

Active channel shelf/active floodplain/first floodplains

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***Rubus spectabilis*-*Ribes bracteosum* group**
Salmonberry-stink currant group
RUSP-RIBR group

Group description followed by descriptions of two phases: *Rubus spectabilis*-*Ribes bracteosum*-*Stachys* phase and *Rubus spectabilis*-*Ribes bracteosum*-*Tiarella trifoliata* phase.

N=28 (SBLM 14, EBLM 8, SNF 6)

This constancy table is for the entire group combined. The individual phases are then presented separately.

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
<i>Alnus rubra</i>	Red alder	36	40
Shrubs			
<i>Ribes bracteosum</i>	Stink currant	100	23
<i>Rubus spectabilis</i>	Salmonberry	96	48
<i>Acer circinatum</i>	Vine maple	39	15
<i>Sambucus racemosa</i>	Red elderberry	36	15
Herbs			
<i>Oxalis</i>	Sorrel	89	22
<i>Athyrium filix-femina</i>	Lady fern	89	10
<i>Tolmiea menziesii</i>	Piggyback plant	86	18
<i>Polystichum munitum</i>	Sword fern	79	15
<i>Galium triflorum</i>	Sweetscented bedstraw	61	5
<i>Stachys</i>	Betony species	57	17
<i>Stellaria crispa</i>	Crisp sandwort	46	1
<i>Mimulus dentatus</i>	Tooth-leaved monkeyflower	43	5
<i>Adiantum pedatum</i>	Maidenhair fern	43	3
<i>Claytonia sibirica</i>	Siberian miner's lettuce	43	3
<i>Tiarella trifoliata</i>	Foamflower	36	12
<i>Mitella caulescens</i>	Leafy mitrewort	36	9
<i>Circaea alpina</i>	Enchanter's-nightshade	36	5

Community: The Salmonberry-stink currant group is very common on active floodplains and banks in the Coast Range. Red alder or big leaf maple can establish and survive moderate disturbances on these surfaces. The shrub layer is dense, dominated by salmonberry and stink currant, often with vine maple and red elderberry. Shrub competition may reduce tree regeneration. The most important associated herb species are sorrel, lady fern, piggyback plant, and sword fern. Betony and sweetscented bedstraw are usually present.

Geomorphic environment: Geomorphic surfaces are generally active annual floodplains and cutbanks. Surfaces are relatively stable, and have well developed A and B horizons under organic layers 3 to 10 cm deep. However, buried soils recorded in several soil descriptions show that these sites experience major erosion/deposition events. A horizons are loams averaging 15 cm depth. B horizons are most often sandy loams averaging 19 cm, but can be loamy sands to sands. Coarse fragments are minor in the upper horizons, though C horizons are in cobbles or boulders. Summer water tables are below 50 cm.

These sites are frequently flooded, but not often subject to high energy flows that would remove organic material and fines from the surface. Many sites had accumulations of logs which could also slow flood waters and protect vegetation.

Conifer regeneration may be limited by shrub competition and winter inundation.

Two subtle phases are described below though they are difficult to distinguish in the field. The Salmonberry-stink currant-betony phase has more consistent betony, Siberian miner's lettuce, and tooth-leaved monkeyflower. The soils on this phase tend to be somewhat coarser and shallower, with more sandy loams and sands in the top horizons. A horizons average 11 cm, and B horizons average 14 cm. The Salmonberry-stink currant-foamflower phase appears to have deeper, more organic-rich and finer textured soils. A horizons in this group are loams and silt loams, averaging 20 cm depth. B horizons are sandy loams or silt loams, and average 25 cm depth. Salmonberry cover is very high in the foamflower phase, averaging 59%.

Wetland rating:

Community meets wetland test	Yes-both phases
Wetland indicators among dominant species	67% (range 25-100%)

Non-natives: Exotic species were recorded in 20% of the plots.

EXOTIC	COMMON NAME	CONSTANCY %	TYPICAL COVER %
<i>Digitalis purpurea</i>	<i>Common foxglove</i>	14	1
<i>Lactuca muralis</i>	<i>Wall-lettuce</i>	4	Tr

***Rubus spectabilis*-*Ribes bracteosum*-*Stachys* phase**
Salmonberry-stink currant-betony phase
RUSP-RIBR-*STACH* phase

N=9 (SBLM 6, EBLM 3)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
<i>Alnus rubra</i>	Red alder	56	27
Shrubs			
<i>Rubus spectabilis</i>	Salmonberry	100	27
<i>Ribes bracteosum</i>	Stink currant	100	20
<i>Sambucus racemosa</i>	Red elderberry	44	12
<i>Oplopanax horridum</i>	Devil's club	33	19
Herbs			
<i>Athyrium filix-femina</i>	Lady fern	100	7
<i>Tolmiea menziesii</i>	Piggyback plant	89	25
<i>Oxalis</i>	Sorrel species	89	23
<i>Stachys</i>	Betony species	89	11
<i>Galium triflorum</i>	Sweetscented bedstraw	89	6
<i>Polystichum munitum</i>	Sword fern	78	15
<i>Mimulus dentatus</i>	Tooth-leaved monkeyflower	78	6
<i>Claytonia sibirica</i>	Siberian miner's lettuce	78	4
<i>Circaea alpina</i>	Enchanter's-nightshade	67	6
<i>Stellaria crispa</i>	Crisp sandwort	67	3
<i>Stachys</i>	Betony species	56	10
<i>Bromus</i>	Brome species	56	8
<i>Carex deweyana</i>	Dewey's sedge	56	7
<i>Adiantum pedatum</i>	Maidenhair fern	56	3
<i>Mitella caulescens</i>	Leafy mitrewort	44	11
<i>Blechnum spicant</i>	Deer fern	44	5
<i>Digitalis purpurea</i>	Common foxglove	44	1
<i>Montia parvifolia</i>	Streambank springbeauty	33	10
<i>Chrysosplenium glechomifolium</i>	Water-carpet	33	7
<i>Hydrophyllum</i>	Pacific waterleaf	33	3
<i>Ranunculus uncinatus</i>	Little buttercup	33	2
unknown grass	Grass species	33	2
<i>Cardamine angulata</i>	Angled bittercress	33	1
<i>Dicentra formosa</i>	Pacific bleedingheart	33	1

Elevations: 320 to 1390feet (average 780 feet).

Community: Salmonberry-stink currant-betony phase is shrub dominated, with salmonberry and stink currant the most abundant shrubs. Red elderberry and devil's club are frequently present. Piggyback plant, sorrel, betony, and sword fern are the most abundant species in the rich herb layer. Lady fern is always present, but at lower cover than in related types.



Salmonberry-stink currant-betony phase: stink currant overhangs the channel.
Note herb layer growing on active channel margin.

Within the Salmonberry-stink currant group, the Salmonberry-stink currant-betony phase has more consistent betony, Siberian miner's lettuce, and tooth-leaved monkeyflower. Average salmonberry cover in the betony phase is less than half the average cover in the foamflower phase.

Red alder and big leaf maple can establish and persist in this community. Deciduous tree ages ranged from 10 to 105 years. No overstory conifers were recorded.

Geomorphic environment: Geomorphic surfaces are most often bars, islands, or active floodplains within normal high water line. Some plots were on steep cutbanks with shallow soils. The soils on this phase tend to be somewhat coarser and shallower than the average for the group, with more sandy loams and sands in the top horizons. A horizons average 11 cm, and B horizons average 14 cm.

Wetland rating:

Community meets wetland test	Yes
Plots meeting wetland criteria	90%
Wetland indicators among dominant species	66% (range 33-100%)

Non-natives: Common foxglove was the only exotic species recorded in this sample. It was present on 4 plots (44% constancy), averaging 1% cover.

Other studies: This community is somewhat similar to the Red alder/Salmonberry Forest Community (ALRU/RUSP), previously described for the Olympic Experimental State Forest in Chappell (1999).

Valley cross sections showing RUSP-RIBR/STACH

Elk creek

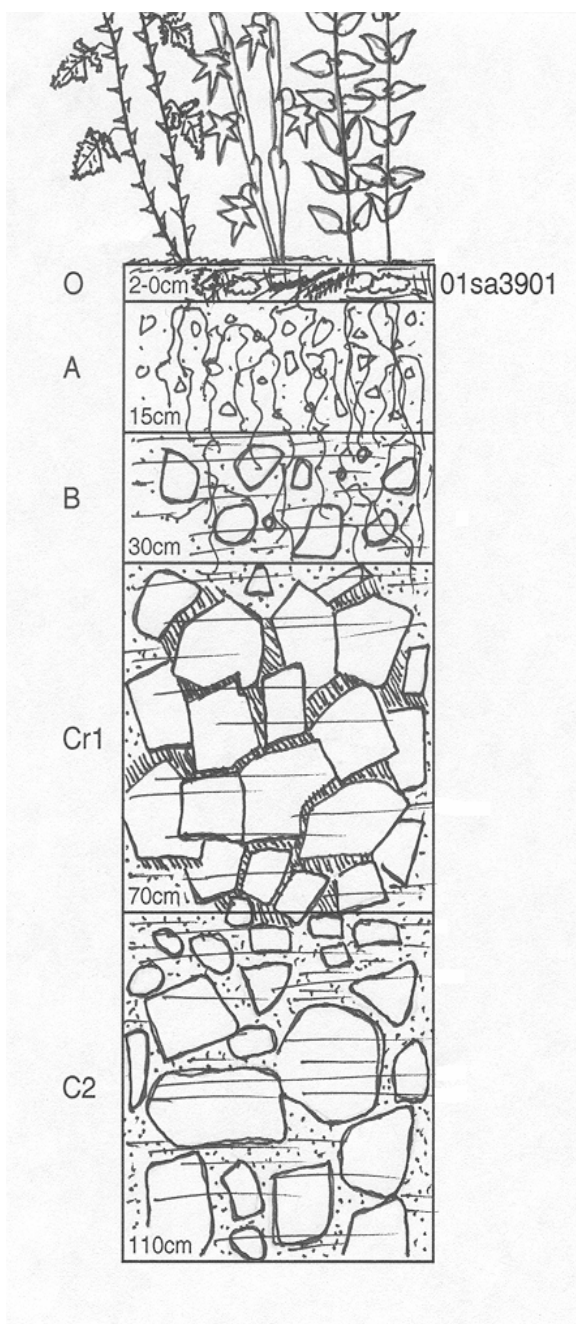
Click on a creek name in the table to the left to see the valley cross sections that show where RUSP-RIBR-STACH *phase* occurs in relation

to other plant associations.

Soil illustration: RUSP-RIBR-STACH phase

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	2					20	10
A	15	7.5YR3/2	SCL	gravel	15	15	8
B	15	7.5YR2.5/2	SC	gravel	25	10	5
Cr1	40	7.5YR2.5/1	SC	gravel / cobble	75 / 10	5	2
C2	40	7.5YR3/4	SC	gravel / cobble / boulder	15 / 30 / 35	8	2

Total Depth: 110cm. Depth Limit: ~110cm. Water Table: 110cm.



(If this pit was measured perpendicular to the slope, rock would be about 40cm beneath the surface, and water would be at about 70cm.) This footslope seems fairly straightforward from a geologic standpoint. There is a stair-stepped pattern to the crumbling residual layers of sandstone under the soil. Each “step” has accumulated a good size pile of colluvial cobbles and boulders, and a looser blanket of colluvial soil and gravel overtops the entire hill.

The A and B horizons are pretty typical, each about 15cm thick with sand and clay texture. There seems to be a little more clay in the topsoil than at other coastal sites, possibly an indication of more frequent colluvial mixing. There is a distinct boundary between the topsoil blanket and underlying horizons. The Cr1 (30-70cm) is a really dark, crumbling, blackish substrate with clay skins forming in “ribbons” along old root channels. Between the Cr1 and C2 horizons is a zone of transition that takes on a lot of clay and redder color (7.5YR3/4), but has the same structure and rock construction as the Cr1. The C2 horizon is made up of neatly configured large cobbles and small boulders. Even though this horizon is described below the Cr1, it seems to be a colluvial horizon that has come to rest above the true bedrock. The Cr1 is the main material that forms the mountain of stairsteps.

***Rubus spectabilis*-*Ribes bracteosum*-*Tiarella trifoliata* phase**
Salmonberry-stink currant-foamflower phase
RUSP-RIBR-*TITR* phase

N=18 (SBLM 7, SNF 6, EBLM 5)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
<i>Alnus rubra</i>	Red alder	28	52
Shrubs			
<i>Ribes bracteosum</i>	Stink currant	100	25
<i>Rubus spectabilis</i>	Salmonberry	94	63
<i>Acer circinatum</i>	Vine maple	50	16
<i>Sambucus racemosa</i>	Red elderberry	33	16
<i>Vaccinium parvifolium</i>	Red huckleberry	33	3
Herbs			
<i>Oxalis</i>	Sorrel	89	20
<i>Polystichum munitum</i>	Sword fern	83	15
<i>Tolmiea menziesii</i>	Piggyback plant	83	13
<i>Athyrium filix-femina</i>	Lady fern	83	11
<i>Tiarella trifoliata</i>	Coolwort foamflower	50	12
<i>Galium triflorum</i>	Sweetscented bedstraw	44	2
<i>Stachys</i>	Betony species	39	4
<i>Adiantum pedatum</i>	Maidenhair fern	39	3
<i>Stellaria crispa</i>	Crisp sandwort	39	tr
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	33	5

Elevations: 320 to 1540 feet (average 710 feet).

Community: *Salmonberry-stink currant-foamflower phase* has extremely dense shrub cover, dominated by salmonberry and stink currant. Vine maple is also generally present. The rich herb layer is composed of sorrel, sword fern, piggyback plant and lady fern. Foamflower, Pacific waterleaf, and sweetscented bedstraw and betony are also important associated species. Red alder can establish and persist in this type. Competition from dense salmonberry may reduce tree survival.

**Valley cross sections showing
RUSP-RIBR-*TITR* phase**

N Trib to Ryder creek
Whittaker creek

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

Geomorphic environment: Geomorphic surfaces of the foamflower phase are most often active annual floodplains adjacent to the channel, sometimes within normal high water line. However, this type also occurs in more atypical settings, such as on a large raised alluvial fan at a tributary junction and on steep slopes on very narrow second order streams without a developed valley floor.

The Salmonberry-stink currant-foamflower phase appears to have deeper, more organic rich, and finer textured soils than the betony phase. A horizons in the foamflower phase are loams and silt loams, averaging 20 cm depth. B horizons are sandy loams or silt loams, and average 25 cm depth. Salmonberry cover is very high average 59%) in the foamflower phase, approximately twice the average in the betony phase.

Wetland rating:

Community meets wetland test	Yes
Plots meeting wetland criteria	72%
Wetland indicators among dominant species	67% (range 60-85%)

Non-natives: Wall-lettuce was the only exotic species recorded in the sample. It was found on one plot, at less than 1% cover.

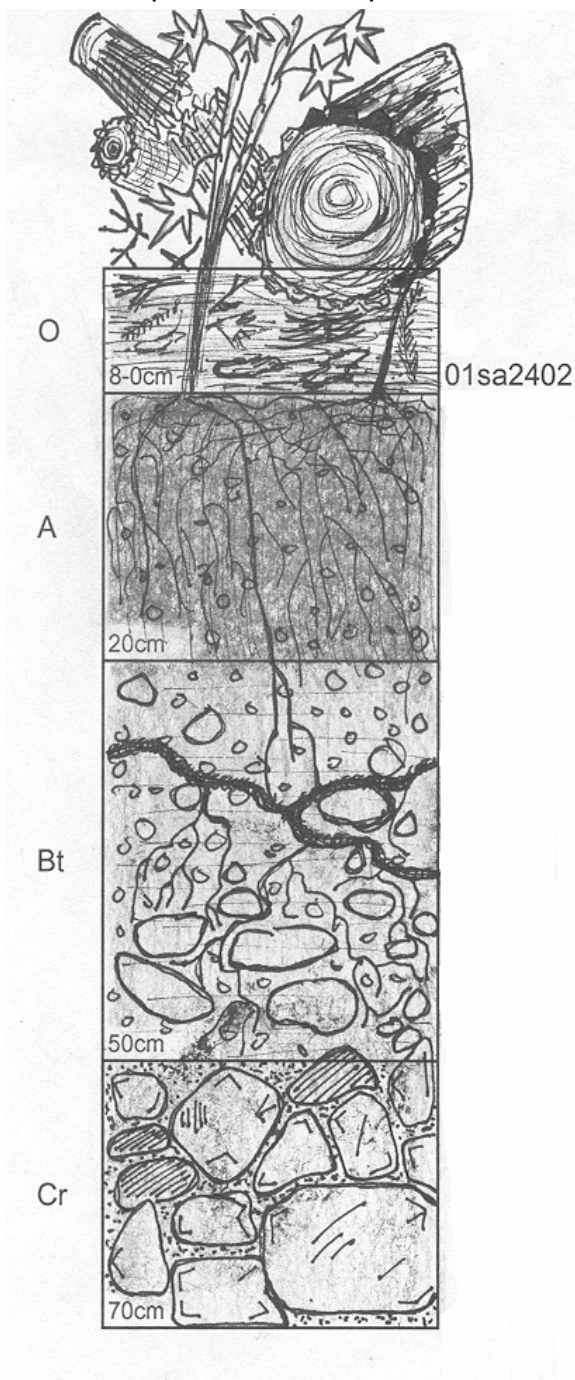


Salmonberry-stink currant-foamflower phase: thick salmonberry makes streamside travel difficult in the Coast Range.

Soil illustration: RUSP-RIBR-TITR phase

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	8					20	
A	20	7.5YR3/1	SiL	gravel	15	15	15
Bt	30	10YR2/2	SiCL	gravel / sm cobble	25 / 10	10	20
Cr			R	cobble / boulder	70	10	15

Total Depth: 50cm. Depth Limit: ~50cm.



At plot 2, just about everything lies below a massive buildup of LWD. Logs criss-cross all over because this stream never has the flash flood energy to clear the debris. Additionally, there are severely steep slopes dumping impossible loads of additional soil and wood on top of this poor tiny watershed stream.

The soil beneath the logjam is in a state of arrested development. An O horizon 8cm thick rests on top of 20cm partly-alluvial A horizon. Lack of disturbance is evident, and salmonberry continues to incorporate the rich organic matter. Under this horizon is a rocky transition to a B, and then to a solidly packed C horizon. The rocks are nearly all colluvial save a minor amount of gravel. However, the stream channel has widened around the debris jam leaving this plot on high ground.

Oplopanax horridum-Ribes bracteosum
Devil's club-stink currant
OPHO-RIBR

N=3 (SBLM 3)

Species	Common name	Constancy %	Typical cover %
Trees-seedlings			
<i>Tsuga heterophylla</i>	Western hemlock	33	8
<i>Abies grandis</i>	Grand fir	33	Tr
Shrubs			
<i>Oplopanax horridum</i>	Devil's club	100	57
<i>Ribes bracteosum</i>	Stink currant	100	42
Herbs			
<i>Oxalis</i>	Sorrel	100	50
<i>Athyrium filix-femina</i>	Lady fern	100	25
<i>Adiantum pedatum</i>	Maidenhair fern	100	7
<i>Tiarella trifoliata</i>	Foamflower	100	7
<i>Galium triflorum</i>	Sweetscented bedstraw	67	3
<i>Tolmiea menziesii</i>	Piggyback plant	67	3
<i>Maianthemum dilatatum</i>	False lily of the valley	33	30
<i>Bromus</i>	Brome species	33	20
<i>Blechnum spicant</i>	Deer fern	33	10
<i>Carex deweyana</i>	Dewey's sedge	33	10
<i>Stachys mexicana</i>	Mexican betony	33	7
<i>Viola glabella</i>	Stream violet	33	5
unknown grass	Grass species	33	5
<i>Chrysosplenium glechomifolium</i>	Water-carpet	33	3
<i>Oenanthe sarmentosa</i>	Waterparsley	33	2
<i>Streptopus amplexifolius</i>	Clasping twistedstalk	33	2
<i>Thalictrum occidentale</i>	Western meadowrue	33	2
<i>Mimulus dentatus</i>	Tooth-leaved monkeyflower	33	Tr
<i>Mitella caulescens</i>	Leafy mitrewort	33	Tr

Elevations: 1120 to 1540 feet (average 1300 feet).

Community: Devil's club-stink currant is a shrub dominated community. In this small sample, it occurred at moderate elevations on Salem BLM Coast Range lands. The herb layer is predominantly sorrel, with plentiful lady fern. Maiden hair fern and foamflower are always present. Sweetscented bedstraw and piggyback plant are frequently present. False lily of the valley, bromes, deer fern, and Dewey's sedge can also be abundant.



Devil's club-stink currant –community: Devil's club and stink currant dominate the shrub layer. Note the typical sorrel and maidenhair fern in the herb layer.

Geomorphic environments: Geomorphic surfaces included annual floodplains and a steep stream bank. Organic layers averaged 3 cm, much less than in the Salmonberry-stink currant group. A layers were silty clay loams or loamy sands (average 12 cm), over sandy clay loam or silty clay loam B horizons (average 18 cm). C horizons were sandy clays or sands in cobbles or gravels. Gley layers, indicating anaerobic conditions, were noted in two of the three soils at an average depth of 28 cm. In those two soils, summer water table was found at an average depth of 60 cm.

Small sample size limits confidence in the full description of this community. Note that salmonberry did not occur in these plots. However, salmonberry was present on other plots on all three locations. Devil's club can indicate well aerated saturated conditions. Maidenhair fern, always present in these plots, also frequently indicates water flowing through the soil profile for much of the year.

Wetland rating:

Community meets wetland test	Yes
Plots meeting wetland criteria	100%
Wetland indicators among dominant species	87% (range 60-100%)

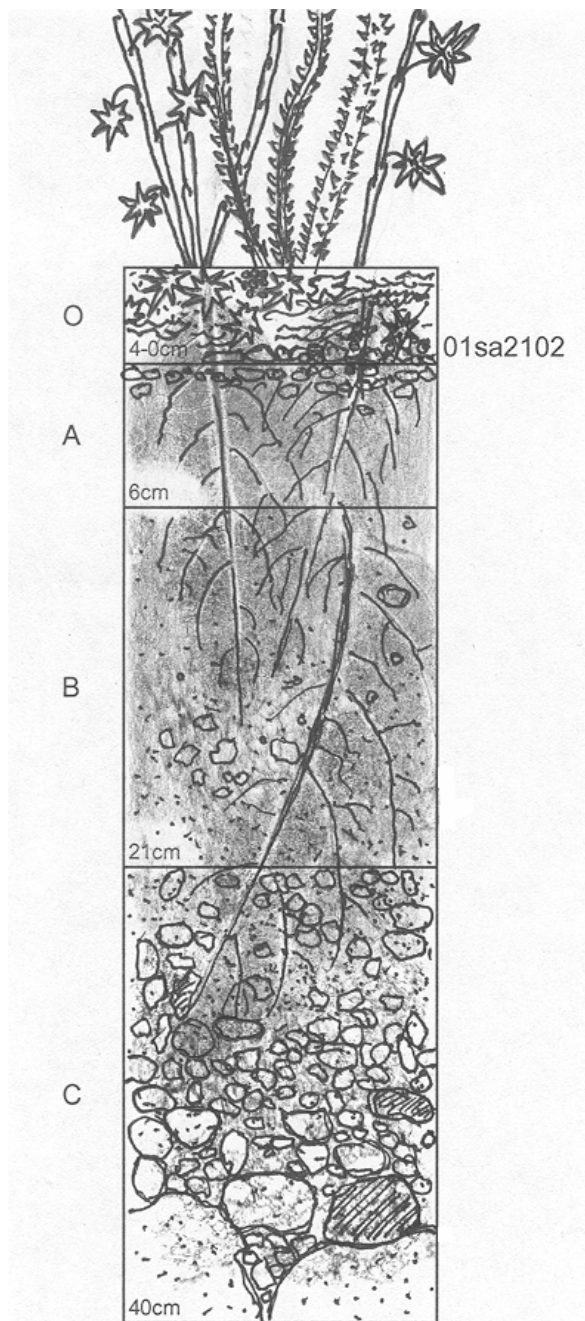
Non-natives: No exotic species were recorded in the sample.

Other studies: This community is somewhat similar to the Devils Club Shrubland Community (OPHO), previously described for the Olympic Experimental State Forest in Chappell (1999), though the Olympic's type has more salmonberry and less lady fern.

Soil illustration: OPHO-RIBR

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	4					20	10
A	6	10YR2/2	SiCL	gravel	12	15	20
B	15	10YR2/2	SCL	gravel	15		15
C	19	7.5YR2.5/2	SC	gravel >1cm / cobble >10 cm	40 / 40	5	12

Total Depth: 40cm. Depth Limit: 40cm.



Fairly common textural transitions here: from A to B to C, the SiCL goes to SCL and then loses the loam to become just SC, which of course then permeates the C horizon as well, as deep as it may go. The C horizon here is actually the **current** streambed that has been covered with relatively shallow alluvial horizons. The side slopes are pretty gradual, meaning perhaps slow erosion of the stream channel, little down-cutting of banks, and not a huge winter flow rate. Very mild flooding that only removes a little OM and soil at a time may also have something to do with there being more gravel on the surface of the plot than within the profile.

***Rubus spectabilis*/*Tolmeia menziesii*-*Oxalis* group**
Salmonberry/piggyback plant-sorrel group
RUSP/TOME-OXALI group

Group description followed by descriptions of two phases: *Rubus spectabilis*/*Tolmeia menziesii*-*Oxalis*-*Polystichum munitum* phase and *Rubus spectabilis*/*Tolmeia menziesii*-*Oxalis*-*Mitella ovalis* phase
 N=24 (SNF 15, SBLM 5, EBLM 4)

This constancy table is for the entire group combined. The individual phases are then presented separately.

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
<i>Alnus rubra</i>	Red alder	38	54
Shrubs			
<i>Rubus spectabilis</i>	Salmonberry	100	32
<i>Acer circinatum</i>	Vine maple	42	31
<i>Sambucus racemosa</i>	Red elderberry	42	26
<i>Vaccinium parvifolium</i>	Red huckleberry	42	1
Herbs			
<i>Tolmiea menziesii</i>	Piggyback plant	100	20
<i>Athyrium filix-femina</i>	Lady fern	100	14
<i>Stachys</i>	Betony species	92	9
<i>Oxalis</i>	Sorrel	88	35
<i>Polystichum munitum</i>	Sword fern	83	15
<i>Galium triflorum</i>	Sweetscented bedstraw	63	3
<i>Stellaria crispa</i>	Crisp sandwort	63	3
<i>Claytonia sibirica</i>	Siberian miner's lettuce	54	2
<i>Tiarella trifoliata</i>	Foamflower	46	8
<i>Mitella ovalis</i>	Oval-leaved mitrewort	42	17
<i>Carex deweyana</i>	Dewey's sedge	42	8
<i>Blechnum spicant</i>	Deer fern	38	6
<i>Adiantum pedatum</i>	Maidenhair fern	38	3
<i>Marah oreganus</i>	Manroot	38	2
<i>Viola glabella</i>	Stream violet	38	1

Elevations: 30 to 1390 feet (average 430 feet).

Community: Salmonberry/piggyback plant-sorrel group is a widespread stream bank/floodplain type dominated by salmonberry. Red alder form an overstory in a third of the plots. Sitka spruce co-occurred with the alder on 3 plots; big leaf maple was found on 3 plots. Red elderberry and vine maple are important associated shrub species. The thick herb layer is dominated by sorrel, ferns and



Salmonberry/piggyback plant-sorrel group: sorrel and sword fern appear through thick salmonberry.

saxifrages. The most common species are piggyback plant, lady fern, betony, sorrel, and sword fern. Oval leaved mitrewort, foamflower, and Dewey's sedge can also be abundant. Other common ferns are deer fern and maidenhair fern.

This group shows extremely heavy wildlife use. Elk browse was noted on many plots to affect cover of salmonberry, sword fern, lady fern, and grasses significantly.

Geomorphic environments: Geomorphic surfaces include active floodplains, stream banks, and low terraces.

Water tables are relatively near the surface. Anaerobic conditions are evident in soil profiles. Gleying is noted in the majority of soil descriptions, at an average 43 cm depth. Depth to water table was 40-94 cm. Several sites showed buried soil; one pit description recorded 5 distinct A horizons. The surface organic horizon averaged 4 cm. A horizon textures are generally silt loams, but can be clay loam or sand. Coarse fragments in the A horizon are very low. B horizons are silt loams, clay loams, sandy clay loams, or loamy sands. B horizon coarse fragments are also generally low (<20 %). Bedrock or cobble streambed is within 1 meter of the surface.

Two phases are described. The Salmonberry/piggyback plant-sorrel-[oval-leaved mitrewort phase](#) is generally on floodplains and lower banks that are inundated during winter floods. The Salmonberry/piggyback plant-sorrel-[sword fern phase](#) is found on steep banks/valley walls and low terraces.

Wetland rating:

Community meets wetland test	Yes-both phases
Wetland indicators among dominant species	61% (range 25-100%)

Non-natives: Exotics were recorded in 46% of the plots.

EXOTIC	COMMON NAME	CONSTANCY %	PLOTS	TYPICAL COVER %
<i>Digitalis purpurea</i>	<i>Common foxglove</i>	25	6	1
<i>Holcus lanatus</i>	<i>Common velvet-grass</i>	17	4	2
<i>Poa trivialis</i>	<i>Rough bluegrass</i>	13	3	1
<i>Stellaria media</i>	<i>Chickweed</i>	8	2	1
<i>Ranunculus repens</i> var. <i>repens</i>	<i>Creeping buttercup</i>	8	2	Tr
<i>Cirsium arvense</i>	<i>Canada thistle</i>	4	1	Tr

***Rubus spectabilis*/*Tolmiea menziesii*-*Oxalis*-*Mitella ovalis* phase**
Salmonberry/piggyback plant-sorrel-*oval-leaved mitrewort* phase
RUSP/TOME-OXALI-*MIOV* phase

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

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
<i>Alnus rubra</i>	Red alder	25	50
Shrubs			
<i>Rubus spectabilis</i>	Salmonberry	100	32
<i>Vaccinium parvifolium</i>	Red huckleberry	50	1
<i>Acer circinatum</i>	Vine maple	38	25
Herbs			
<i>Athyrium filix-femina</i>	Lady fern	100	26
<i>Tolmiea menziesii</i>	Piggyback plant	100	7
<i>Oxalis</i>	Sorrel	88	38
<i>Polystichum munitum</i>	Sword fern	88	6
<i>Stachys</i>	Betony species	88	5
<i>Mitella ovalis</i>	Oval-leaved mitrewort	75	23
<i>Tiarella trifoliata</i>	Foamflower	75	9
<i>Stellaria crispa</i>	Crisp sandwort	63	1
<i>Blechnum spicant</i>	Deer fern	50	5
<i>Galium triflorum</i>	Sweetscented bedstraw	50	5
<i>Adiantum pedatum</i>	Maidenhair fern	50	3
<i>Carex deweyana</i>	Dewey's sedge	38	11
<i>Circaea alpina</i>	Enchanter's-nightshade	38	4
<i>Galium aparine</i>	Cleaver	38	4
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	38	1

Elevations: 100 to 915 feet (average 550 feet).

Community: Salmonberry/piggyback plant-sorrel-*oval-leaved mitrewort* phase is a frequently flooded community of floodplains and low banks. No trees were found within this phase, though overhanging tree canopies can be dense. Salmonberry is the dominant shrub. Vine maple is often abundant. The herb layer is dominated by lady fern, sorrel, and oval-leaved mitrewort. Piggyback plant is always present, but at low cover. Sword fern, foamflower, and betony are important associated species. Dewey's sedge can be abundant. Lady fern cover is almost always higher than sword fern cover, which marks this phase as slightly wetter than the Salmonberry/piggyback plant-sorrel-*sword fern* phase.

**Valley cross sections showing
RUSP/TOME-MIOV**

Beacon creek

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

Geomorphic environment: The oval-leaved mitrewort phase is on geomorphic surfaces that are flooded annually. They are fairly shallow, averaging 63 cm to bedrock or cobble streambed. Soil textures are fine, generally silt loam A horizons, and silt loam, loamy sand, or sandy clay loam B horizons. Gley layers are common in soil descriptions, at less than 50 cm depth. Summer water tables are within 42-94 cm of the surface. Several pits showed buried soils which are tapped by roots.

The Salmonberry/piggyback plant-sorrel-oval-leaved mitrewort phase appears to be too shallow, poorly drained, and too frequently disturbed to support a tree component. However, soil organic material and moisture holding capacity are high.

Wetland rating:

Community meets wetland test	Yes
Plots meeting wetland criteria	75%
Wetland indicators among dominant species	70% (range 50-75%)

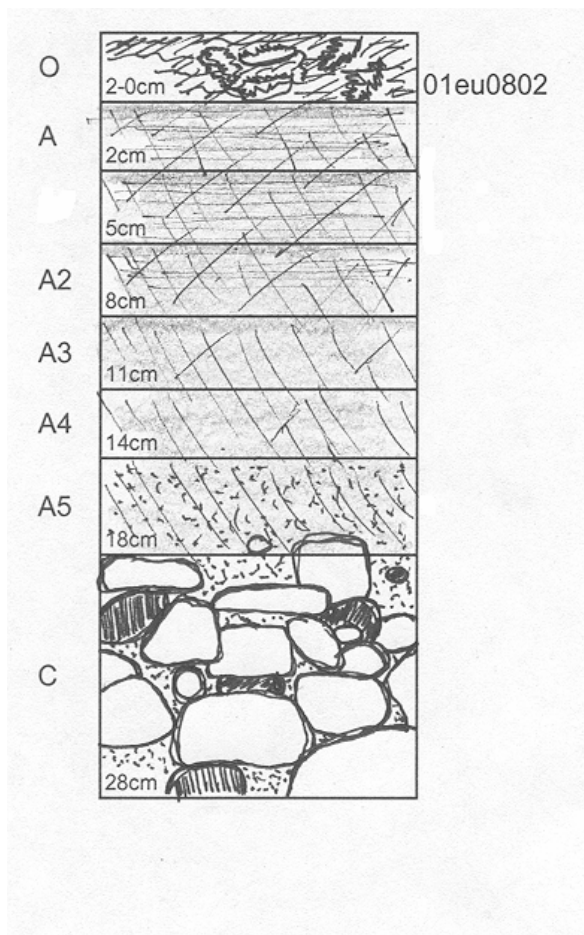
Non-natives: Exotic species were recorded on 25% of the plots.

EXOTIC	COMMON NAME	CONSTANCY %	PLOTS	TYPICAL COVER %
<i>Digitalis purpurea</i>	<i>Common foxglove</i>	13	1	1
<i>Cirsium arvense</i>	<i>Canada thistle</i>	13	1	Tr

Soil illustration A: RUSP/TOME-OXALI-MIOV phase

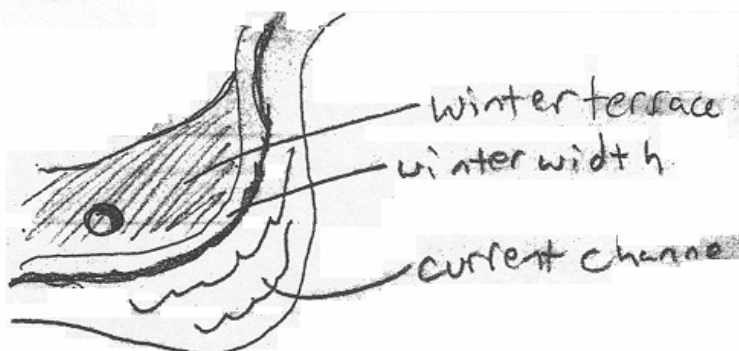
HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O							
A1	2	7.5YR3/2	SiL	gravel	0	15	10
A2	3	7.5YR3/2	SiL	gravel	0	10	10
A3	3	7.5YR3/2	L	gravel	0	10	10
A4	3	7.5YR3/2	L	gravel	0	10	10
A5	4	10YR3/4	LS	gravel	0	10	10
C			R	cobble	70		2

Total Depth: 28cm. Depth Limit: ~28cm.



Repeated flood events in recent history have layered at least five discernible A horizons on top of the original streambed. Not enough time has passed for an illuvial B horizon or even an organic A to form. There is a textural transition from silt loam to loam to sandy loam with depth. This is because each individual A horizon is about 3cm thick, and from flood to flood, the textures of old and new sediment deposits intermingle somewhat. None of the layers contain gravel size particles. Color variations depend mainly on the elapsed time between floods; more time elapsed means more organic matter has built up to be washed away and deposited with new fine sediments. The C horizon is obviously an old cobble streambed. The A5 horizon is considerably sandier than other A horizons

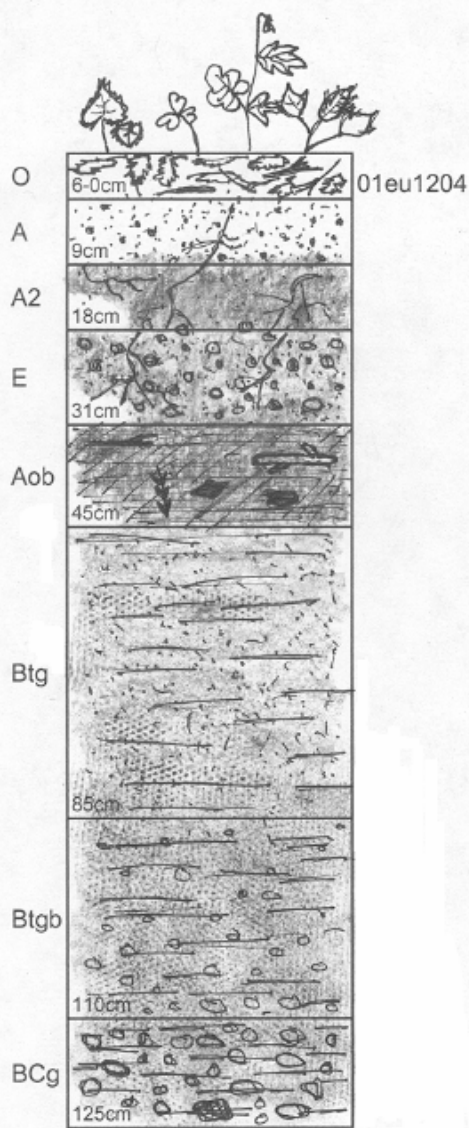
because of the influence of the C material.



Soil illustration B: RUSP/TOME-OXALI-MIOV phase

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	6					20	25
A	9	2.5Y3/2	LS	gravel <.25cm	5	20	8
A2	9	10YR3/1	SiL	gravel	0	15	8
E	13	10YR3/1	LS	md gravel	12	10	5
Aob	14	2.5Y2.5/1	SiCL	gravel	0	8	3
Btg	30	2.5Y3/1	SCL	gravel	0	3	0
Btgb	25	2.5Y3/1	SiCL	gravel	8	0	0
BCg	15	gley2 3/10	SCL	gravel	20	0	0

Total Depth: 115cm. Depth Limit: 115cm. Water Table: 94cm. Gley: 30cm.



(This is an auger hole, so porosity and root density are hard to estimate.) Two A horizons start this profile. The upper is a sandy, light colored, relatively fresh alluvial deposit. The A2 horizon was what would have been the surface if we had sampled some years ago. It is organic and more loamy than sandy and has no clay. An E horizon rounds out the surface strata. It too is a loamy sand with light color, and has some rocks, but overall, nutrients and colored oxides are eluviating from the E horizon into the Aob.

The Aob is a welcome change of pace at this site. Some charcoal and woody debris can be found, organic coloration, and the stinky smell of anaerobic decomposition. These traits, coupled with the obvious overtopping by alluvial gravels in the E horizon, earn this horizon the Aob title. There is no illuvial clay composition, which may have led to a Bt designation. Below the Aob are Btg and BCg horizons. They have variable amounts of gravel, color and stinky anaerobic odors.

***Rubus spectabilis*/*Tolmiea menziesii*-*Oxalis*-*Polystichum munitum* phase**
Salmonberry/piggyback plant-sorrel-*sword fern* phase
RUSP/TOME-*OXALI*-*POMU* phase

N=16 (SNF 12, SBLM 4)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
<i>Alnus rubra</i>	Red alder	44	55
<i>Acer macrophyllum</i>	Big leaf maple	19	37
<i>Picea sitchensis</i>	Sitka spruce	19	28
Trees-seedlings			
<i>Picea sitchensis</i>	Sitka spruce	19	1
Shrubs			
<i>Rubus spectabilis</i>	Salmonberry	100	33
<i>Sambucus racemosa</i>	Red elderberry	56	24
<i>Acer circinatum</i>	Vine maple	44	34
<i>Ribes bracteosum</i>	Stink currant	38	1
<i>Vaccinium parvifolium</i>	Red huckleberry	38	Tr
Herbs			
<i>Tolmiea menziesii</i>	Piggyback plant	100	29
<i>Athyrium filix-femina</i>	Lady fern	100	5
<i>Stachys</i>	Betony species	94	12
<i>Oxalis</i>	Sorrel	88	27
<i>Polystichum munitum</i>	Sword fern	81	22
<i>Claytonia sibirica</i>	Siberian miner's lettuce	75	3
<i>Galium triflorum</i>	Sweetscented bedstraw	69	2
<i>Stellaria crispa</i>	Crisp sandwort	63	4
<i>Marah oreganus</i>	Manroot	50	2
<i>Viola glabella</i>	Stream violet	50	1
<i>Carex deweyana</i>	Dewey's sedge	44	6
<i>Mimulus dentatus</i>	Tooth-leaved monkeyflower	38	2
<i>Mimulus guttatus</i>	Yellow monkeyflower	38	Tr

Elevations: 30 to 1390 feet (average 370 feet).

Community: Salmonberry/piggyback plant-sorrel-*sword fern* phase is dominated by salmonberry, and often red elderberry. Red alder, big leaf maple, and Sitka spruce can establish and survive on these sites. More trees are found in this phase of the Salmonberry/piggyback plant-sorrel group than in the oval-leaved mitrewort phase. The herb layer is dominated by piggyback plant, betony, sorrel and sword fern. Lady fern is always present but at lower cover than sword fern, which is not true for the oval-leaved mitrewort phase of this group.

Wildlife use of this phase can be extreme. Elk browse on some plots was noted to significantly affect cover of salmonberry, sword fern, lady fern, and grasses.

Valley cross sections showing RUSP/TOME-OXALI-POMU
Porter creek
Elk creek

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



Salmonberry/piggyback plant-sorrel-sword fern phase: moss-draped salmonberry canes shown in foreground, over thick herb layer dominated by piggyback plant. Note red alder bole (center) and western hemlock (upper

Geomorphic environment: Geomorphic surfaces include steep banks and low terraces. Soils are moderately deep (60 to 90 cm), with most profiles above summer water table level. A horizons are silt loams or clay loams 12-20 cm deep over silty clay loams, clay loams or loamy clay B horizons 48 to 55 cm deep. Some profiles showed buried soils. One profile had gleying at 75 cm. Note that the oval-leaved mitrewort phase of the Salmonberry/piggyback plant-sorrel group had shallower depths to anaerobic conditions and/or bedrock, and consistently higher water table.

Higher geomorphic surfaces, predominance of sword fern, and occasional larger trees mark the Salmonberry/piggyback plant-sorrel-sword fern phase as somewhat better drained, and less frequently disturbed than the companion oval-leaved mitrewort phase. Salmonberry competition for tree regeneration should be severe. Low constancy of trees, dominance of piggyback plant, presence of betony, trillium-leaved sorrel and tooth-leaved monkeyflower, and locations within periodic high flow zones indicate that this phase can be viewed as a representative of the general Coast Range floodplain type, though at the dry end of the group.

Wetland rating:

Community meets wetland test	Yes
Plots meeting wetland criteria	56%
Wetland indicators among dominant species	56% (range 25-100%)

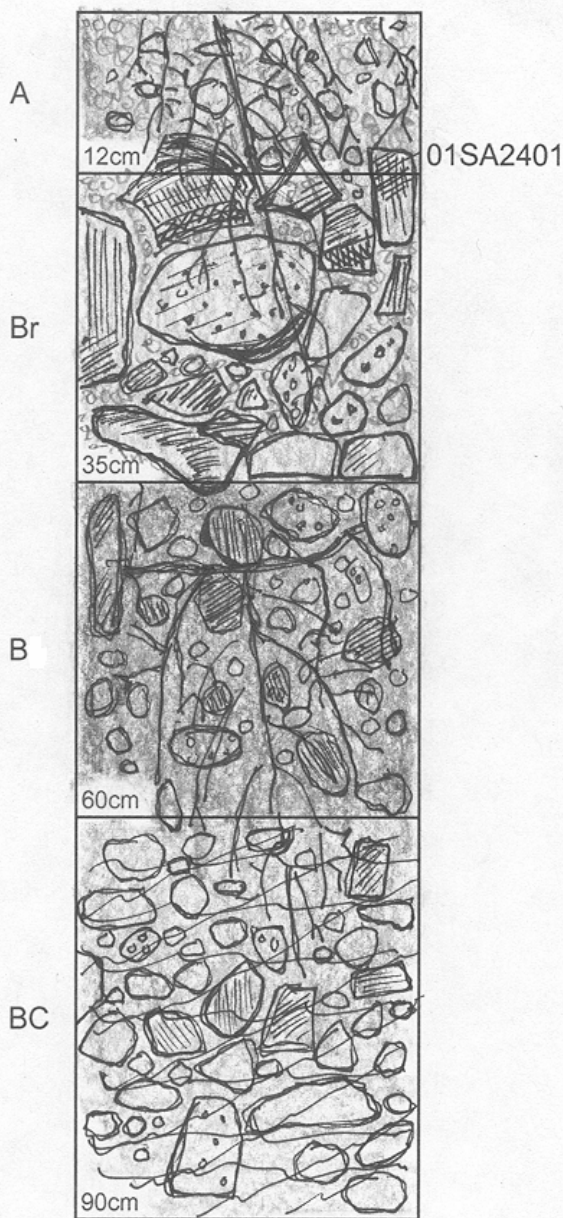
Non-natives: Exotic species were recorded on 56% of the plots.

EXOTIC	COMMON NAME	CONSTANCY %	PLOTS	TYPICAL COVER %
<i>Digitalis purpurea</i>	<i>Common foxglove</i>	31	5	Tr
<i>Holcus lanatus</i>	<i>Common velvet-grass</i>	25	4	2
<i>Poa trivialis</i>	<i>Rough bluegrass</i>	19	3	1
<i>Ranunculus repens</i> var. <i>repens</i>	<i>Creeping buttercup</i>	13	2	Tr
<i>Stellaria media</i>	<i>Chickweed</i>	13	2	1

Soil illustration A: RUSP/TOME-OXALI-POMU phase

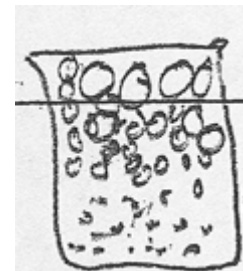
HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
A	12	7.5YR2.5/1	SiCL	gravel	20	25	15
Br	23	7.5YR2.5/1	R	lg cobble / gravel	55 / 15	5	5
B	55	7.5YR3/1	SiCL	sm cobble / md cobble	40 / 15	11	15
BC		7.5YR2.5/2	SiC	gravel / cobble	60	5	5

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



Always wondered how those big boulders get down to the stream bank? Welcome to the place those boulders are born. Much like large marbles will eventually jiggle their way to the top of a sifted beaker, so do large colluvial rocks stomp their way faster to the bottom of a steep slope. (100% at this place.) It is a very loose, unstable, thoroughly mixed stack of rocky horizons; almost an inverted profile with rocks on the top and fines on the bottom. Boomer action accentuates the mixing, especially with regard to blurred color shifts and homogenous crumb structure of the A and B horizons.

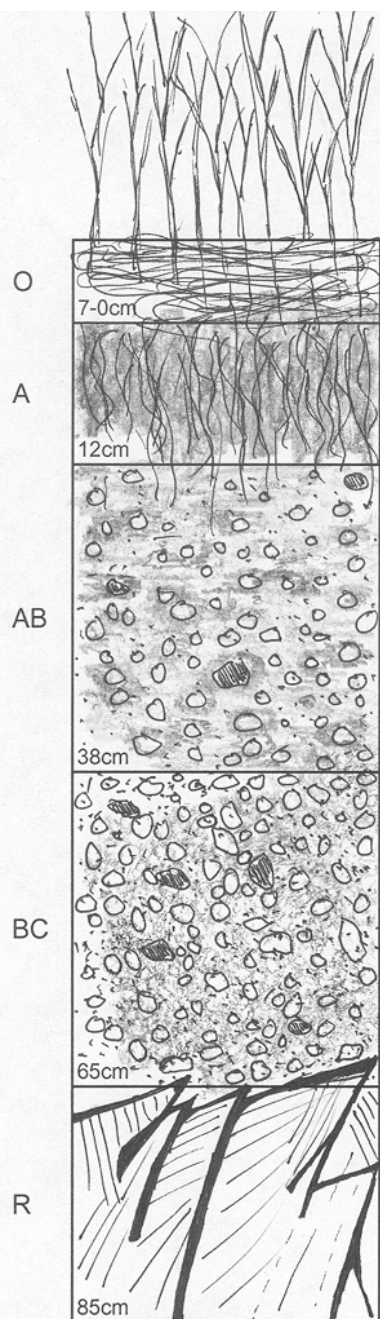
If this theory is correct, the valley will widen, slopes will lessen, rocks will be washed clean, and soils will become more structured and add clay subsurface horizons as the stream channel perpetually seeks stability.



Soil illustration B: RUSP/TOME-OXALI-POMU phase

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	7						
A	12	10YR3/3	SiL	gravel	5	10	30
AB	26	10YR4/2	LS	gravel	50	8	20
BC	27	10YR3/1	SC	Gravel	65		
R			R	Rock	100		

Total Depth: 65cm. Depth Limit: 65cm to R. Water Table: 55cm.



Really dense rooting of grass (30%) provides bank stability and organic inputs to the A horizon. 12cm is super deep for a floodplain A horizon, especially above a bedrock channel. Floods here are likely slow moving and involve more deposition than removal, but we can't discount the grass influence or the grazing influence anywhere along this stream. The subsurface flow of water must also be considered – it is variable from plot to plot.

The wet matrix of the AB horizon (12-38cm) is less aerated than the upper soil. Mineral oxidation on the surface of degrading alluvial sandstone gives the horizon a mottled appearance. As gravel composition goes to 65% between 38-65cm, water percolates quickly, leaching out clay and nutrients and leaving "clean" sand behind. No roots are to be found. The sandstone bedrock channel is found at 65cm this time.