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High terraces/major floodplains

(*Acer macrophyllum-Alnus rubra)/Acer circinatum/Tiarella trifoliata* (Big leaf maple-red alder)/vine maple/foamflower (ACMA3-ALRU2)/ACCI/TITR

N=9 (WNF 9)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Acer macrophyllum	Big leaf maple	67	36
Thuja plicata	Western redcedar	56	36
Tsuga heterophylla	Western hemlock	56	15
Alnus rubra	Red alder	44	64
Pseudotsuga menziesii	Douglas fir	33	16
Trees-seedlings			
Thuja plicata	Western redcedar	78	1
Abies grandis	Grand fir	67	5
Tsuga heterophylla	Western hemlock	56	3
Acer macrophyllum	Big leaf maple	56	3
Shrubs			
Acer circinatum	Vine maple	100	40
Rubus ursinus	Trailing blackberry	89	3
Oemleria cerasiformis	Indian plum	67	8
Herbs			
Polystichum munitum	Sword fern	89	9
Tiarella trifoliata	Foamflower	89	7
Claytonia sibirica	Siberian miner's lettuce	89	1
Athyrium filix-femina	Lady fern	78	10
Tolmiea menziesii	Piggyback plant	78	7
Galium triflorum	Sweetscented bedstraw	78	2
Hydrophyllum tenuipes	Pacific waterleaf	78	2
Asarum caudatum	Wild ginger	78	2
Maianthemum stellatum	Starry false Solomon's-seal	78	1
Circaea alpina	Enchanter's-nightshade	67	3
Adiantum pedatum	Maidenhair fern	67	3
Bromus vulgaris	Columbia brome	67	1

Elevations: 2140 to 4220 feet (average 2,520 feet).

Community: (Big leaf maple-red alder)/vine maple/foamflower is a forested floodplain community of the mid-elevation Cascades. The overstory generally has big leaf maple and/or red alder, with a mixture of conifers including western redcedar, western hemlock, Douglas fir, or grand fir. The shrub layer is dominated by vine maple. Trailing blackberry and Indian plum are the most common associates, while cascara buckthorn occurs on 44% of the plots. The

most abundant species in the herb layer are typically ferns (sword fern, lady fern, and oak fern), with saxifrages foamflower and piggyback plant the next most abundant. Other common species include Siberian miner's lettuce, sweetscented bedstraw, Pacific waterleaf, wild ginger, and starry false Solomon's-seal. Grasses are almost always present (89% constancy), averaging 4% cover.

Valley cross sections showing (ACMA3-ALRU2)/ACCI/TITR
S Fork McKenzie #1
Augusta #5

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

Geomorphic environment: All samples are from the South Fork McKenzie drainage in the central Willamette NF. Most plots were on high terraces or wide, elevated floodplains, generally adjacent to or associated with overflow channels. This suggests subsurface flow through the underlying cobble valley fill that affects the environment for this community. One plot is from an intermittent channel in the same area which also suggests seasonal subsurface flow. No soil data are available. However, the community composition indicates deep loamy well drained soils capable of supporting trees and thick vine maple.

Wetland rating:

Community meets wetland test	No
Plots meeting wetland criteria	11%
Wetland indicators among dominant species	35% (range 17-57%)

Non-natives: Wall-lettuce was the only exotic species in the sample, occurring on 44% of the plots.

Forested *Corylus cornuta/Polystichum munitum* group
Forested California hazel/sword fern group
Forested COCO6/POMU group

Group description followed by descriptions of three phases: Forested *Corylus cornuta/Polystichum munitum*-hardwood phase, Forested *Corylus cornuta/Polystichum munitum-Tsuga heterophylla/Acer circinatum /Oxali* phase, and Forested *Corylus cornuta/Polystichum munitum-Acer macrophyllum/Acer circinatum* phase

N=20 (WNF 18, EBLM 1, Willamette Valley 1)

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

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Acer macrophyllum	Big leaf maple	42	31
Alnus rubra	Red alder	33	42
Pseudotsuga menziesii	Douglas fir	33	25
Calocedrus decurrens	Incense cedar	33	12
Trees-seedlings			
Acer macrophyllum	Big leaf maple	50	3
Shrubs			
Corylus cornuta	California hazel	100	25
Acer circinatum	Vine maple	92	24
Rubus ursinus	Trailing blackberry	92	4
Vaccinium parvifolium	Red huckleberry	67	3
Oemleria cerasiformis	Indian plum	58	3
Symphoricarpos albus	Common snowberry	42	5
Herbs			
Polystichum munitum	Sword fern	92	27
Oxalis	Sorrel	83	19
Vancouveria hexandra	Insideout flower	75	5
Galium triflorum	Sweetscented bedstraw	75	1
Athyrium filix-femina	Lady fern	58	3
Adiantum pedatum	Maidenhair fern	58	2
Adenocaulon bicolor	Pathfinder	50	Tr
Maianthemum stellatum	Starry false Solomon's-seal	50	Tr
Bromus vulgaris	Columbia brome	42	1
Thalictrum occidentale	Western meadowrue	42	Tr
Stachys cooleyae	Cooley's betony	42	Tr
Claytonia sibirica	Siberian miner's lettuce	42	Tr

Elevations: 1050 to 2380 feet (average 1444 feet).

<u>Forested California hazel/sword fern group</u>: big leaf maple is the hardwood dominating this plot.

Community: This group may be considered a single community, with a variety of tree species over an understory dominated by vine maple and California hazel, with the herb layer made up primarily by sword fern and sorrel. Samples come from the low elevation central Willamette NF and Eugene BLM McKenzie Resource Area. It may be considered as two variants: one present on upper banks and toeslopes; the other in wide river valleys on old terraces of large rivers below dams. The second may be highly influenced by changed flood regimes below dams, and represent successional stages not typical for these surfaces and communities. It could be argued that in the absence of large flows, the terrace variant could eventually develop a western hemlock-Douglas fir overstory, similar to the other bank/toe slope variant.

Wetland rating:

Community meets wetland test	No-none meet test
Wetland indicators among dominant species	23% (range 10-44%)

Forested *Corylus cornuta/Polystichum munitum*-hardwood phase
Forested California hazel/sword fern-hardwood phase
Forested COCO6/POMU-hardwood phase

N=6 (WNF 6, from 2 sites)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Calocedrus decurrens	Incense cedar	67	12
Alnus rubra	Red alder	50	48
Acer macrophyllum	Big leaf maple	33	40
Pseudotsuga menziesii	Douglas fir	33	19
Populus trichocarpa	Black cottonwood	33	15
Fraxinus latifolia	Oregon ash	17	40
Abies grandis	Grand fir	17	12
Thuja plicata	Western redcedar	17	3
Trees-seedlings			
Acer macrophyllum	Big leaf maple	50	4
Thuja plicata	Western redcedar	33	4
Fraxinus latifolia	Oregon ash	33	1
Shrubs			
Corylus cornuta	California hazel	100	30
Rubus ursinus	Trailing blackberry	100	6
Acer circinatum	Vine maple	83	22
Symphoricarpos albus	Common snowberry	83	5
Oemleria cerasiformis	Indian plum	83	4
Herbs			
Polystichum munitum	Sword fern	100	33
Oxalis	Sorrel	83	10
Bromus vulgaris	Columbia brome	83	1
Vancouveria hexandra	Insideout flower	67	4
Galium triflorum	Sweetscented bedstraw	67	1
Thalictrum occidentale	Western meadowrue	67	1
Festuca subulata	Bearded fescue	67	Tr
Carex deweyana	Dewey's sedge	50	4
Prunella vulgaris	Self-heal	50	Tr
Stachys cooleyae	Cooley's betony	50	Tr

Elevations: 1090 to 1210 feet (average 1150 feet).

Community: Forested California hazel/sword fern-*hardwood phase* is a low elevation Cascades forested floodplain community sampled on large terraces along the South Fork McKenzie River. The overstory is typically hardwood dominated, with red alder, big leaf maple, black cottonwood, or Oregon ash.

Incense cedar is common in the sample, with minor amounts of grand fir and western redcedar possible. California hazel and vine maple dominate the shrub layer, with trailing blackberry, common snowberry, and Indian plum common associates but at low cover. Sword fern is the dominant herb species, averaging 33% cover. Sorrel is the second important species. Grasses are almost always present (83% constancy), averaging 5% cover. Columbia brome and bearded fescue are the most common grasses. Inside out flower, sweetscented bedstraw and western meadowrue are other typical associated species.

Geomorphic environment: Soils data are not available. Geomorphic surfaces were large flat or gently sloping terraces or abandoned channels in wide river valleys. Underlying substrates are generally cobbly.

Note these six plots are from the below Cougar Dam on the South Fork McKenzie River or Delta Creek. The stand structure in these communities may be affected by the dam. The same is probably true of similar types, such as the drier big leaf maple/vine maple-California hazel community, on the old floodplains and terraces along the McKenzie River. This is probably representative of all of the larger dammed rivers including the Willamette River. These are altered communities. More fine sediments may be deposited, and less scour occur, during floods moderated by the dams. The soils may be gradually changing with addition of organic matter over longer intervals between major floods. Shrubs and trees are likely to survive and grow longer than common under the old flood regime. In this community, this may be evident in the sizes and ages of conifers present in the sample.

The Forested California hazel/sword fern-*hardwood phase* indicates moister conditions than the *Big leaf maple/vine maple phase*, but is drier than the *Western hemlock/vine maple /sorrel phase* within the group.

Similar types: This community is similar to the Willamette Valley Common snowberry/nettle-*Oregon ash/red elderberry-California hazel phase*.

Wetland rating:

Community meets wetland test	No
Plots meeting wetland criteria	17%
Wetland indicators among dominant species	42% (range 20-60%)

Non-natives: There were four exotic species recorded on one plot apiece: wall-lettuce, common foxglove, common St.John's-wort, and common velvet-grass.

Forested *Corylus cornuta/Polystichum munitum-Tsuga heterophylla/Acer circinatum/Oxalis* phase
Forested California hazel/sword fern-*western hemlock/vine maple/sorrel phase*
Forested COCO6/POMU-*TSHE/ACCI/OXALI phase*

N=6 (WNF 5, EBLM 1)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Tsuga heterophylla	Western hemlock	50	38
Acer macrophyllum	Big leaf maple	50	15
Pseudotsuga menziesii	Douglas fir	33	35
Trees-seedlings			
Tsuga heterophylla	Western hemlock	67	5
Alnus rubra	Red alder	50	7
Acer macrophyllum	Big leaf maple	50	1
Shrubs			
Acer circinatum	Vine maple	100	27
Corylus cornuta	California hazel	100	15
Vaccinium parvifolium	Red huckleberry	100	3
Rubus ursinus	Trailing blackberry	83	1
Berberis nervosa	Oregon grape	50	3
Rubus parviflorus	Thimbleberry	50	1
Herbs			
Oxalis	Sorrel	83	36
Polystichum munitum	Sword fern	83	15
Vancouveria hexandra	Insideout flower	83	8
Athyrium filix-femina	Lady fern	83	4
Adiantum pedatum	Maidenhair fern	83	3
Galium triflorum	Sweetscented bedstraw	83	1
Maianthemum stellatum	Starry false Solomon's-seal	83	Tr
Tiarella trifoliata	Foamflower	67	5
Achlys triphylla	Vanilla leaf	67	1
Adenocaulon bicolor	Pathfinder	67	Tr
Trillium ovatum	Western trillium	67	Tr
Blechnum spicant	Deer fern	50	2
Linnaea borealis	Twinflower	50	2
Prosartes	Fairybells	50	1
Claytonia sibirica	Siberian miner's lettuce	50	Tr
Anemone deltoidea	Three-leaved anemone	50	Tr
Lactuca muralis	*Wall-lettuce*	50	Tr

Elevations: 1050 feet to 2380 feet (average 1745 feet).

Community: Forested California hazel/sword fern-*western hemlock/vine maple/sorrel phase* is a forested riparian community of the lower elevation Cascades. The overstory has western hemlock and/or red alder or Douglas fir, often with big leaf maple. The shrub layer is dominated by vine maple and California hazel. Red huckleberry and trailing blackberry are often present but minor. Sorrel and sword fern dominate the herb layer. Inside out flower, lady fern, maidenhair fern, sweetscented bedstraw and starry false-Solomon's seal are associated species.

Geomorphic environment: Geomorphic surfaces include toeslopes, upper banks, and terraces. Several plots had a well developed conifer overstory, often with mature (41-320 year old) western hemlocks or extremely large Douglas fir. These sites can be gentle to steep. One soil description from a steep valley wall showed a deep soil with silty loam to silty clay texture.

Similar types: This community is similar to the upland Western hemlock/Oregon Oxalis-NWO Cascades plant association, but the riparian character is marked by the presence of red alder, lady fern, maidenhair fern, and deer fern. Trillium-leaved sorrel, also a riparian indicator, was noted on several plots.

The Forested California hazel/sword fern-*western hemlock/vine maple/sorrel phase* indicates the moistest environments in the group.

Valley cross sections showing TSHE/ACCI-COCO6/OXALI
Nimrod creek

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

Wetland rating:

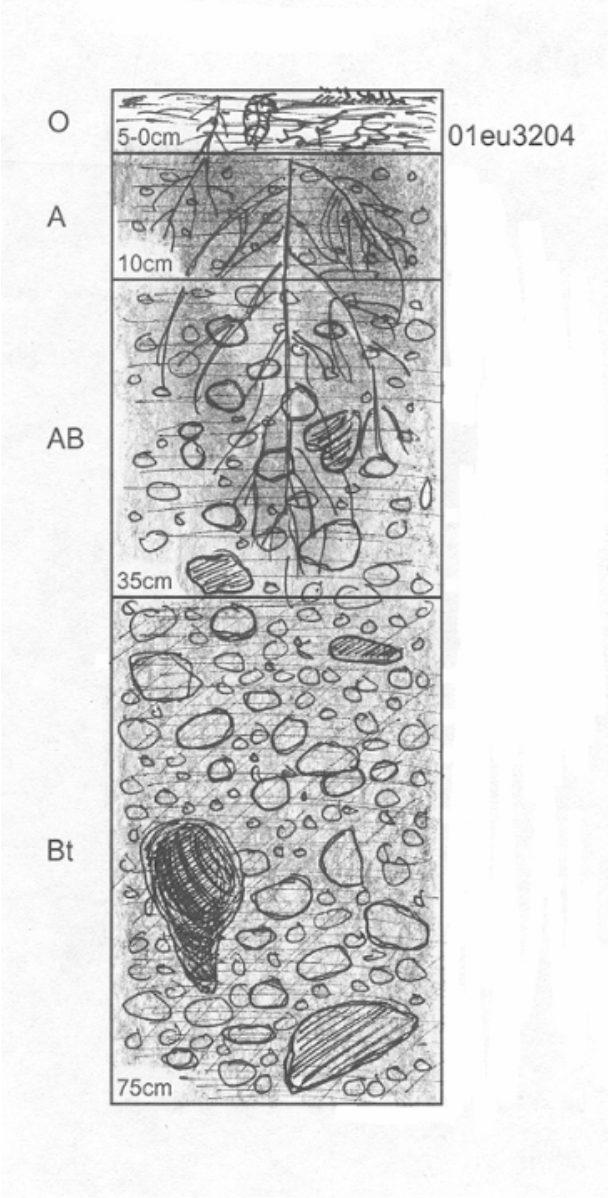
Community meets wetland test	No
Plots meeting wetland criteria	0%
Wetland indicators among dominant species	25% (range 17-29%)

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

Soil illustration: TSHE/ACCI-COCO6/OXALI

HORIZON	THICKCM	MUNSELL	TEXTURE	CFRAG	CFRAGPCT	VOIDS	ROOTS
O	5					20	10
A	10	7.5YR3/1	SiCL	gravel	15	10	15
AB	25	7.5YR3/1	SiCL	gravel / cobble	15 / 15	8	10
Bt	40	10YR3/1	SiC	gravel / cobble	20 / 20	5	5

Total Depth: 75cm. Depth Limit: 75cm+.



Deep colluvial deposition has resulted in an extended AB transition horizon in this profile. For purposes of defining the primary rooting zone, I have called the top 10cm the A horizon. Roots in this horizon are receiving the direct inputs of organic nutrients from 5cm of O horizon. There is also a minimal amount of gravel in the horizon, a sign that additions of OM through decomposition have probably outpaced colluvial deposition in recent history. Gravel and Cobble percentages increase with depth. Loam textures are lost in the Bt horizon and the addition of clay helps to change the color of the soil by adding yellow hue.

Forested *Corylus cornuta/Polystichum munitum-Acer macrophyllum/Acer circinatum* phase
Forested California hazel/sword fern-*big leaf maple/vine maple phase*
Forested COCO6/POMU-*ACMA3/ACCI phase*

N=8 (WNF 7, Willamette Valley 1)

SPECIES	COMMON NAME	CONSTANCY %	TYPICAL COVER %
Trees-overstory			
Acer macrophyllum	Big leaf maple	75	39
Pseudotsuga menziesii	Douglas fir	63	45
Abies grandis	Grand fir	25	25
Fraxinus latifolia	Oregon ash	25	4
Trees-seedlings			
Acer macrophyllum	Big leaf maple	63	2
Tsuga heterophylla	Western hemlock	63	1
Fraxinus latifolia	Oregon ash	38	1
Shrubs			
Rubus ursinus	Trailing blackberry	100	4
Acer circinatum	Vine maple	88	45
Corylus cornuta	California hazel	88	17
Oemleria cerasiformis	Indian plum	50	4
Symphoricarpos albus	Common snowberry	50	2
Rubus parviflorus	Thimbleberry	50	2
Herbs			
Galium triflorum	Sweetscented bedstraw	100	2
Polystichum munitum	Sword fern	88	2
Bromus vulgaris	Columbia brome	75	8
Fragaria vesca	Woodland strawberry	63	1
unknown grass	Grass	50	11
Synthyris reniformis	Snowqueen	50	3
Hypericum perforatum	*Common St. John's-wort*	50	2
Maianthemum stellatum	Starry false Solomon's-seal	50	2
Anemone deltoidea	Three-leaved anemone	50	1

Elevations: 255 feet to 2350 feet (average 1675 feet).

Community: Forested California hazel/sword fern-*big leaf maple/vine maple phase* is a dry shrubby forested community that occurs on terraces, elevated floodplains or islands of large streams and rivers at low to moderate elevations. Big leaf maple and Douglas fir often co-dominate, though grand fir and Oregon ash can also occur. The shrub layer dominants are vine maple and California hazel. Trailing blackberry is always present. Indian plum, common snowberry, and thimbleberry are typical associated species, present in half the plots. Yerba

Buena, a dry site indicator, occurs in 38% of the sample. The herb layer is dominated by grasses. The sum of grass species' cover averaged 15% (constancy 88%). Columbia brome is the most abundant species. Sweetscented bedstraw is always present. Sword fern and woodland strawberry are also common minor associated species.

Geomorphic environment: No soils data are available for these samples. Most of the geomorphic surfaces appear to be old cobbly floodplains, often in wide river valleys with major side channels or overflow channels. Flooding would occur only during major flood events. Because of the cobble substrate, the sites are probably very well drained, with relatively poor water holding capacity.

Many of the species present indicate warm dry environments (yerba buena, snow queen, woodland strawberry, common snowberry). In contrast, the adjacent upland plant associations often indicate more mesic conditions. Willamette NF plots are all from the South Fork McKenzie River drainage, and are within the western hemlock plant series. This is a reversal from the common pattern in forested riparian communities, where the streamside vegetation indicates moister conditions than on the adjacent hillsides.

This community is "riparian" for two main reasons. First, the cobbly substrate is fluvial. Second, this community is subject to major floods which can reset a mature stand, erode or deposit the surface, or reroute channels to transform the community's geomorphic and moisture environment.

Note that three of these plots are from the below Cougar Dam on the South Fork McKenzie River. The stand structure in these communities may be affected by the dam. The same is probably true of other phases of Forested California hazel/sword fern group on the old floodplains and terraces along the McKenzie River, and probably all of the larger dammed rivers. The same can be expected for the forested communities from the Willamette Valley, especially the similar common snowberry and/or California hazel types. These are altered communities. More fine sediments may be deposited, and less scour occur, during floods moderated by the dams. The soils may be gradually changing with addition of organic matter over longer intervals between major floods. Shrubs and trees are likely to survive and grow longer than common under the old flood regime. In this community, this may be evident in the sizes and ages of Douglas fir, grand fir, and incense cedar present in the sample.

Forested California hazel/sword fern-*big leaf maple/vine maple phase* is the driest community in the Forested California hazel/sword fern group.

Wetland rating:

Community meets wetland test	No
Plots meeting wetland criteria	0%
Wetland indicators among dominant species	18% (range 10-29%)

Non-natives: There were two exotic species recorded in the sample. Wall-lettuce was in 50% of the plots. Common St.John's-wort was in 38% of the plots.