

**Steep banks/terraces**

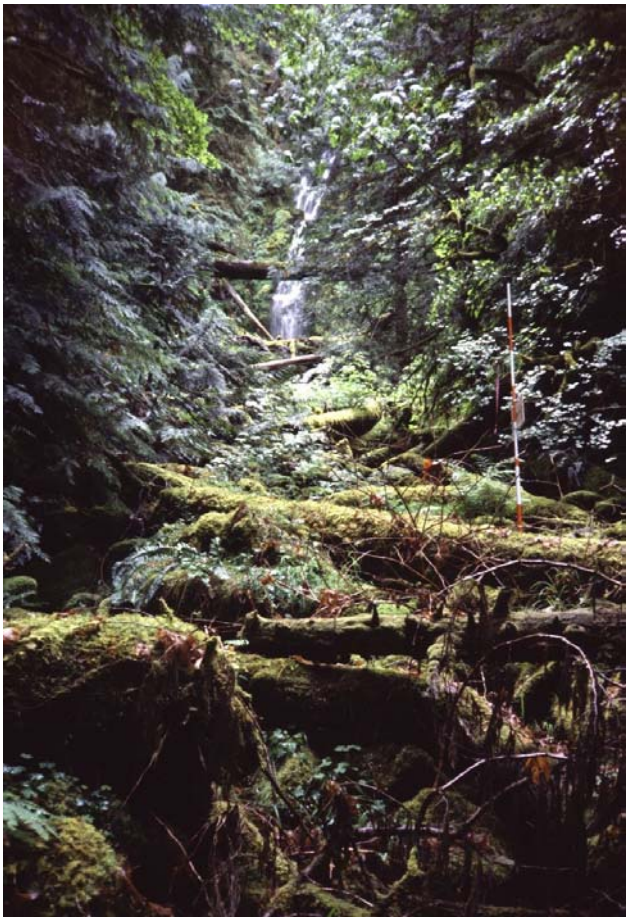
Sorrel-Pacific waterleaf, OXALI-HYTE ..... p. 116

(Red alder-big leaf maple)/sorrel, (ALRU2-ACMA3)/OXALI ..... p. 119

Salmonberry/sorrel group, RUSP/OXALI GROUP: ..... p. 123

- Salmonberry/sorrel-*shrub phase*, RUSP/OXALI-*shrub phase* ..... p. 126
- Salmonberry/sorrel-*red alder phase*, RUSP/OXALI-*ALRU2 phase* ..... p. 129
- Salmonberry/sorrel-*western redcedar phase*,  
RUSP/OXALI-*THPL phase* ..... p. 131

Red alder/common snowberry-salmonberry, ALRU2/SYAL-RUSP ..... p. 134



***Oxalis-Hydrophyllum tenuipes***  
**Sorrel-Pacific waterleaf**  
**OXALI-HYTE**

N=7 (WNF 4, MHNH 1, EBLM 1, SBLM 1)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Alnus rubra</i>	Red alder	14	60
<b>Herbs</b>			
<i>Oxalis</i> ( <i>O. trillifolia</i> )	Trillium-leaved sorrel	100	36
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	100	5
<i>Galium triflorum</i>	Sweetscented bedstraw	86	2
<i>Polystichum munitum</i>	Sword fern	71	17
<i>Athyrium filix-femina</i>	Lady fern	71	15
<i>Tolmiea menziesii</i>	Piggyback plant	71	1
<i>Stachys cooleyae</i>	Cooley's betony	43	14
<i>Adiantum pedatum</i>	Maidenhair fern	43	5
<i>Claytonia sibirica</i>	Siberian miner's lettuce	43	1
<i>Prosartes hookeri</i>	Hooker's fairybells	43	1

**Elevations:** 1150 feet to 2600 feet (average 2142 feet).

**Community:** Sorrel-Pacific waterleaf is a low to moderate elevation herbaceous community. Red alder and big leaf maple seedlings and saplings are occasionally present. On one plot, a large western hemlock and a Douglas fir had survived a slide deposit which reset the geomorphic surface and plant community. Overhanging conifer cover can be dense. The shrub layer is generally minor, though a thick vine maple canopy was recorded on two plots. Sorrel (identified as trillium-leaved sorrel) is the dominant herb, but Pacific waterleaf is always present. Sword fern, lady fern, and Cooley's betony can be abundant. Sweetscented bedstraw and piggyback plant are usually present.

**Geomorphic environment:** Geomorphic surfaces are generally moderate to steep banks, occasionally adjacent to an active channel shelf/active floodplain. Soils ranged from sands mixed with gravels and cobbles, to deeper soils with silty clay loam to silty clay textures in a gravel/cobble matrix. Two soil descriptions noted colluvial materials in the substrates.

This is a moist bank community, but generally not one subject to yearly scour or deposition. The geomorphic surfaces tend to be steep and above average winter flow.



**Sorrel-Pacific waterleaf community:** note wall lettuce (yellow flowers), the most common non-native in the Cascades riparian sampling.

**Similar types:** The Sorrel-Pacific waterleaf community is similar to the (Red alder-big leaf maple)/sorrel type, but without a tree component. Riparian indicators more common or abundant in the Sorrel-Pacific waterleaf community include lady fern and Cooley's betony. The herbaceous type may represent similar bank environments, but slightly wetter and/or younger than (Red alder-big leaf maple)/sorrel.

**Wetland rating:**

Community meets wetland test	No
Plots meeting wetland criteria	75%
Wetland indicators among dominant species	46% (range 14-80%)

**Non-natives:** Wall-lettuce was the only exotic species recorded in the sample. It occurred on two plots.

**Other studies:** This community is somewhat similar to the *Stachys cooleyae* community and *Hydrophyllum tenuipes* community, described for the mid-Willamette NF in Campbell (1979).

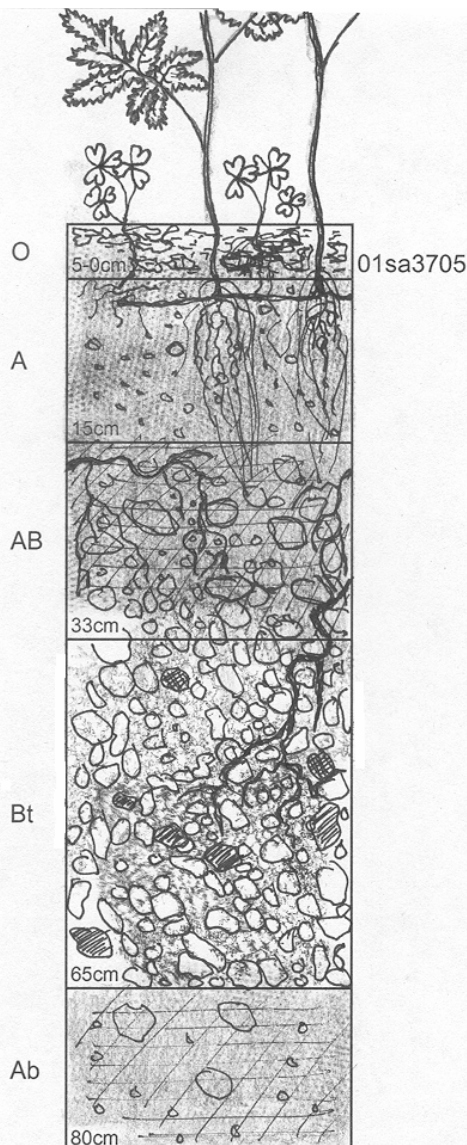


Valley cross sections showing OXALI-HYTE
Walker creek
E Fork S Fork McKenzie #2
Beacon creek

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

### Soil illustration: OXALI-HYTE

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	5					25	5
A	15	7.5YR2.5/1	SiCL	gravel	20	15	10
AB	18	7.5YR2.5/1	CL	gravel / cobble	40 / 10	10	8
Bt	32	10YR3/1	SiC	gravel / cobble	50 / 15	6	12
Ab	15	10YR2/2	SiC	gravel	20	4	8



Total Depth: 80cm. Depth Limit: ~80 cm to roots.

Description of this hole requires a timeline of sorts. The entire profile is a nice dark color, especially the A horizon. At least 30 or 40 years of undisturbed time would be necessary for this color to come about, and another 20 for the AB horizon to accumulate the influence. Adding another 40 years to allow for the colluvial accumulation and settling of the horizons to begin with brings the total age of this profile to around 100 years. Gophers do not tend towards the immediate area that I can tell, but the hill is hummocked as a whole. Our theory is that our site tree at this site may have escaped destruction by a slide about a hundred years ago when the tree was 50. If you still don't believe, consider the second A horizon buried under 65cm of the profile. A **major** force landslide definitely dumped about 60cm of relatively dense, poorly sorted gravelly soil over it. And the rest is history.

**(*Alnus rubra*-*Acer macrophyllum*)/*Oxalis***  
**(Red alder-big leaf maple)/Sorrel**  
**(ALRU2-ACMA3)/OXALI**

N=16 (MHN 8, WNF 5, EBLM 3)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Alnus rubra</i>	Red alder	56	50
<i>Acer macrophyllum</i>	Big leaf maple	38	47
<i>Tsuga heterophylla</i>	Western hemlock	38	35
<i>Thuja plicata</i>	Western redcedar	31	28
<b>Trees-seedlings</b>			
<i>Tsuga heterophylla</i>	Western hemlock	38	3
<b>Shrubs</b>			
<i>Acer circinatum</i>	Vine maple	63	20
<i>Rubus ursinus</i>	Trailing blackberry	50	2
<i>Oemleria cerasiformis</i>	Indian plum	38	2
<b>Herbs</b>			
<i>Oxalis</i>	Sorrel	100	27
<i>Polystichum munitum</i>	Sword fern	88	21
<i>Galium triflorum</i>	Sweetscented bedstraw	81	1
<i>Athyrium filix-femina</i>	Lady fern	63	5
<i>Lactuca muralis</i>	Wall-lettuce	56	1
<i>Adiantum pedatum</i>	Maidenhair fern	50	2
<i>Tolmiea menziesii</i>	Piggyback plant	44	3
<i>Claytonia sibirica</i>	Siberian miner's lettuce	44	1
<i>Corydalis scouleri</i>	Scouler's corydalis	38	31
<i>Bromus vulgaris</i>	Columbia brome	38	6
<i>Vancouveria hexandra</i>	Insideout flower	38	4
<i>Petasites frigidus</i>	Coltsfoot	38	1

**Elevations:** 920 to 2580 feet (average 1734 feet).

**Community:** The (*Red alder-big leaf maple*)/sorrel community can occur under a variety of tree species, most commonly red alder, big leaf maple, western hemlock, and western redcedar. Hardwood or mixed hardwood-conifer canopies are most common. Only two plots had purely conifer overstories. Typical shrub cover is low, with vine maple often the abundant species. Trailing blackberry is also frequently present. The herb layer is dominated by sorrel and sword fern, with sweetscented bedstraw, lady fern, and maidenhair fern also present in most plots.



**(Red alder-big leaf maple)/sorrel community:** sorrel and sword fern dominate the herb layer. Western hemlock seedling is visible in foreground.

Scouler's corydalis is an important associated species in this community in the Mt. Hood NF. Plots with Scouler's corydalis tended to have less western redcedar, and more lady fern, piggyback plant and coltsfoot. More southerly plots without the corydalis overall had more maidenhair fern and Cooley's betony. The community extends beyond the range of the Scouler's corydalis, and is too consistent in composition and environment to separate into phases.

**Geomorphic environments:** The community occurs on two main types of geomorphic conditions: steep cobbly or bouldery banks (12-45% slope), or on terraces.

Soils on the steep banks are shallow loams or silty sands in a matrix of cobbles or boulders. Terrace plots had loamy clay, silty clay or silts in the top horizons, above clays or sandy clays over cobbles. Deep organic layers were noted on some plots. Soil depths for these surfaces were 45 to 60 cm. Anaerobic conditions were noted for one plot where gleying occurred within the top 20 cm.

Terrace plots had older trees (western red cedar 154 to 275 years old, bigleaf maple 140 years). Tree ages and geomorphic surfaces suggest that this environment is not reset often by floods. Bank plots supported younger stands (9-70 years). One plot had only seedling sized red alder. Some stands had multiple ages which suggest successive non-stand replacement floods. For example, one plot had red alders aged 9, 22, and 55 years.

**Wetland rating:**

Community meets wetland test	No
Plots meeting wetland criteria	13%
Wetland indicators among dominant species	37% (range 16-67%)

The Sorrel-Pacific waterleaf community is very similar to the (Red alder-big leaf maple)/sorrel type, but without the tree component. The herbaceous type may represent similar bank environments, but slightly wetter and/or younger.

**Non-natives:** Two exotic species were recorded in the sample. Wall-lettuce occurred in over half the plots, while common foxglove was recorded in only one plot.

**Other studies:** The (Red alder-big leaf maple)/sorrel community is similar to the ALRU/OXALIS Plant Community described in Diaz and Mellen (1996) (Ecoclass HAF222).

Click on a creek name in the table below to see the valley cross sections that show where (ALRU2-ACMA3)/OXALI occurs in relation to other plant associations.

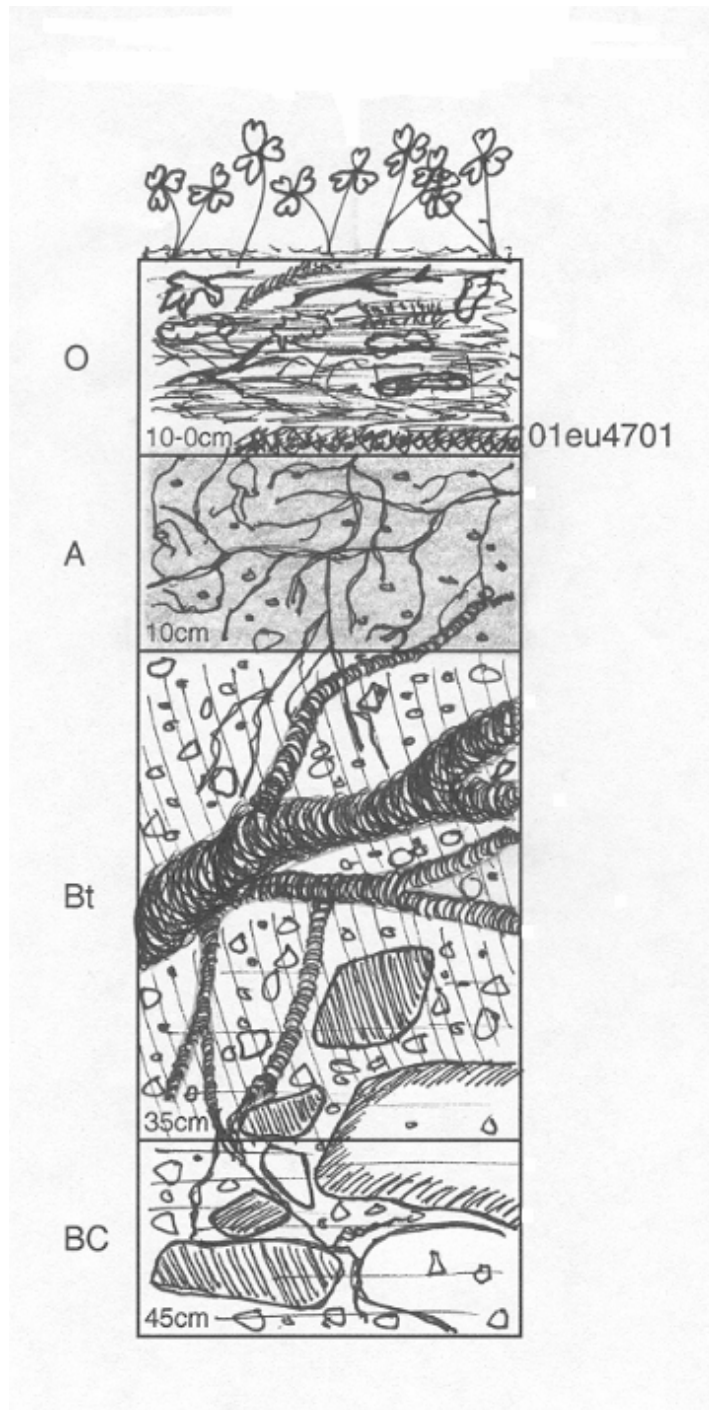
<b>Valley cross sections showing (ALRU2-ACMA3)/OXALI</b>
E Fork S Fork McKenzie #2



**Soil illustration: (ALRU2-ACMA3)/OXALI**

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	10					20	8
A	10	7.5YR3/1	SiC	gravel	5	10	20
Bt	25	10YR4/2	C	gravel	20	5	15
BC	10	10YR4/2	C	gravel / cobble	20 / 20	3	7

Total Depth: 45cm. Depth Limit: 45cm.



This O horizon is 10cm deep. Composed of rotted wood and humus at the bottom, fragmented needles and sticks in the middle, and moist needles, leaves and moss at the top, it is the best horizon in the profile. Very stable over time, this part of the toe slope is slipping off, but is well above the summer stream width.

Despite the abundance of ready organic inputs, the A horizon keeps only a silty clay texture with hardly any loam. At least the transition to the Bt horizon is visually and texturally distinct, so we know the organic components are having some impact. Roots are abundant in the A and B horizons. The B textures give way to more cobbles and boulders and roots as it transforms into the BC horizon. Fragments here are both alluvial and colluvial, sandstone and light colored minerals.



***Rubus spectabilis*/Oxalis group**  
**Salmonberry/Sorrel group**  
**RUSP/OXALI group**

Group description followed by descriptions of three phases: *Rubus spectabilis*/Oxalis–shrub phase, *Rubus spectabilis*/Oxalis-*Alnus rubra* phase, and *Rubus spectabilis*/Oxalis-*Thuja plicata* phase

N=28 (MHNH 15, EBLM 7, SBLM 4, WNF 2)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Alnus rubra</i>	Red Alder	50	43
<i>Thuja plicata</i>	Western Redcedar	21	48
<b>Shrubs</b>			
<i>Rubus spectabilis</i>	Salmonberry	100	21
<i>Vaccinium parvifolium</i>	Red Huckleberry	43	6
<i>Ribes bracteosum</i>	Stink Currant	32	2
<b>Herbs</b>			
<i>Oxalis</i>	Sorrel	100	29
<i>Polystichum munitum</i>	Sword Fern	89	25
<i>Athyrium filix-femina</i>	Lady Fern	64	14
<i>Galium triflorum</i>	Sweetscented Bedstraw	54	3
<i>Claytonia sibirica</i>	Siberian Miner's Lettuce	50	3
<i>Adiantum pedatum</i>	Maidenhair Fern	43	6
<i>Tolmiea menziesii</i>	Piggyback Plant	43	4
<i>Stachys cooleyae</i>	Cooley's Betony	43	3
<i>Tiarella trifoliata</i>	Foamflower	36	6
<i>Circaea alpina</i>	Enchanter's-Nightshade	36	3
<i>Bromus vulgaris</i>	Columbia Brome	32	4

**Elevations:** 800 to 2740 feet (average 1667feet).

**Community:** Salmonberry/sorrel is a moderate elevation community that occurs with red alder (Salmonberry/sorrel-red alder phase) and/or western redcedar (Salmonberry/sorrel-western redcedar phase), but frequently occurs without trees in the overstory (Salmonberry/sorrel-shrub phase). Composition in all three groups is very similar. Salmonberry is the dominant shrub. The herb layer is lush, with sorrel, sword fern, and lady fern the most common and abundant species.

**Geomorphic environment:** Plots occurred on terraces, banks, and floodplains. Mt. Hood soil data show most plots had a top layer (average 11cm) of silty sand,

sandy silty, sand or silty clay loam over sands in a cobble matrix. Some had deeper silty layers in the upper profile.



**Salmonberry/sorrel group:** typical species shown here include salmonberry, sorrel, vine maple and lady fern.

Soil data from BLM sites showed that loams (silt loam, loam, silty clay loam, sandy clay loam) formed the A and AB layer (ave 18cm.) The B layer (aver 41 cm) was most commonly loamy, but ranged from sand to sandy clay. Gravels made up a larger part of the coarse fragments in the A and B horizons than cobbles, though all soil pits showed cobbles and/or boulders in the R layer.

Among salmonberry communities, Salmonberry/sorrel occurs on soils with deeper organic layers and finer size fractions, smaller coarse fragments, and deeper soils. The sites are more fertile and with higher moisture availability.

Alder ages ranged from 19 to 62 years (average 38 years). Two western redcedars were both aged at 110 years, and two western hemlocks were recorded as 83 and 143 years.

Older tree ages as well as smaller coarse fragment sizes and finer soil textures suggest that these sites have less frequent disturbance and slower water during floods. Multiple tree ages on some sites may indicate flooding which does not necessarily remove existing trees. One plot note speculated that western

redcedar on the site may have acted to protect and stabilize the surface and community during flood.

<b>Valley cross sections showing RUSP/OXALI</b>
---

Bear Creek
------------

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

associations.

**Wetland rating:**

Community meets wetland test	Only 1 phase: Red alder/salmonberry/sorrel
Wetland indicators among dominant species	54% (range 25-100%)

**Non-natives:** Wall-lettuce was the most common exotic species (21% of plots) with 2% average cover. Smooth brome, a non-native grass, occurred on one plot.

***Rubus spectabilis*/Oxali-shrub phase**  
**Salmonberry/Sorrel-shrub phase**  
**RUSP/OXALI-shrub phase**

N=11 (MHNH 4, SBLM 3, EBLM 3, WNF 2)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Tsuga heterophylla</i>	Western hemlock	18	15
<b>Trees-seedlings</b>			
<i>Tsuga heterophylla</i>	Western hemlock	18	5
<b>Shrubs</b>			
<i>Rubus spectabilis</i>	Salmonberry	100	18
<i>Vaccinium parvifolium</i>	Red huckleberry	45	5
<i>Acer circinatum</i>	Vine maple	36	18
<b>Herbs</b>			
<i>Oxalis</i>	Sorrel	100	32
<i>Polystichum munitum</i>	Sword fern	100	24
<i>Athyrium filix-femina</i>	Lady fern	82	12
<i>Adiantum pedatum</i>	Maidenhair fern	73	5
<i>Galium triflorum</i>	Sweetscented bedstraw	64	2
<i>Claytonia sibirica</i>	Siberian miner's lettuce	55	2
<i>Tiarella trifoliata</i>	Foamflower	36	7
<i>Blechnum spicant</i>	Deer fern	36	6
<i>Bromus vulgaris</i>	Columbia brome	36	5
<i>Tolmiea menziesii</i>	Piggyback plant	36	3
<i>Montia parvifolia</i>	Streambank springbeauty	36	2

Only the constancy table is included for this phase, which is extremely similar in occurrence and composition to the red alder dominated phase of the salmonberry/sorrel group. It seems likely that red alder phase can develop from the shrub-dominated phase, in intervals between stand-resetting floods.

**Wetland rating:**

Community meets wetland test	No
Plots meeting wetland criteria	45%
Wetland indicators among dominant species	54% (range 25-100%)

Refer to the Salmonberry/sorrel group section (above) for a fuller description of the community.

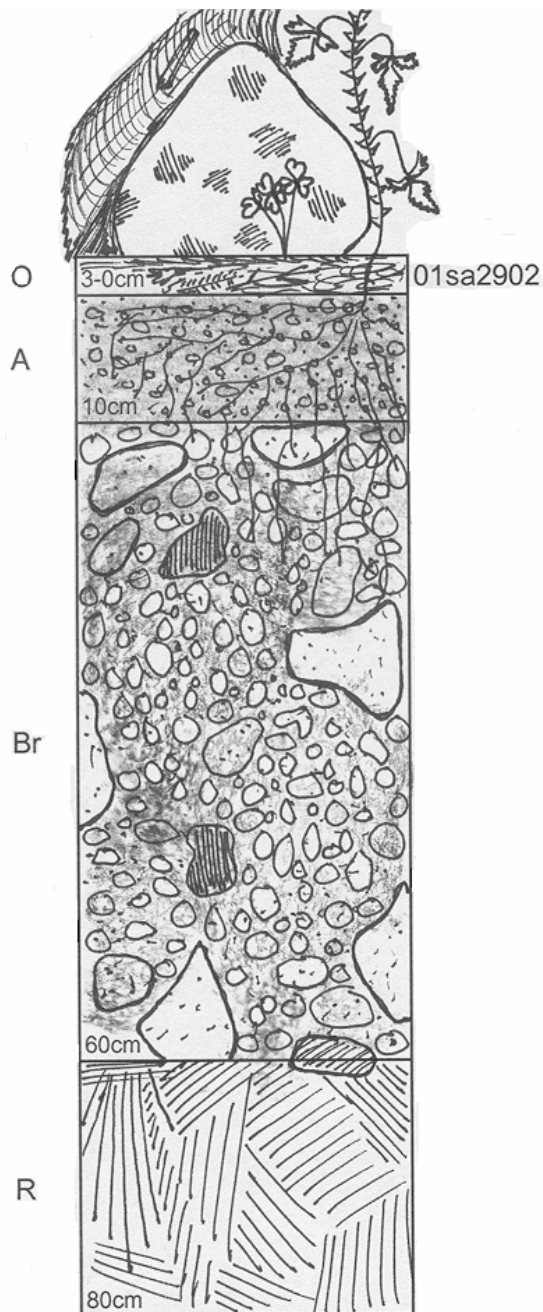
**Other studies:** This community is somewhat similar to the RIBR-RUSP/OXALIS Plant Association (Ecoclass SW5122), previously been described for the Mt. Hood NF in Diaz and Mellen (1996), though stink currant is minor or absent.



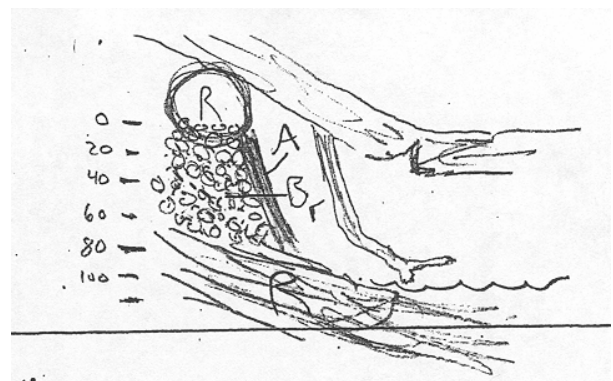
## Soil illustration A: RUSP/OXALI

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	3					20	10
A	10	10YR3/1	SCL	gravel	20	12	13
Br	50	10YR3/2	SCL	gravel / cobble	30 / 50	3	10
R			R				

Total Depth: 60cm. Depth Limit: ~60cm.



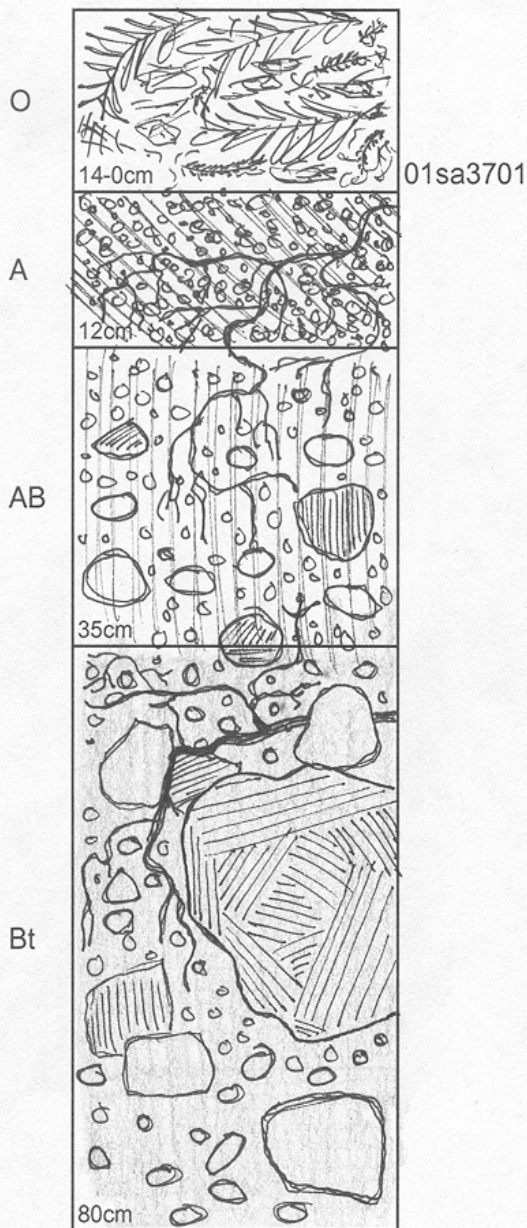
The A horizon is locally colluvial topsoil. It acts as an organic blanket between the O horizon and subsurface materials that aren't very conducive to rooting or life support. The B horizon is unique along this creek. A fortunate placement of a huge boulder and overtopping LWD preserve the former streambank composition. It is the only cemented section seen on this reach of the stream and probably would have washed away in a big flood were it not so well and curiously protected. This same LWD has a lot to do with catching finer sediments and holding them until they become a part of the fertile A horizon. The 50cm Br horizon is surprisingly uniform in rock fragment composition. The underlying bedrock is the contiguous basalt-greenstone.



## Soil illustration B: RUSP/OXALI

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	14						
A	12	7.5YR2.5/1	SiCL	gravel <1cm / gravel 1-3cm	20 / 51	15	15
AB	23	7.5YR3/1	SiCL	gravel / cobble	20 / 15	8	10
Bt	45	10YR2/2	SiC	gravel / cobble / boulder	20 / 15 / 20	8	8

Total Depth: 80cm. Depth Limit: ~80cm.



Positively colluvial. Dark and rooty on top, transforming to lighter and rocky at the bottom. Couldn't quite get to a definite C horizon, but digging is nearly impossible anyway. A sword fern root system was uncovered that was long and slanted downhill. The growth pattern obviously showed that the fern is fairly old, but that it has actually been moving down the hill. Slow, continuous slumping or sliding of the soil seems the only way to explain why this fern wouldn't stay put like the ferns at other sites. An O horizon with a 14cm depth and well developed A and AB horizons remind that things are not moving too quickly though.

***Rubus spectabilis*/*Oxalis-Alnus rubra* phase**  
**Salmonberry/sorrel-red alder phase**  
**RUSP/OXALI-ALRU2 phase**

N=11 (MHN 7, EBLM 4)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Alnus rubra</i>	Red alder	100	53
<b>Trees-seedlings</b>			
<i>Acer macrophyllum</i>	Big leaf maple	45	3
<i>Thuja plicata</i>	Western redcedar	36	2
<i>Tsuga heterophylla</i>	Western hemlock	36	1
<b>Shrubs</b>			
<i>Rubus spectabilis</i>	Salmonberry	100	22
<i>Vaccinium parvifolium</i>	Red huckleberry	36	8
<i>Ribes bracteosum</i>	Stink currant	36	3
<b>Herbs</b>			
<i>Oxalis</i>	Sorrel	100	27
<i>Polystichum munitum</i>	Sword fern	73	21
<i>Tolmiea menziesii</i>	Piggyback plant	55	6
<i>Galium triflorum</i>	Sweetscented bedstraw	55	3
<i>Stachys cooleyae</i>	Cooley's betony	55	3
<i>Athyrium filix-femina</i>	Lady fern	45	18
<i>Bromus vulgaris</i>	Columbia brome	45	4
<i>Adiantum pedatum</i>	Maidenhair fern	36	7
<i>Tiarella trifoliata</i>	Foamflower	36	6
<i>Claytonia sibirica</i>	Siberian miner's lettuce	36	5
<i>Maianthemum stellatum</i>	Starry false Solomon's-seal	36	4
<i>Circaea alpina</i>	Enchanter's-nightshade	36	4

Only the constancy table is included for this phase, which is extremely similar in occurrence and composition to the shrub dominated phase of the Salmonberry/sorrel group. It seems likely that red alder phase can develop from the shrub-dominated phase, in intervals between stand-resetting floods.

Grasses are generally present (73% constancy), averaging 5% cover. Graminoids occur on 55% of the plots, averaging 6% cover. Refer to the Salmonberry/sorrel group section (above) for a fuller description of the community.

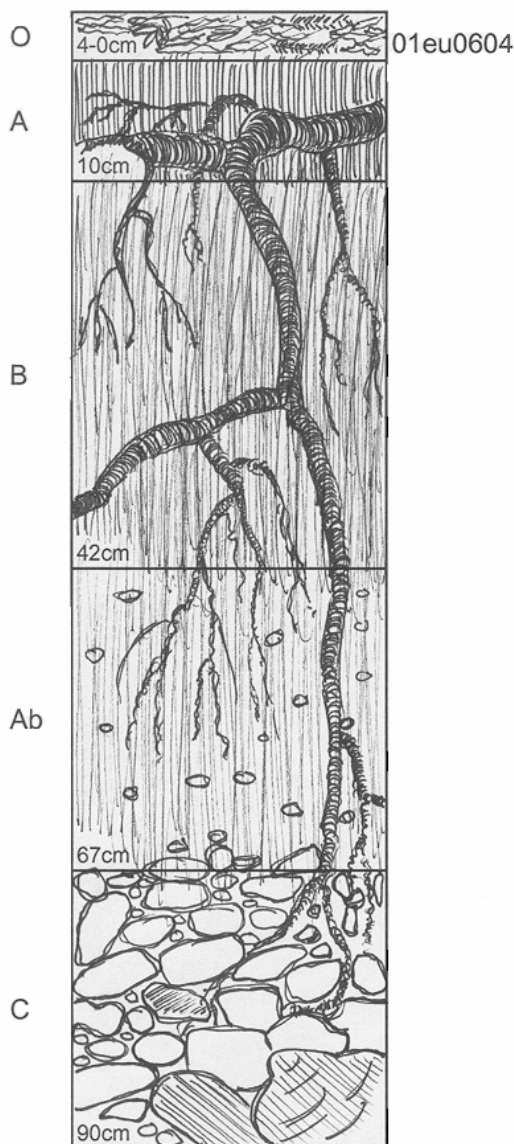
**Wetland rating:**

Community meets wetland test	Yes
Plots meeting wetland criteria	55%
Wetland indicators among dominant species	55% (range 29-83%)

**Other studies:** This community as well as the Stink currant-salmonberry/sorrel-red alder phase are somewhat similar to the ALRU/RUSP/OXALIS Plant Community (Ecoclass HAS112), previously been described for the Mt. Hood NF in Diaz and Mellen (1996).

**Soil illustration:** RUSP/OXALI-ALRU2 phase

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	4					15	12
A	10	10YR3/1	SiL			10	25
B	32	10YR3/2	L			10	15
Ab	25	10YR3/3	L	sm gravel	6	10	15
C			R	cobble	50	5	3



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

This profile was difficult to dig and describe because of some big old roots that won't budge and are not to be cut. Three horizons are distinctly varied in color when you look at the profile, but in the bright sun, they turned out to be only one chroma value different apiece, and the bottom horizon didn't have a color match at all. This happens. All three horizons are of alluvial origin, but pedogenic processes have sharpened the distinctions between them.

The A horizon supports dense rooting and OM incorporation has darkened the color. "Illuviation" is the key word in designating the B horizon between 10-40cm. In fact, the zone of maximum illuvial influence defines a B horizon. An Ab horizon is a little harder to pin down, but that is what exists between 40-70cm. This horizon is the original alluvial sediment load that created this floodplain and stayed put. Its most distinctive attribute is the gravel that keeps it from being lumped with other later sediment deposits. The C horizon consists of sandstone and basalt stream cobbles.



***Rubus spectabilis*/*Oxalis*-*Thuja plicata* phase**  
**Salmonberry/sorrel-western redcedar phase**  
**RUSP/OXALI-THPL phase**

N=6 (MHNF 4, EBLM 1, SBLM 1)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Thuja plicata</i>	Western redcedar	100	48
<i>Alnus rubra</i>	Red alder	33	32
<b>Trees-seedlings</b>			
<i>Tsuga heterophylla</i>	Western hemlock	33	1
<b>Shrubs</b>			
<i>Rubus spectabilis</i>	Salmonberry	100	24
<i>Vaccinium parvifolium</i>	Red huckleberry	50	7
<i>Ribes bracteosum</i>	Stink currant	50	2
<i>Oplopanax horridum</i>	Devil's club	33	1
<b>Herbs</b>			
<i>Oxalis</i>	Sorrel	100	26
<i>Polystichum munitum</i>	Sword fern	100	23
<i>Athyrium filix-femina</i>	Lady fern	67	18
<i>Claytonia sibirica</i>	Siberian miner's lettuce	67	2
<i>Blechnum spicant</i>	Deer fern	50	13
<i>Dicentra formosa</i>	Bleeding heart	50	10
<i>Circaea alpina</i>	Enchanter's-nightshade	50	4
<i>Stachys cooleyae</i>	Cooley's betony	50	1
<i>Trillium ovatum</i>	Western trillium	50	Tr
<i>Viola glabella</i>	Stream violet	33	25
<i>Corydalis scouleri</i>	Scouler's corydalis	33	23
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	33	20
<i>Tiarella trifoliata</i>	Foamflower	33	9
<i>Galium triflorum</i>	Sweetscented bedstraw	33	5
<i>Maianthemum dilatatum</i>	False lily-of-the-valley	33	4

**Elevations:** 1060 to 2200 feet (average 1750 feet).

**Community:** The Salmonberry/sorrel-western redcedar phase has a well developed overstory of western redcedar, sometimes with red alder. Salmonberry is the dominant shrub. The main species in the herb layer are sorrel and sword fern and lady fern. Siberian miner's lettuce, deer fern, and bleeding heart also occur on more than half the plots. Canopy height averaged 85 feet. The 94 foot western redcedar (without heart rot) that could be aged was 110 years old. One plot had 68 year old red alder and 103 year old big leaf maple associated with the western redcedar.

**Geomorphic environment:** Plots were on terraces or islands elevated above normal high water level. Soils were generally deeper and had finer texture than most salmonberry communities. Top horizons were loams (sandy loam, silt loam) over sandy clay loams to silty clays. Two detailed profile descriptions recorded buried soils, one clearly associated with charcoal and coarse woody material. One pit showed poor drainage: mottling at 25cm and gleying at 55 cm, with water at 70 cm. Another pit had water level at 90 cm. Surface organic layers were shallow to extremely thick (2-40 cm).

Elevated geomorphic surface, finer soil textures, clay illuviation, and larger tree sizes suggest that these sites, though periodically flooded, have a relatively long interval between major events which reset the stands. One plot note speculated that the western redcedar appeared to stabilize the surface, though it was still subject to flooding.

**Wetland rating:**

Community meets wetland test	No
Plots meeting wetland criteria	33%
Wetland indicators among dominant species	51% (range 29-86%)

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

**Other studies:** This community is somewhat similar to the THPL/RUSP/OXALIS Plant Community (Ecoclass CCS110), previously been described for the Mt. Hood NF in Diaz and Mellen (1996).

<b>Valley cross sections showing RUSP/OXALI-THPL phase</b>
Rough creek

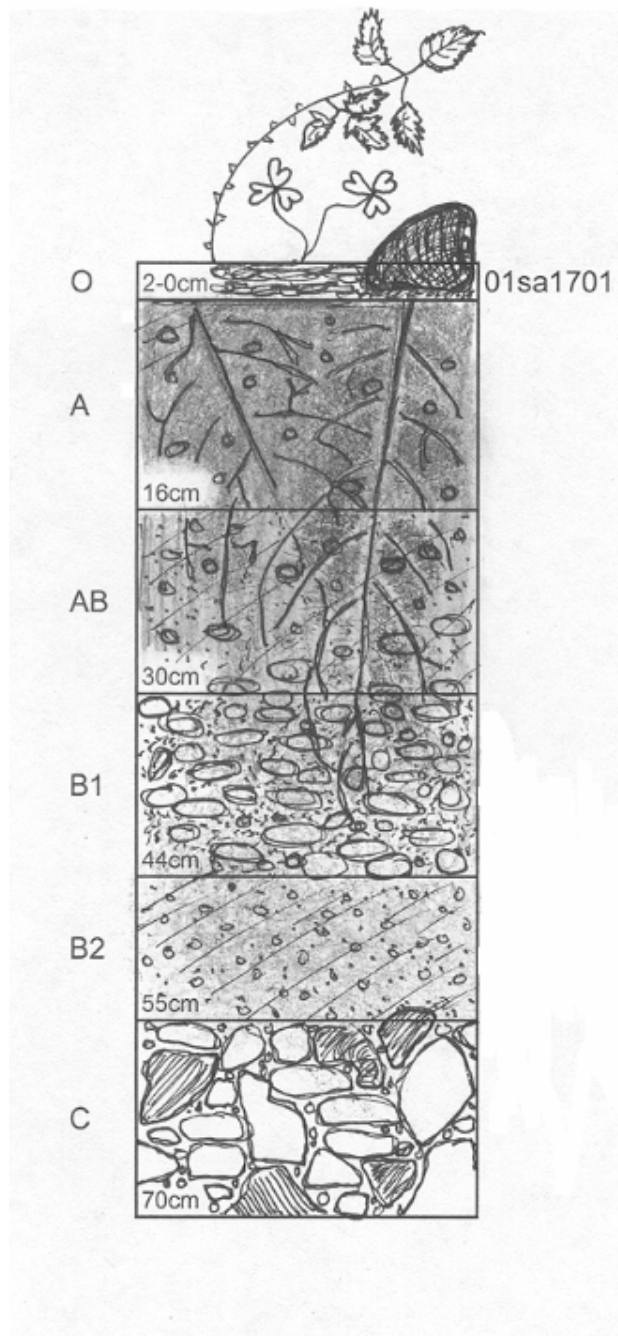
other plant associations.

Click on a creek name in the table below to see valley cross sections that show where RUSP/OXALI-THPL phase occurs in relation to

**Soil illustration: RUSP/OXALI-THPL phase**

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	2						
A	16	10YR2/1	SiL	md gravel	10	15	15
AB	14	10YR3/2	SCL	gravel	20	10	10
B1	14	10YR3/4	S	gravel	50	7	7
B2	11	10YR3/4	SL	gravel <.5cm	10	5	8
C	15		R	cobble / boulder	75	2	

Total Depth: 70cm. Depth Limit: 70cm. Mottle: 44cm.



Deep organic A horizon (16cm) has formed about 8 vertical feet and 12 horizontal feet from the main channel. Both sides of the creek are gradual slopes with no possibility of recent colluvial activity. This profile has the color, structure and stratification typical of a long, undisturbed formation. The AB horizon is a transition of color and gravel composition. The B1 horizon has even more tightly spaced gravel of uniform size. These horizons replaced the old A horizon in a major flood that set the “current clock” for this terrace 100 years or more in the past.

The B2 horizon is composed of very fine sediments and has a great texture for this depth. No woody debris is present, but a loamy texture means it could have organic influence. 100 years ago, this may have been a first floodplain down next to the year-round active stream channel. The B2 and C horizons remind me of the sand deposits seen up and down the current channel.

***Alnus rubra/Symphoricarpos albus-Rubus spectabilis***  
**Red alder/common snowberry-salmonberry**  
**ALRU2/SYAL-RUSP**

n=2 (MH 2)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<b>Trees-overstory</b>			
<i>Alnus rubra</i>	Red alder	100	43
<b>Trees-seedlings</b>			
<i>Alnus rubra</i>	Red alder	100	1
<i>Acer macrophyllum</i>	Big leaf maple	50	8
<b>Shrubs</b>			
<i>Symphoricarpos albus</i>	Common snowberry	100	43
<i>Rubus spectabilis</i>	Salmonberry	100	10
<i>Rubus parviflorus</i>	Thimbleberry	100	5
<i>Acer circinatum</i>	Vine maple	50	12
<i>Rosa pisocarpa</i>	Clustered wild rose	50	10
<i>Salix sitchensis</i>	Sitka willow	50	8
<i>Corylus cornuta</i>	California hazel	50	7
<i>Salix scouleriana</i>	Scouler's willow	50	7
<i>Ribes bracteosum</i>	Stink currant	50	2
<b>Herbs</b>			
<i>Pteridium aquilinum</i>	Bracken fern	100	13
<i>Stachys cooleyae</i>	Cooley's betony	100	4
unknown grass	Grass	100	3
<i>Corydalis scouleri</i>	Scouler's corydalis	50	8
<i>Scirpus microcarpus</i>	Small-flowered bulrush	50	8
<i>Oxalis</i>	Sorrel	50	3
<i>Heracleum lanatum</i>	Cow-parsnip	50	2
<i>Polystichum munitum</i>	Sword fern	50	2

**Elevations:** 1600 feet.

**Community:** The two plots included in the Red alder/common snowberry-salmonberry sample are located on the Mt. Hood NF. Alder canopy is moderate (15-70%, 30-50' canopy height). The community has one of the densest shrub layers among the Cascades types. Snowberry is the most abundant shrub, with salmonberry and thimbleberry present on both plots. Vine maple and California hazel may be present. The herb layer is sparse, with bracken fern, Cooley's betony and grasses.

**Geomorphic environment:** Both plots are on upper banks on the Salmon River, on deep very gravelly to cobbly sands. The ground surface was 60-65% litter



covered bare ground. Plots were two feet above normal high waterline, and 4 to 10 feet from the waterline. Exposed surface rock (gravel, cobbles, boulders, bedrock) was very low (12% cover) for riparian shrub types.

The adjacent plant association in the sample was Western hemlock/Oregon Oxalis-NWO Cascades.

**Wetland rating:**

Community meets wetland test	Yes
Wetland indicators among dominant species	60% (range 57-63%)

**Non-natives:** Bull thistle was the only exotic species, present on a single plot.

This community has a very small sample size, with plots located very close together. This description should not be viewed as capturing the range of variability associated with such habitats. More intensive sampling along the transition between the Willamette Valley/foothills and the Cascades could provide more data on this community which seems to blend the Willamette Valley Common snowberry-California hazel type with the Cascades salmonberry groups.