DFHD4		6DF4
1DF3		1MC3		1SA4		2LP2		2SA1		3MC3		4LP2		6PP3
1DF4		1MC4		2BR		2LP3		2SA2		3PP&ASSOC3		4PP&ASSOC3		6PP4
1DFHD3		1PP&ASSOC3		2DF2		2MC2		2SA3		3PP&ASSOC4		4PP2		7DF4
1DFHD4		1PP&ASSOC4		2DF3		2MC3		2SA4		3PP1		4PP3		7PP3
1GR		1PP1		2DF4		2MC4		3DF4		3PP2		4PP4		7PP4
1HD2		1PP2		2DFHD3		2PP&ASSOC3		3DFHD3		3PP3		5DF4		8PP3
1JU2		1PP3		2DFHD4		2PP&ASSOC4		3DFHD4		3PP4		5DFHD4		8PP4
1LP1		1PP4		2GR		2PP1		3LP1		3SA1		5PP&ASSOC3		
1LP2		1SA1		2HD2		2PP2		3LP2		3SA3		5PP3		

Fuel Photo Codes For Reference 9

1DFWHPRE01		1DFWHPRE06		3RAPRE01		3RAPRE07		5RAPOST01
1DFWHPRE02		1DFWHPRE07		3RAPRE02		4DFWHPOST01		5RAPOST02
1DFWHPRE03		1DFWHPRE08		3RAPRE03		4DFWHPOST02		5RAPOST03
1DFWHPRE04		1DFWHPRE09		3RAPRE05		4DFWHPOST03		5RAPOST04
1DFWHPRE05		2WHSSPRE01		3RAPRE06		4DFWHPOST04		5RAPOST05

Fuel Photo Codes For Reference 13

10DF4CC	2DF1TH	3DF3PC	4DF4CC	5DFHD4CC	7DF4CC7DF4CC		
1DF1TH	2DF3PC	3DF4CC	4DF4PC	5DFHD4PC	7DF4PC		
1DF3PC	2DF4CC	3DF4PC	4DFHD4CC	6DF3PC	7DFHD4CC		
1DF4CC	2DF4PC	3DFHD4CC	4DFHD4PC	6DF4CC	8DF4CC		
1DF4PC	2DFHD4CC	3DFHD4PC	5DF3PC	6DF4PC	8DF4PC		
1DFHD4CC	2DFHD4PC	4DF1TH	5DF4CC	6DFHD4CC	9DF4CC		
1DFHD4PC	3DF1TH	4DF3PC	5DF4PC	6DFHD4PC	9DF4PC		

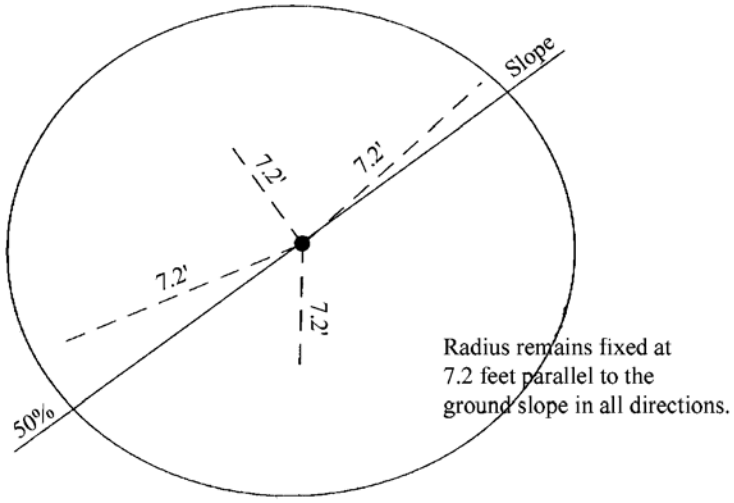
Fuel Photo Codes For Reference 16

AH01	AH07	AH13	BS04	BS10	WS02	WS08	
AH02	AH08	AH14	BS05	BS11	WS03	WS09	
AH03	AH09	AH15	BS06	BS12	WS04	WS10	
AH04	AH10	BS01	BS07	BS13	WS05	WS11	
AH05	AH11	BS02	BS08	BS14	WS06	WS12	
AH06	AH12	BS03	BS09	WS01	WS07		

APPENDIX I: FIXED RADIUS PLOT

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.



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
58-59	7.3	12.7	17.9	28.4	40.1	56.7

Circular Plot Radii Corrected for Slope (cont.)

	Plot Size in Acres					
SLOPE %	**1/300**	**1/100**	**1/50**	**1/20**	**1/10**	**1/5**
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
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

Circular Plot Radii Corrected for Slope (cont.)

	Plot Size in Acres					
SLOPE %	1/300	1/100	1/50	1/20	1/10	1/5
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	70.7

2. Determine 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 plot on the slope. Following is a list of fixed plot sizes and the specific radius for each:

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

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

Slope Correction Table

Percent of Slope	Degree of Slope	Correction Factor	Percent of Slope	Degree of Slope	Correction Factor	Percent of Slope	Degree of Slope	Correction Factor
0 to 9	0-6	1.00	78 to 79	38	1.27	117	49	1.54
10 to 17	7-10	1.01	80	39	1.28	118 to 119	50	1.55
18 to 22	11-12	1.02	81 to 82	39	1.29	120	50	1.56
23 to 26	13-14	1.03	83	40	1.30	121	50	1.57
27 to 30	15-17	1.04	84 to 85	40	1.31	122	51	1.58
31 to 33	18	1.05	86	41	1.32	123 to 124	51	1.59
34 to 36	19-20	1.06	87 to 88	41	1.33	125	51	1.60
37 to 39	21	1.07	89	42	1.34	126	52	1.61
40 to 42	22	1.08	90 to 91	42	1.35	127 to 128	52	1.62
43 to 44	23	1.09	92	43	1.36	129	52	1.63
45 to 47	24	1.10	93 to 94	43	1.37	130	52	1.64
48 to 49	25-26	1.11	95	44	1.38	131	53	1.65
50 to 51	27	1.12	96 to 97	44	1.39	132 to 133	53	1.66
52 to 53	28	1.13	98	44	1.40	134	53	1.67

Slope Correction Table (cont.)

Percent of Slope	Degree of Slope	Correction Factor	Percent of Slope	Degree of Slope	Correction Factor	Percent of Slope	Degree of Slope	Correction Factor
54 to 55	29	1.14	99 to 100	45	1.41	135	53	1.68
56 to 57	29	1.15	101	45	1.42	136	54	1.69
58 to 59	30	1.16	102	46	1.43	137 to 138	54	1.70
60 to 61	31	1.17	103 to104	46	1.44	139	54	1.71
62 to 63	32	1.18	105	46	1.45	140	54	1.72
64 to 65	33	1.19	106 to107	47	1.46	141	55	1.73
66 to 67	34	1.20	108	47	1.47	142 to 143	55	1.74
68 to 69	34	1.21	109	47	1.48	144	55	1.75
70	35	1.22	110 to 111	48	1.49	145	55	1.76
71 to 72	36	1.23	112	48	1.50	146	56	1.77
73 to 74	37	1.24	113	48	1.51	147	56	1.78
75	37	1.25	114 to 115	49	1.52	148 to 149	56	1.79
76 to 77	38	1.26	116	49	1.53	150	56	1.80

APPENDIX J: VARIABLE RADIUS PLOT

Table J-1: 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	33.0	33.3	33.6	33.9	34.1	34.4	34.7	34.9
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	59.8	60.1	60.4	60.7	60.9	61.2	61.5	61.7	62.0
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	68.5	68.8	69.1	69.3	69.6	69.9	70.1
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	78.0	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	123.2	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 J-2: 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	16.7	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
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	66.0	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 J-3: 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	40.0
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
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	64.6	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 J-4: 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
29	38.7	38.8	38.9	39.1	39.2	39.3	39.5	39.6	39.7	39.9
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	48.8	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	66.6	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 J-5: 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	16.8	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
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	34.6	34.7	34.8	34.9	35.0	35.1	35.2	35.3	35.5	35.6
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 * 1.081 = 15.5 feet.

Table J-6: Limiting Distance 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 the distance from plot-center to the face of the tree at DBH. To obtain the corrected limiting distance to a tree multiply the trees DBH by the "combined factor" shown under the appropriate BAF heading.

% of Slope	Slope Correction Factor	Combined Factor					
		5 BAF	10 BAF	15 BAF	20 BAF	30 BAF	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	3.849	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	3.856	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	1.343
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
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

Table J-6: Limiting Distance to Face of Tree and Slope Correction Factors for Various Basal Area Factors (cont.)

% of Slope	Slope Correction Factor	Combined Factor					
		5 BAF	10 BAF	15 BAF	20 BAF	30 BAF	40 BAF
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
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	1.21949	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
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

Table J-6: Limiting Distance to Face of Tree and Slope Correction Factors for Various Basal Area Factors (cont.)

% of Slope	Slope Correction Factor	Combined Factor					
		5 BAF	10 BAF	15 BAF	20 BAF	30 BAF	40 BAF
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
97	1.39316	5.359	3.773	3.069	2.650	2.154	1.857
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	2.786	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
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	4.370	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

Table J-6: Limiting Distance to Face of Tree and Slope Correction Factors for Various Basal Area Factors (cont.)

% of Slope	Slope Correction Factor	Combined Factor					
		5 BAF	10 BAF	15 BAF	20 BAF	30 BAF	40 BAF
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
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

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

Damage Categories

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
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

Category	Agent	Common Name	Scientific Name
10	**000**	**General Insects**	
SEVERITY RATING 1 = minor 2 = severe			
	008	Weevil	*Curculionidae*
	023	Wood wasps	*Siricidae spp.*
11	**000**	**Bark Beetles**	
SEVERITY RATING 1 = Unsuccessful bole attack: pitchout and beetle brood absent 2 = Strip attacks: galleries and brood present 3 = Successful current bole attack: galleries and brood present 4 = Topkill 5 = Successful attack last year 6 = Older dead			
	009	Spruce beetle	*Dendroctonus rufipennis*
	010	Eastern larch beetle	*Dendroctonus simplex*
	030	Ips engraver beetles	*Ips spp.*
	031	unknown	*Ips tridens*
	034	unknown	*Orthotomicus caelatus*
	035	Cedar bark beetles	*Phloeosinus spp.*
	036	Western cedar bark beetle	*Phloeosinus punctatus*
	040	Foureyed spruce beetle	*Polygraphus rufipennis*
	051	Striped ambrosia beetle	*Tryachykele lineatum*
	055	Spruce ips	*Ips pilifrons*
	056	Mexican pine beetle	*Dendroctonus mexicanus*
12	**000**	**Defoliators**	
SEVERITY RATING 1 = Light defoliation (1-25%), no topkill 2 = Light defoliation (1-25%), topkill ≤10% 3 = Light defoliation (1-25%), topkill >10% 4 = Moderate defoliation (26-75%), no topkill 5 = Moderate defoliation (26-75%), topkill ≤10% 6 = Moderate defoliation (26-75%), topkill >10% 7 = Heavy defoliation (76-100%), no topkill 8 = Heavy defoliation (76-100%), topkill ≤10% 9 = Heavy defoliation (76-100%), topkill >10%			
	003	Looper	
	005	Sawfly	
	011	Western blackheaded budworm	*Acleris gloverana*
	036	Two-year budworm	*Choristoneura biennis*
	037	Large aspen tortrix	*Choristoneura conflictana*
	038	Spruce budworm	*Choristoneura fumiferana*
	044	Cottonwood leaf beetle	*Chrysomela scripta*
	072	Geometrid moth	*Geometridae*
	083	Hemlock looper	*Lambdina fiscellaria*

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
12 (cont.)	085	Tent caterpillar moth	*Lasiocampidae*
	089	Gypsy moth	*Lymantria dispar*
	115	Hemlock sawfly	*Neodiprion tsugae*
	121	Rusty tussock moth	*Orgyia antiqua*
	142	Spearmarked black moth	*Rheumaptera hastata*
	158	Spruce bud moth	*Zeiraphera canadensis*
	164	Saddle-backed looper	*Ectropis crepuscularia*
	167	Striped alder sawfly	*Hemichroa crocea*
	190	Hickory tussock moth	*Halisidota caryae*
	191	Pin oak sawfly	*Caliroa lineata*
	192	Palmerworm	*Dichomeris ligulella*
	193	Pitch pine looper	*Lambdina athasaria pellucidaria*
	194	Red pine sawfly	*Neodiprion nanulus nanulus*
	195	Pine tip moth	*Argyrotaenia pinatubana*
	196	Baldcypress leafroller	*Archips goyerana*
	197	Winter moth	*Operophtera*
	198	Basswood thrips	*Neohydatothrips*
	199	Noctuid moth	*Xylomyges simplex (walker)*
	200	Pyralid moth	*Palpita magniferalis*
	201	Pacific silver fir budmoth	*Zeiraphera sp. destitutana*
13	**000**	**Chewing Insects**	
SEVERITY RATING 1 = Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected 2 = Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead			
	030	Adana tip moth	*Rhyacionia adana*
14	**000**	**Sucking Insects**	
SEVERITY RATING 1 = Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected 2 = Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead			
	006	Aphid	*Aphididae*
	014	Giant conifer aphids	*Cinara spp.*
	069	Elm scurfy scale	*Chionaspis americana*
15	**000**	**Boring Insects**	
SEVERITY RATING 1 = Minor: bottlebrush or shortened leaders, 0-2 forks on stem, OR <20% of branches affected 2 = Severe: 3 or more forks on bole, OR 20% or more branches affected, OR terminal leader dead			
	001	Shoot borer	
	004	Bronze birch borer	*Agrilus anxius*
	006	Bronze poplar borer	*Agrilus liragus*
	008	Flatheaded borer	*Buprestidae*
	010	Carpenter ants	*Camponotus spp.*
	013	Roundheaded borer	*Cerambycidae*
	035	Powderpost beetle	*Lyctidae*
	087	Emerald ash borer	*Agrilus planipennis*

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
16	**000**	**Seed/Cone/Flower/Fruit Insects**	
SEVERITY RATING 1 = minor 2 = severe			
	014	Spruce bud midge	*Dasineura swainei*
	049	Prairie tent caterpillar	*Malacosoma lutescens*
	050	Jack pine tip beetle	*Conophthorus banksianae*
17	**000**	**Gallmaker Insects**	
SEVERITY RATING 1 = minor 2 = severe			
	003	Cooley spruce gall adelgid	*Adelges cooleyi*
	006	Gall midge	*Cecidomyiidae*
	009	Spruce gall midge	*Mayetiola piceae*
18	**000**	**Insect Predators**	
SEVERITY RATING 1 = minor 2 = severe			
19	**000**	**General Diseases**	
SEVERITY RATING 1 = minor 2 = severe			
20	**000**	**Biotic Damage**	
SEVERITY RATING 1 = minor 2 = severe			
	004	Hemlock fluting	
21	**000**	**Root/Butt Diseases**	
SEVERITY RATING for trees 1 = Tree within 30 feet of tree with deteriorating crown, tree with diagnostic symptoms or signs, or tree killed by root disease 2 = Pathogen (sign) or diagnostic symptom detected - no crown deterioration 3 = Crown deterioration detected - no diagnostic symptoms or signs 4 = Both crown deterioration and diagnostic signs symptoms detected 5 = Bleeding present on bole 6 = Bleeding present on bole and adjacent mortality present 7 = Laboratory confirmed Sudden Oak Death			
SEVERITY RATING for Setting Level G0 = No evidence of RDS within 50 feet of plot G1 = RDS present within 50 feet of plot, not on plot G2 = Minor evidence of RDS on plot G3 = RDS present, canopy reduction less then 20% G4 = RDS present, canopy reduction 20-30 % G5 = RDS present, canopy reduction 30-50% G6 = RDS present, canopy reduction 50-57%, most ground area infested G7 = RDS present, 76+% canopy reduction G8 = Entire area infested with RDS, one or very few susceptible overstory trees G9 = Entire area infested with RDS, no susceptible overstory trees present			
	001	Armillaria root disease	*Armillaria spp.*
	004	Brown crumbly rot	*Fomitopsis pinicola*

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
	007	White mottled rot	*Ganoderma applanatum*
	009	Ganoderma rot of conifers	*Ganoderma tsugae*
	010	Annosus root disease	*Heterobasidion annosum*
	012	Tomentosus root disease	*Inonotus tomentosus*
	015	Schweinitzii butt rot	*Phaeolus schweinitzii*
	025	Borealis conk	*Climacocystis borealis*
	026	Yellow pitted rot	*Hericium abietis*
	027	Brown cubical rot	*Laetiporus sulphureus*
22	**000**	**Stem Decays/Cankers**	
SEVERITY RATING 0 = 0-4% rotten 1 = 5-15% rotten 2 = 16-25% rotten 3 = 26-35% rotten 4 = 36-45% rotten 5 = 46-55% rotten 6 = 56-65% rotten 7 = 66-75% rotten 8 = 76-85% rotten 9 = 86-100% rotten			
	001	Heart rot	
	002	Stem rot	
	012	Black canker of aspen	*Ceratocystis fimbriata*
	025	Cryptosphaeria canker of aspen	*Cryptosphaeria populina*
	026	Cytospora canker of fir	*Cytospora abietis*
	028	Rust-red stringy rot	*Echinodontium tinctorium*
	029	Sooty-bark canker	*Encoelia pruinosa*
	047	Red ring rot	*Phellinus pini*
	059	Red belt fungus	*Fomitopsis pinicola*
	060	Leucocytospora canker of spruce	*Leucocytospora kunzei*
	062	Brown heartrot	*Fomitopsis Officinalis*
	063	unknown	*Coniophora puteana*
	064	Tinder fungus	*Fomes fomentarius*
	066	Pinyon black stain	*Leptographium wagnerii*
	067	unknown	*Phellinus hartigii*
	068	False tinder fungus	*Phellinus igniarius*
	069	Robustus conk	*Phellinus robustus*
	070	Yellow cap fungus	*Pholiota spp.*
	073	Hemlock canker	*Xenomeris abietis*
	074	Cedar brown pocket rot	*Poria sericeomollis*
	075	Lachnellula canker	*Lachnellula flavovirens*
	076	Strumella canker	*Strumella coryneoidea*
	077	Phomopsis blight	*Phomopsis juniperovora*
	078	Fusarium canker of yellow poplar	*Fusarium solani*
	079	Sterile conk of maple and beech	*Inonotus glomeratus*
	080	Canker of spruce	*Aleurodiscus spp.*

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
	081	Birch conk	*Piptoporus betulinusai*
	082	Canker	*Discocainia treleasei*
23	**000**	**Parasitic/Epiphytic Plants**	
SEVERITY RATING 1 = Hawksworth tree DMR rating = 1; light infection 2 = Hawksworth tree DMR rating = 2; light infection 3 = Hawksworth tree DMR rating = 3; medium infection 4 = Hawksworth tree DMR rating = 4; medium infection 5 = Hawksworth tree DMR rating = 5; heavy infection 6 = Hawksworth tree DMR rating = 6; heavy infection 7 = Vine damage: less than 50% or crown involved 8 = Vine damage: 50% or more of crown involved			
	016	Hemlock dwarf mistletoe	*Arceuthobium tsugense*
24	**000**	**Decline Complexes/Dieback/Wilts**	
SEVERITY RATING 1 = Minor: minor crown symptoms 2 = Severe: severe crown symptoms			
	001	Alaska-yellow cedar decline	
	007	Complex	
	008	Decline	
	027	Wetwood	
	028	Hemlock decline	
	030	Elm phloem necrosis	*Mycoplasma*
25	**000**	**Foliage Diseases**	
SEVERITY RATING 1 = Minor: <20% of foliage affected or <20% of crown in brooms 2 = Severe: >20% of foliage affected or >20% of crown in brooms			
	001	Blight	
	002	Broom rust	
	005	Needlecast	
	006	Powdery mildew	
	009	True fir needlecast	
	013	Large-spored spruce-laborador tea rust	*Chrysomyxa ledicola*
	019	Cedar leaf blight	*Didymascella thujina*
	023	Fire blight	*Erwinia amylovora*
	031	Spruce needle cast	*Lirula macrospora*
	035	Lophodermium needle cast	*Lophodermium spp.*
	041	Brown felt blight of pines	*Neopeckia coulteri*
	063	Yellow-cedar shoot blight	*Apostrasseria spp.*
	064	Broom rust	*Chrysomyxa arctostaphyli*
	067	Spruce needle cast	*Lophodermium picea*
	068	Hardwood leaf rusts	*Melampsora spp.*
	070	Hemlock needle rust	*Pucciniastrum vaccinii*
	071	Spruce needle cast	*Rhizosphaera pini*
	072	Sirococcus shoot blight	*Sirococcus strobilinus*
	074	Delphinella shoot blight	*Delphinella abietis*
	075	Tar spot	*Rhytisma acerinum*

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
26	**000**	**Stem Rusts**	
SEVERITY RATING 1 = Branch infections located greater than 2 feet from tree bole 2 = Branch infections located between 6 inches and 2 feet from tree bole 3 = Bole infections or branch infections located within 6 inches of bole 4 = Topkill			
	002	Western gall rust	*Peridermium harknessii*
	013	Southern cone rust	*Cronartium strobilinum*
27	**000**	**Broom Rusts**	
SEVERITY RATING 1 = Minor: <20% of crown in brooms 2 = Severe >20% of crown in brooms			
	001	Spruce broom rust	*Chrysomyxa arctostaphyli*
30	**000**	**Fire**	
SEVERITY RATING 1 = minor 2 = severe			
	031	Wild-fire	
	032	Human caused fire	
	033	Crown fire damage	
	034	Ground fire damage	
40	**000**	**Animal damage, source unknown**	
SEVERITY RATING 1 = minor 2 = severe			
41	**000**	**Wild Animals**	
SEVERITY RATING 1 = Minor: <20% of crown affected, bole damage is <50% circumference 2 = Severe: >20% of crown affected, bole damage is >50% circumference, upper 1/3 of crown is killed 4 = Earthworms are present 5 = Earthworms are absent			
	001	Bear	
	002	Beaver	
	003	Big game (deer)	
	004	Mice or voles	
	005	Pocket gophers	
	006	Porcupines	
	007	Rabbits or hares	
	008	Sapsucker	
	009	Squirrels	
	010	Woodpeckers	
	011	Moose	
	012	Elk	
	013	Deer	
	014	Feral pigs	
	015	Mountain beaver	

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
41 (cont.)	016	Deer or elk	
	017	Earthworm	*Lumbricidae*
42	**000**	**Domestic Animals**	
SEVERITY RATING 1 = Minor <20% of crown affected, bole damage is <50% circumference 2 = Severe: >20% of crown affected, bole damage is >50% circumference, upper 1/3 of crown is killed			
	001	Cattle	
	002	Goats	
	003	Horses	
	004	Sheep	
50	**000**	**Abiotic Damage**	
SEVERITY RATING 1 = Minor: <20% of crown affected, bole damage is <50% circumference 2 = Severe: >20% of crown affected, bole damage is >50% circumference, upper 1/3 of crown is killed			
	001	Air pollutants	
	002	Chemical	
	003	Drought	
	004	Flooding/high water	
	005	Frost	
	006	Hail	
	007	Heat	
	008	Lightning	
	009	Nutrient imbalances	
	010	Radiation	
	011	Snow/ice	
	013	Wind-tornado	
	014	Winter injury	
	015	Avalanche	
	016	Mud-land slide	
	017	Volcano	
	018	Other geologic events	
	019	Mechanical (non-human caused)	
60	**000**	**Competition**	
SEVERITY RATING 1 = Minor: tree slightly deformed and has some live, terminal growth 2 = Severe: tree extremely deformed or has no live terminal, growth severely reduced relative to neighbors			
70	**000**	**Human Activities**	
SEVERITY RATING 1 = minor 2 = severe			
	001	Herbicides	
	003	Imbedded objects	
	004	Improper planting technique	
	005	Land clearing	

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
70 (cont.)	006	Land use conversion	
	007	Logging damage	
	008	Mechanical	
	009	Pesticides	
	010	Roads	
	011	Soil compaction	
	012	Suppression	
	013	Vehicle damage	
	014	Road salt	
71	**000**	**Harvest**	
SEVERITY RATING 1 = minor 2 = severe			
80	**000**	**Multi-Damage (Insect/Disease)**	
SEVERITY RATING 1 = minor 2 = severe			
90	**000**	**Unknown**	
SEVERITY RATING 0 = 0 – 9% affected 1 = 10 – 19% affected 2 = 20 – 29% affected 3 = 30 – 39% affected 4 = 40 - 49% affected 5 = 50 - 59% affected 6 = 60 - 69% affected 7 = 70 - 79% affected 8 = 80 - 89% affected 9 = 90 - 100% affected			

Category	Agent	Common Name	How to Code Severity (in actual %)
99		**Physical Effects**	
	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.
	002	Dead top	% of total tree height that is dead
	003	Limby (large limbs top to bottom)	% of total tree height with many limbs/knots
	004	Forked top	% of total tree height above fork
	005	Forked below merch top	% of the total length of the bole affected
	006	Crook or sweep	% of total tree height, which contains the crook or sweep
	007	Checks, bole cracks	% of total tree height, which contains a crack or check

Damage Agents (cont.)

Category	Agent	Common Name	Scientific Name
99 (cont.)	008	Foliage discoloration	% of foliage discolored
	009	Mortality (for plantation surveys only)	1 = dead tree
	010	Lack of seed source (for plantation surveys only)	If present, 100%
	011	Poor planting stock source (for plantation surveys only)	If present, 100%
	012	Poor growth/fading/foliage is yellowing and loss of needles is occurring	1 = minor (reduced growth) 2 = severe (affecting survival)
	013	Total board foot volume loss	% of total board foot volume loss
	014	Total cubic foot volume loss	% of total cubic foot volume loss
	015	Bark removal	% of tree circumference missing bark
	016	Foliage loss	1 = minor 2 = severe
	017	Sunscald	1 = minor 2 = severe
	018	Uproot	1 = uprooted tree
	019	Scorched foliage	% of foliage scorched
	020	Scorched bark	% of bark scorched
	021	Dieback source (for plantation surveys only)	1 = minor 2 = severe
	022	Poor crown form	1 = minor 2 = severe
	023	Severe forking	% of bole covered with forks
	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."
	031	Broken or dead branches	% of branches broken or dead
	033	Damaged shoots, buds, or foliage source (for plantation surveys only)	1 = minor 2 = severe
	034	Excessively deformed sapling	% of sapling deformed
	036	Fire scar	% of bole covered by fire scar
	037	Leaning tree	% lean from vertical
	038	Charred bark	Not recorded unless cambium is killed from heating

Tree Parts

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

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APPENDIX L: ACCURACY STANDARDS

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
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	

Sample Design Criteria

Field	Tolerance
Form Type	
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
Selection Criteria Number	No Errors
Sub pop Variable	No Errors
Sub pop Minimum Value	No Errors
Sub pop Maximum Value	No Errors

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 Slope	± 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 if 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	

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	Height Range / Diameter Range / Trees on Point / Tolerance *All / All / 0 / 0 trees ≤0.5 feet / / 1-5 / ± 2 trees ≤0.5 feet / / 6+ / ± 50% >0.5 feet / <0.5 in. / 1-5 / ± 1 tree >0.5 feet / <0.5 in / 6+ / ± 20% All / .5" - breakpoint d.b.h / 1-5 / ± 1 tree All / .5" - breakpoint d.b.h. / 6+ / ± 10% All / breakpoint d.b.h. + / 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. 1/ Grouping 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 incidence of damage.
Number Stems	No Errors
DBH/DRC	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
Height	± 10 %
Height to Crown	± 10 %
Radial Growth	± 1/20 inch
Radial Growth #2	± 1/20 inch
Height Growth	± 1 foot / trees >6 feet ± 0.1 foot / trees ≤6 feet

Tree Data (cont.)

Field	Tolerance	
Tree Age	± 10% (Based on actual tree ring count at breast height for trees ≥ 3.0" DBH otherwise based on total age recorded.)	
Crown Ratio	± 10 %	
Crown Class	No Errors	
Crown width	No Errors	
Wildlife Use	No Errors	
Log/Snag Decay	No Errors	
Cone Serotiny	No Errors	
Damage Category	No Errors	
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 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 1/4 of the bole circumference or if an open wound is in contact with the ground.
Damage Agent		
Damage Part		
Damage Severity		
Tree Remarks		

Ground Surface Cover

Field	Tolerance
Plot Number	No Errors
Cover Type	No Errors
Cover Percent	± 10 Percent

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% of Height
Average Height	± 10% of Height
Maximum Height	± 10% of Height
Canopy Cover	± 10 Percent
Average Diameter	No Errors
Maturity	No Errors
Cover Remarks	
User Field	

Down Woody

Field	Tolerance
Plot Number	No Errors
First Duff	± 1/2 inch
Second Duff	± 1/2 inch
Fuel Depth	No Errors
Twigs 0 - .24	± 40%
Twigs .25 - .99	± 30%
Branch 1.0 - 2.99	± 20%
Volume 1	
Weight 1	
Volume 2	
Weight 2	
Volume 3	
Weight 3	
Volume 4	
Weight 4	
Piece Count	No missed pieces
Decay Class	No Errors
Diameter	± 1 inch on measurements
Piece Length	No Errors

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APPENDIX M: GLOSSARY OF TERMS

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, for forbs and grasses, measured at the root crown.
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 is 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 its, 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 3 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.
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.

Glossary of Terms (cont.)

Term	Definition
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, which refers to points above the earth's surface.
Fuel Bed	The fuel bed is the accumulation of dead, woody residue on the forest floor. It begins at the top of the duff layer and above. It includes litter, dead limbwood and bolewood from tree species, as well as dead material from shrub, herbaceous, and grass species.
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 Talley	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.

Glossary of Terms (cont.)

Term	Definition
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	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. **IN** - The object is "in" if the measured distance is equal to or less than the subplot radius. **OUT** - The object is "out" if the measured distance is greater than the subplot radius.
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.

Glossary of Terms (cont.)

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

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.

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		Short grass (1 foot)	Grass and grass-dominated	Original 13	0.74	0	0	1
2		Timber (grass and understory)	Grass and grass-dominated	Original 13	2	1	0.500	1
3		Tall grass (2.5 feet)	Grass and grass-dominated	Original 13	3.01	0	0	2.50
4		Chaparral (6 feet)	Chaparral and shrub fields	Original 13	5.01	4.010	2	6
5		Brush (2 feet)	Chaparral and shrub fields	Original 13	1	0.500	0	2
6		Dormant brush, hardwood slash	Chaparral and shrub fields	Original 13	1.50	2.500	2	2.50
7		Southern rough	Chaparral and shrub fields	Original 13	1.13	1.870	1.500	2.50
8		Closed timber litter	Timber litter	Original 13	1.50	1	2.500	0.20
9		Hardwood litter	Timber litter	Original 13	2.92	0.410	0.150	0.20
10		Timber (litter and understory)	Timber litter	Original 13	3.01	2	5.010	1
11		Light logging slash	Slash	Original 13	1.50	4.51	5.510	1
12		Medium logging slash	Slash	Original 13	4.01	14.03	16.53	2.30
13		Heavy logging slash	Slash	Original 13	7.01	23.04	28.05	3
91	NB1	Urban/Developed	Nonburnable	Scott and Burgan	0	0	0	0
92	NB2	Snow/Ice	Nonburnable	Scott and Burgan	0	0	0	0
93	NB3	Agricultural	Nonburnable	Scott and Burgan	0	0	0	0
98	NB4	Open Water	Nonburnable	Scott and Burgan	0	0	0	0
99	NB5	Bare Ground	Nonburnable	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 Grass (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

Fuel Models (cont.)

Fuel Model	Fuel Model Code	Fuel Model Name	Fuel Type	Model Set	Fuel 1-Hr	Fuel 10-Hr	Fuel 100-Hr	Fuel Bed Depth
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
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
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	3.50	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

Fuel Models (cont.)

Fuel Model	Fuel Model Code	Fuel Model Name	Fuel Type	Model Set	Fuel 1-Hr	Fuel 10-Hr	Fuel 100-Hr	Fuel Bed Depth
162	TU2	Moderate Load, Humid Climate Timber-Shrub	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
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	Moderate Load Activity Fuel or Low 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
204	SB4	High Load Blowdown	Slash-Blowdown	Scott and Burgan	5.25	3.500	5.250	2.70

Detailed Description 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 may include clumps and may include pinyon-juniper.

Detailed Description of the Fuel Models (cont.)

Code	Detailed Description
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 contain 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 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, is typical. Low pocosin may be represented. Black spruce shrub combinations in Alaska may also be represented.
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, overmature 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 50 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.

Detailed Description of the Fuel Models (cont.)

Code	Detailed Description
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 fuels models.
93	Agricultural land maintained in a nonburnable 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 or similar crops are allowed to cure before harvest; in those cases use a different fuel mode.
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 is 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 compare 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 or mostly cured.
121	The primary carrier of fire is grass and shrubs combined. Shrubs are about 1 foot high, 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.

Detailed Description of the Fuel Models (cont.)

Code	Detailed Description
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 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 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.
149	The primary carrier of fire is woody shrubs and shrub litter. Dense, finely branched shrubs with significant fine dead fuel, about 4-6 feet tall; some herbaceous fuel may be present. Spread rate is high; flame length 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 with grass and shrub components. 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 load, 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.

Detailed Description of the Fuel Models (cont.)

Code	Detailed Description
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 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.
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 down 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 id total, fuelbed is not compacted, most foliage and fine fuel still attached to blowdown. Spread rate is very high; flame length very high.