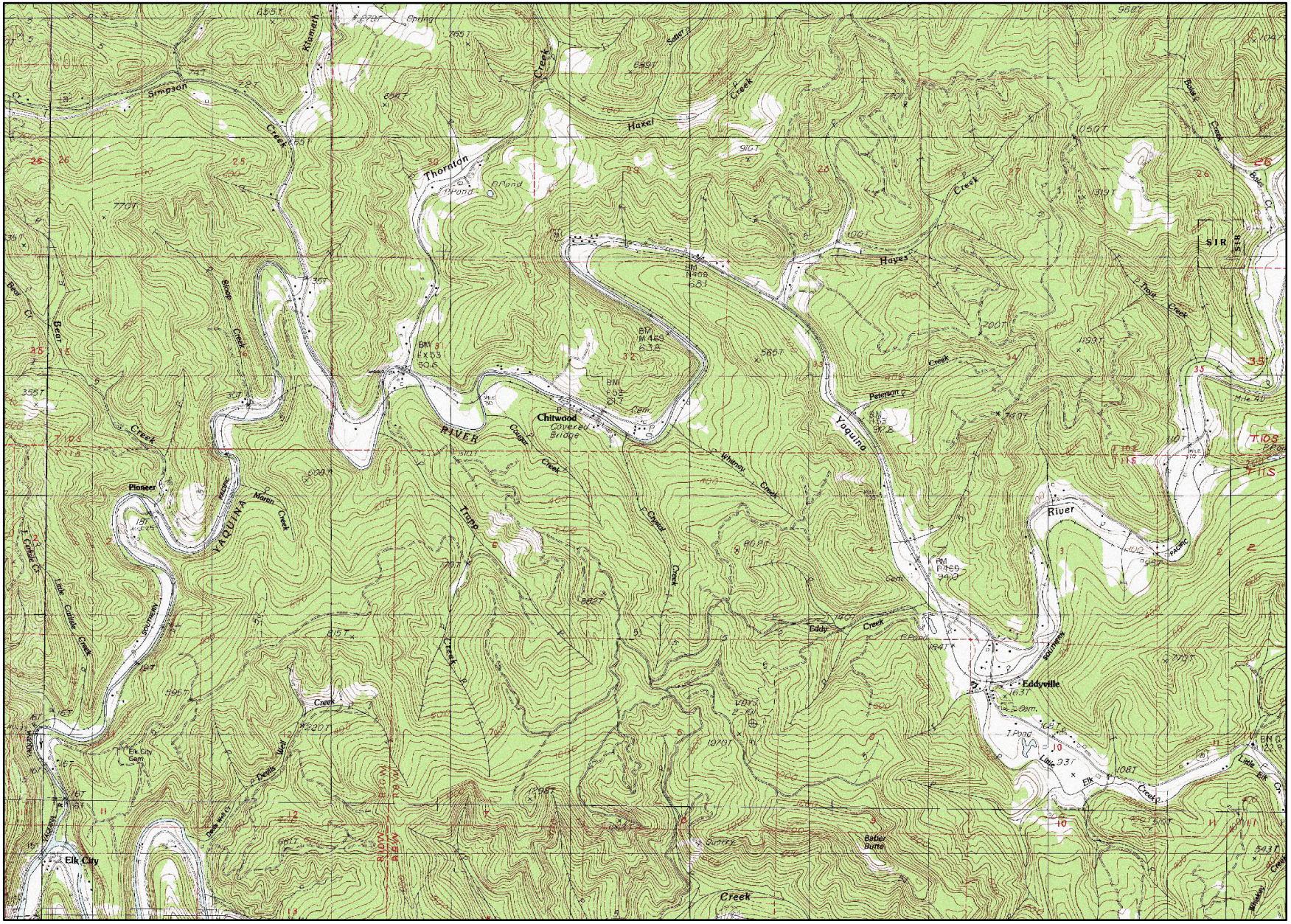
Bedrock Geology and Soils Maps of the Eddyville-Pioneer Mountain Area

Central Oregon Coast Range

HWY20 Eddyville - Pioneer Mountain Project Topographic Map



Cape Kiwanda
Pacific City
NESTUCCA SPIT STATE PARK
Nestucca Bay
Oretown
Neskowin
Cascade Head
Neotsu
Wecoma
Lincoln City
Siletz Bay
Kernville
Gleneden Beach
Lincoln Beach
Government Pt
Depoe Bay
Cape Foulweather
Otter Rock
Yaquina Head
Newport
Yaquina Bay
Southbeach
SOUTH BEACH STATE PARK
Seal Rock
Alsea Bay
Waldport
Yachats
Cape Perpetua
Tsp
McMinnville
Dayton
Lafayette
St Paul
West Woodburn
Whiteson
Sheridan
Bellevue
Grand Ronde
Willamina
Ballston
Perrydale
Hopmere
Brooks
Chemawa
Keizer
SALEM
Dallas
Rickreall
Dorn Peak
Euchre Mtn
Falls City
Independence
Monmouth
Buena Vista
Talbot
Airlie
Suver
Logsden
Siletz
Chitwood
Eddyville
Nortons
Nashville
Elk City
Burnt Woods
Hoskins
Kings Valley
Adair Village
CORVALLIS
Millersburg
ALBANY
Tangent
Philomath
BENTON
Blodgett
Wrens
Harlan
Table Mtn
Tidewater
Greenberry
Shedd
Halsey
Harrisburg
Brownsville
Crawfordsville
Monroe
Alpine
Lancaster
Junction City
Cheshire
Meadow View
Irving
Fern Ridge Lake
Elmira
Veneta
EUGENE
Springfield
Swisshome
Mapleton
Minerva
Walton
Globe
Noti
Greenleaf
Deadwood
Blachly
Triangle Lake
Marcola
Sodaville
Aumsville
West Stayton
Tsr
Tss
Tt
Ti
Ty
Qal
Qs
Qt
Qls
Tia
Tpb
Tyq
Tms
Tim
Ta
Tc
Qd
Tcg
Tcw
Tsd
Tsm?
Tem
Tfe
Tfee
Tfeb
Tib
Tu
Tus
Tsv
Ttvm?

marine siltstone and sandstone that commonly contains tuff beds. Includes the Astoria Formation, which is mostly micaceous and carbonaceous sandstone, and the middle Miocene Gnat Creek Formation of Niem and Niem (1985), which overlies Frenchmen Springs Member of the Wanapum Basalt east of Astoria. The Astoria Formation locally contains calcareous concretions and sulfide nodules; foraminifers in formation are assigned to the Saucesian and Relizian Stages (Kleinpell, 1938; Rau, 1981) and molluscan fossils to the Newportian Stage of Addicott (1976, 1981). Also includes Nye Mudstone, which is massive to poorly bedded siltstone and mudstone; foraminiferal assemblages assigned to the Saucesian Stage (Kleinpell, 1938; Rau, 1981) and molluscan fauna to Pillarian(?) Stage (Armentrout, 1981)

Tmst **Marine sedimentary and tuffaceous rocks (middle Miocene to upper Eocene)**—Tuffaceous and arkosic sandstone, locally fossiliferous, tuffaceous siltstone, tuff, glauconitic sandstone, minor conglomerate layers and lenses, and a few thin coal beds. Includes Scappoose Formation (Trimble, 1963; Wells and others, 1983), mudstone of Oswald West (Niem and Van Atta, 1973; Wells and others, 1983), Pittsburg Bluff Formation (see Wells and others, 1983), and Smuggler Cove and Northrup Creek formations (informal names) of Niem and Niem (1985)

Tyq **Yaquina Formation (lower Miocene and upper Oligocene)**—Thick- to thin-bedded sandstone, conglomerate, and tuffaceous siltstone of deltaic origin; locally contains thin coal and ash beds. Conglomerate contains abundant clasts of pumice and dacitic volcanic rocks. In places includes thick lenses of marine tuffaceous siltstone and fine-grained sandstone. Foraminifers in formation assigned to the Zemorrian and lower part of the Saucesian Stages of Kleinpell (1938) and molluscan fauna to the lower Blakeley Stage of Weaver and others (1944)

Ta **Alsea Formation (Oligocene and upper Eocene)**—Massive to thick-bedded tuffaceous marine siltstone and fine-grained sandstone; locally concretionary. Foraminiferal assemblages assigned to the Zemorrian and upper Refugian Stages (Kleinpell, 1938; Rau, 1975) and molluscan fauna assigned (Snavely and others, 1976a) to the Lincoln and lower Blakeley Stages of Weaver and others (1944)

Tsd **Sedimentary rocks (Oligocene and upper Eocene)**—Marine shale siltstone, sandstone, and conglomerate, in places partly composed of tuffaceous and basaltic debris; interbeds of arkosic, glauconitic, and quartzose sandstone. Foraminifers are referable to the Refugian and Zemorrian Stages (see marine sedimentary rocks—units Toes and Toem—of Wells and others, 1983). Includes Bastendorff Formation of Baldwin (1974)

Tpb **Porphyritic basalt (upper Eocene)**—Subaerial lava flows and breccia of porphyritic basalt, minor basaltic andesite, and rare dacite. Includes basalt of Cascade Head (Wells and others, 1983), Yachats Basalt (Snavely and others, 1976c) and Goble Volcanic Series (Warren and others, 1945). Also includes camptonitic extrusive rocks (tuff breccia, lapilli tuff, and minor pillow flows) interbedded in Nestucca Formation

Tco **Cowlitz Formation (upper and middle Eocene)**—Micaceous, arkosic to basaltic marine sandstone, siltstone, and mudstone. Foraminiferal assemblages are referred to the upper Narizian Stage of Mallory (1959) in Newton and Van Atta (1976)

Ttv **Tillamook Volçanics (upper and middle Eocene)**—Subaerial basaltic flows and breccia and submarine basaltic breccia, pillow lavas, lapilli and augite-rich tuff with interbeds of basaltic sandstone, siltstone, and conglomerate. Includes some basaltic andesite and, near the top of the sequence, some dacite. Potassium-argon ages on middle and lower parts of sequence range from about 43 to 46 Ma (Magill and others, 1981): one potassium-argon age from dacite near top of sequence is about 40 Ma (see Wells and others, 1983)

Ttvm **Marine facies**—Basaltic clastic rocks and pillow lavas, locally mapped separately by Wells and others (1983). Foraminiferal assemblages are assigned to the lower part of the Narizian Stage of Mallory (1959); see Wells and others (1983) for summary

Tss **Tuffaceous siltstone and sandstone (upper and middle Eocene)**—Thick- to thin-bedded marine tuffaceous mudstone, siltstone, and sandstone; fine to coarse grained. Contains calcareous concretions and, in places, is carbonaceous and micaceous. Includes the Nestucca Formation, which contains a foraminiferal assemblage assigned to the upper Narizian and lowermost Refugian Stages (Snavely and others, 1969; McKeel, 1980); the Spencer Formation, which contains Narizian Stage foraminifers; the Keasey Formation, which contains upper Narizian and lower Refugian Stage foraminifers (McDougall, 1975, 1980); the Coaledo and Bateman Formations of Baldwin (1974); upper Eocene sandstone of Bela (1981); and the Sager Creek formation (informal name) of Niem and Niem (1985)

Ty **Yamhill Formation and related rocks (upper and middle Eocene)**—Massive to thin-bedded concretionary marine siltstone and thin interbeds of arkosic, glauconitic, and basaltic sandstone; locally contains interlayered basalt lava flows and lapilli tuff. Foraminiferal assemblages in siltstone referred to the Ulatisian and lower Narizian Stages (Snavely and others, 1969; McKeel, 1980) Includes the Elkton Formation of Baldwin (1974; also see Beaulieu and Hughes, 1975), which consists of thin-bedded siltstone and minor sandstone interbeds

Tt **Tyee Formation (middle Eocene)**—Very thick sequence of rhymically bedded, medium- to fine-grained micaceous, feldspathic, lithic, or arkosic marine sandstone and micaceous carbonaceous siltstone; contains minor interbeds of dacite tuff in upper part. Foraminiferal fauna are referred to the Ulatisian Stage (Snavely and others, 1964). Groove and flute casts indicate deposition by north-flowing turbidity currents (Snavely and others, 1964), but probable provenance of unit is southwest Idaho (Heller and others, 1985)

Tmss **Marine sandstone and siltstone (middle Eocene)**—Thin- to thick-bedded, crossbedded, well-sorted, fine- to medium-grain sandstone, siltstone, and mudstone; characterized by sparse fine white mica; shallow marine depositional setting at least partly of deltaic origin. Contains foraminiferal and molluscan faunas of early middle

plagioclase, pyroxene, and
flow rocks that range in c
interlayered tuff and tuffac
greenschist facies; locally
Formation and volcanic roc
and Walker, 1953; Wells a
terrane

Jm **Melange (Jurassic)**—Structurall
argillite, conglomerate, sil
melange of the Takilma area

Ju **Ultramafic and related rocks**
harzburgite and dunite with
serpentinite. Includes ga
Comprises Josephine ophio
Sexton Mountain, Pearsoll P
1982) and Coast Range op
A.S. Jayko (unpub. data, 19
of early Mesozoic or late P
mostly in shear zones. Local

Jub **Basaltic volcanic and s**
agglomerate, pillow basalt a
mudstone of ophiolitic comp

Jc **Chetco complex of Hotz (19**
island-arc volcanic com
metamorphosed volcanic ro
amphibolite

ŘPv **Volcanic rocks (Triassic and**
metabasalt, spilite, and kera
fine-grained volcaniclastic
pyroxene, and plagioclase p
locally, some basalt flows an

cm **Condrey Mountain Schist (T**
schistose rocks characterized
chlorite, actinolite, and epi
actinolite-albite-garnet metag
about 141 Ma (Lanphere a
155 Ma (Suppe and Armstro
Protolith is probably Triassic

cs **Colebrooke Schist (Mesozoic**
rocks and subordinate meta
of basaltic composition. M
according to Coleman (1972

bc **Amphibolite of Briggs Cree**
"Briggs Creek amphibolite"
Consists of amphibolite, n
manganiferous chert. Includ
hornblende gneiss of unknov
Junction (Smith and others,

ŘP₂m **Melange of Dutchmans Peak**
interlayered metasedimenta
greenschist and (or) almand
metagabbro (Smith and othe

ŘP₂u **Ultramafic rocks (Triassic an**
peridotite and dunite at Seia

ŘP₂s **Sedimentary rocks, partly m**
bedded argillite, chert, phyl
and marble. In places ro
southwest Oregon, includes
conglomerate, tuff, and minc

mc **May Creek Schist (Paleozoic**
Protolith considered to be of

Intru

Tim **Mafic and intermediate intrus**
diabase, gabbro, and lesse
andesite flows in unit Tc.
sedimentary sequences; inclu
and Cape Foulweather dik
others, 1976a, b; Wells and

Ti **Mafic intrusions (Oligocen**
ferrogabbro; some bodies
ferrogranophyre, and granc
from unit have yielded K-Ar

Tia **Alkalic intrusive rocks (Oligo**
intrusions of porphyritic or
or phonolite. Potassium-arg
nepheline syenite (Snavely a

Tig **Intrusive gabbroic rocks (O**
diabase, gabbro, and grano
and others, 1976a, b)

KJg **Granitic rocks (Cretaceous a**


(Joins sheet 26)
R. 10 W.
R. 9 W.
1 150 000 FEET
Slough
Creek
Thornton
Creek
Hayes Cr
Peterson
Creek
Boat
Creek
PACIFIC
RIVER
Chitwood
Cougar
Creek
Whitney
Creek
Pioneer
Martin
Creek
SOUTHERN
PACIFIC
YAQUINA
Little Carlisle Creek
Creek
Wall
Double
Creek
Eddy
Creek
Eddyville
Little
Elk
Creek
1 125 000 FEET
(Joins sheet 34)

TABLE 4.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

Map symbol	Soil name	Acres	Percent
1E	Apt-McDuff silty clay loams, 5 to 30 percent slopes	16,650	3.4
1F	Apt-McDuff silty clay loams, 30 to 50 percent slopes	4,555	0.9
2E	Astoria silt loam, 5 to 30 percent slopes	3,070	0.6
3C	Bandon fine sandy loam, 3 to 12 percent slopes	1,130	0.2
3E	Bandon fine sandy loam, 12 to 50 percent slopes	2,485	0.5
4A	Beaches, 1 to 3 percent slopes	1,720	0.3
5C	Bentilla silty clay loam, 3 to 12 percent slopes	1,945	0.4
6E	Blachly silty clay loam, 5 to 35 percent slopes	2,020	0.4
6F	Blachly silty clay loam, 35 to 50 percent slopes	780	0.2
7H	Bohannon-Preacher complex, 60 to 90 percent slopes	35,600	7.2
8A	Brallier mucky peat, 0 to 1 percent slopes	580	0.1
9A	Brenner silt loam, 0 to 2 percent slopes	970	0.2
10G	Caterl-Laderly gravelly loams, 30 to 65 percent slopes	2,125	0.4
11B	Chitwood silt loam, 0 to 7 percent slopes	1,555	0.3
12A	Coquille silt loam, 0 to 1 percent slopes	3,210	0.7
13A	Coquille silt loam, 0 to 1 percent slopes, protected	1,690	0.3
14B	Depoe loam, 0 to 7 percent slopes	1,660	0.3
15B	Eilertsen silt loam, 0 to 5 percent slopes	5,720	1.2
16C	Elsie silt loam, 3 to 12 percent slopes	1,145	0.2
17A	Euchre silt loam, 0 to 3 percent slopes	1,005	0.2
18G	Fendall-Templeton silt loams, 35 to 60 percent slopes	24,210	4.9
19E	Fendall-Winema silt loams, 15 to 35 percent slopes	2,570	0.5
20E	Formader-Hemcross complex, 3 to 35 percent slopes	5,755	1.2
20G	Formader-Hemcross complex, 35 to 60 percent slopes	11,160	2.3
21H	Formader-Klistan-Hemcross complex, 60 to 80 percent slopes	24,070	4.9
22C	Gleneden silty clay loam, 2 to 12 percent slopes	1,515	0.3
23C	Grindbrook silt loam, 2 to 12 percent slopes	1,820	0.4
24H	Harslow-Rock outcrop complex, 60 to 90 percent slopes	2,750	0.6
25A	Hebo silty clay loam, 0 to 3 percent slopes	840	0.2
26E	Hembre silt loam, 3 to 35 percent slopes	1,025	0.2
26G	Hembre silt loam, 35 to 60 percent slopes	745	0.2
27A	Histic Cryaquepts, 0 to 3 percent slopes	225	*
28E	Honeygrove silty clay loam, 3 to 30 percent slopes	1,285	0.3
29E	Kilowan clay loam, 5 to 35 percent slopes	2,500	0.5
29G	Kilowan clay loam, 35 to 60 percent slopes	1,865	0.4
30A	Kirkendall silt loam, 0 to 3 percent slopes	675	0.1
31G	Klistan-Harslow very gravelly loams, 20 to 60 percent slopes	2,675	0.5
32E	Klootchie-Neotsu silt loams, 3 to 30 percent slopes	5,860	1.2
32G	Klootchie-Neotsu silt loams, 30 to 60 percent slopes	12,075	2.4
33B	Knappa silt loam, 2 to 7 percent slopes	1,275	0.3
34E	Laderly-Murtip complex, 3 to 30 percent slopes	475	0.1
35E	Lint silt loam, 5 to 25 percent slopes	2,860	0.6
36A	Logsden silt loam, 0 to 3 percent slopes	3,125	0.6
37C	McCurdy silt loam, 3 to 12 percent slopes	425	0.1
38C	Meda loam, 3 to 12 percent slopes	820	0.2
39E	Murtip-Caterl complex, 5 to 35 percent slopes	1,690	0.3
39G	Murtip-Caterl complex, 35 to 60 percent slopes	2,295	0.5
40A	Nehalem silt loam, 0 to 3 percent slopes	2,825	0.6
41A	Nekoma-Fluvaquents complex, 0 to 3 percent slopes	3,200	0.6
42C	Nelscott loam, 3 to 12 percent slopes	6,525	1.3
42E	Nelscott loam, 12 to 50 percent slopes	2,795	0.6
43H	Neotsu-Necanicum complex, 60 to 90 percent slopes	7,145	1.4
44H	Neskowin-Rock outcrop complex, 20 to 99 percent slopes	675	0.1
45E	Neskowin-Salander silt loams, 5 to 35 percent slopes	2,695	0.5
45G	Neskowin-Salander silt loams, 35 to 65 percent slopes	8,815	1.8
46A	Nestucca silt loam, 0 to 2 percent slopes	3,385	0.7
47C	Netarts fine sand, 3 to 12 percent slopes	260	0.1
47E	Netarts fine sand, 12 to 30 percent slopes	310	0.1
48E	Peavine silty clay loam, 3 to 30 percent slopes	1,075	0.2
48F	Peavine silty clay loam, 30 to 50 percent slopes	285	0.1
49E	Preacher-Bohannon complex, 5 to 35 percent slopes	22,810	4.6
50G	Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes	88,380	17.9
51A	Quillamook silt loam, 0 to 3 percent slopes	1,500	0.3

See footnote at end of table.

on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes, is an example.

This survey includes *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Beaches, 1 to 3 percent slopes, is an example.

Table 4 gives the acreage and proportionate extent of each map unit. Other tables (see "Summary of Tables") give properties of the soils and the limitations, capabilities, and potentials for many uses. The Glossary defines many of the terms used in describing the soils or miscellaneous areas.

Map Unit Descriptions

1E—Apt-McDuff silty clay loams, 5 to 30 percent slopes. This map unit is on broad ridgetops and benches in mountainous areas. The native vegetation is mainly Douglas-fir, western hemlock, red alder, bigleaf maple, vine maple, salal, cascade Oregongrape, and western swordfern. Elevation is 350 to 1,400 feet. The average annual precipitation is 60 to 90 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 150 to 210 days.

This unit is about 55 percent Apt soil and 30 percent McDuff soil.

Included in this unit are small areas of Bohannon and Preacher soils, which formed in the coarser textured colluvium on narrow ridgetops and benches. Also included are small areas of Apt and McDuff soils that have slopes of more than 30 percent. Included areas make up about 15 percent of the total acreage.

The Apt soil is deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, leaves, and twigs about 1 inch thick. The surface layer is very dark brown and dark brown silty clay loam about 19 inches thick. The upper part of the subsoil is dark brown and dark yellowish brown silty clay about 20 inches thick. The lower part is dark yellowish brown silty clay loam about 21 inches thick. The depth to weathered bedrock is more than 60 inches.

Permeability is moderately slow in the Apt soil. Available water capacity is 9 to 11 inches. The effective rooting depth is 60 inches or more. Runoff is medium or rapid, and the hazard of water erosion is moderate or high.

The McDuff soil is moderately deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of moss, needles, leaves, and twigs about 0.5 inch thick. The surface layer is very dark grayish brown and dark brown silty clay loam about 12 inches thick. The subsoil is brown and strong brown clay about 24 inches thick. Fractured, highly weathered siltstone and sandstone bedrock is at a depth of about 36 inches. The depth to weathered bedrock is 20 to 40 inches.

Permeability is moderately slow in the McDuff soil. Available water capacity is 3 to 7 inches. The effective rooting depth is 20 to 40 inches. Runoff is medium or rapid, and the hazard of water erosion is moderate or high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the hazard of erosion, the susceptibility of the surface layer to compaction, plant competition, and the limited rooting depth in the McDuff soil. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads and landings can be protected from erosion by constructing water bars and by seeding areas that have been cut and filled. Using standard wheeled and tracked equipment when the soils are moist causes rutting and compaction. Puddling can occur during wet periods. Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity. Skid trails and landings that are not intended for permanent use should be ripped during summer, when the amount of soil moisture is at a minimum. This measure breaks up compacted layers, improves tilth, and increases the seedling survival rate. Trees on the McDuff soil are subject to windthrow during periods when the soil is excessively wet and winds are strong.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. Hand planting of nursery stock generally is necessary to establish or improve a stand. The trees that are suitable for planting include Douglas-fir.

1F—Apt-McDuff silty clay loams, 30 to 50 percent slopes. This map unit is on side slopes in mountainous areas. The native vegetation is mainly Douglas-fir, western hemlock, bigleaf maple, red alder, vine maple, salal, cascade Oregongrape, and western swordfern. Elevation is 350 to 1,400 feet. The average annual precipitation is 60 to 90 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 150 to 210 days.

This unit is about 50 percent Apt soil and 30 percent McDuff soil.

Included in this unit are small areas of Bohannon, Preacher, and Slickrock soils, which formed in the coarser textured colluvium on side slopes. Also included are small areas of Apt and McDuff soils that have slopes of less than 30 percent. Included areas make up about 20 percent of the total acreage.

The Apt soil is deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, leaves, and twigs about 1 inch thick. The surface layer is very dark brown and dark brown silty clay loam about 19 inches thick. The upper part of the subsoil is dark brown and dark yellowish brown silty clay about 20 inches thick. The lower part is dark yellowish brown silty clay loam about 21 inches thick. The depth to weathered bedrock is more than 60 inches.

Permeability is moderately slow in the Apt soil. Available water capacity is 9 to 11 inches. The effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high.

The McDuff soil is moderately deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of moss, needles, leaves, and twigs about 0.5 inch thick. The surface layer is very dark grayish brown and dark brown silty clay loam about 12 inches thick. The subsoil is brown and strong brown clay about 24 inches thick. Fractured, highly weathered siltstone and sandstone bedrock is at a depth of about 36 inches. The depth to weathered bedrock is 20 to 40 inches.

Permeability is moderately slow in the McDuff soil. Available water capacity is 3 to 7 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the slope, the hazard of erosion, plant competition, and the limited rooting depth in the McDuff soil. The slope limits the kinds of forest management equipment that can be used. High-lead or other cable logging systems that fully or partially suspend the logs above the ground will damage the soil less than other systems. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads, landings, and steep yarding paths can be protected from erosion by constructing water bars and by seeding cuts, fills, and yarding paths to a plant cover. Trees on the McDuff soil are subject to windthrow during periods when the soil is excessively wet and winds are strong.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. Hand planting of nursery stock generally is necessary to establish or improve a stand. The trees that are suitable for planting include Douglas-fir.

2E—Astoria silt loam, 5 to 30 percent slopes. This deep, well drained soil is on benches and broad ridges in mountainous areas. It formed in colluvium weathered from sedimentary rock. The native vegetation is mainly Douglas-fir, western hemlock, red alder, vine maple, salmonberry, thimbleberry, red huckleberry, salal, and western swordfern. Elevation is 400 to 1,600 feet. The average annual precipitation is 80 to 100 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 150 to 210 days.

Typically, the surface is covered with a mat of moss, needles, leaves, and twigs about 2 inches thick. The surface layer is very dark grayish brown silt loam about 15 inches thick. The next layer is dark yellowish brown silt loam about 13 inches thick. The upper part of the subsoil is dark yellowish brown and brown silty clay about 22 inches thick. The lower part is brown silty clay loam about 10 inches thick. The depth to weathered bedrock is more than 60 inches.

Included in this unit are small areas of Preacher and Bohannon soils, which formed in the coarser textured colluvium weathered from sedimentary rock on ridgetops and benches, and Formader, Hemcross, and Hembre soils, which formed in colluvium weathered from volcanic rock on ridgetops. Also included are Astoria soils that have slopes of more than 30 percent. Included areas make up about 20 percent of the total acreage.

Permeability is moderate in the Astoria soil. Available water capacity is 11 to 14 inches. The effective rooting depth is 60 inches or more. Runoff is medium or rapid, and the hazard of water erosion is moderate or high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir and western hemlock. The main concerns in producing and harvesting timber are the hazard of erosion, the susceptibility of the surface layer to compaction, and plant competition. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads and landings can be protected from erosion by constructing water bars

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the hazard of erosion, the susceptibility of the surface layer to compaction, and plant competition. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads and landings can be protected from erosion by constructing water bars and by seeding areas that have been cut and filled. Using standard wheeled and tracked equipment when the soil is moist causes rutting and compaction. Puddling can occur during wet periods. Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity. Skid trails and landings that are not intended for permanent use should be ripped during summer, when the amount of soil moisture is at a minimum. This measure breaks up compacted layers, improves tilth, and increases the seedling survival rate.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. Hand planting of nursery stock generally is necessary to establish or improve a stand. The trees that are suitable for planting include Douglas-fir.

6F—Blachly silty clay loam, 35 to 50 percent slopes. This deep, well drained soil is on side slopes in mountainous areas. It formed in colluvium weathered from sedimentary rock. The native vegetation is mainly Douglas-fir, western hemlock, red alder, bigleaf maple, vine maple, salal, cascade Oregongrape, and western swordfern. Elevation is 250 to 1,800 feet. The average annual precipitation is 70 to 110 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 145 to 210 days.

Typically, the surface is covered with a mat of needles, leaves, twigs, and moss about 1 inch thick. The surface layer is dark reddish brown silty clay loam about 21 inches thick. The subsoil is about 39 inches of reddish brown silty clay and yellowish red and strong brown clay. The depth to weathered bedrock is more than 60 inches.

Included in this unit are small areas of Bohannon, Preacher, and Slickrock soils, which formed in the coarser textured colluvium weathered from sedimentary rock on side slopes; Kilowan soils, which formed in fine textured colluvium weathered from sedimentary rock on side slopes; and Formader, Hemcross, Klistan, and Hembre soils, which formed in colluvium weathered from volcanic rock on side slopes. Also included are small areas of Blachly soils that have slopes of less than 35 percent or more than 50 percent. Included areas make up about 25 percent of the total acreage.

Permeability is moderately slow in the Blachly soil. Available water capacity is 8 to 10 inches. The effective rooting depth is 60 inches or more. Runoff is rapid, and the hazard of water erosion is high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the slope, the hazard of erosion, and plant competition. The slope limits the kinds of forest management equipment that can be used. High-lead or other cable logging systems that fully or partially suspend the logs above the ground will damage the soil less than other systems. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads, landings, and steep yarding paths can be protected from erosion by constructing water bars and by seeding cuts, fills, and yarding paths to a plant cover.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. Hand planting of nursery stock generally is necessary to establish or improve a stand. The trees that are suitable for planting include Douglas-fir.

7H—Bohannon-Preacher complex, 60 to 90 percent slopes. This map unit is on steep side slopes in mountainous areas. The native vegetation is mainly Douglas-fir, western hemlock, red alder, bigleaf maple, vine maple, cascade Oregongrape, salmonberry, salal, and western swordfern. Elevation is 25 to 1,800 feet. The average annual precipitation is 60 to 110 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 145 to 210 days.

This unit is about 50 percent Bohannon soil and 30 percent Preacher soil.

Included in this unit are small areas of Slickrock soils, which formed in colluvium weathered from sedimentary rock, mainly on foot slopes, and Formader, Hemcross, Klistan, and Harslow soils, which formed in colluvium weathered from volcanic rock on side slopes. Also included are small areas of Bohannon and Preacher soils that have slopes of less than 60 percent or more than 90 percent; small areas of Rock outcrop; and small areas of soils that are less than 20 inches deep over bedrock and are on the steeper slopes. Included areas make up about 20 percent of the total acreage.

The Bohannon soil is moderately deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, twigs, and moss about 1 inch thick. The surface layer is very dark brown and dark brown gravelly loam about 16 inches thick. The subsoil is dark yellowish brown gravelly loam about 15 inches thick. Fractured, partially weathered sandstone bedrock is at a depth of about 31 inches. The depth to weathered bedrock is 20 to 40 inches.

Permeability is moderately rapid in the Bohannon soil. Available water capacity is 2 to 7 inches. The effective rooting depth is 20 to 40 inches. Runoff is very rapid, and the hazard of water erosion is very high.

The Preacher soil is deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, leaves, twigs, and moss about 3 inches thick. The surface layer is very dark grayish brown loam about 15 inches thick. The subsoil is dark yellowish brown clay loam about 30 inches thick. The substratum is yellowish brown loam about 9 inches thick. Fractured, partially weathered, stratified sandstone and siltstone bedrock is at a depth of about 54 inches. The depth to weathered bedrock is 40 to 60 inches.

Permeability is moderate in the Preacher soil. Available water capacity is 7 to 15 inches. The effective rooting depth is 40 to 60 inches. Runoff is very rapid, and the hazard of water erosion is very high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the slope, the hazard of erosion, plant competition, and the limited rooting depth in the Bohannon soil. The slope limits the kinds of forest management equipment that can be used. High-lead or other cable logging systems that fully or partially suspend the logs above the ground will damage the soil less than other systems. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads, landings, and steep yarding paths can be protected from erosion by constructing water bars and by seeding cuts, fills, and yarding paths to a plant cover. Landsliding and slumping can occur when the soils are saturated and have been disturbed by road construction or timber harvesting. Trees on the Bohannon soil are subject to windthrow during periods when the soil is excessively wet and winds are strong.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Because plant competition retards the growth of desirable palnts, the larger, vigorous Douglas-fir seedlings that are capable of rapid initial growth should be selected for planting. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. The trees that are suitable for planting include Douglas-fir.

8A—Brallier mucky peat, 0 to 1 percent slopes. This deep, very poorly drained soil is on tide-influenced flood plains. It formed in partially decomposed herbaceous material derived from water-tolerant plants. The native vegetation is mainly willows, red alder, Douglas spirea, cattails, rushes, and sedges. Elevation is 0 to 10 feet. The average annual precipitation is 60 to 80 inches, the average annual air temperature is 48 to 52 degrees F, and the average frost-free period is 180 to 240 days.

Typically, the surface layer is dark brown mucky peat about 10 inches thick. The next layer is dark brown mucky peat about 32 inches thick. Below this to a depth of 60 inches or more is dark brown muck.

Included in this unit are small areas of Coquille soils near stream channels and in other areas influenced by alluvial deposits of mineral material on tidal flood plains. Also included are small areas of very poorly drained soils that have an organic surface layer over a sandy or silty substratum. Included areas make up about 15 percent of the total acreage.

Permeability is moderate in the Brallier soil. Available water capacity is 18 to 24 inches. The effective rooting depth is more than 60 inches but is limited by a water table 2 feet above to 1 foot below the surface throughout the year. Runoff is very slow or ponded, and the hazard of water erosion is slight. This soil is frequently flooded for brief periods throughout the year.

This unit is used for wildlife habitat.

9A—Brenner silt loam, 0 to 2 percent slopes. This deep, poorly drained soil is in depressions and backswamps on flood plains. It formed in silty and clayey recent alluvium derived from mixed sources. The native vegetation is mainly red alder, willows, rushes, sedges, skunkcabbage, and scattered Sitka spruce. Elevation is 10 to 100 feet. The average annual precipitation is 70 to 100 inches, the average annual air temperature is 49 to 52 degrees F, and the average frost-free period is 160 to 210 days.

Typically, the surface layer is very dark grayish brown, mottled silt loam about 14 inches thick. The upper part of the subsoil is dark grayish brown, mottled silty clay loam about 20 inches thick. The lower part to a depth of 60 inches or more is gray and grayish brown, mottled silty clay.

Included in this unit are small areas of Nehalem soils

loam and grayish brown, mottled loam. The subsoil is about 32 inches of banded brownish yellow to dark red fine sand that is moderately cemented or strongly cemented by iron. The substratum to a depth of 60 inches or more is light gray fine sand that has intermittent, weakly cemented bands or nodules.

Included in this unit are small areas of Bandon soils on terrace escarpments and the higher convex slopes on marine terraces and Nelscott and Gleneden soils in the slightly higher, more nearly level positions on marine terraces. Also included are small areas of Depoe soils that have finer textured layers over the iron-cemented layer. Included areas make up about 20 percent of the total acreage.

Permeability is moderate above the iron-cemented layer in the Depoe soil, very slow through the iron-cemented layer, and moderately rapid below the iron-cemented layer. Available water capacity is 2 to 4 inches. The effective rooting depth is 12 to 20 inches. Runoff is slow to ponded, and the hazard of water erosion is slight. A seasonal high water table is 0.5 foot above to 2.0 feet below the surface from October through May.

This unit is used mainly for wildlife habitat and limited timber production. A few areas have been used for homesite development.

This unit is suited to Sitka spruce, western hemlock, and western redcedar. Information about timber production is limited because there are few stands. The main concerns in producing and harvesting timber are the wetness and the limited rooting depth. Because of wetness, the use of equipment is limited to dry periods. Properly designed road drainage systems and carefully located culverts help to control erosion. Using standard wheeled and tracked equipment when the soil is moist causes rutting and compaction. Puddling can occur during wet periods. Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity. Because of the shallowness to a cemented layer, trees are subject to windthrow during periods when the soil is excessively wet and winds are strong.

Only the trees that can tolerate seasonal wetness should be selected for planting. Hand planting of nursery stock generally is necessary to establish or improve a stand. The trees that are suitable for planting include Sitka spruce, western hemlock, and western redcedar.

This soil is poorly suited to homesite development. It is limited mainly by the shallowness to a cemented layer, the wetness, and the very slow permeability through the cemented layer. A drainage system is needed if roads or building foundations are constructed. The wetness can be reduced by installing drainage tile around footings. The wetness and the very slow permeability increase the likelihood that septic tank absorption fields will fail.

15B—Eilertsen silt loam, 0 to 5 percent slopes. This deep, well drained soil is on stream terraces. It formed in silty alluvium derived from mixed sources. The native vegetation is mainly Douglas-fir, western hemlock, red alder, bigleaf maple, vine maple, salmonberry, western swordfern, and trailing blackberry. Elevation is 50 to 750 feet. The average annual precipitation is 60 to 90 inches, the average annual air temperature is 49 to 53 degrees F, and the average frost-free period is 145 to 210 days.

Typically, the surface layer is very dark grayish brown and dark brown silt loam about 13 inches thick. The subsoil is dark yellowish brown and yellowish brown silty clay loam about 31 inches thick. The next layer is yellowish brown, mottled silt loam about 7 inches thick. The substratum to a depth of 60 inches or more also is yellowish brown, mottled silt loam.

Included in this unit are small areas of Kirkendall and Nekoma soils and Fluvaquents on flood plains, Treharne soils in the more nearly level or concave positions on stream terraces, and Meda soils on fans. Also included are small areas of Bohannon, Preacher, and Slickrock soils where mountain foot slopes join stream terraces. Included areas make up about 15 percent of the total acreage.

Permeability is moderate in the Eilertsen soil. Available water capacity is 11 to 13 inches. The effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is slight.

This unit is used mainly for hay and pasture. It also is used for homesite development, limited timber production, Christmas tree production, and wildlife habitat.

This unit is well suited to hay and pasture. It has few limitations. Proper grazing practices, weed control, and fertilizer are needed to ensure the maximum quality of forage. Proper stocking rates, pasture rotation, and restricted grazing during wet periods help to keep the pasture in good condition and control erosion. Periodic mowing and clipping help to maintain uniform growth and prevent selective grazing. Applying lime and mixed fertilizer improves the growth of forage plants. In some years irrigation is needed (fig. 5).

This unit is suited to Douglas-fir. The main concerns in producing and harvesting timber are the susceptibility of the surface layer to compaction and plant competition. Using standard wheeled and tracked equipment when the soil is moist causes rutting and compaction. Puddling can occur during wet periods. Using low-pressure ground equipment minimizes

colluvium weathered from sedimentary rock. The native vegetation is mainly Douglas-fir, western hemlock, bigleaf maple, red alder, vine maple, cascade Oregongrape, salal, and western swordfern. Elevation is 200 to 1,100 feet. The average annual precipitation is 60 to 90 inches, the average annual air temperature is 48 to 52 degrees F, and the average frost-free period is 160 to 210 days.

Typically, the surface is covered with a mat of needles, leaves, twigs, roots, and moss about 1 inch thick. The surface layer is dark brown silty clay loam about 7 inches thick. The subsoil is reddish brown and yellowish red silty clay and yellowish red clay about 30 inches thick. Fractured, weathered sandstone bedrock is at a depth of about 37 inches. The depth to weathered bedrock is 20 to 40 inches.

Included in this unit are small areas of Honeygrove soils, which formed in fine textured colluvium weathered from sedimentary rock on side slopes, and Preacher, Bohannon, and Slickrock soils, which formed in the coarser textured colluvium weathered from sedimentary rock on side slopes. Also included are small areas of Peavine soils that have slopes of less than 30 percent or more than 50 percent. Included areas make up about 15 percent of the total acreage.

Permeability is moderately slow in the Peavine soil. Available water capacity is 3 to 7 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the slope, the hazard of erosion, plant competition, and the limited rooting depth. The slope limits the kinds of forest management equipment that can be used. High-lead or other cable logging systems that fully or partially suspend the logs above the ground will damage the soil less than other systems. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Roads, landings, and steep yarding paths can be protected from erosion by constructing water bars and by seeding cuts, fills, and yarding paths to a plant cover. Trees are subject to windthrow during periods when the soil is excessively wet and winds are strong.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. Hand planting of nursery stock generally is necessary to establish or improve a stand. Among the trees suitable for planting is Douglas-fir.

49E—Preacher-Bohannon complex, 5 to 35 percent slopes. This map unit is on ridgetops and benches in mountainous areas. The native vegetation is mainly Douglas-fir, western hemlock, red alder, bigleaf maple, vine maple, salal, salmonberry, cascade Oregongrape, and western swordfern. Elevation is 25 to 1,800 feet. The average annual precipitation is 60 to 110 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 145 to 210 days.

This unit is about 60 percent Preacher soil and 30 percent Bohannon soil.

Included in this unit are small areas of Slickrock soils on ridgetops; Astoria, Apt, and McDuff soils, which formed in the finer textured colluvium weathered from sedimentary rock on ridgetops; Formader, Hemcross, and Hembre soils, which formed in colluvium weathered from volcanic rock on ridgetops; and soils that formed in mixed volcanic and sedimentary colluvium over sedimentary rock, mainly on the less sloping foot slopes of Saddleback and Stott Mountains in the northeast corner of the survey area. Also included are small areas of Bohannon and Preacher soils that have slopes of more than 35 percent. Included areas make up about 10 percent of the total acreage.

The Preacher soil is deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, leaves, twigs, and moss about 3 inches thick. The surface layer is very dark grayish brown loam about 15 inches thick. The subsoil is dark yellowish brown clay loam about 30 inches thick. The substratum is yellowish brown loam about 9 inches thick. Fractured, partially weathered, stratified sandstone and siltstone bedrock is at a depth of about 54 inches. The depth to weathered bedrock is 40 to 60 inches.

Permeability is moderate in the Preacher soil. Available water capacity is 7 to 15 inches. The effective rooting depth is 40 to 60 inches. Runoff is medium or rapid, and the hazard of water erosion is moderate or high.

The Bohannon soil is moderately deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, twigs, and moss about 1 inch thick. The surface layer is very dark brown and dark brown gravelly loam about 16 inches thick. The subsoil is dark yellowish brown gravelly loam about 15 inches thick. Fractured, partially weathered sandstone bedrock is at a depth of about 31 inches. The depth to weathered bedrock is 20 to 40 inches.

Permeability is moderately rapid in the Bohannon

soil. Available water capacity is 2 to 7 inches. The effective rooting depth is 20 to 40 inches. Runoff is medium or rapid, and the hazard of water erosion is moderate or high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber are the hazard of erosion, the susceptibility of the surface layer to compaction, plant competition, and the limited rooting depth in the Bohannon soil. Properly designed road drainage systems and carefully located culverts help to control erosion. Spoil from excavations is subject to rill and gully erosion and to sloughing. Using standard wheeled and tracked equipment when the soils are moist causes rutting and compaction. Puddling can occur during wet periods. Using low-pressure ground equipment minimizes damage to the soil and helps to maintain productivity. Roads and landings can be protected from erosion by constructing water bars and by seeding areas that have been cut and filled. Skid trails and landings that are not intended for permanent use should be ripped during summer, when the amount of soil moisture is at a minimum. This measure breaks up compacted layers, improves tilth, and increases the seedling survival rate. Trees on the Bohannon soil are subject to windthrow during periods when the soil is excessively wet and winds are strong.

After the trees are harvested, careful management of reforestation is needed to minimize competition from undesirable understory plants. Competing weeds, brush, and trees can be controlled by properly preparing the site and by spraying, cutting, or girdling. The trees that are suitable for planting include Douglas-fir.

50G—Preacher-Bohannon-Slickrock complex, 35 to 60 percent slopes. This map unit is on side slopes in mountainous areas. The native vegetation is mainly Douglas-fir, western hemlock, bigleaf maple, red alder, vine maple, salal, cascade Oregongrape, salmonberry, and western swordfern. Elevation is 25 to 1,800 feet. The average annual precipitation is 60 to 110 inches, the average annual air temperature is 47 to 52 degrees F, and the average frost-free period is 145 to 210 days.

This unit is about 40 percent Preacher soil, 25 percent Bohannon soil, and 20 percent Slickrock soil.

Included in this unit are small areas of Formader, Klistan, Hemcross, Harslow, and Hembre soils, which formed in colluvium weathered from volcanic rock on side slopes, and small areas of soils that formed in mixed volcanic and sedimentary colluvium over sedimentary rock, mainly along the foot slopes of the Saddleback and Stott Mountains in the northeast corner of the survey area. Also included are small areas of Preacher, Bohannon, and Slickrock soils that have slopes of less than 35 percent or more than 60 percent. Included areas make up about 15 percent of the total acreage.

The Preacher soil is deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, leaves, twigs, and moss about 3 inches thick. The surface layer is very dark grayish brown loam about 15 inches thick. The subsoil is dark yellowish brown clay loam about 30 inches thick. The substratum is yellowish brown loam about 9 inches thick. Fractured, partially weathered, stratified sandstone and siltstone bedrock is at a depth of about 54 inches. The depth to weathered bedrock is 40 to 60 inches.

Permeability is moderate in the Preacher soil. Available water capacity is 7 to 15 inches. The effective rooting depth is 40 to 60 inches. Runoff is rapid, and the hazard of water erosion is high.

The Bohannon soil is moderately deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of needles, twigs, and moss about 1 inch thick. The surface layer is very dark brown and dark brown gravelly loam about 16 inches thick. The subsoil is dark yellowish brown gravelly loam about 15 inches thick. Fractured, partially weathered sandstone bedrock is at a depth of about 31 inches. The depth to weathered bedrock is 20 to 40 inches.

Permeability is moderately rapid in the Bohannon soil. Available water capacity is 5 to 10 inches. The effective rooting depth is 20 to 40 inches. Runoff is rapid, and the hazard of water erosion is high.

The Slickrock soil is deep and well drained. It formed in colluvium weathered from sedimentary rock. Typically, the surface is covered with a mat of moss, needles, leaves, and twigs about 1 inch thick. The surface layer is very dark grayish brown gravelly loam about 14 inches thick. The upper part of the subsoil is dark brown gravelly loam about 25 inches thick. The lower part is dark brown and dark yellowish brown very cobbly loam about 14 inches thick. Fractured, partially weathered sandstone bedrock is at a depth of about 53 inches. The depth to weathered bedrock is 40 to 60 inches.

Permeability is moderate in the Slickrock soil. Available water capacity is 5 to 9 inches. The effective rooting depth is 40 to 60 inches. Runoff is rapid, and the hazard of water erosion is high.

This unit is used mainly for timber production. It also is used for wildlife habitat and as a source of water.

This unit is suited to the production of Douglas-fir. The main concerns in producing and harvesting timber

TABLE 13.--ENGINEERING INDEX PROPERTIES

(The symbol < means less than; > means more than. Absence of an entry indicates that data were not estimated)

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 10 inches	Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO			4	10	40	200		
	In				Pct	Pct					Pct	
1E*, 1F*:												
Apt	0-19	Silty clay loam.	ML, MH	A-7	0	0	95-100	90-100	75-100	60-95	40-60	10-20
	19-39	Clay, silty clay.	MH	A-7	0	0	95-100	80-100	75-95	60-90	50-60	10-20
	39-60	Silty clay, clay, silty clay loam.	MH, ML	A-7	0	0	95-100	90-100	75-100	60-95	40-60	10-20
McDuff	0-12	Silty clay loam.	ML	A-6	0	0-5	90-100	90-100	85-100	75-95	35-40	10-15
	12-36	Silty clay, clay.	MH	A-7	0	0	100	90-100	85-100	80-95	50-60	20-25
	36-40	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
2E	0-15	Silt loam	ML	A-5	0	0	95-100	95-100	85-100	65-90	40-50	NP-5
Astoria	15-28	Silt loam, silty clay loam.	ML	A-5	0	0	95-100	95-100	85-100	65-90	40-50	5-10
	28-50	Silty clay, clay.	MH	A-7	0	0	95-100	95-100	85-100	65-95	50-60	10-15
	50-60	Silty clay loam.	MH	A-7	0	0	100	100	85-95	60-70	50-60	10-15
3C, 3E	0-3	Fine sandy loam.	SM	A-4	0	0	100	100	70-85	40-50	---	NP
Bandon	3-28	Sandy loam, loam, gravelly sandy loam.	SM, ML	A-4, A-2	0	0	70-100	60-100	55-90	25-60	---	NP
	28-45	Cemented	---	---	---	---	---	---	---	---	---	---
	45-60	Stratified loam to fine sand.	SM	A-2, A-4	0	0	100	100	80-95	30-50	---	NP
4A*	0-60	Sand	SP, SP-SM, SM	A-2, A-3	0	0	100	100	65-80	3-35	---	NP
Beaches												
5C	0-16	Silty clay loam.	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-15
Bentilla	16-60	Silty clay, clay, silty clay loam.	CL, CH	A-7	0	0	100	100	90-100	75-95	40-65	15-35
6E, 6F	0-21	Silty clay loam.	MH	A-5, A-7	0	0	100	100	95-100	85-95	50-65	5-15
Blachly	21-60	Silty clay, clay.	MH	A-7	0	0	85-100	75-100	65-100	50-90	50-65	10-20
7H*:												
Bohannon	0-16	Gravelly loam	SC-SM, ML, CL-ML	A-4, A-5	0-5	0-10	70-85	60-80	50-75	35-50	30-45	NP-10
	16-31	Gravelly loam, cobbly loam, cobbly clay loam.	SC-SM, CL-ML, ML	A-4, A-6	0-10	0-20	70-95	60-90	50-85	35-50	25-35	5-15
	31-35	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 10 inches	Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO			4	10	40	200		
	In				Pct	Pct					Pct	
7H*:												
Preacher-----	0-15	Loam----------	ML	A-4, A-6	0	0-5	95-100	90-100	80-100	60-80	30-40	5-15
	15-45	Loam, clay loam.	MH, ML	A-7	0	0-5	90-100	80-100	70-100	55-80	45-60	10-20
	45-54	Sandy loam, loam, clay loam.	SM, ML	A-4, A-2	0	0-15	85-100	75-100	45-95	30-75	---	NP
	54-58	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
8A---------- Brallier	0-60	Mucky peat----	PT	A-8	0	0	---	---	---	---	---	NP
9A---------- Brenner	0-14	Silt loam-----	ML	A-4	0	0	100	100	90-100	80-90	25-35	NP-5
	14-34	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	85-95	30-40	10-20
	34-60	Silty clay loam, silty clay.	MH, ML	A-6, A-7	0	0	100	100	95-100	85-95	35-55	10-20
10G*:												
Caterl-------	0-19	Gravelly loam	GM	A-5	0	0-15	60-80	55-75	45-65	35-50	50-60	NP-5
	19-43	Gravelly loam, very gravelly loam.	MH, GM	A-2, A-5	0	0-15	40-80	35-75	30-65	25-60	50-60	NP-5
	43-58	Extremely cobbly loam, extremely gravelly loam.	GM, GP-GM	A-2, A-1	0-15	0-45	20-45	15-40	15-35	10-30	50-60	NP-5
	58-62	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
Laderly------	0-10	Gravelly loam	GM, SM	A-2, A-5	0	0-10	55-75	50-70	40-60	30-45	50-60	NP-5
	10-18	Gravelly loam, very gravelly loam.	GM	A-1, A-2, A-5	0	0-15	40-75	35-60	25-55	15-50	50-60	NP-10
	18-30	Extremely cobbly loam, extremely gravelly loam.	GM	A-1, A-2	0-25	0-65	35-50	25-45	20-30	15-25	50-60	5-10
	30-34	Unweathered bedrock.	---	---	---	---	---	---	---	---	---	---
11B---------- Chitwood	0-19	Silt loam-----	ML	A-4	0	0	100	100	90-100	80-95	30-35	5-10
	19-60	Silty clay loam, silty clay.	CL	A-7	0	0	100	100	95-100	85-95	40-50	15-25
12A, 13A------ Coquille	0-7	Silt loam-----	ML	A-4	0	0	100	100	95-100	75-90	30-35	NP-5
	7-60	Silty clay loam, silt loam.	ML	A-4	0	0	100	100	95-100	85-95	35-40	5-10

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 10 inches	Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO			4	10	40	200		
	In				Pct	Pct					Pct	
14B	0-4	Loam	CL-ML, CL	A-4	0	0	95-100	95-100	85-95	65-75	20-30	5-10
Depoe	4-16	Sandy loam, loam.	CL-ML, SC-SM, SC, CL	A-4	0	0	95-100	90-100	60-95	35-80	20-30	5-10
	16-48	Cemented	---	---	---	---	---	---	---	---	---	---
	48-60	Fine sand, loamy fine sand, sand.	SM, SP-SM	A-2	0	0	95-100	95-100	60-80	10-35	---	NP
15B	0-13	Silt loam	CL-ML	A-4	0	0	100	100	95-100	75-85	25-30	5-10
Eilertsen	13-60	Silt loam, silty clay loam, loam.	CL	A-6	0	0	100	100	95-100	75-95	30-40	10-20
16C	0-21	Silt loam	ML	A-4	0	0	100	100	90-100	75-90	30-35	5-10
Elsie	21-47	Silt loam, silty clay loam.	CL	A-6	0	0	100	100	95-100	80-95	30-40	10-20
	47-60	Loam, silt loam.	CL-ML	A-4	0	0	100	100	85-95	70-90	25-30	5-10
17A	0-15	Silt loam	MH, OH	A-5	0	0	85-100	80-100	70-100	55-90	50-60	NP-5
Euchre	15-25	Clay loam, silty clay loam.	CL	A-6	0	0	85-100	80-100	70-100	55-95	25-35	10-15
	25-36	Fine sandy loam, clay loam.	SM, SC-SM, CL	A-4, A-6	0	0	85-100	80-100	55-95	35-75	15-35	NP-15
	36-60	Sandy loam, loamy sand, gravelly loamy sand.	SM, SP-SM	A-1, A-2	0	0	60-100	50-100	25-65	10-35	---	NP
18G*:												
Fendall	0-16	Silt loam	ML, OL	A-5	0	0	90-100	90-100	85-100	65-90	40-50	5-10
	16-27	Silty clay loam.	ML	A-5	0	0	80-100	70-100	65-100	50-95	40-45	5-10
	27-38	Clay, silty clay.	MH	A-7	0	0	75-100	65-100	60-100	50-95	50-60	10-20
	38-42	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Templeton	0-17	Silt loam	ML, OL	A-5	0	0	100	100	95-100	75-90	40-50	5-10
	17-55	Silty clay loam, silt loam.	CL	A-6	0	0	100	100	95-100	75-95	35-50	15-30
	55-59	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
19E*:												
Fendall	0-16	Silt loam	ML, OL	A-5	0	0	90-100	90-100	85-100	65-90	40-50	5-10
	16-27	Silty clay loam.	ML	A-5	0	0	80-100	70-100	65-100	50-95	40-45	5-10
	27-38	Clay, silty clay.	MH	A-7	0	0	75-100	65-100	60-100	50-95	50-60	10-20
	38-42	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---

See footnote at end of table.

TABLE 13.--ENGINEERING INDEX PROPERTIES--Continued

Soil name and map symbol	Depth	USDA texture	Classification		Frag-ments > 10 inches	Frag-ments 3-10 inches	Percentage passing sieve number--				Liquid limit	Plas-ticity index
			Unified	AASHTO			4	10	40	200		
	In				Pct	Pct					Pct	
49E*:												
Preacher	0-15	Loam	ML	A-4, A-6	0	0-5	95-100	90-100	80-100	60-80	30-40	5-15
	15-45	Loam, clay loam.	MH, ML	A-7	0	0-5	90-100	80-100	70-100	55-80	45-60	10-20
	45-54	Sandy loam, loam, clay loam.	SM, ML	A-4, A-2	0	0-15	85-100	75-100	45-95	30-75	---	NP
	54-58	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Bohannon	0-16	Gravelly loam	SC-SM, ML, CL-ML	A-4, A-5	0-5	0-10	70-85	60-80	50-75	35-50	30-45	NP-10
	16-31	Gravelly loam, cobbly loam, cobbly clay loam.	SC-SM, CL-ML, ML	A-4, A-6	0-10	0-20	70-95	60-90	50-85	35-50	25-35	5-15
	31-35	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
50G*:												
Preacher	0-15	Loam	ML	A-4, A-6	0	0-5	95-100	90-100	80-100	60-80	30-40	5-15
	15-45	Loam, clay loam.	MH, ML	A-7	0	0-5	90-100	80-100	70-100	55-80	45-60	10-20
	45-54	Sandy loam, loam, clay loam.	SM, ML	A-4, A-2	0	0-15	85-100	75-100	45-95	30-75	---	NP
	54-58	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Bohannon	0-16	Gravelly loam	SC-SM, ML, CL-ML	A-4, A-5	0-5	0-10	70-85	60-80	50-75	35-50	30-45	NP-10
	16-31	Gravelly loam, cobbly loam, cobbly clay loam.	SC-SM, CL-ML, ML	A-4, A-6	0-10	0-20	70-95	60-90	50-85	35-50	25-35	5-15
	31-35	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
Slickrock	0-14	Gravelly loam	ML, SM	A-4, A-5	---	0-10	70-90	60-85	55-80	40-60	30-45	NP-10
	14-39	Gravelly loam, gravelly clay loam, cobbly clay loam.	SM, ML	A-4, A-5	0-10	0-30	75-90	70-85	60-80	40-55	30-45	NP-10
	39-53	Very cobbly clay loam, very cobbly loam.	GM, SM	A-4	0-25	25-50	50-70	45-65	35-60	30-50	30-40	NP-10
	53-57	Weathered bedrock.	---	---	---	---	---	---	---	---	---	---
51A	0-34	Silt loam	MH, OH	A-5	0	0	100	100	90-100	70-90	50-60	NP-5
Quillamook	34-58	Silt loam, silty clay loam.	MH, ML	A-5, A-7	0	0	100	100	90-100	80-95	40-60	5-20
	58-60	Loamy sand	SM	A-2	0	0	100	100	50-75	15-30	---	NP

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS

(The symbol < means less than; > means more than. Entries under "Erosion factors--T" apply to the entire profile. Entries under "Wind erodibility group" and "Organic matter" apply only to the surface layer. Absence of an entry indicates that data were not available or were not estimated)

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	g/cc	In/hr	In/in	pH					Pct
1E*, 1F*:											
Apt	0-19	30-40	1.10-1.30	0.6-2.0	0.14-0.21	4.5-5.5	Moderate	0.28	5	4	4-8
	19-39	45-60	1.10-1.30	0.2-0.6	0.14-0.16	4.5-5.5	Moderate	0.32			
	39-60	30-45	1.10-1.30	0.2-0.6	0.14-0.16	4.5-5.5	Moderate	0.28			
McDuff	0-12	27-35	0.95-1.10	0.6-2.0	0.19-0.21	4.5-5.5	Moderate	0.24	2	7	4-6
	12-36	40-60	0.95-1.10	0.2-0.6	0.11-0.13	3.6-5.0	Moderate	0.28			
	36-40	---	---	---	---	---	---	---			
2E	0-15	20-27	0.85-0.95	0.6-2.0	0.25-0.35	4.5-5.0	Low	0.32	5	6	5-10
Astoria	15-28	25-35	0.90-1.00	0.6-2.0	0.15-0.20	4.5-5.0	Low	0.32			
	28-50	40-60	0.90-1.20	0.6-2.0	0.13-0.15	4.5-5.0	Moderate	0.28			
	50-60	27-35	0.90-1.20	0.6-2.0	0.10-0.12	4.5-5.0	Moderate	0.37			
3C, 3E	0-3	5-12	1.20-1.50	0.6-2.0	0.11-0.13	3.6-5.5	Low	0.28	3	3	1-3
Bandon	3-28	5-15	1.20-1.50	0.6-2.0	0.12-0.17	5.1-6.0	Low	0.24			
	28-45	---	---	---	---	---	---	---			
	45-60	5-18	1.30-1.50	2.0-6.0	0.	5.1-6.0	Low	0.15			
4A*	0-60	0-1	1.60-1.80	>20	0.03-0.05	---	Low	0.17	5	1	<.1
Beaches											
5C	0-16	27-40	1.10-1.20	0.6-2.0	0.19-0.21	3.6-5.0	Moderate	0.28	5	7	7-10
Bentilla	16-60	35-60	1.15-1.30	<0.06	0.14-0.17	3.6-5.0	High	0.32			
6E, 6F	0-21	27-40	1.10-1.20	0.6-2.0	0.17-0.21	4.5-6.0	Low	0.17	5	7	3-6
Blachly	21-60	40-50	1.10-1.30	0.2-0.6	0.11-0.13	4.5-6.0	Moderate	0.24			
7H*:											
Bohannon	0-16	15-25	0.85-0.95	2.0-6.0	0.15-0.20	4.5-6.0	Low	0.10	2	7	4-6
	16-31	18-30	1.00-1.30	2.0-6.0	0.09-0.15	4.5-6.0	Low	0.17			
	31-35	---	---	---	---	---	---	---			
Preacher	0-15	20-27	0.85-0.95	0.6-2.0	0.25-0.35	4.5-5.5	Low	0.17	3	6	5-8
	15-45	25-35	1.10-1.30	0.6-2.0	0.16-0.21	4.5-5.5	Moderate	0.24			
	45-54	7-30	1.20-1.30	2.0-6.0	0.10-0.17	4.5-5.0	Low	0.32			
	54-58	---	---	---	---	---	---	---			
8A	0-60	---	0.10-0.20	0.6-2.0	0.30-0.40	5.1-7.3	Low	0.00	5	5	50-70
Brallier											
9A	0-14	20-27	0.90-1.20	0.6-2.0	0.19-0.21	3.6-5.5	Low	0.32	5	6	5-10
Brenner	14-34	18-30	1.10-1.30	0.2-0.6	0.19-0.21	3.6-5.5	Moderate	0.24			
	34-60	27-50	1.10-1.30	0.06-0.2	0.15-0.17	3.6-6.5	Moderate	0.24			
10G*:											
Caterl	0-19	12-18	0.70-0.85	0.6-2.0	0.20-0.25	3.6-6.0	Low	0.15	3	6	8-10
	19-43	12-27	0.70-0.85	0.6-2.0	0.15-0.25	3.6-6.0	Low	0.15			
	43-58	18-27	0.75-0.85	0.6-2.0	0.05-0.10	3.6-6.0	Low	0.05			
	58-62	---	---	---	---	---	---	---			
Laderly	0-10	12-15	0.75-0.85	0.6-2.0	0.25-0.30	4.5-5.5	Low	0.20	2	6	8-12
	10-18	12-27	0.75-0.85	0.6-2.0	0.15-0.20	4.5-5.5	Low	0.15			
	18-30	15-27	0.75-0.85	0.6-2.0	0.05-0.10	3.6-5.0	Low	0.05			
	30-34	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	g/cc	In/hr	In/in	pH					Pct
11B	0-19	20-27	1.10-1.25	0.2-0.6	0.19-0.21	3.6-5.5	Low	0.32	5	6	4-8
Chitwood	19-60	35-45	1.20-1.45	0.06-0.2	0.15-0.18	3.6-5.0	Moderate	0.37			
12A	0-7	20-27	1.00-1.20	0.6-2.0	0.19-0.21	5.6-7.3	Low	0.32	5	6	4-10
Coquille	7-60	25-35	1.20-1.30	0.06-0.6	0.19-0.21	5.6-7.3	Low	0.37			
13A	0-7	20-27	1.00-1.20	0.6-2.0	0.19-0.21	3.6-5.0	Low	0.32	5	6	4-10
Coquille	7-60	25-35	1.20-1.30	0.06-0.6	0.19-0.21	3.6-5.0	Low	0.37			
14B	0-4	15-27	0.90-1.20	0.6-2.0	0.15-0.18	4.5-5.5	Low	0.24	1	5	5-10
Depoe	4-16	15-27	1.10-1.30	0.6-2.0	0.14-0.19	4.5-5.5	Low	0.28			
	16-48	---	---	---	---	---	---	---			
	48-60	1-5	1.50-1.70	2.0-6.0	0.	5.1-6.0	Low	0.15			
15B	0-13	12-20	1.10-1.30	0.6-2.0	0.18-0.22	4.5-6.5	Low	0.37	5	5	2-5
Eilertsen	13-60	18-35	1.20-1.30	0.6-2.0	0.19-0.21	4.5-5.5	Moderate	0.32			
16C	0-21	18-25	1.10-1.20	0.6-2.0	0.19-0.21	3.6-5.0	Low	0.32	5	6	5-12
Elsie	21-47	22-30	1.15-1.30	0.6-2.0	0.19-0.21	3.6-5.0	Low	0.37			
	47-60	18-27	1.20-1.35	0.6-2.0	0.17-0.19	3.6-5.0	Low	0.37			
17A	0-15	12-25	0.75-0.85	0.6-2.0	0.35-0.45	3.6-5.0	Low	0.32	5	6	10-15
Euchre	15-25	27-35	1.20-1.30	0.2-0.6	0.19-0.21	3.6-5.0	Low	0.28			
	25-36	10-35	1.25-1.35	0.2-2.0	0.13-0.20	3.6-5.0	Low	0.28			
	36-60	3-10	1.30-1.40	2.0-6.0	0.05-0.13	4.5-5.5	Low	0.20			
18G*:											
Fendall	0-16	20-27	0.90-0.95	0.6-2.0	0.25-0.35	4.5-5.5	Low	0.28	2	6	10-15
	16-27	30-40	1.10-1.20	0.6-2.0	0.16-0.21	4.5-5.0	Low	0.20			
	27-38	40-50	1.10-1.30	0.2-0.6	0.11-0.16	4.5-5.0	Moderate	0.20			
	38-42	---	---	---	---	---	---	---			
Templeton	0-17	18-27	0.85-0.95	0.6-2.0	0.25-0.35	3.6-5.5	Low	0.32	3	6	10-15
	17-55	25-35	0.90-1.10	0.6-2.0	0.20-0.25	3.6-5.0	Moderate	0.20			
	55-59	---	---	---	---	---	---	---			
19E*:											
Fendall	0-16	20-27	0.90-0.95	0.6-2.0	0.25-0.35	4.5-5.0	Low	0.28	2	6	10-15
	16-27	30-40	1.10-1.20	0.6-2.0	0.16-0.21	4.5-5.0	Low	0.20			
	27-38	40-50	1.10-1.30	0.2-0.6	0.11-0.16	4.5-5.0	Moderate	0.20			
	38-42	---	---	---	---	---	---	---			
Winema	0-18	20-27	0.75-0.85	0.6-2.0	0.35-0.45	4.5-5.5	Low	0.20	3	6	10-15
	18-25	27-35	0.75-0.95	0.6-2.0	0.30-0.40	4.5-5.0	Low	0.20			
	25-54	35-50	1.10-1.20	0.2-0.6	0.15-0.17	4.5-5.0	Moderate	0.24			
	54-58	---	---	---	---	---	---	---			
20E*, 20G*:											
Formader	0-19	15-20	0.70-0.85	0.6-2.0	0.35-0.45	4.5-5.5	Low	0.28	2	5	5-10
	19-30	20-35	0.90-1.20	0.6-2.0	0.18-0.25	4.5-5.5	Low	0.37			
	30-34	---	---	---	---	---	---	---			
Hemcross	0-15	15-20	0.75-0.85	0.6-2.0	0.35-0.45	4.5-5.5	Low	0.32	5	5	8-12
	15-48	18-27	0.80-0.85	0.6-2.0	0.25-0.35	4.5-5.5	Low	0.24			
	48-60	15-25	1.25-1.35	0.6-2.0	0.08-0.10	4.5-5.5	Low	0.15			
21H*:											
Formader	0-19	15-20	0.70-0.85	0.6-2.0	0.35-0.45	4.5-5.5	Low	0.28	2	5	5-10
	19-30	20-35	0.90-1.20	0.6-2.0	0.18-0.25	4.5-5.5	Low	0.37			
	30-34	---	---	---	---	---	---	---			

See footnote at end of table.

TABLE 14.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay	Moist bulk density	Permeability	Available water capacity	Soil reaction	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter
								K	T		
	In	Pct	g/cc	In/hr	In/in	pH					Pct
42C, 42E	0-15	15-25	0.90-1.20	0.6-2.0	0.16-0.20	4.5-5.5	Low	0.28	2	6	7-12
Nelscott	15-29	18-30	1.00-1.30	0.6-2.0	0.19-0.22	4.5-5.5	Moderate	0.32			
	29-36	1-5	1.10-1.30	0.6-2.0	0.05-0.08	5.1-6.0	Low	0.15			
	36-48	---	---	---	---	---	---	---			
	48-60	1-10	1.10-1.30	2.0-6.0	0.	5.1-6.0	Low	0.17			
43H*:											
Neotsu	0-12	15-20	0.70-0.85	0.6-2.0	0.30-0.40	3.6-5.0	Low	0.32	2	5	10-15
	12-26	18-30	0.70-0.85	0.6-2.0	0.30-0.40	3.6-5.0	Low	0.24			
	26-33	18-25	0.70-0.85	0.6-2.0	0.15-0.20	3.6-5.0	Low	0.20			
	33	---	---	---	---	---	---	---			
Necanicum	0-12	10-18	0.75-0.85	0.6-2.0	0.20-0.25	3.6-5.0	Low	0.15	3	6	10-15
	12-21	12-18	0.75-0.85	0.6-2.0	0.15-0.20	3.6-5.0	Low	0.10			
	21-46	8-20	0.80-1.40	0.6-2.0	0.05-0.08	3.6-5.0	Low	0.05			
	46	---	---	---	---	---	---	---			
44H*:											
Neskowin	0-19	15-27	0.75-0.85	0.6-2.0	0.30-0.40	4.5-5.5	Low	0.24	2	6	10-15
	19-23	15-35	0.75-0.85	0.6-2.0	0.30-0.40	4.5-5.5	Moderate	0.24			
	23-27	---	---	---	---	---	---	---			
Rock outcrop.											
45E*, 45G*:											
Neskowin	0-19	15-27	0.75-0.85	0.6-2.0	0.30-0.40	4.5-5.5	Low	0.24	2	6	10-15
	19-23	15-35	0.75-0.85	0.6-2.0	0.30-0.40	4.5-5.5	Moderate	0.24			
	23-27	---	---	---	---	---	---	---			
Salander	0-28	10-15	0.55-0.65	0.6-2.0	0.35-0.45	4.5-5.5	Low	0.28	5	5	10-15
	28-60	18-30	0.65-1.05	0.6-2.0	0.30-0.40	4.5-5.5	Low	0.43			
46A	0-14	18-27	1.10-1.25	0.6-2.0	0.19-0.21	4.5-5.5	Low	0.32	5	6	4-8
Nestucca	14-32	25-35	1.25-1.40	0.2-0.6	0.19-0.21	4.5-5.5	Moderate	0.32			
	32-60	20-45	1.35-1.45	0.2-0.6	0.15-0.17	4.5-5.5	Moderate	0.28			
47C, 47E	0-5	1-5	1.30-1.60	6.0-20	0.05-0.07	3.6-5.5	Low	0.17	5	2	3-5
Netarts	5-39	1-5	1.30-1.60	2.0-6.0	0.05-0.10	4.5-6.0	Low	0.17			
	39-60	1-5	1.30-1.60	6.0-20	0.05-0.10	5.1-6.0	Low	0.17			
48E, 48F	0-7	30-40	1.10-1.30	0.2-0.6	0.18-0.20	5.1-6.0	Moderate	0.28	2	7	4-8
Peavine	7-37	45-60	1.10-1.30	0.2-0.6	0.13-0.16	4.5-5.5	Moderate	0.28			
	37-41	---	---	---	---	---	---	---			
49E*:											
Preacher	0-15	20-27	0.85-0.95	0.6-2.0	0.25-0.35	4.5-5.5	Low	0.17	3	6	5-8
	15-45	25-35	1.10-1.30	0.6-2.0	0.16-0.21	4.5-5.5	Moderate	0.24			
	45-54	7-30	1.20-1.30	2.0-6.0	0.10-0.17	4.5-5.0	Low	0.32			
	54-58	---	---	---	---	---	---	---			
Bohannon	0-16	15-25	0.85-0.95	2.0-6.0	0.15-0.20	4.5-6.0	Low	0.10	2	7	4-6
	16-31	18-30	1.00-1.30	2.0-6.0	0.09-0.15	4.5-6.0	Low	0.17			
	31-35	---	---	---	---	---	---	---			
50G*:											
Preacher	0-15	20-27	0.85-0.95	0.6-2.0	0.25-0.35	4.5-5.5	Low	0.17	3	6	5-8
	15-45	25-35	1.10-1.30	0.6-2.0	0.16-0.21	4.5-5.5	Moderate	0.24			
	45-54	7-30	1.20-1.30	2.0-6.0	0.10-0.17	4.5-5.0	Low	0.32			
	54-58	---	---	---	---	---	---	---			

See footnote at end of table.