Terraces/steep toeslopes

Steep slide areas

Corylus cornuta-Acer circinatum/Oxalis
California hazel-vine maple/sorrel
COCO6-ACCI/OXALI

N=2 (EBLM 2)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Acer macrophyllum	Big leaf maple	50	80
Tsuga heterophylla	Western hemlock	50	40
Shrubs			
Corylus cornuta	California hazel	100	28
Acer circinatum	Vine maple	100	18
Gaultheria shallon	Salal	50	Tr
Herbs			
Oxalis	Sorrel	100	55
Polystichum munitum	Sword fern	100	15
Athyrium filix-femina	Lady fern	100	13
Bromus vulgaris	Colombian brome	100	3
Adenocaulon bicolor	Pathfinder	100	2
Circaea alpina	Enchanter's-nightshade	100	2
Blechnum spicant	Deer fern	50	15
Galium triflorum	Sweetscented bedstraw	50	5
Tiarella trifoliata	Foamflower	50	5
Hydrophyllum tenuipes	Pacific waterleaf	50	3
Equisetum	Horsetail species	50	2
unknown grass	Grass species	50	2
Adiantum pedatum	Maidenhair fern	50	Tr
Asarum caudatum	Wild ginger	50	Tr
Bromus sitchensis	Alaska brome	50	Tr
Streptopus lanceolatus var. curvipes	Rosy twistedstalk	50	Tr
Trillium ovatum	Pacific trillium	50	Tr
Viola	Violet species	50	Tr

Elevations: 840 to 915 feet.

Community: California hazel-vine maple/sorrel occurs under heavy big leaf maple or western hemlock overstories. California hazel is more abundant than vine maple in the small sample. The herb layer is a rich sward of sorrel, sword fern, and lady fern. California brome, pathfinder, and enchanter's nightshade are present at low cover. Deer fern can be abundant.

Substantial deer or elk browse was noted on both plots.

Both plots are from Eugene BLM's South Valley Resource Area, and represent southeasterly samples from the Coast Range. In this low precipitation zone of the Coast Range, salmonberry distribution is much more confined in the riparian areas.

Similar types: This community seems to have some similarity to the Cascades Forested California hazel/sword fern group, though the Coast type lacks most of the warm and dry indicator species present in the Cascades type.

Valley cross sections showing COCO6-ACCI/OXALI
Beacon creek

Click on a creek name in the table to the left to see valley cross sections that show where COCO6-ACCI/OXALI occurs in relation to other plant associations.

Geomorphic environment: Geomorphic surfaces are gently sloping floodplains or terraces. Soils are fairly shallow (54 to 59 cm depth). A horizons are silt loams 5 to 10 cm thick. B horizons are loam or sandy loam 18 to 41 cm deep, over sand/sandstone C layers. One site had mottling (evidence of fluctuating anaerobic conditions) at 46 cm and summer water table at 64 cm. Rooting depth was 50 to 60 cm. The geomorphic surfaces, moderately deep soil, and tree ages (western hemlock 38 years old, big leaf maple 108 years old) suggest that these sites are not frequently reset, though still subject to flood effects.

It is possible that in areas with higher precipitation in the Coast Range, similar geomorphic surfaces and soils would support a salmonberry community, possibly a member of the Salmonberry/piggyback plant-sorrel group.

Wetland rating:

Community meets wetland test	No
Plots meeting wetland criteria	0%
Wetland indicators among dominant species	0% (range 50-100%)

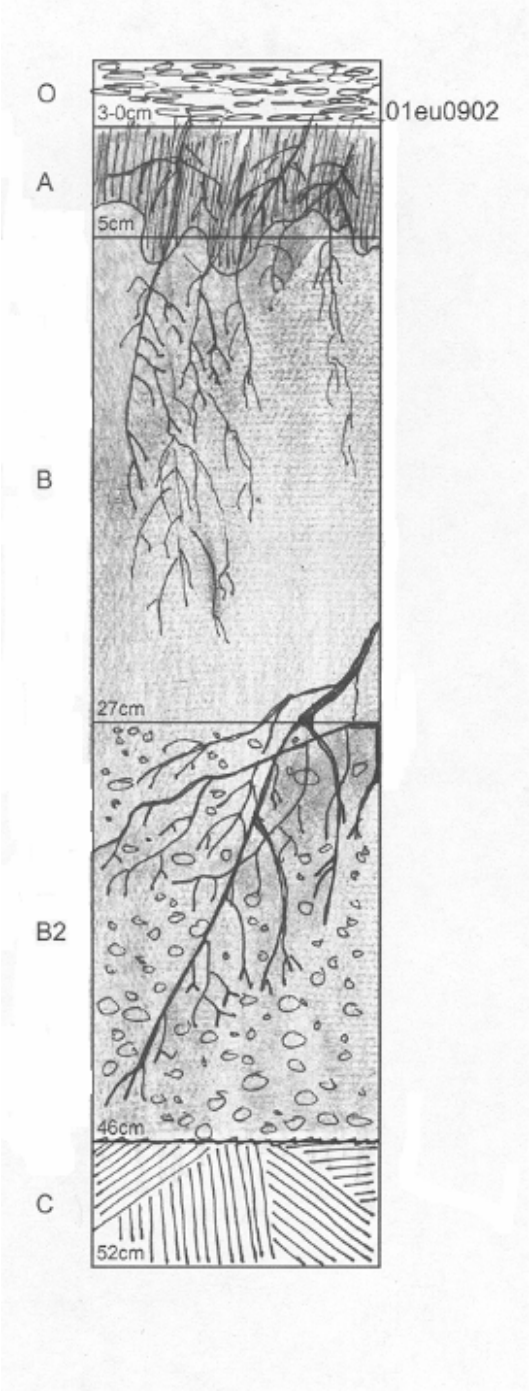
Average proportion of wetland indicators among dominant species was 0%, since the sorrel could not be assigned to species.

Non-natives: No exotics were recorded in the sample.

Soil illustration: COCO6-ACCI/OXALI

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	3					15	10
A	5	10YR3/4	SSiL	gravel	0	10	15
B	22	10YR3/6	SL	gravel	0	10	10
B	19	10YR3/3	SL	sm gravel	10	10	20
B	8		SL	gravel	0	0	0
C			R	bedrock	90	0	0

Total Depth: 75cm. Depth Limit: 75cm. Water Table: 64cm. Mottle: 46cm.



This soil is part of an alluvial floodplain beside a meandering creek. The nature of the creek in this valley is to worm back and forth, across and through the floodplains over time. The history of this particular profile involves a series of large flood events, followed by another string of lower floods that deposited mostly fine materials. Floods in the recent past have mostly affected the opposite bank.

The layer of organic matter here is young and quickly recycled. Very fine sediments tell of marshy conditions in the winter, or of slow moving water that probably flows through the profile as much as over it. The A horizon used to be a sandy loam, but the incorporation of OM has changed it to a “sandy silt loam,” which technically isn’t a word. Nevertheless, sandy silt loams are very common in the Coast mountains.

Two 20cm-deep B horizons are deeper in the profile. They are true sandy loams, and may have been A horizons themselves at one time. Burrowing animals have mixed OM into the B2 horizon, deepening its color. The B2 also contains charcoal and the only gravel in the profile. These are consequences of being the first alluvial horizon piled on top of the rocky C horizon.

Rubus spectabilis/Polystichum munitum
Salmonberry/sword fern
RUSP/POMU

N=25 (SNF 18, EBLM 4, SBLM 3)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Alnus rubra	Red alder	48	46
Acer macrophyllum	Big leaf maple	20	43
Shrubs			
Rubus spectabilis	Salmonberry	100	56
Acer circinatum	Vine maple	68	19
Sambucus racemosa	Red elderberry	60	14
Ribes bracteosum	Stink currant	56	2
Vaccinium parvifolium	Red huckleberry	48	1
Herbs			
Polystichum munitum	Sword fern	100	23
Oxalis	Sorrel	92	21
Stachys	Betony species	84	6
Athyrium filix-femina	Lady fern	84	4
Tolmiea menziesii	Piggyback plant	72	4
Claytonia sibirica	Siberian miner's lettuce	64	1
Galium triflorum	Sweetscented bedstraw	60	2
Stellaria crispa	Crisp sandwort	56	1
Luzula parviflora	Small-flowered wood-rush	44	Tr
Blechnum spicant	Deer fern	40	3
Maianthemum dilatatum	False lily of the valley	40	2
Marah oreganus	Manroot	36	1
Viola glabella	Stream violet	36	Tr

Elevations: 100 to 870 feet (average 450 feet).

Community: The Salmonberry/sword fern community is a common terrace/valley wall type in the Coast Range. Mature red alder are recorded in almost half the plots. Big leaf maple was present in 20%. Conifers, including western hemlock, Sitka spruce, or Douglas fir, were present on 24% of the plots. The group is dominated by extremely dense salmonberry. Vine maple, red elderberry are abundant associated shrubs; stink currant is also present on more than half the sample. Sword fern and sorrel are the dominant herb species. Betony, lady fern, piggyback plant, Siberian miner's lettuce, sweetscented bedstraw and crisp sandwort are common associated species. Saxifrages and lady fern are at very low cover compared to most of the communities closer to the stream channel.

Salmonberry/sword fern community: heavy tree canopy, dense salmonberry, and thick sword fern are typical. Note deep shade even on a sunny summer day.

This community is transitional to upland forested plant associations such as Western

hemlock/salmonberry or Sitka spruce/salmonberry. However, high constancy of such riparian species as stink currant, betony, and lady fern mark it as a streamside type.

Significant elk or deer browse was frequently observed in this community.

Valley cross sections showing RUSP/POMU
N Fork Smith #2
Porter creek
N Trib to Ryder creek
Trib W Fork Deadwood creek
Whittaker creek

Click on a creek name in the table to the left to see valley cross sections that show where RUSP/POMU occurs in relation to other plant associations

Geomorphic environment: Geomorphic surfaces fell into two groups: gentle terraces or steep banks and valley walls. Soils are deep (average 77 cm) well drained loams (silt loams, silty clay loams, sandy loams, and loams), though some had clays in the C horizons. Coarse fragments content was low to moderate, but variable. No anaerobic conditions or high water tables were recorded. These sites had deep, organic rich substrates; rooting conditions are excellent. Most of the geomorphic surfaces are above the zone subject to frequent flooding.

Terraces were most likely to have overstory trees rooted in the plots. Three quarters of the plots with gentle slopes (=<20%) had mature trees. Less than half the steep slopes (>20%) had trees. Tree ages ranged from 21 to 135 years. Mountain beaver burrows were noted on several of the steep plots.

Salmonberry competition can be expected to be severe for any tree regeneration. Light limitation from red alder canopy as well as the salmonberry may also limit conifer establishment and survival.

Wetland rating:

Community meets wetland test	No
Plots meeting wetland criteria	48%
Wetland indicators among dominant species	50% (range 17-83%)

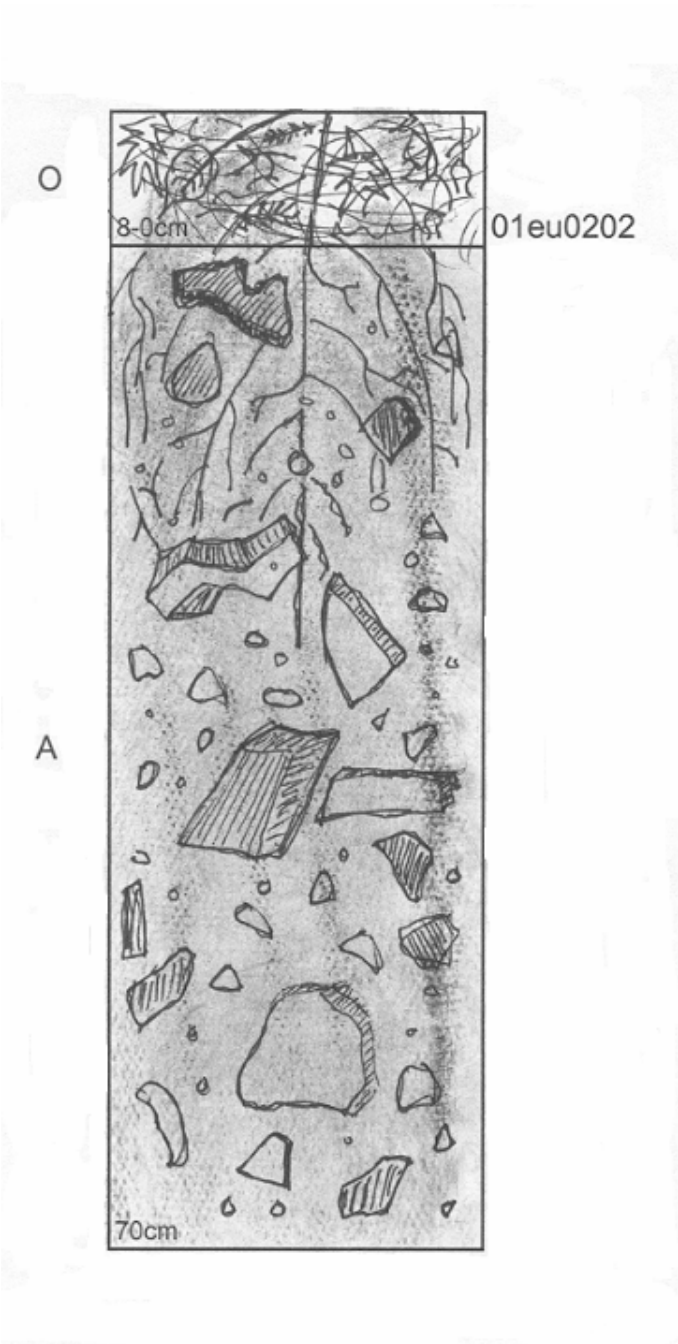
Non-natives: Exotic species were recorded in 7 plots, 28% of the sample. Six grasses or grasslike species were included in the 10 exotic species present.

EXOTIC	COMMON NAME	CONSTANCY %	PLOTS	TYPICAL COVER %
Digitalis purpurea	*Common foxglove*	16	4	1
Phalaris arundinacea	*Reed canarygrass*	8	2	1
Ranunculus repens var. repens	*Creeping buttercup*	8	2	Tr
Lactuca muralis	*Wall-lettuce*	8	2	Tr
Holcus lanatus	*Common velvet-grass*	4	1	12
Agrostis stolonifera	*Creeping bentgrass*	4	1	1
Erechtites minima	*Coastal burnweed*	4	1	Tr
Poa trivialis	*Rough bluegrass*	4	1	Tr
Poa palustris	*Fowl bluegrass*	4	1	Tr
Luzula multiflora ssp. multifl	*Many-flowered wood-rush*	4	1	Tr

Soil illustration A: RUSP/POMU

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	8						15
A	70	10YR3/2	SL	gravel / cobble	20		

Total Depth: 70cm. Depth Limit: ~70cm.

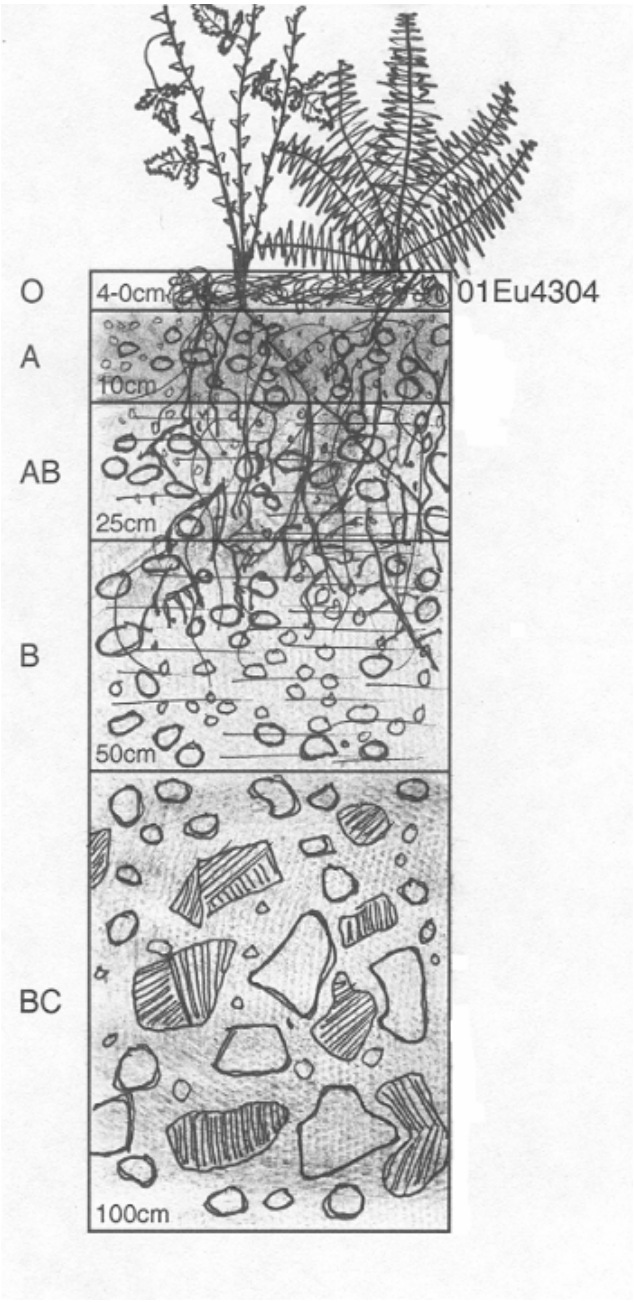


Interesting in its uniformity, this entire 70cm profile is one big horizon put into place by a major landslide. Deep, loose, non-weathered, poorly sorted rocks of all shapes and sizes fit together in an A horizon matrix of 10YR3/2 sandy loam. With an auger, and without all the rocks, it would be nice to keep drilling in the bottom of this pit just to see how deep it really is. It would not be at all surprising to dig right through this toeslope and discover the terrace of Plot 1 buried below. Perhaps after such a massive colluvial input of soil, this slope will be free from mass wasting for a while. The 8cm of organic material currently overtop the site will provide a good start.

Soil illustration B: RUSP/POMU

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	4					15	15
A	10	7.5YR3/1	SiCL	gravel	20	15	20
AB	15	7.5YR4/2	SiC	gravel	15	15	15
B	25	7.5YR3/2	SiC	gravel	20	8	10
BC	50	7.5YR4/2	SiC	gravel / cobble	20 / 40	8	8

Total Depth: 100cm. Depth Limit: ~100cm.



Plot 4 is at the bottom of a 95% south-aspect footslope. Despite the steepness, the formation of clay skins and assorted versions of nice blocky structure throughout the profile show that this soil has been undisturbed for quite some time. A gravelly, red topsoil is commonly found in the Coast. 20% gravel concentration does not seem to impede the roots from being extremely competitive. Roots occupy 20% of the A horizon, 15% of the AB and 10% of the B and BC. (It is common to find about 5% less density in each horizon.) The BC horizon shows its tendency towards sandstone residuum, though 80cm is not nearly deep enough to reach bedrock in this hole. All fragments at this point can still be broken by hand.

Vaccinium alaskaense-Rubus spectabilis
Alaska huckleberry-salmonberry
VAAL-RUSP

N=1 (SBLM 1)

SPECIES	COMMON NAME	TYPICAL COVER %
Shrubs		
Vaccinium alaskaense/Vaccinium ovalifolium	Alaska huckleberry/Oval-leaf huckleberry	85
Rubus spectabilis	Salmonberry	30
Vaccinium parvifolium	Red huckleberry	10
Menziesia ferruginea	Fool's huckleberry	8
Herbs		
Polystichum munitum	Sword fern	65
Blechnum spicant	Deer fern	10
Scoliopus hallii	Slink lily	9
Oxalis trilliifolia	Trillium-leaved sorrel	8
Athyrium filix-femina	Lady fern	7
Boykinia occidentalis	Coastal boykinia	3
Prosartes hookeri	Hooker's fairybells	2
Streptopus amplexifolius	Clasping twistedstalk	2

Elevation: 1200 feet.

Community: This is a single plot which represents a coastal variant of the Cascadian Oval-leaved huckleberry type. The plot is from Salem BLM's Warnicke Creek in the Valley of the Giants area. This area has plant associations that indicate cool, moist environments more similar to some Cascadian conditions than most of the Coast Range (eg Western hemlock/Alaska huckleberry/oxalis-NWO Coast, and Western hemlock/oxalis-vanilla leaf). One other plot from the Warnicke Creek cluster is incorporated in the Cascadian Coastal boykinia-oval-leaved mitrewort description.

The plot occurred under a dense overhanging canopy of western hemlock. The shrubby plot is dominated by Alaska huckleberry. Salmonberry, red huckleberry and fool's huckleberry are also abundant. The lush herb layer is fern dominated, composed mainly of sword fern and deer fern, though lady fern is also present. The most abundant forbs are trillium-leaved sorrel and slink lily.

Geomorphic environment: The plot is on a steep toeslope position. The soil description shows a fairly deep (100cm+) colluvial soil. There is a deep (20cm) O

layer. The A layer is a clay loam, the BA layer is loamy clay, and the Bt horizon

Alaska huckleberry-salmonberry: dense shrubs mark steep bank community. Note that the Coast boykinia-oval leaved mitrewort community is found on the adjacent mossy bedrock surface.

Wetland rating:

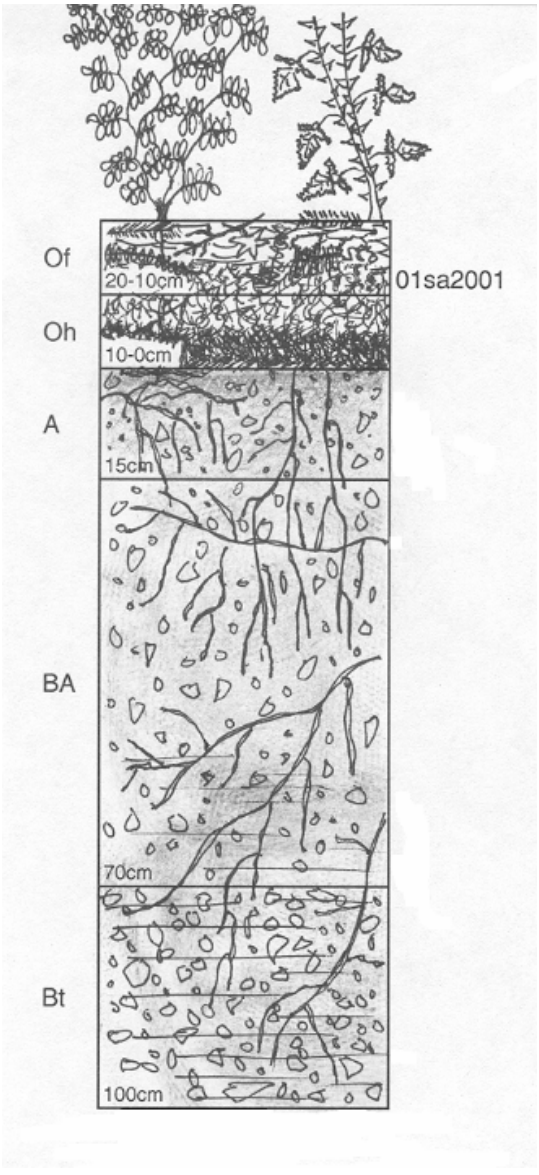
Community meets wetland test	No
Wetland indicators among dominant species	33%

Non-natives: No exotic species were present in the sample.

A single sample can't be used to characterize a community. Instead, it suggests that an undescribed community is likely, and that more samples from similar environments could provide data for a new type.

Soil illustrationVAAL-RUSP

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
Of	10		Fragmented			25	15
Oh	20	7.5YR2.5/2	Humus			25	25
A	15	7.5YR2.5/3	CL	gravel	10	10	20
BA	55	7.5YR2.5/3	LC	gravel	15	8	20
Bt	30	7.5YR3/3	C	Gravel	25	5	10



Total Depth: 100cm. Depth Limit: ?

The O horizon here is pretty remarkable in that it has stratified into litter, fragmented, and humus components. To see pure organic material 20cm deep is certainly uncommon for this field season, and then to see the full spectrum of decomposition as well is just extra cool. To call something an A horizon requires that it be mineral soil. There is such a layer here, and it is a nice, crumby clay loam 15cm thick. Between 15 and 70cm, the soil is in transition to a Bt horizon. It is hard to determine exactly where A → BA → Bt except by noting the textural changes and the greater plasticity of the clay horizons. The color is nearly the same throughout. Gravel increases slightly with depth.

Acer macrophyllum/Corylus cornuta-Rubus spectabilis
Big leaf maple/California hazel-salmonberry
ACMA3/COCO6-RUSP

N=3 (SNF 3)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Acer macrophyllum	Big leaf maple	100	67
Pseudotsuga menziesii	Douglas-fir	67	35
Thuja plicata	Western redcedar	33	35
Rhamnus purshiana	Cascara buckthorn	33	25
Trees-seedlings			
Acer macrophyllum	Big leaf maple	33	5
Thuja plicata	Western redcedar	33	4
Shrubs			
Corylus cornuta	California hazel	100	25
Rubus spectabilis	Salmonberry	100	13
Rhamnus purshiana	Cascara buckthorn	100	1
Vaccinium ovatum	Evergreen huckleberry	67	13
Acer circinatum	Vine maple	67	3
Gaultheria shallon	Salal	67	1
Sambucus racemosa	Red elderberry	67	1
Herbs			
Polystichum munitum	Sword fern	100	65
Galium triflorum	Sweetscented bedstraw	100	Tr
Stachys mexicana	Mexican betony	67	3
Athyrium filix-femina	Lady fern	67	1
Claytonia sibirica	Siberian miner's lettuce	67	1
Marah oreganus	Manroot	67	1
Tellima grandiflora	Fringecup	67	1
Blechnum spicant	Deer fern	67	Tr
Oxalis	Sorrel	67	Tr
Tolmiea menziesii	Piggyback plant	67	Tr

Elevations: 150 to 270 feet (average 230 feet).

Community: Big leaf maple/California hazel-salmonberry is a warm, well drained forested community sampled in the Mapleton Ranger District of the Siuslaw NF. Big leaf maple is the dominant tree species, but Douglas fir and western redcedar can also be present. Cascara buckthorn is sometimes part of the tree canopy. The shrub layer is dominated by California hazel. Salmonberry and red huckleberry are always present. Evergreen huckleberry, vine maple, salal, and red elderberry are common associated shrubs. The herb layer is mainly thick

swordfern. Lady fern and betony are the only other species averaging more than a trace presence. Trees were 28 to 160 years old, though on one site giant maples were too rotten to age. The youngest trees had grown up in a clearing created by a fallen tree.

Valley cross sections showing ACMA3/COCO6-RUSP
N Fork Smith #2
Porter creek

Click on a creek name in the table to the left to see valley cross sections that show where ACMA3/COCO6-RUSP occurs in relation to other plant associations.

Geomorphic environment: Geomorphic surfaces are very steep valley walls/toeslopes or elevated terraces. Soils are silt loams to loams. These sites are either on raised terraces immune to most floods or on steep colluvial valley walls. The main processes controlling vegetation in this community are not fluvial. Salmonberry cover is relatively minor, and other riparian species such as lady fern, piggyback plant, or betony are present but in low abundance. This community is a transitional type, moister than the upslope plant associations but dominated by upland species. Succession to conifers occurs over time, though extremely steep slopes may limit stability.

Wetland rating:

Community meets wetland test	No
Plots meeting wetland criteria	0%
Wetland indicators among dominant species	26% (range 20-33%)

Non-natives: Common foxglove was the only exotic species recorded in the sample, at trace cover on only 1 plot.

Rubus spectabilis-Acer circinatum
Salmonberry-vine maple
RUSP-ACCI

N=8 (EBLM 4, SNF 3,, SBLM 1)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Alnus rubra	Red alder	25	23
Pseudotsuga menziesii	Douglas-fir	25	18
Shrubs			
Rubus spectabilis	Salmonberry	100	51
Acer circinatum	Vine maple	88	43
Vaccinium parvifolium	Red huckleberry	75	5
Sambucus racemosa	Red elderberry	38	7
Rhamnus purshiana	Cascara buckthorn	38	6
Herbs			
Polystichum munitum	Sword fern	100	34
Oxalis	Sorrel	100	15
Athyrium filix-femina	Lady fern	88	11
Adiantum pedatum	Maidenhair fern	50	3
Claytonia sibirica	Siberian miner's lettuce	50	1
Galium triflorum	Sweetscented bedstraw	50	1
Blechnum spicant	Deer fern	38	12
Stachys mexicana	Mexican betony	38	4
Dicentra formosa	Pacific bleedingheart	38	3
Tiarella trifoliata	Foamflower	38	2
Stellaria crispa	Crisp sandwort	38	1

Elevations: 75 to 1230 feet (average 600 feet).

Community: Salmonberry-vine maple is a shrub dominated community found on steep valley walls and toeslopes. Red alder and Douglas-fir occur on only 25% of the plots. Salmonberry and vine maple are co-dominant shrubs. Red huckleberry is common but at low cover. Sword fern is always present and abundant. Lady fern and sorrel are important associated species. Deer fern can be prominent in this type. Note that wet site riparian indicators such as piggyback plant are minor or absent in this community.

Valley cross sections showing RUSP-ACCI
Trib W Fork Deadwood creek
Whittaker creek

Click on a creek name in the table to the left to see valley cross sections that show where RUSP-ACCI occurs in relation to other plant associations.

Geomorphic environment: Geomorphic surfaces are very steep valley walls and cutbanks, averaging 91% slope. Soils are deep and well drained. A horizons are silt loams, silty clay loams, or sandy silts averaging 22 cm thick. AB horizons are sandy loams, silt loams, silty clay loams or clay loams averaging 27 cm. B horizons are silty clays, silt loams, sandy silts or sandy loams, averaging 35 cm. C horizons are found at an average depth of 104 cm. Only one profile showed anaerobic conditions, with mottling at a meter. Coarse fragments above the C horizon in the profile were generally colluvial, rather than alluvial, in origin.

Salmonberry-vine maple: view from across the creek toward steep valley wall. Note person (red vest, lower left) for scale.

Salmonberry competition and slope instability may limit long-term conifer development in this community. On one plot, observers noted that tree regeneration followed creation of an opening from a log falling onto the site. Such events may allow scattered conifers to establish. Some of the largest, oldest conifers in the sample occurred in this community.

Fluvial processes are most likely to affect this community indirectly, if channel changes undercut the over-steepened slopes to cause slides.

Wetland rating:

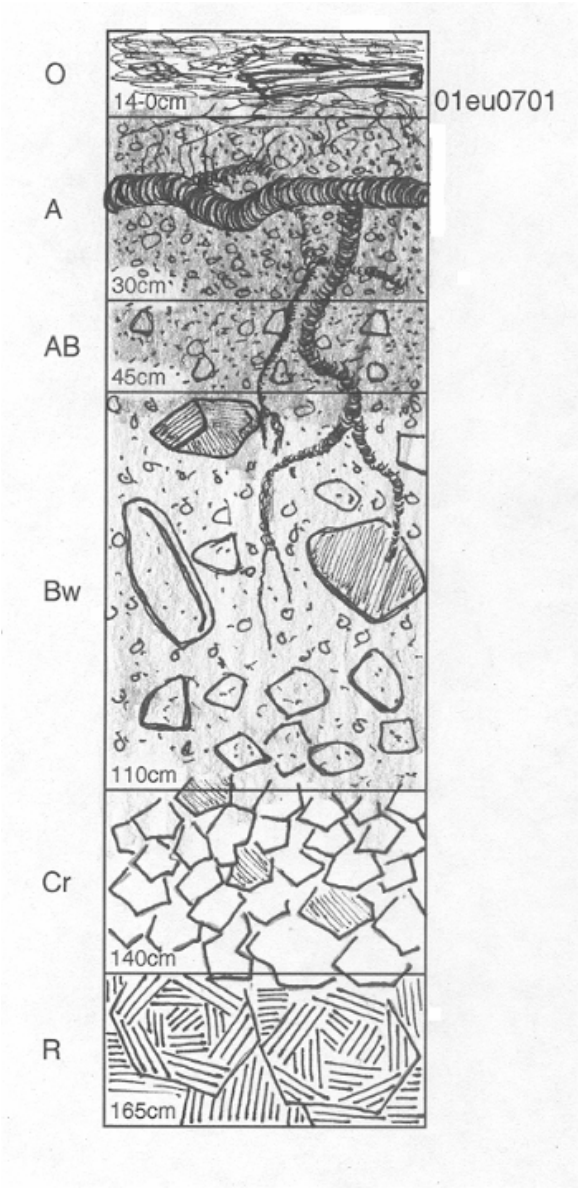
Community meets wetland test	No
Plots meeting wetland criteria	13%
Wetland indicators among dominant species	38% (range 28-67%)

Non-natives: No exotic species were recorded in the sample.

Soil illustration A: RUSP-ACCI

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	14					20	15
A	20	7.5YR3/2	SSi	sm gravel	10	10	10
AB	40	10YR3/2	SL	sm gravel	8	50	2
Bw	40	10YR4/3	SSi	gravel, cobble	50	1	0
Cr	30	10YR4/6	SiCL	cobble	50	1	0
R			R	bedrock	95	0	0

Total Depth: 140cm. Depth Limit: 140cm. Mottle (false): 60cm.



In this region of the south valley, northern aspect slopes erode faster and more steeply than south slopes based on geology (reference section topo map). A comparison of colluvial stability at plots 1 (north aspect) and 4 (south aspect) at this site seems to reinforce this idea.

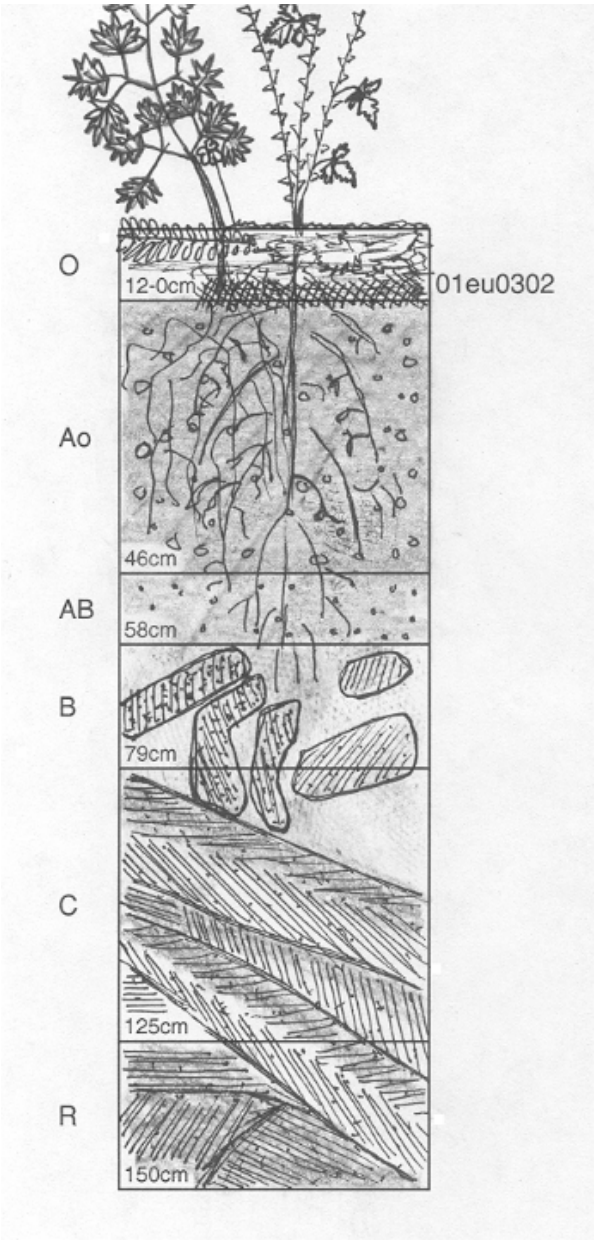
Mass wasting has been the primary profile builder at this plot as evidenced by some pretty big chunky rocks through the profile. Darkening of the A horizon from incorporation of OM does show that colluvial influence has not been particularly recent. Brownish yellow colors of the subsoil is a signal of good aeration despite localized areas of false mottling around sandstone fragments of likely residual nature.

Starting at about 100cm, sandstone residuum is evidently intact. It is very red from iron oxide, and is flecked with mica and siliceous minerals. The material breaks into distinct cubes suggesting largely homogenous stratification.

Soil illustration B: RUSP-ACCI

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	12			gravel	3		
Ao	46	7.5YR2.5/3	SiL	md gravel	10	15	10
AB	12	10YR3/6	SiCL	sm gravel	3	5	10
B	21	10YR3/4	SiCL	md cobble	50		3
C	46		R	boulder	90		1
R			R	bedrock	100		

Total Depth: 125cm. Depth Limit: 125cm.



The soil is moist and loose, partly owing to its north aspect and 80% slope. The O horizon is 12cm deep and is much like a red humus layer in many places. Decomposers have blurred the line between the O horizon and mineral soil, and have helped in the formation of an A horizon that is 46cm deep. The A and AB horizons have rich silt loam textures with very little gravel and strong crumb structure. The AB horizon is mostly the same as the A horizon but clays from the B horizon start to mix in, probably helped by minor soil slides and burrowing animals. Silty clay becomes the texture of the B horizon as soil becomes more closely associated with cracks in the sandstone. Baseball size cobbles become common while voids and root concentrations dwindle near 80cm. Below 80cm, the sandstone parent material becomes obvious. Residual cobbles and boulders have not yet been disturbed by colluvial events, and the “strike and dip” of the bedrock is very apparent.