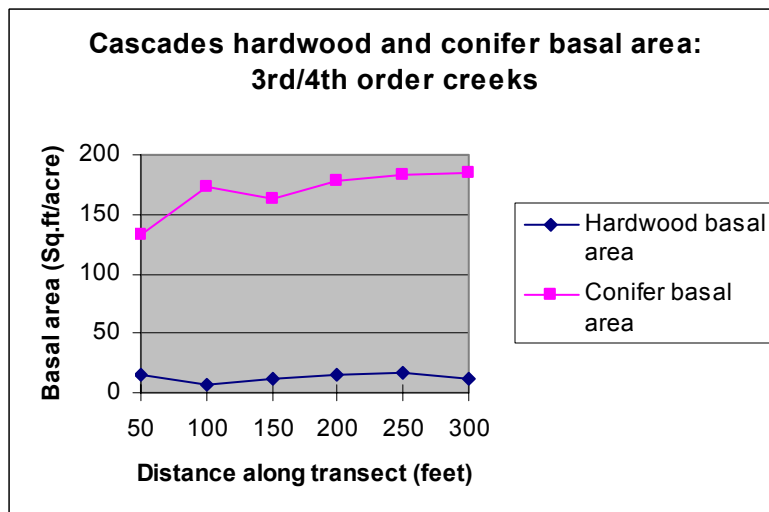
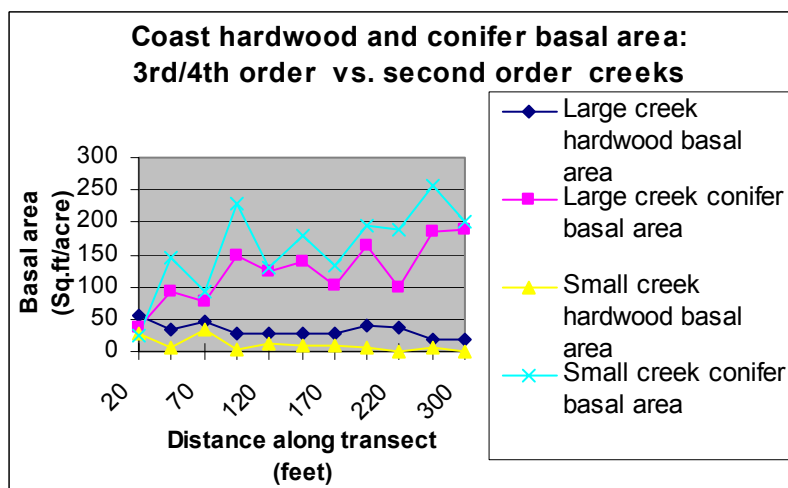


Plant community distribution: valley cross-sections

One of the objectives of the transect protocol was to examine the extent of riparian vegetation along different types of streams. Another was to look at the distribution of the riparian communities. A third was to look at the arrangement of plant communities, including upland plant associations, within riparian reserves ("Northwest Forest Plan" 1994). How distinctive was the suite of upland associations close to the riparian zone? What is the distribution of hardwoods across the riparian zone?



Basal area along the transects: Hardwood and conifer basal area data are available from transects across 50 creeks. Cascades creeks' elevations averaged 1575 feet (920-3190 feet), while the Coast Range creeks' elevations averaged 775 feet (140-1700 feet). Data for 44 third and fourth order



streams in both the Cascades and the Coast Range can be compared. Six smaller second order creeks from the Coast Range are summarized separately. Overall, the 23 Cascades creeks had less hardwood basal area near the creeks, but distribution along the valley cross-section was more

even. Conifer basal area was lower near the creek, but climbed to a fairly constant level about 100 feet from the channel.

The 21 third and fourth order Coast Range creeks showed more near-channel hardwoods than either similar Cascades creeks or smaller Coast Range creeks, with hardwood basal area generally decreasing with distance from creek. Coastal conifer basal area was very low closest to the creek regardless of size class.

Valley cross sections

Coastal conifer basal area climbs at a slower rate before leveling out than in the Cascades.

Cascades 3rd/4th order creeks		Sq.ft/acre		Sq.ft/acre	
Distance along transect (ft)	n	Hardwood mean basal area	std error	Conifer mean basal area	std error
50	46	15	4	133	11
100	46	7	2	172	9
150	41	11	4	163	10
200	38	15	5	178	14
250	36	16	4	183	14
300	33	11	4	185	18
Coast 3rd/4th order creeks					
Distance along transect (ft)	n	Hardwood mean basal area	std error	Conifer mean basal area	std error
20	12	57	20	38	14
50	39	35	6	92	10
70	12	47	12	78	23
100	38	29	5	147	12
120	12	27	15	125	28
150	38	29	6	139	12
170	12	28	15	102	17
200	29	39	9	163	17
220	10	36	21	100	27
250	26	20	7	185	21
300	27	18	5	187	14
Coast 2nd order creeks					
Distance along transect (ft)	n	Hardwood mean basal area	std error	Conifer mean basal area	std error
20	5	28	10	24	10
50	6	7	4	147	27
70	6	33	18	93	48
100	6	3	3	230	33
120	6	13	10	130	51
150	6	10	10	180	35
170	6	10	10	133	46
200	3	7	7	193	47
220	6	0	0	190	40
250	4	5	5	258	9
300	3	0	0	200	31

Valley cross sections

This section presents a number of valley cross-section diagrams with short descriptions. For sites from the BLM sample, field sketches are included. Classified riparian communities as well as upland associations are indicated where they occurred along the transects. Where data are available, a small table reports basal area of conifers and hardwoods along the transect.

For all stream orders, the shape of the valley and the way groundwater moves from the hillslopes clearly dictates the upland plant communities' distribution. Convex topography is drier than concave topography, all other things being equal. More moisture is available to generally concave valley floor sites, and often the riparian zone lies within moister upland types than are found upslope. However, microtopography can trump macrotopography. As the valley cross-sections clearly show, a steep convex site even next to a large perennial stream will support drier plant associations.

A creek does not necessarily lie within a "moist" upland context. There may not be sufficient precipitation or enough soil moisture available to the site. Topography may not define a moister or cooler microclimate near the riparian zone.

The South Fork McKenzie River sampling also addressed intermittent streams in the central Cascades. How riparian is the riparian zone of an intermittent stream? Several of the cross-sections from this group are included. Unfortunately, similar headwater creeks in the Coast Range were not sampled. The valley cross-sections of intermittents were perpendicular to the intermittent streams, but generally lay more or less along the contour of the larger valleys in which they were located. This should be kept in mind when interpreting topographic relationships across these tiny creeks. Actual slopes tend to be steeper than shown in the diagrams, and the true aspect of a surface is not represented.

Valley cross sections

Stream	Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
CASCADES						
Walker Creek	S. Fork McKenzie River	4	2600	48	158	518
Starr Creek	S. Fork McKenzie River	2	4120	15	216	376
Loon Creek	S. Fork McKenzie River	3	2950	20	262	627
S. Fork McKenzie River #1	S. Fork McKenzie River	6	2380	71	142	671
Boone Creek	S. Fork McKenzie River	3	2655	3	295	342
Lamb Creek	S. Fork McKenzie River	2	4340	12	140	320
E. Fork S. Fork McKenzie River	S. Fork McKenzie River	5	2390	68	90	861
Bear Creek (McKenzie RA)	McKenzie River	3	940	25	280	625
S. Fork Lost Creek	Middle Fork Willamette River	3	1600	12	45	612
Nimrod Creek	McKenzie River	3	1050	15	10	613
Rough Creek	McKenzie River	3	1060	22	180	606
Intermittents:	S. Fork McKenzie River watershed					
Augusta Class IV #1	Augusta Creek		4620	9	100	349
Augusta Class IV #4	Augusta Creek		2800	2	325	342
Augusta Class IV #5	Augusta Creek		4220	2	215	342
Augusta Class IV #6	Augusta Creek		3040	3	190	343
Augusta Class IV #7	Augusta Creek		2950	1	85	341
Rush Creek Trib. Class IV	Rush Creek		2280	1	340	341
Gnat-Goose Class IV	Mink Lake Basin		4880	12	130	352
S. Fork McKenzie River #5 Class IV	S. Fork McKenzie		4540	22	flat	620
Slipper-Junction Class IV	Mink Lake Basin		4990	4	200	343

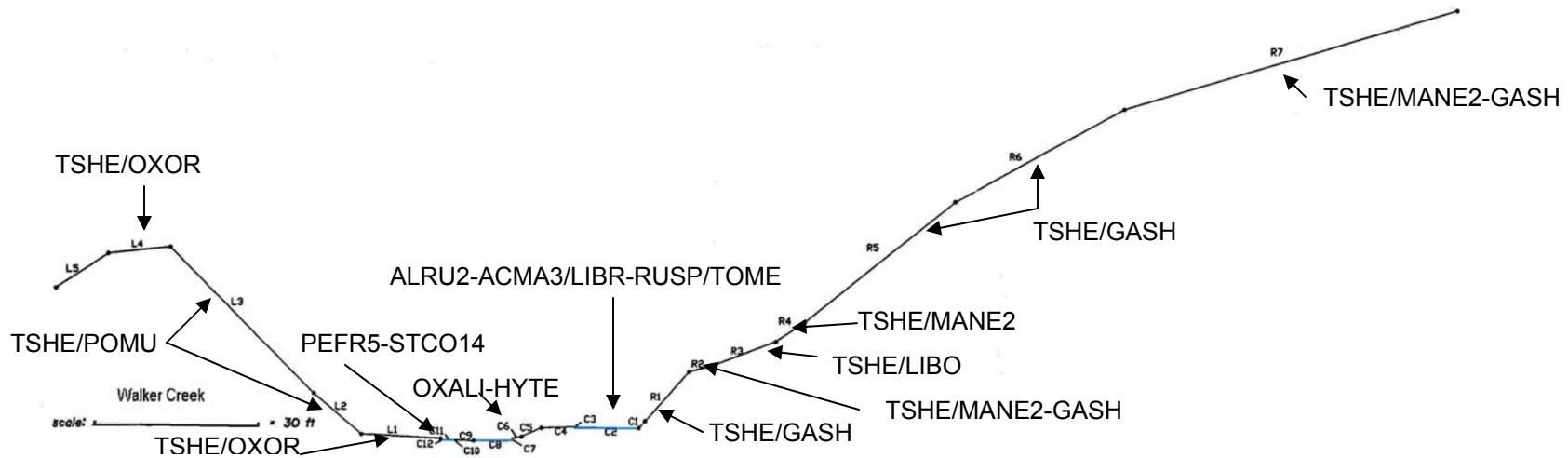
Valley cross sections

Stream	Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
COAST						
N. Fork Smith River #2	N. Fork Smith River	4	270	77	248	869
Porter Creek	N. Fork Siuslaw River	1	270	17	128	571
Cedar Creek (Waldport)	Drift Creek (to Alsea River)	1	80	3	165	464
Ryder Creek (North tributary)	Maple Creek (to Siltcoos Lake)	1	600	3	250	461
W. Fork Deadwood Creek Tributary	Lower Siuslaw River	2	420	8	210	560
Beacon Creek (Roseburg BLM)	Upper Smith River	3	915	7	300	607
Elk Creek (Tillamook)	Upper Nestucca River	3	1390	18	140	318
Whittaker Creek	Siuslaw River	3	680	17	30	614

Valley cross sections

Cascades: Walker Creek –Willamette NF

Watershed	Stream order	Elevation (Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	4	2600'	48'	158	518'



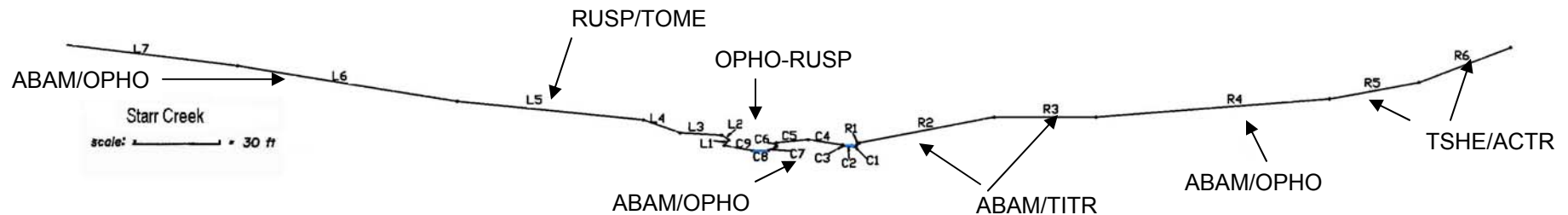
Riparian: There are two major channels, one with a cobble bar exposed during summer low flow, which supports the Coltsfoot-betony community. The island between the channels has the cobble bar/low floodplain community (Red alder-big leaf maple)/Stink currant-salmonberry/piggyback plant. In this old growth site, western redcedar dominates the canopy. Young big leaf maple, western hemlock, and Douglas-fir are present. The Sorrel-Pacific waterleaf community occupies the bank of the island.

Upland: The right limb of the transect shows typical moderate elevation warm, well-drained western hemlock plant associations. Western hemlock/salal (TSHE/GASH-NWO Cascades) on steeper slopes indicates slightly drier growing conditions than Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Cascades). A tributary to Walker Creek (just beyond the left end of the transect) may be responsible for the increased moisture reflected in Western hemlock/Oxalis (TSHE/OXOR-NWO Cascades) and Western hemlock/sword fern (TSHE/POMU-NWO Cascades) on the left side (L1-5).

Valley cross sections

Starr Creek-Willamette NF

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	2	4120'	15'	216	376'



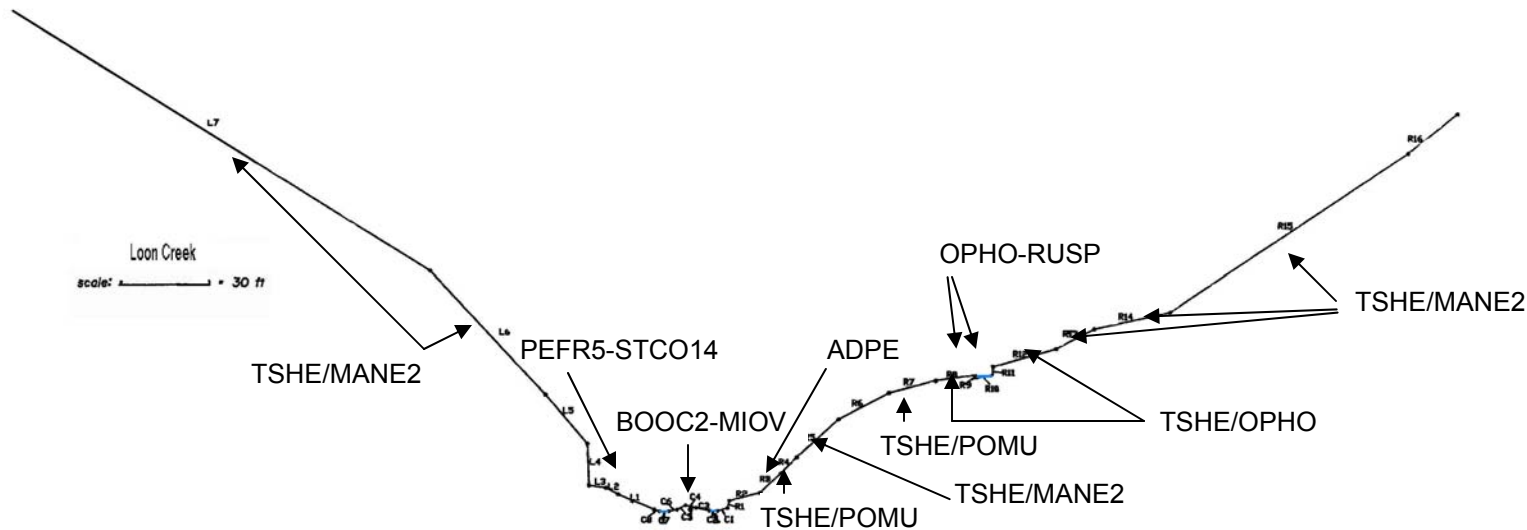
Riparian: Starr Creek begins here in a cool cirque basin. The gentle bowl supplies enough moisture for the sub-irrigated Silver fir-devil's club (ABAM/OPHO) upland plant association. The creek is in two channels, with Devil's club-salmonberry on the active floodplain of the left channel. The cirque basin is so wet that Salmonberry/piggyback plant occupies an unusually wide opening (L5) far from the small headwater stream. This community is typically found on active floodplains and cobble bars. Devil's club-salmonberry is found in the active floodplain of the island between the two channels.

Upland: The upland communities in the bowl of the cirque basin include Silver fir/devil's club and the moist silver fir type, Silver fir/coolwort foamflower (ABAM/TITR). Cold air drainage may account for the occurrence of the cooler silver fir plant associations toward the basin center, while warmer western hemlock types such as Western hemlock/vanilla leaf (TSHE/ACTR) can be found on the basin walls (segments R5-6).

Valley cross sections

Loon Creek Willamette NF

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	3	2950'	20'	262	627'



Riparian: Loon Creek is a perennial creek that becomes spatially intermittent just upstream of the transect. The main channel emerges from beneath a large boulder pile. The transect shows a fairly steep valley. The Coast boykinia-oval-leaved mitrewort community occupies a depositional bar in the main channel. Coltsfoot-Cooley's betony occupies the left bank. On the right, the Maidenhair fern community is found to the steep transition between riparian and upland types.

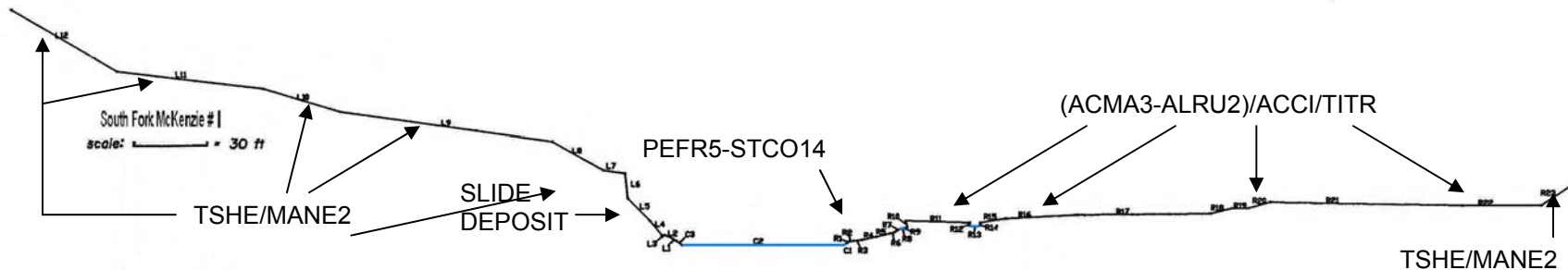
Upland: A small tributary on the right has devil's club, with Western hemlock/Devil's club (TSHE/OPHO) on both sides. The wet Western hemlock/devil's club type gives way to the moist Western hemlock/sword fern (TSHE/POMU- NWO Cascades) association. Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Cascades) is the matrix upland plant association on the fairly steep hillslope.

Field notes record that over a dozen Pacific giant salamanders (1.5-5" long) were observed in the channel at this site.

Valley cross sections

South Fork McKenzie River #1 Willamette NF

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	6	2380'	71'	142	671'



The South Fork McKenzie River here is a single main channel, with small mucky side channels on the broad floodplain on the right. The left side of the transect shows slide scarp and slide deposit grading from a western hemlock overstory to big leaf maple, with young red alder by the left bank.

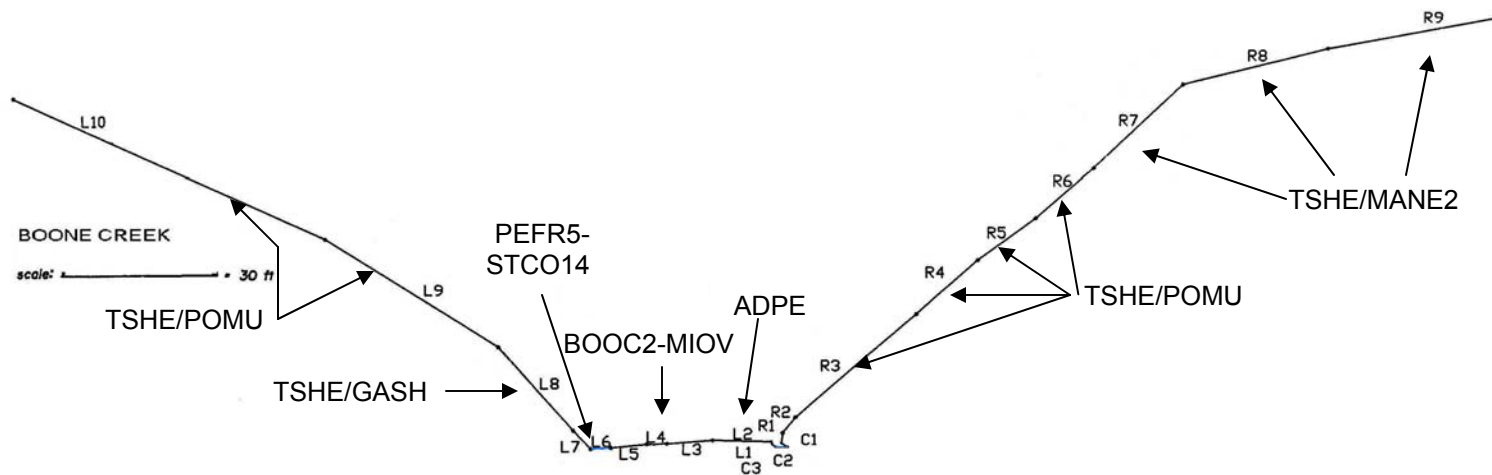
Riparian: On the right, Coltsfoot-Cooley's betony with red alder is at the channel margin. The main floodplain is dominantly (Big leaf maple-red alder)/vine maple/foamflower, but the composition of the tree layer shifts with distance from the channel. Red alder (R11-16) gives say to the big leaf maple with some western redcedar (R17).

Upland: With the final rise to the most elevated terrace, the canopy is big leaf maple with young grand fir beneath. At the far right transect to the toeslope, big leaf maple, western redcedar and Douglas-fir co-dominate. Western hemlock/dwarf Oregon grape (TSHE/MANE2- NWO Cascades) is the upland plant association of the lower hillslope on both sides of the valley.

Valley cross sections

Boone Creek-Willamette NF

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	3	2655'	3'	295	342'

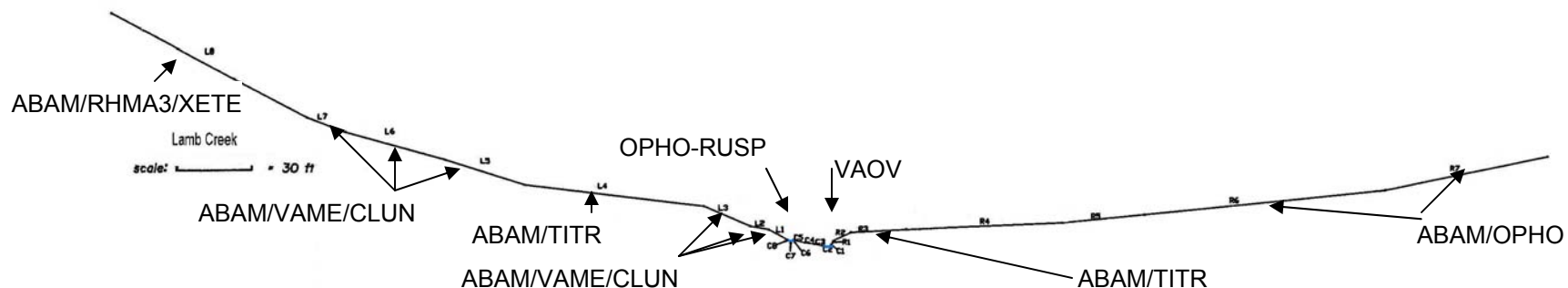


Riparian: Boone Creek's riparian vegetation echoes the pattern from Loon Creek, though Boone is found on more unstable earthflow topography. The Maidenhair fern community is on the nearly vertical right bank. The narrow valley floor is noted as swampy. Coltsfoot-Cooley's betony is found on the side channel on the left, but Coast boykinia-oval-leaved mitrewort community spans most of the valley floor. Tree regeneration (Douglas-fir, western hemlock, western redcedar, red alder) is fairly dense near the main channel, but only red alder is found in the overstory. No trees are found on the muckier side (L4-5). However, mature western redcedar dominates the gentler segments on the left transect (L7, 9-10).

Valley cross sections

Lamb Creek Willamette NF

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	2	4340'	12'	140	320'



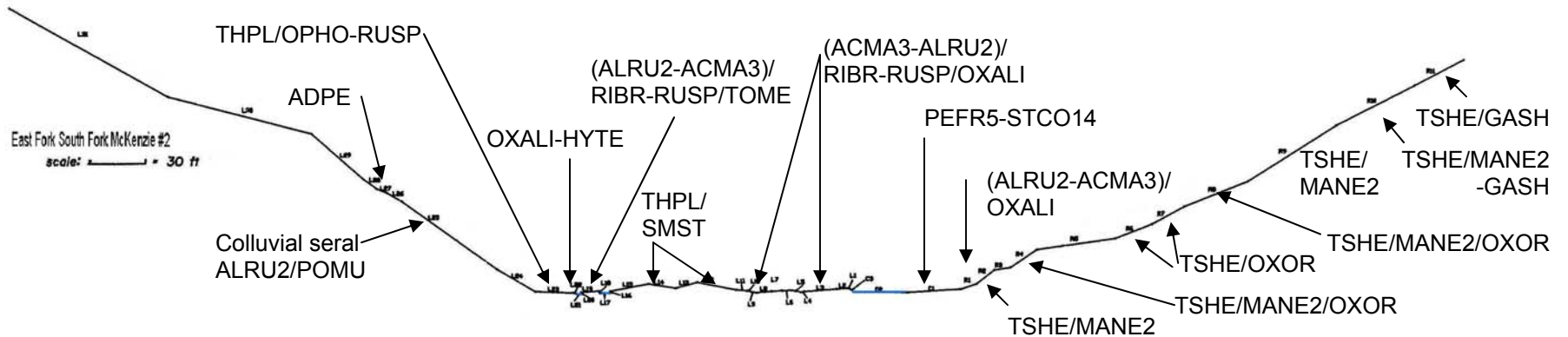
Riparian: This is another example of a headwater creek originating in a cool cirque basin, somewhat like Starr Creek. The Devil's club-salmonberry community is in the island between the two channels, though Oval-leaved huckleberry community occupies the right bank and low, gentle surface (R4) which receives much of the cirque basin moisture.

Upland: The cool Silver fir/Devil's club (ABAM/OPHO) association is often sub-irrigated. It occurs around openings in the cirque basin's wetter, flatter segments (R6-7), though here the steep slopes go from the dry frosty Silver fir/rhododendron/bear grass (ABAM/RHMA3/XETE) association through the cool but well drained Silver fir/big huckleberry/queencup beadlily (ABAM/VAME/CLUN) to the moister Silver fir/coolwort foamflower (ABAM/TITR) associations.

Valley cross sections

East Fork South Fork McKenzie River #2 Willamette NF

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie River	5	2390'	68'	90	861'



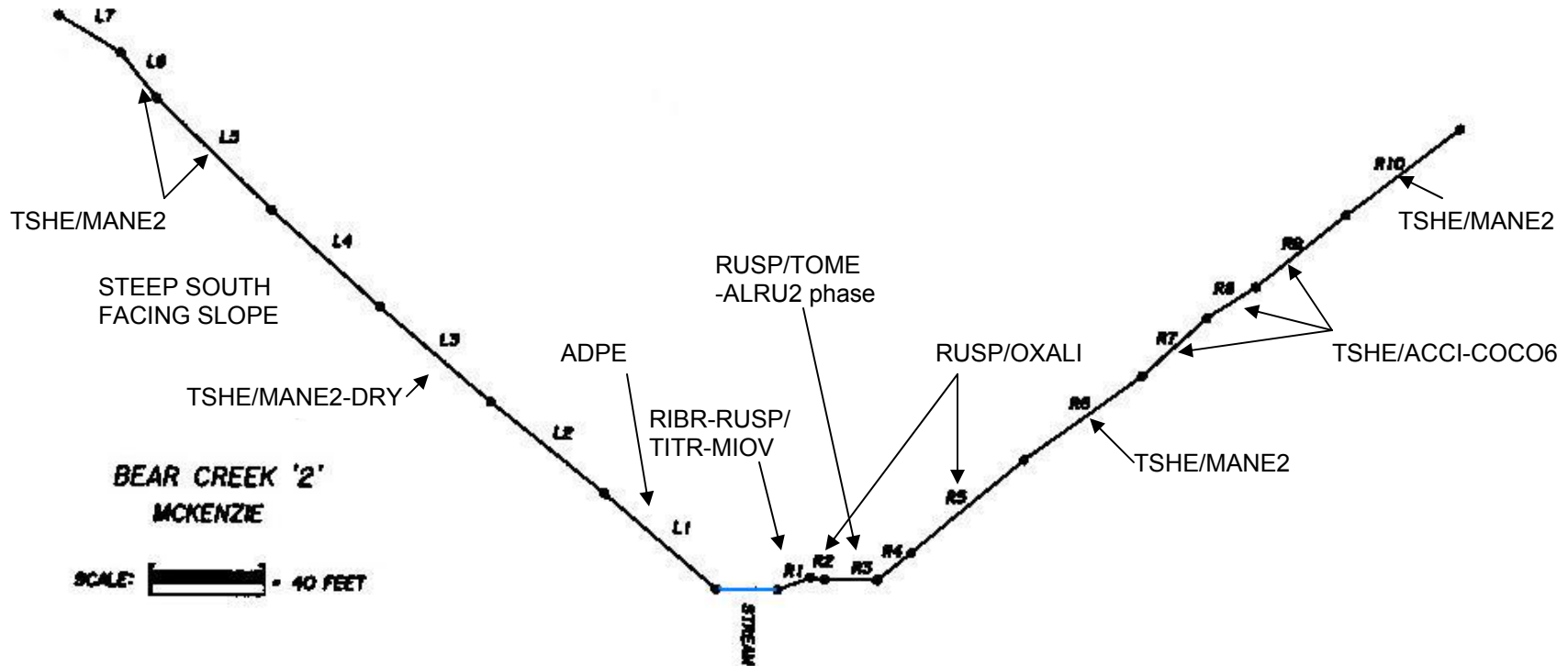
Riparian: This transect can be compared to the South Fork McKenzie River #1. This site has a broader lower floodplain and a wider variety of riparian communities. The main channel's right margin is Coltsfoot-Cooley's betony. The narrow right bank has the steep bank (Red alder-big leaf maple)/sorrel community. The left side of the valley floor is more complex. Stink currant-salmonberry/sorrel-red alder phase and (Red alder-big leaf maple)/stink currant-salmonberry/piggyback plant are the major communities of the lower floodplain (L3) and are also adjacent to a small dry side channel (L9). The steep bank community Sorrel-Pacific waterleaf is found on the left side of the dry channel. Western redcedar/starry false Solomon's seal is on the highest topography of the valley floor (L12-14). The left-most channel (L17) repeats the Sorrel-Pacific waterleaf and (Red alder-big leaf maple)/stink currant-salmonberry/piggyback plant pattern. Western redcedar/devil's club-salmonberry is on the far left terrace. The left hillslope shows the Maidenhair fern community at a midslope seep (L26), with a red alder dominated early seral colluvial community (L25) below.

Upland: The upland associations show the influence of steepness on site moisture: the direr Western hemlock/salal (TSHE/GASH-NWO Cascades) and Western hemlock/dwarf Oregon grape-salal (TSHE/MANE2-GASH-NWO Cascades) give way to the moister Western hemlock/dwarf Oregon grape/oxalis (TSHE/MANE2/OXOR) or Western hemlock/oxalis (TSHE/OXOR-NWO Cascades) associations when topography flattens.

Valley cross sections

Bear Creek #2-Eugene BLM

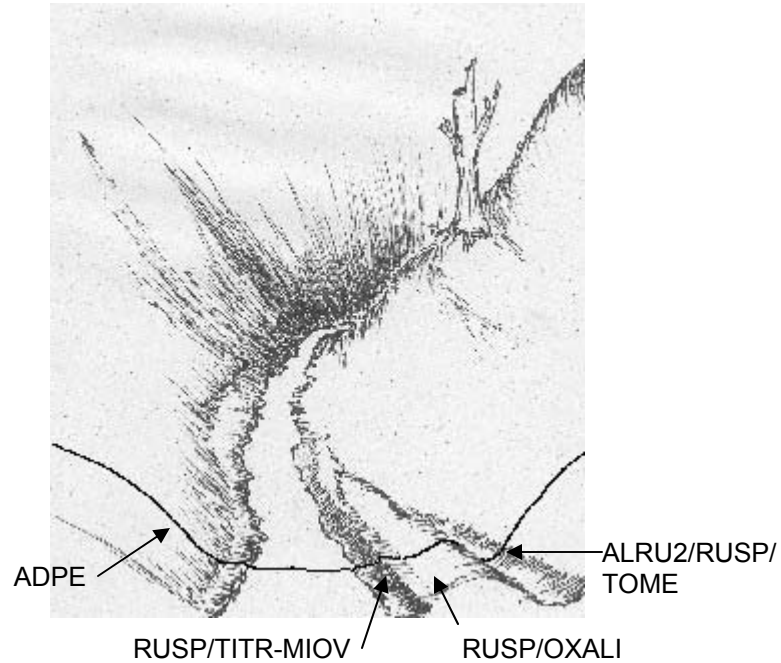
Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
McKenzie River	3	940'	25'	280	625'



Riparian: The Maidenhair fern community is found on a very steep valley wall. The cobble bar type Stink currant-salmonberry/foamflower-oval-leaved mitrewort is adjacent to the main channel. Salmonberry/sorrel is found on a terrace (R2) and on the steep right bank. Salmonberry/piggyback plant-red alder phase appears in an old overflow channel (R3) which may function as an active floodplain even during average years.

Valley cross sections

Upland: The south-facing left limb of the transect has Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Cascades) upslope of a warm California hazel phase of the moist Western hemlock/sword fern (TSHE/POMU-NWO Cascades). On the right side, convex segments have Western hemlock/dwarf Oregon grape, while the concave segments also support the California hazel phase of Western hemlock/sword fern.

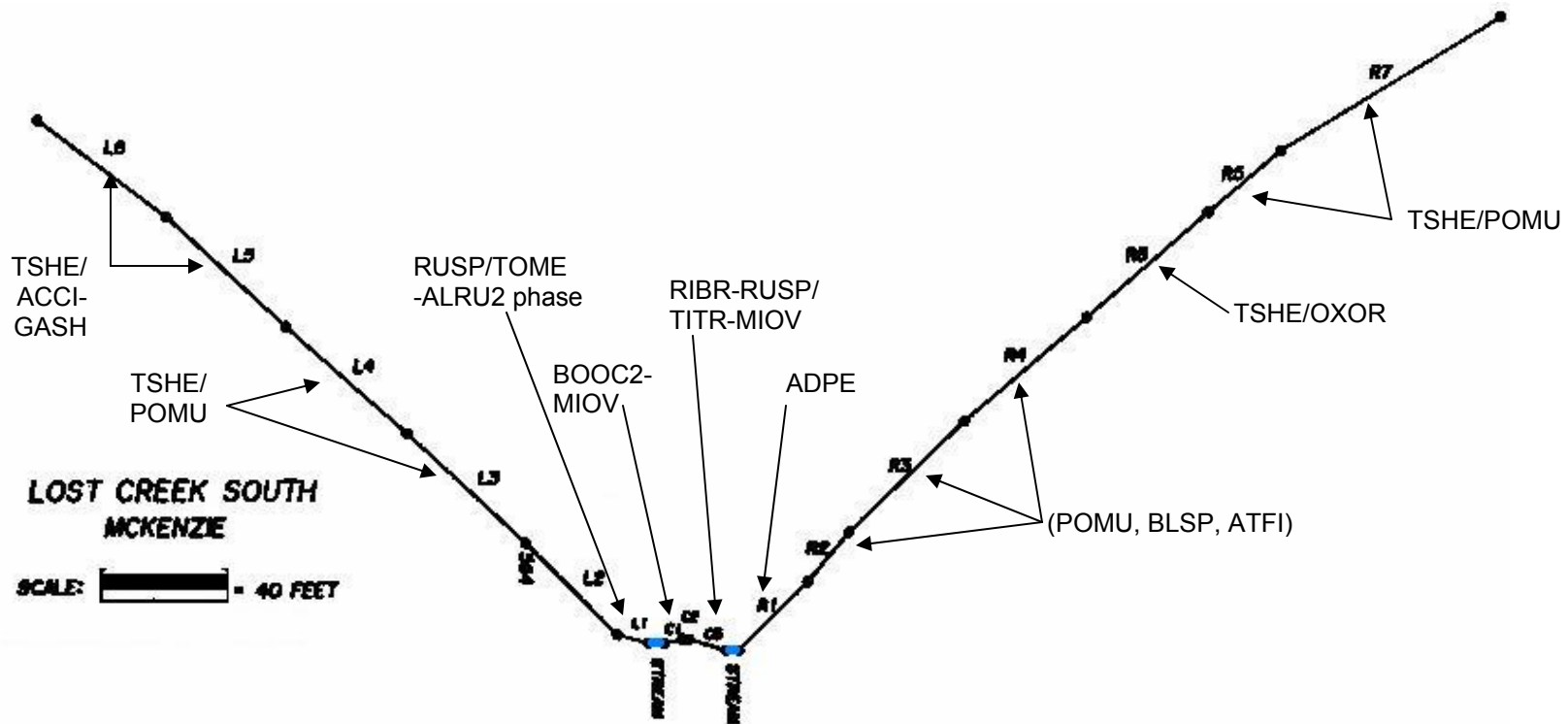


Slope distance from creek (feet)	250	200	150	100	50	0	50	100	150	200	250	300
Conifer basal area (sq.ft/acre)	100	160	180	140	100		100	160	180	200	180	160
Hardwood basal area (sq.ft/acre)	0	20	20	20	20		20	20	0	0	20	40

Valley cross sections

South Fork Lost Creek-Eugene BLM

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Middle Fork Willamette River	3	1600'	12'	45	612'



Riparian: This transect is similar to Bear Creek #2. The Maidenhair fern community is adjacent to the creek on a seepy steep valley wall. The cobble bar/active floodplain community Stink currant-salmonberry/foamflower-oval-leaved mitrewort is on a cobble island between two channels, while the channel margin community Coast boykinia-oval-leaved mitrewort is barely above normal high water line. Salmonberry/piggyback plant-red alder phase is on active floodplain on the left bank.

Valley cross sections

Upland: The moist upland association Western hemlock/oxalis (TSHE/OXOR-NWO Cascades) is found mid-slope of the right limb of the transect, with the slightly drier Western hemlock/sword fern (TSHE/POMU-NWO Cascades) on the convex segment upslope. The left limb has a warm south west aspect. There, Western hemlock/sword fern is mid-slope. Western hemlock/vine maple-salal (TSHE/ACCI-GASH) is in the convex higher slope position.



ALRU2/
RUSP/
TOME

RIBR-RUSP/
TITR-MIOV

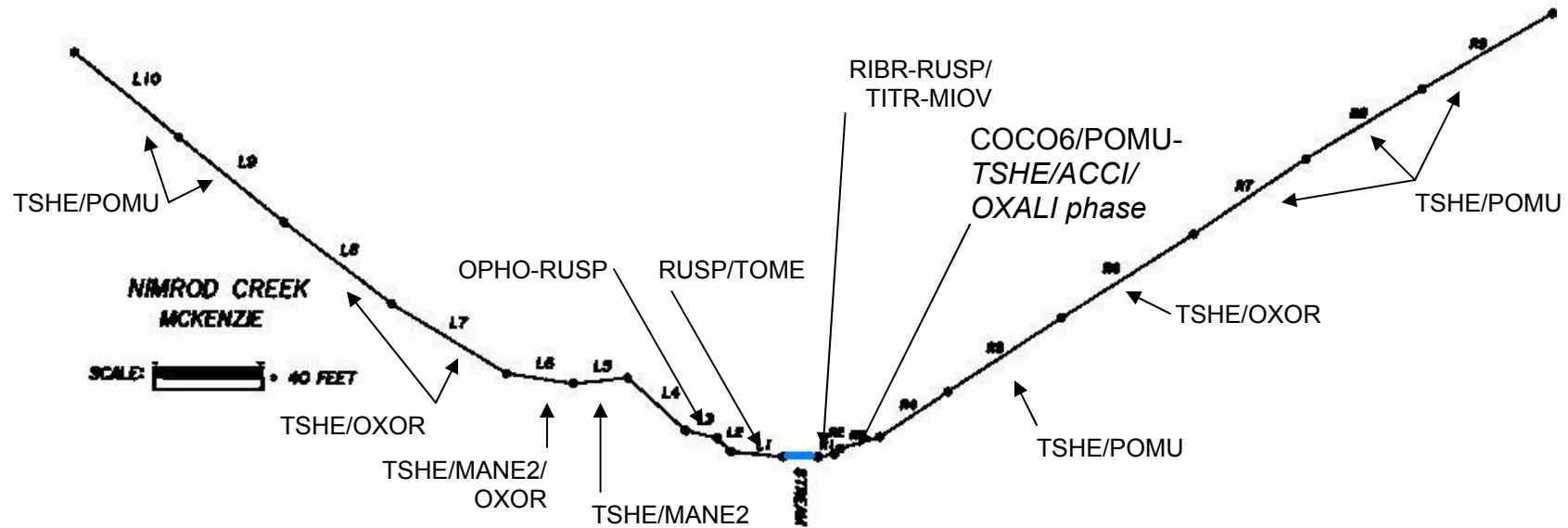
ADPE

Slope distance from creek (feet)	250	200	150	100	50	0	50	100	150	200	250	300
Conifer basal area (sq.ft/acre)	120	120	80	60	20		160	100	80	140	180	140
Hardwood basal area (sq.ft/acre)	20	20	60	20	0		0	0	0	0	0	20

Valley cross sections

Nimrod Creek (Eugene BLM)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
McKenzie River	3	1050'	15'	10	613'



Riparian: The site is below a massive debris jam. The single channel has active floodplain communities Stink currant-salmonberry/foamflower-oval-leaved mitrewort on the right and Salmonberry/piggyback plant on the left. A low terrace (R3) supports the Forested California hazel/sword fern-western hemlock/vine maple/sorrel phase. Devil's club-salmonberry is on a higher terrace (L3). Devil's club's presence on L3-4 suggests that the concave segment may be sub-irrigated.

Valley cross sections

Uplands: Moist Western hemlock/oxalis (TSHE/OXOR-NWO Cascades) and Western hemlock/sword fern (TSHE/POMU-NWO Cascades) dominate the uplands. Western hemlock/oxalis is associated with concave segments (L7-8). The more well drained Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Cascades) is located on the single convex segment (L5).

TSHE/ACCI-
COCO6/
OXALI

RIBR-RUSP/
TITR-MIOV

OPHO-
RUSP

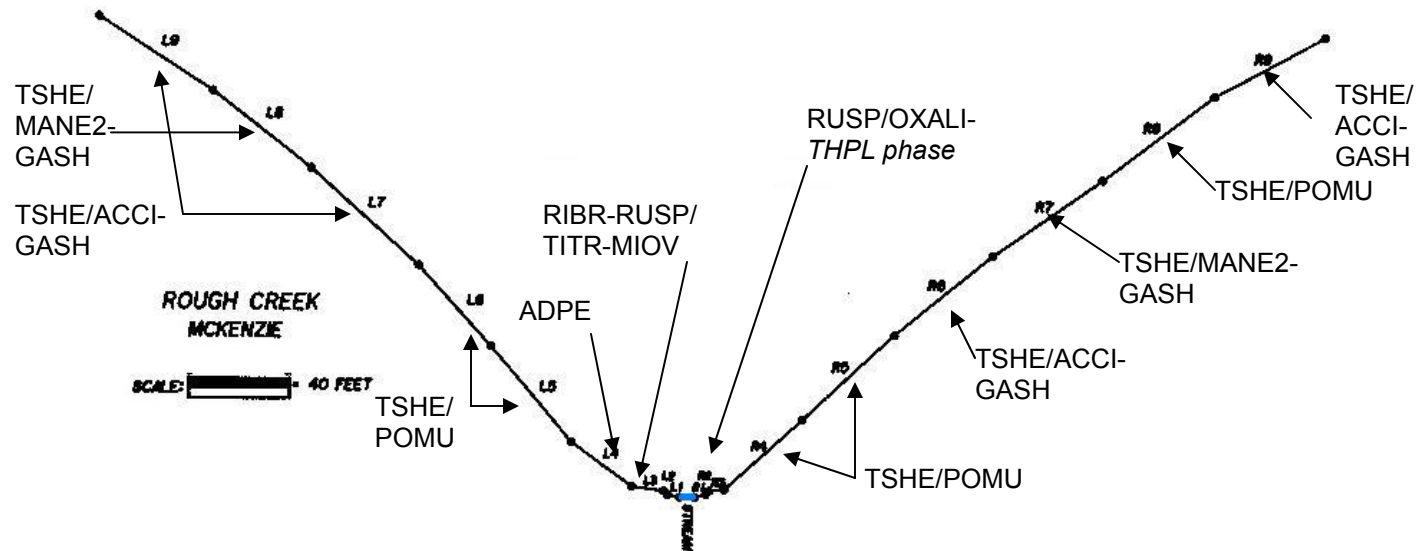
RUSP/TOME

Slope distance from creek (feet)	300	250	200	150	100	50	0	50	100	150	200	250	300
Conifer basal area (sq.ft/acre)	140	160	180	60	160	100		120	200	120	100	140	140
Hardwood basal area (sq.ft/acre)	0	0	20	40	0	0		20	0	40	40	0	0

Valley cross sections

Rough Creek (Eugene BLM)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
McKenzie River	3	1060'	22'	180	606'

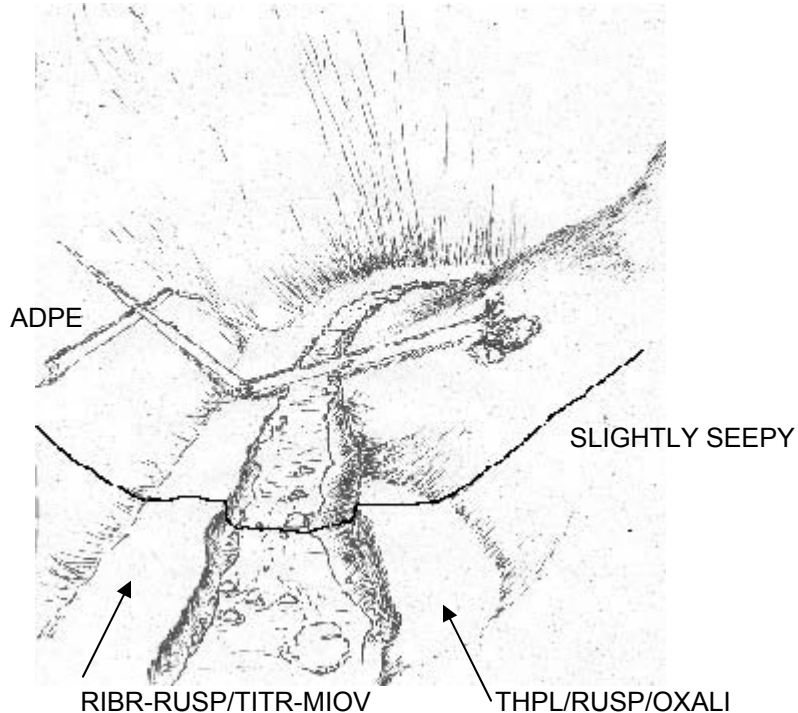


Riparian: This transect resembles Bear Creek #2 and South Fork Lost Creek, with the Maidenhair fern community on a seepy valley wall, and Stink currant-salmonberry/foamflower-oval-leaved mitrewort on the floodplain. It is included because it supports Salmonberry/sorrel-western redcedar phase on a slightly elevated floodplain below a somewhat seepy valley wall.

Upland: Upland plant associations are typical of the low to moderate elevations. This valley has relatively flat slopes, and the role of slope position is emphasized. The moist Western hemlock/sword fern (TSHE/POMU-NWO Cascades) is on the lower slope, Western

Valley cross sections

hemlock/dwarf Oregon grape-salal (TSHE/MANE2-GASH-NWO Cascades) on the mid slope, and Western hemlock/vine maple-salal (TSHE/ACCI-GASH) on convex mid-slope segments and toward the upper slope. Compare Rough Creek to nearby Nimrod Creek. Both transects run east-west. It appears that steeper slopes on Rough Creek may be related to dominance of slightly drier upland plant associations.



Slope distance from creek (feet)	250	200	150	100	50	0	50	100	150	200	250
Conifer basal area (Sq. ft/acre)	200	220	180	80	20		160	160	100	200	160
Hardwood basal area (Sq. ft/acre)	40	40	20	0	0		0	0	0	0	0

Intermittent streams (Class IVs)-Willamette NF

One of the objectives of the transect sampling in the Sough Fork McKenzie River drainage was to examine the extent of riparian vegetation along different types of streams. For all sizes and orders of stream, the shape of the valley and the way groundwater moves from the hillslopes clearly dictates the upland plant communities' distributions. Convex topography is drier than concave topography, all other things being equal. More moisture is available to generally concave valley floor sites. The riparian zone often lies between upland types that are moisture than those found farther upslope. However, micro-topography can trump macro-topography. As the valley cross-sections reveal, a steep convex site even next to a large perennial stream will support drier plant associations.

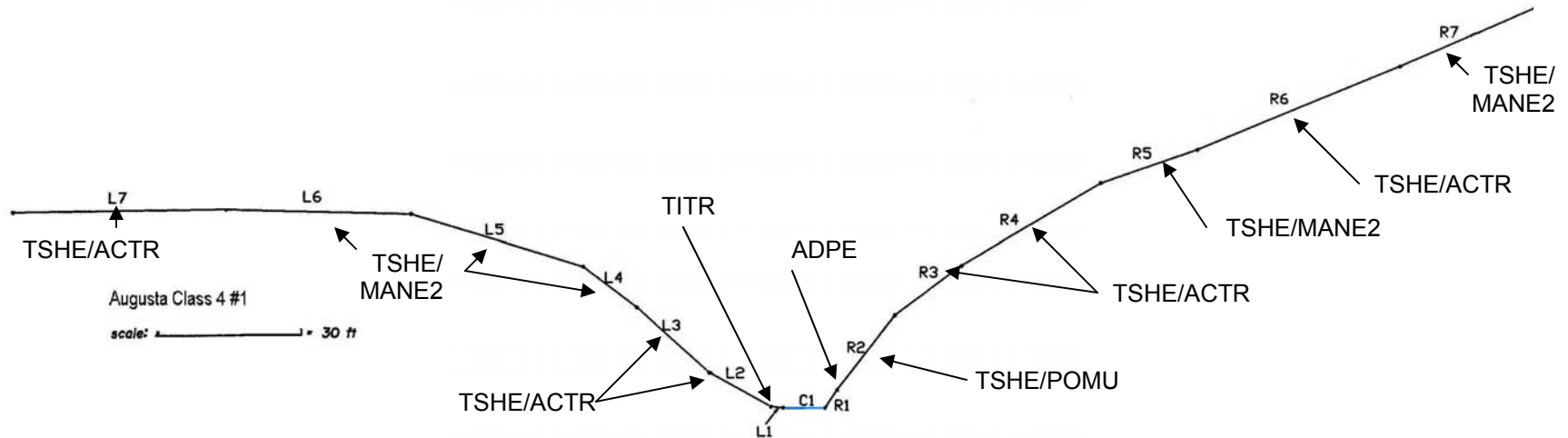
A creek does not necessarily lie within a "moist" upland context. There may not be sufficient precipitation or enough soil moisture available to the site, or topography may not define a moister or cooler microclimate near the riparian zone. The larger topographic setting clearly dominates the extent of the riparian influence along intermittent streams.

How riparian is the riparian zone of an intermittent stream? The valley cross-sections of intermittents were put in perpendicular to the intermittent stream. Generally the transects went more or less on the contour of the larger valley of the major creek to which the intermittent was a tributary. This should be kept in mind when interpreting possible topographic relationships across these tiny streams. Actual slopes tend to be steeper than shown. Generally, steep intermittent streams appear to have extremely restricted riparian vegetation. In very gentle settings such as marshy lake basins or cirques, more extensive riparian zones can be found.

Valley cross sections

Augusta Creek Class IV #1

S. Fork McKenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Augusta Creek	4620'	9'	100	349'



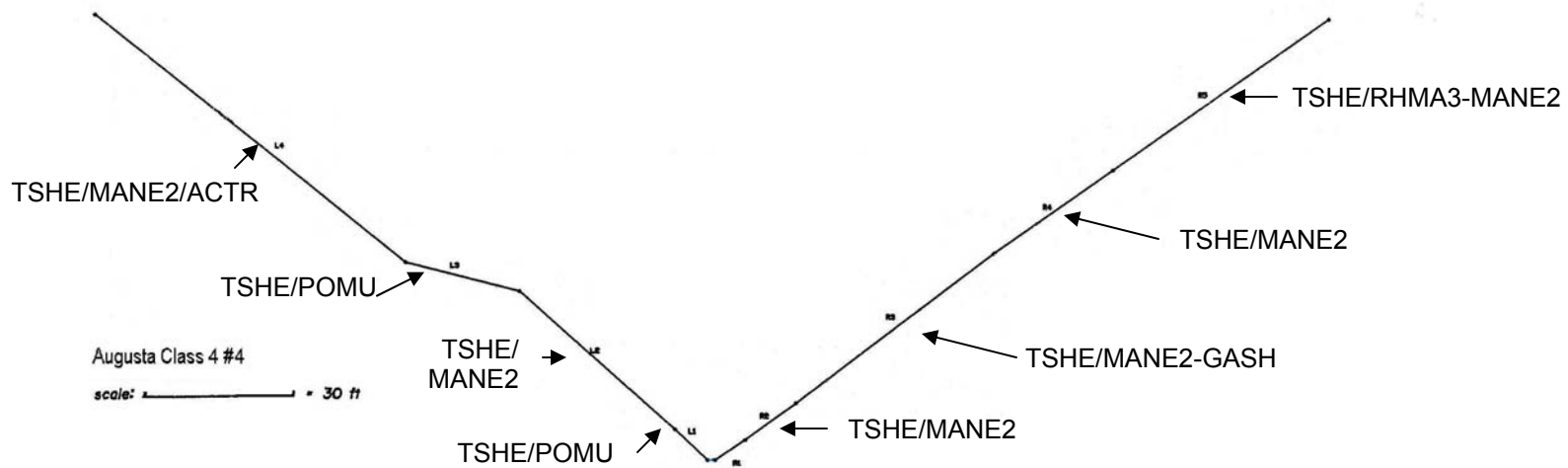
Riparian: This is a warm slope at the transition between western hemlock and silver fir zones. Field notes show this was in an old growth stand. The riparian communities extend 2 to 4 feet slope distance from the gravelly channel. The left bank has the channel margin Foamflower community, while the steep right bank has the Maidenhair fern community.

Upland: Upland plant associations vary between Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Cascades) on the convex segments to Western hemlock/vanilla leaf (TSHE/ACTR) on the gentler or concave segments. The moist Western hemlock/sword fern (TSHE/POMU-NWO Cascades) association along the right bank shows the influence of the water available in the intermittent drainage. Field notes indicate the transect was on a flat section and that the channel was wider than typical for the intermittent.

Valley cross sections

Augusta Creek Class IV #4

S. Fork Mckenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Augusta Creek	2800'	2'	325	342'

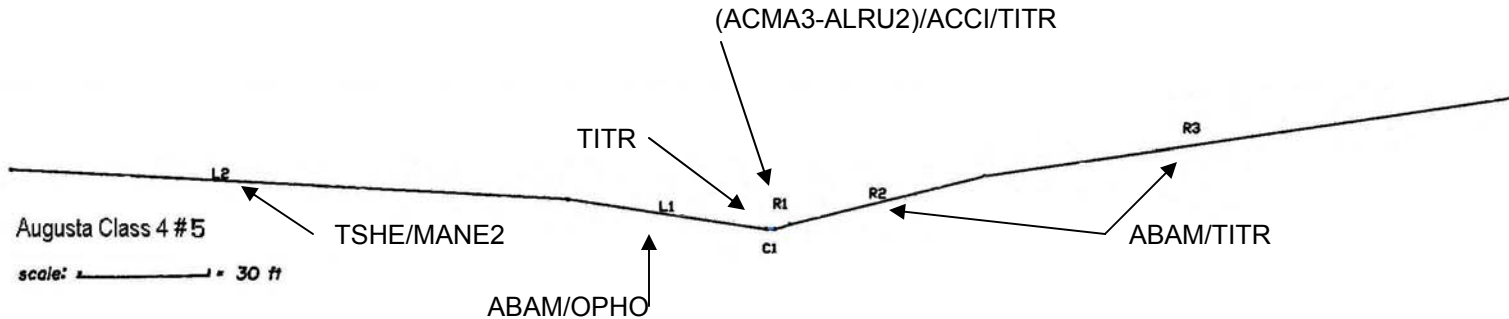


This intermittent is on a steep slope in the western hemlock zone. Field notes refer to the left side (L3) as a cliff. The channel and banks had only upland species. The Western hemlock/sword fern (TSHE/POMU-NWO Cascades) association, a relatively moist upland plant association, occurs on a bench (L3) above the cliff and adjacent to the dry channel (L1).

Valley cross sections

Augusta Creek Class IV #5

S. Fork McKenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Augusta Creek	4220'	2'	215	342'

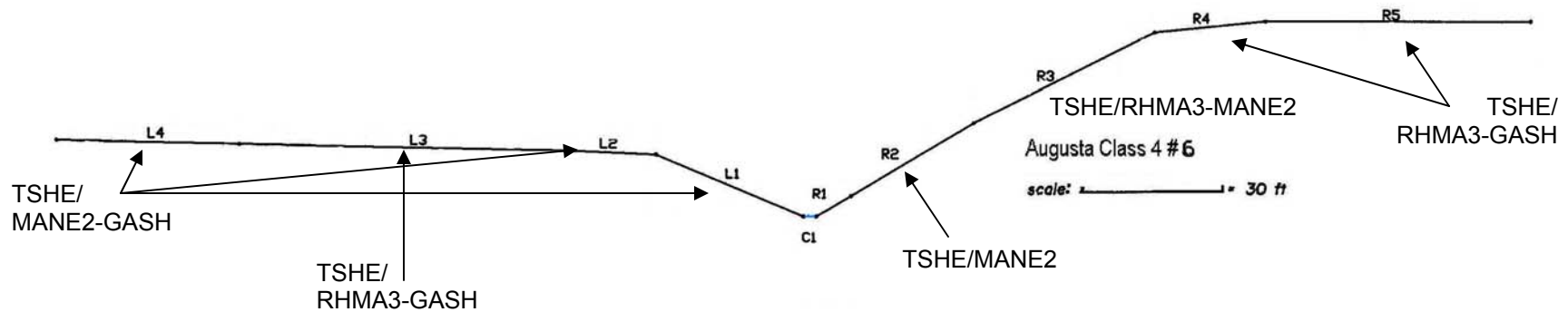


This dry tributary is set in a moist Silver fir/coolwort foamflower (ABAM/TITR) upland matrix. The sub-irrigated Silver fir/devil's club (ABAM/OPHO) upland plant association is present on the left transect. The vegetated channel itself is the Foamflower riparian plant community. The right bank is a western hemlock-dominated (Big leaf maple-red alder)/vine maple/foamflower community. Note that the upland Silver fir/coolwort foamflower to Silver fir/devil's club pattern can also be seen in the Starr Creek cirque basin.

Valley cross sections

Augusta Creek Class IV #6

S. Fork McKenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Augusta Creek	3040'	3'	190	343'

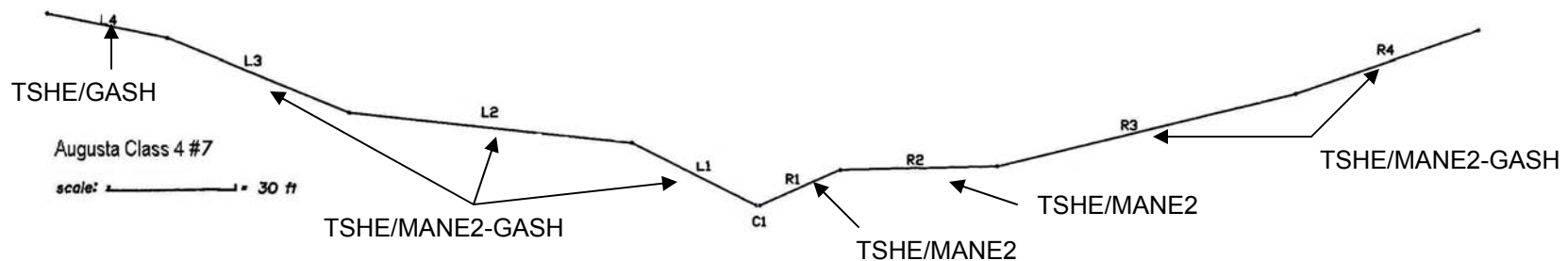


No riparian species were recorded on the transect. In the channel, only salal was present (at 1% cover) under a dense western hemlock-western redcedar canopy. In the upland, well drained Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Cascades) and Western hemlock/dwarf Oregon grape-salal (TSHE/MANE2-GASH-NWO Cascades) are the moistest members of the plant associations present, and are found adjacent to the channel.

Valley cross sections

Augusta Creek Class IV #7

S. Fork Mckenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Augusta Creek	2950'	1'	85	341'

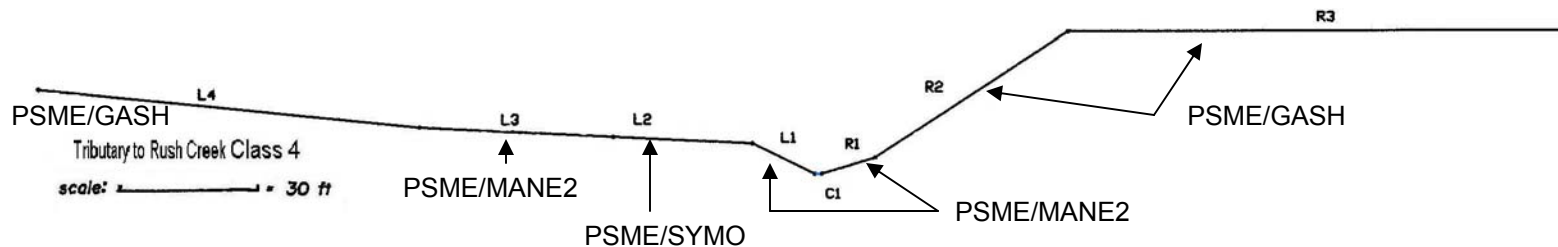


Field interpretation put this site on the border between ephemeral and intermittent. The channel itself had upland species: salal, dwarf Oregon grape, and vanilla leaf, under overhanging western hemlock and western redcedar. The cross-section illustrates the effect of slope and slope position on the upland plant associations (from drier to moister): Western hemlock/salal to Western hemlock/dwarf Oregon grape-salal to Western hemlock/dwarf Oregon grape. The Western hemlock /dwarf Oregon grape occurs on the flattest segment (R2).

Valley cross sections

Rush Creek tributary Class IV

S. Fork McKenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Rush Creek	2280'	1'	340	341'

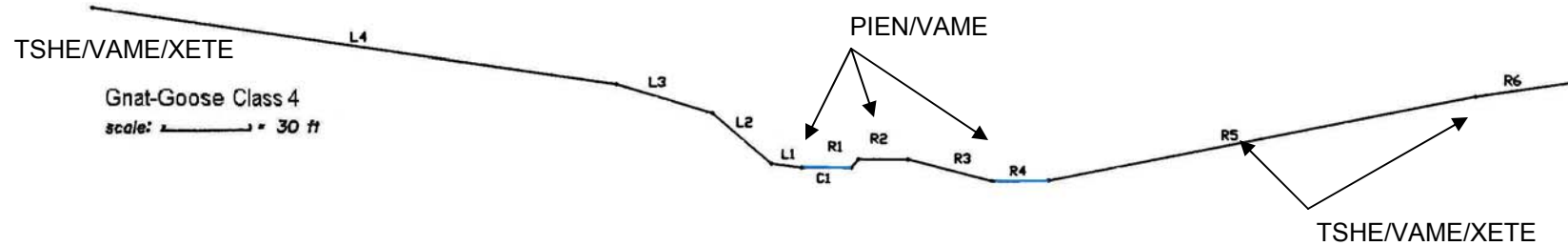


This intermittent is on a steep hot south slope in the Douglas-fir series, which is the warmest and driest forested series in northwest Oregon. The stream gradient is about 9-% at this site. No riparian species occurred on the transect. The channel itself had upland species such as salal, common snowberry, bald hip rose, and dwarf Oregon grape. Poison oak was found on the left segment closest of the channel. The upland plant associations were the moistest in the Douglas-series, and may be influenced by the drainage.

Valley cross sections

Gnat-Goose Class IV

S. Fork McKenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Mink Lake Basin	4880'	12'	130	352'

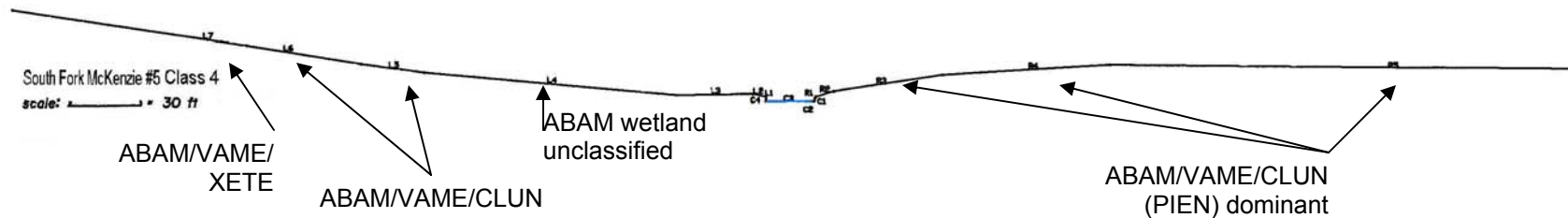


This intermittent is from the Mink Lake Basin on the High Cascades Plateau. It is in the high elevation mountain hemlock zone. Field notes: "It's a big creek when active." The cobble/boulder bar (R1-3) between the overflow channel (R4) and the main channel appears to be under water during high flow. The Englemann spruce/bigleaf huckleberry community occupies the left bank and cobble/boulder bar within a Mountain hemlock/big leaf huckleberry/beargrass plant association matrix.

Valley cross sections

South Fork McKenzie River #5 Class IV

S. Fork McKenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
S. Fork McKenzie	4540'	22'	flat	620'

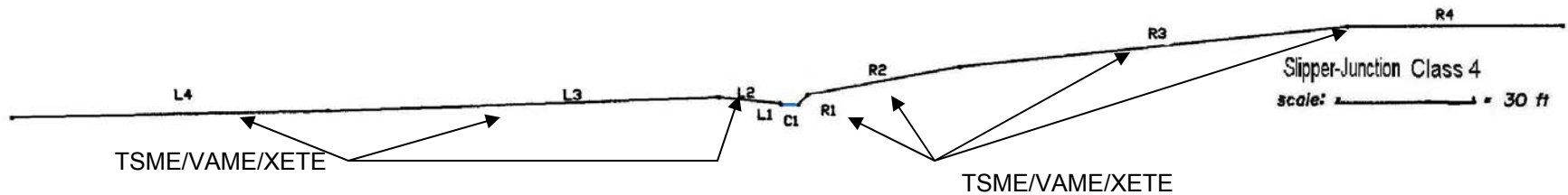


This is a single channel in an open, marshy setting in the upper silver fir zone. Note that Silver fir/big huckleberry/queencup beadlily (ABAM/VAME/CLUN) upland plant association is in the concave or flat segments, while the drier Silver fir/big huckleberry/beargrass (ABAM/VAME/XETE) is found on the steeper limb of the transect. Engelmann spruce dominates the upland on the right transect. Mountain alder and spiraea line the left bank.

Valley cross sections

Slipper-Junction Class IV

S. Fork Mckenzie River watershed	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Mink Lake Basin	4990'	4'	200	343'



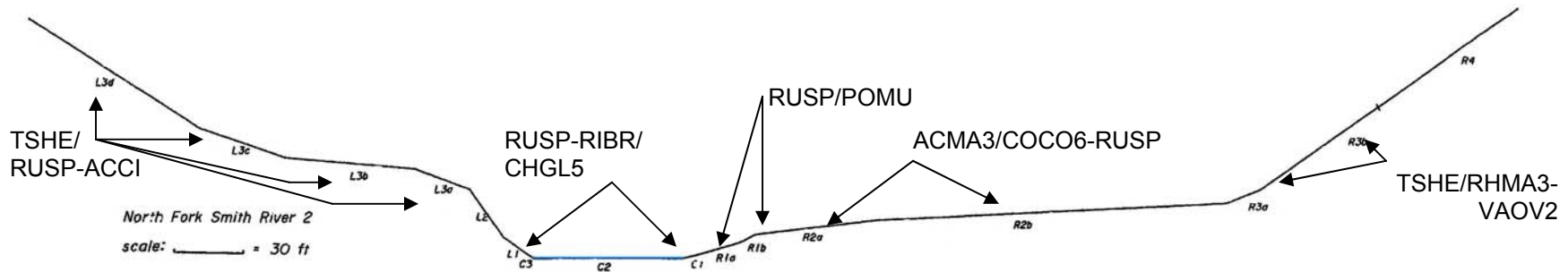
This is another Mink Lake Basin intermittent, in a gently slope surface at nearly 5000 feet in the mountain hemlock zone. This creek has only a third of the channel width of the other Mink Lake Basin example, Gnat-Goose, and it has a much more restricted riparian influence zone. A trace of nodding trisetum (*T. cernuum*) was the only species recorded in the channel. No other riparian species are recorded. The riparian area itself seems poorly defined. The upland plant association Mountain hemlock/big huckleberry/beargrass (TSME/VAME/XETE) is adjacent to the channel on both sides.

Valley cross sections

COAST RANGE

North Fork Smith River #2 (Siuslaw NF)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
N. Fork Smith River	4	270'	77'	248	869'



Riparian: This bedrock channel is bounded on both sides by the Salmonberry-stink currant/water-carpet community. The terrace/steep toeslope type Salmonberry/sword fern transitions into Big leaf maple/California hazel-salmonberry community at the slope break to the broad valley floor.

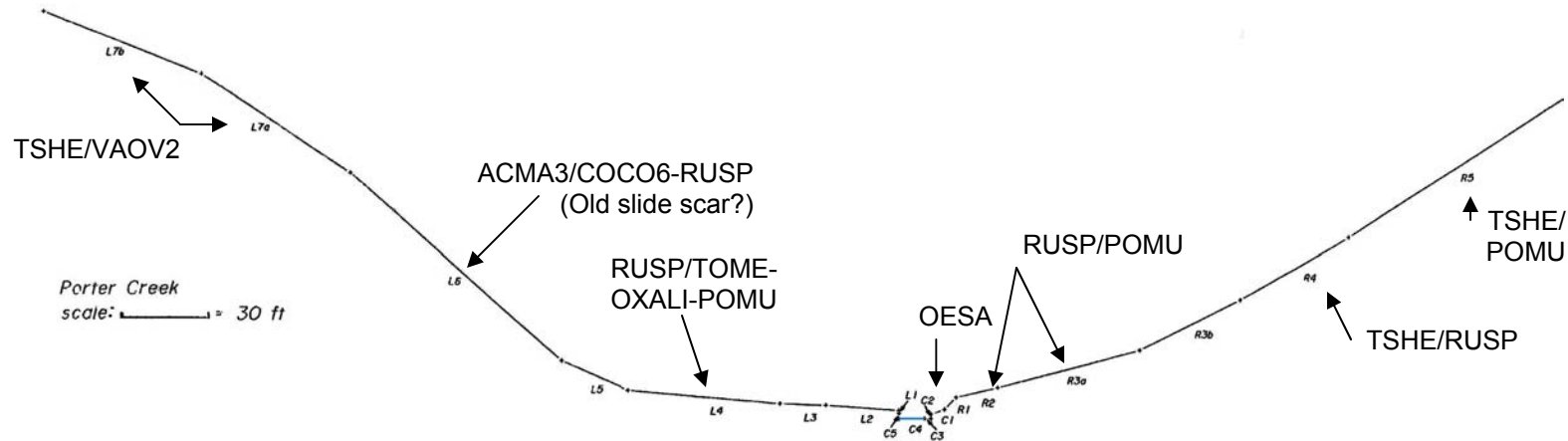
Upland: Western hemlock/salmonberry-vine maple (TSHE/RUSP-ACCI) is relatively moist. Western hemlock/rhododendron-evergreen huckleberry (TSHE/RHMA3-VAOV2) is well-drained. These two associations are common in the southwestern Siuslaw NF.

Slope distance from creek (feet)	220	170	120	70	20	0	20	70	120	170	220
Conifer basal area (Sq. ft/acre)	80	140	80	0	0		0	60	180	100	180
Hardwood basal area (Sq. ft/acre)	0	20	0	60	220		100	60	0	20	0

Valley cross sections

Porter Creek (Siuslaw NF)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
N. Fork Siuslaw River	1	270'	17'	128	571'



Riparian: Porter Creek has exposed bedrock during summer low flow. Salmonberry-piggyback plant-sorrel-sword fern phase is found on the wide floodplain (L4). Just below is the within-channel Waterparsley community. The Salmonberry-sword fern community occupies the right bank elevated terrace. On the left, Big leaf maple/California hazel-salmonberry is on an old slide scar on the steep valley wall.

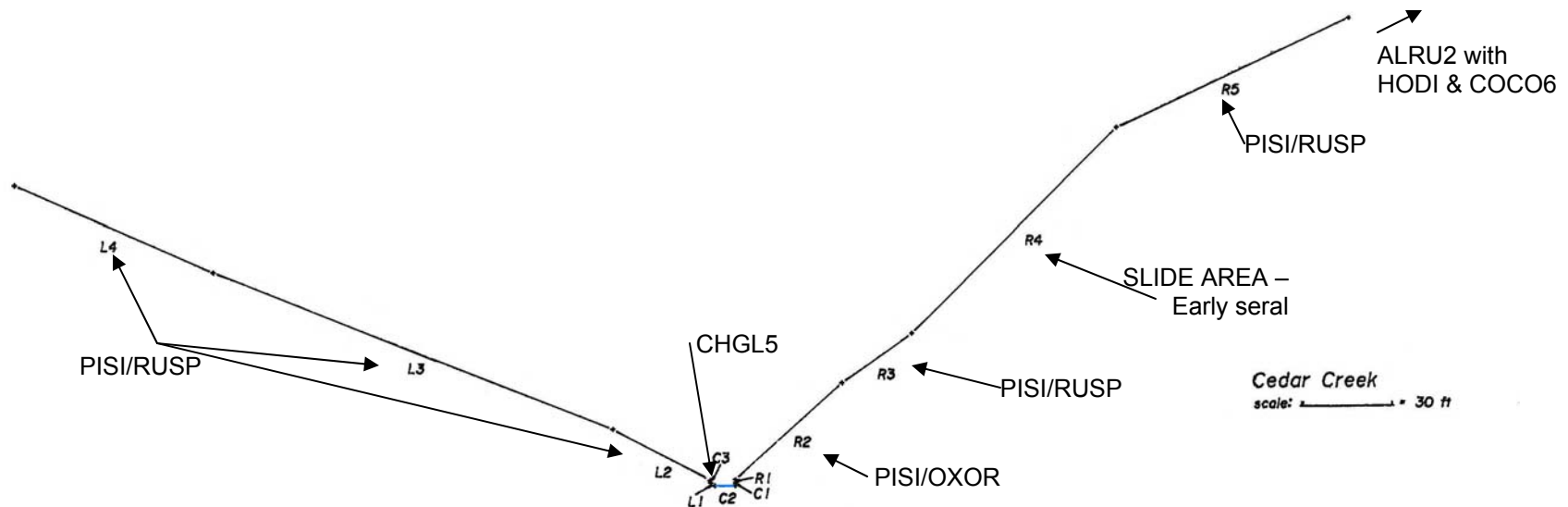
Upland: The right side of the transect shows a typical transition from the moist Western hemlock/sword fern (TSHE/POMU-NWO Coast) in the mid-slope to the wetter Western hemlock/salmonberry (TSHE/RUSP) association on the lower slope. Note that the well-drained coastal Western hemlock/evergreen huckleberry (TSHE/VAOV2) occupies the convex upper position on the left side of the transect.

Slope distance from creek (feet)	220	170	120	70	20	0	20	70	120	170	220
Conifer basal area (Sq. ft/acre)	120	0	0	0	0	0	0	20	20	60	140
Hardwood basal area (Sq. ft/acre)	0	60	60	120	20	60	20	0	0	0	0

Valley cross sections

Cedar Creek (Siuslaw NF-Waldport)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Drift Creek (to Alsea River)	1	80'	3'	165	464'

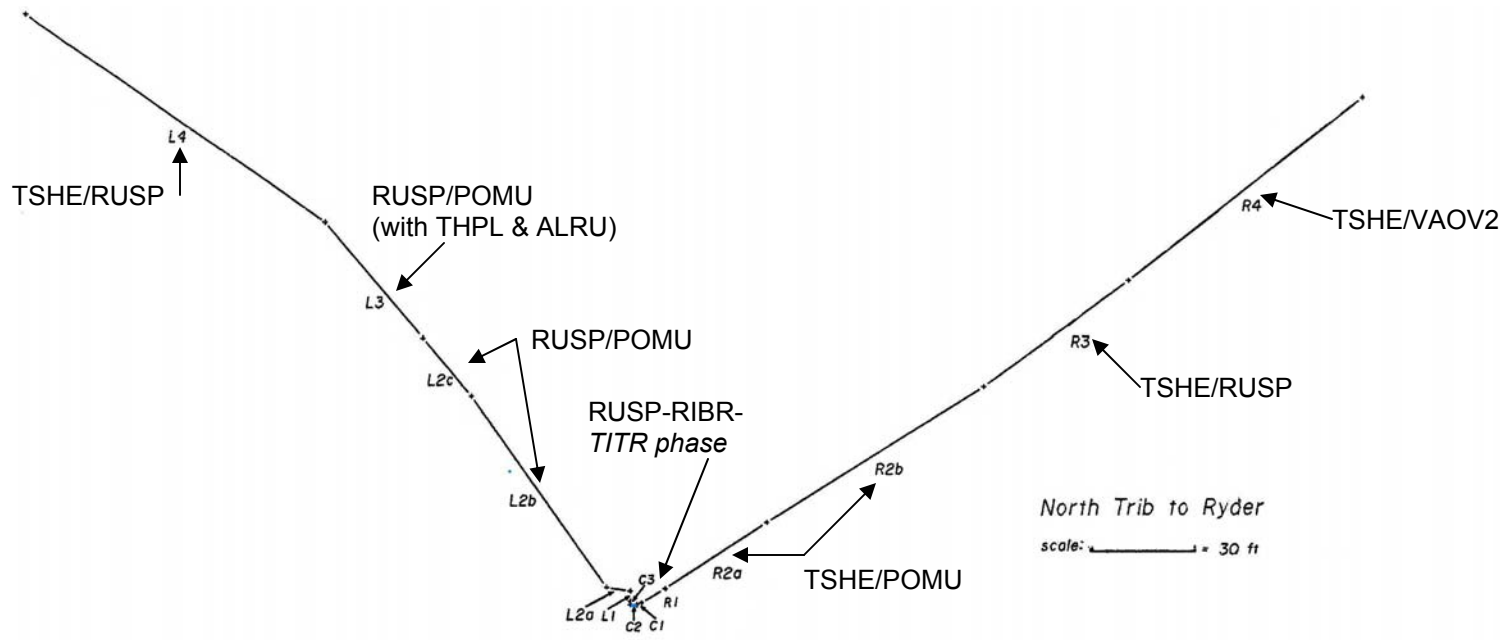


The riparian types for this small tributary to Drift Creek include only the Water-carpet community adjacent to the narrow creek. It is in the high precipitation fog belt Sitka spruce zone. Note that the wettest association in the Sitka spruce series, Sitka spruce/salmonberry (PISI/RUSP) is found on gentle to moderate slopes near the creek, but that the slightly drier Sitka spruce/oxalis (PISI/OXOR) association is found on a steeper segment (R2). An early seral seepy slide (R4) is found on the right side. At the top of the transect, warm site indicators oceanspray and California hazel mark a transition in moisture and/or microclimate.

Valley cross sections

North tributary to Ryder Creek (Siuslaw NF)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Maple Crk (Siltcoos Lake)	1	600'	3'	250	461'



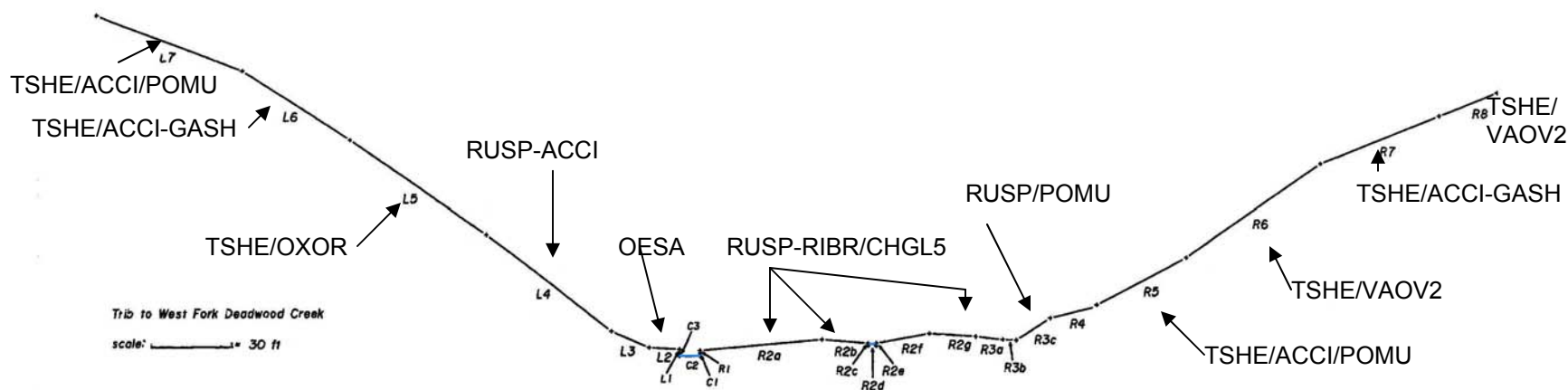
Riparian: Western redcedars are present from the creek to the ridge. The very steep left slope has red alder dominated Salmonberry/sword fern community (L3) and shrubby Salmonberry/sword fern (L2b) which may be early seral slide scar vegetation in this context. Near channel riparian communities are confined to the Salmonberry-stink currant-foamflower phase on the right bank (R1).

Upland: As in Porter Creek, Western hemlock/evergreen huckleberry (TSHE/VAOV2) occupies the upslope position (R4). However, here the moist Western hemlock/sword fern (TSHE/POMU-NWO Coast) (R2) appears below the wetter Western hemlock/salmonberry (TSHE/RUSP) (R3). Perhaps segment R3 is more concave than is suggested by the vertical profile.

Valley cross sections

Tributary-West Fork Deadwood Creek (Siuslaw NF)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Lower Siuslaw River	2	420'	8'	210	560'



Riparian: The wider valley floor and gentler hillslope provide a contrast to the North tributary to Ryder Creek. This transect is more similar to Porter Creek. The main channel is on the left side of the valley, with two overflow channels. Red alder and the Salmonberry-stink currant/water-carpet community occupy the bars between the channels. The Waterparsley community is found on the low shelf adjacent to the main channel (L2). The steep valley wall supports the Salmonberry-vine maple community.

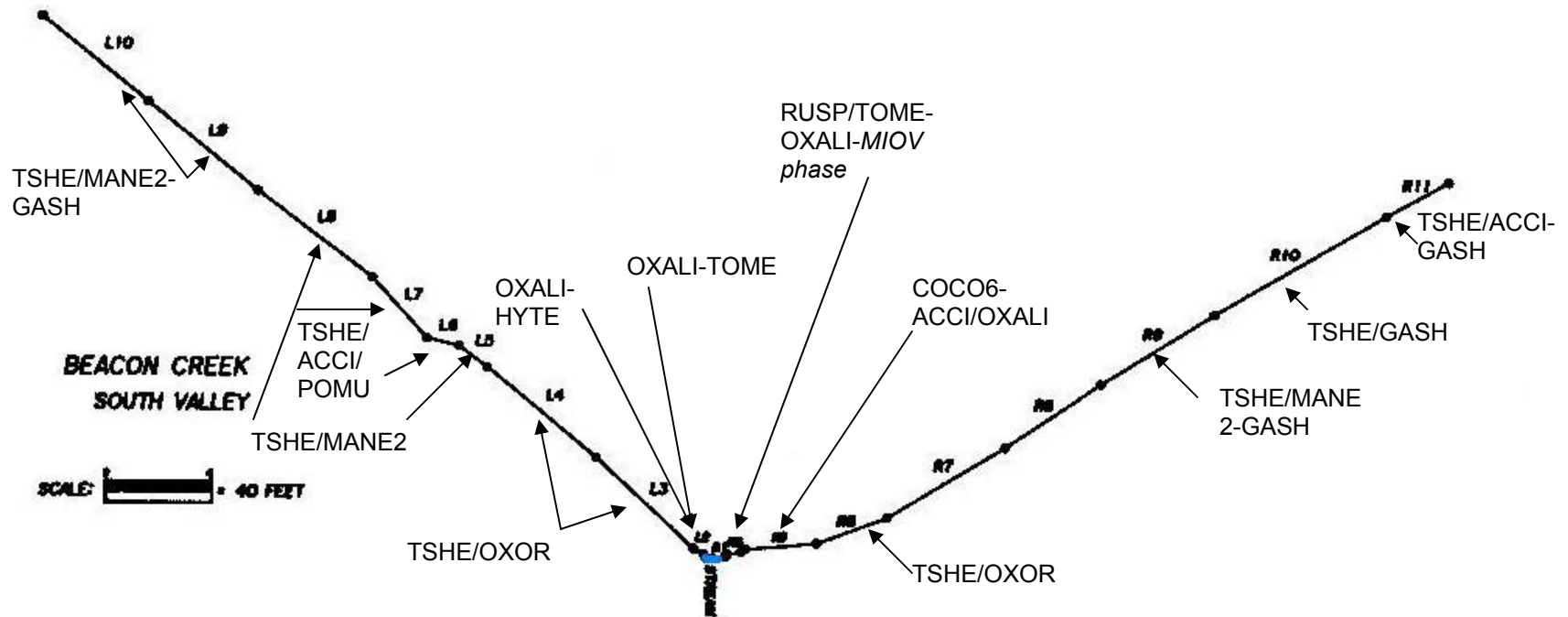
Upland: Well-drained Western hemlock/vine maple-salal (TSHE/ACCI-GASH-NWO Coast) and Western hemlock/evergreen huckleberry (TSHE/VAOV2) are on steep or convex segments, while the moist Western hemlock/vine maple/sword fern (TSHE/ACCI/POMU) and Western hemlock/oxalis (TSHE/OXOR-NWO Coast) dominate the flatter segments and lower slope positions.

Slope distance from creek (feet)	220	170	120	70	20	0	20	70	120	170	220
Conifer basal area (Sq. ft/acre)	60	60	140	60	40			0	60	160	260
Hardwood basal area (Sq. ft/acre)	0	0	20	20	20			40	0	0	0

Valley cross sections

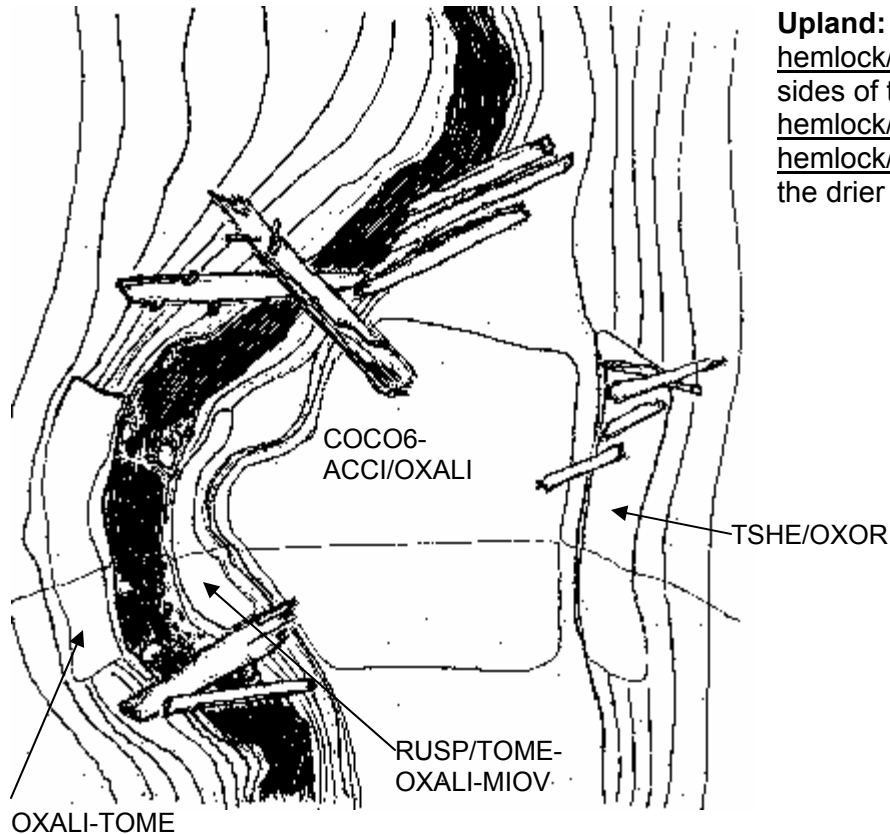
Beacon Creek (Roseburg BLM)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Upper Smith River	3	915'	7'	300	607'



Riparian: Beacon Creek illustrates the riparian vegetation patterns in the drier southeastern Cost Range of the upper Smith and upper Siuslaw River drainages. Here, salmonberry is confined to the active floodplain (R3) in the Salmonberry/piggyback plant-oval-leaved mitrewort phase. On the left bank the channel margin type is Sorrel-piggyback plant. A major terrace (R5) supports California hazel-vine maple/sorrel. The influence of precipitation zone is suggested in comparing the distribution of salmonberry across the valley floor and hillslope in Porter Creek to Beacon Creek.

Valley cross sections



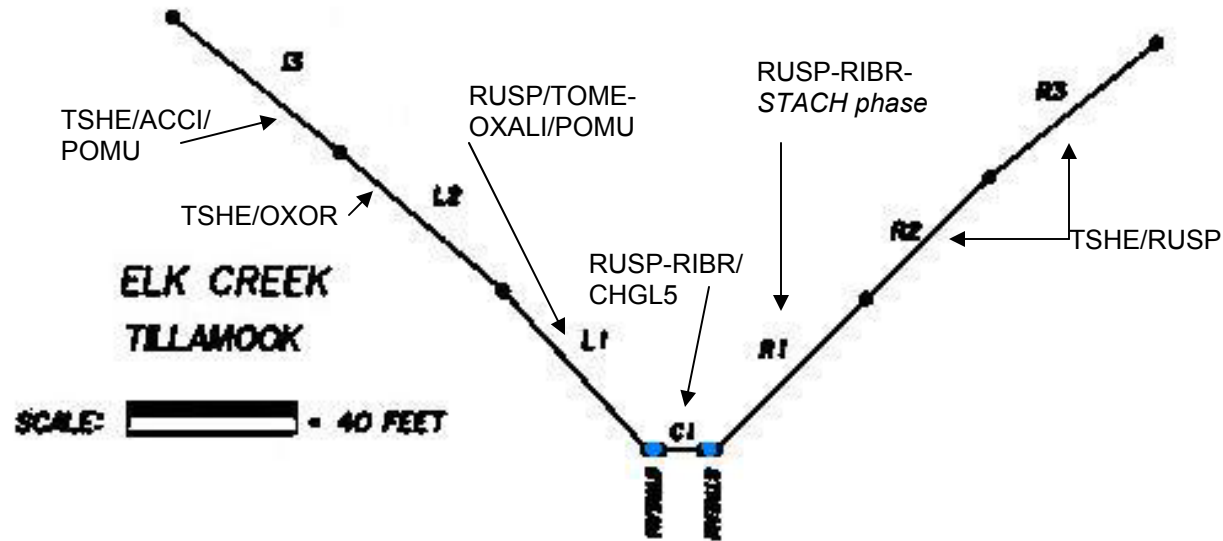
Upland: The gentle toeslope (R6) supports the upland Western hemlock/oxalis (TSHE/OXOR-NWO Coast). Away from the creek, both sides of the transect transition from the oxalis type through Western hemlock/dwarf Oregon grape (TSHE/MANE2-NWO Coast) and Western hemlock/dwarf Oregon grape-salal (TSHE/MANE2-GASH-NWO Coast) to the drier Western hemlock/salal (TSHE/GASH-NWO Coast).

Slope distance from creek (feet)	300	250	200	150	100	50	0	50	100	150	200	250	300
Conifer basal area (Sq. ft/acre)	90	150	160	100	90	70		120	200	180	160	240	190
Hardwood basal area (Sq. ft/acre)	20	10	10	0	20	50		40	20	0	20	20	10

Valley cross sections

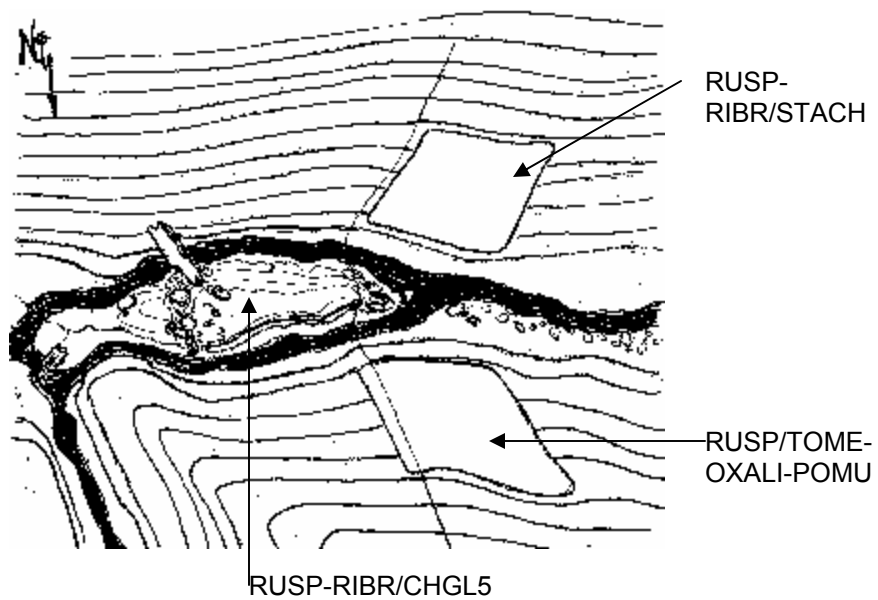
Elk Creek (Salem BLM-Tillamook)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Upper Nestucca River	3	1390'	18'	140	318'



Riparian: Salmonberry-stink currant/water-carpet is found on the mid-channel bar. The Salmonberry-stink currant-[betony phase](#) borders the creek on the right (R1), while the Salmonberry/piggyback plant-sorrel-[sword fern phase](#) is on the steep bank of the alluvial fan adjacent to the channel on the left side (L1). These two types are most commonly found on floodplains. One explanation is the steep banks may have water tables unusually close to the surface that supply enough moisture to support riparian species. Another possibility is that annual flows are high enough to influence the lower portions of these segments.

Valley cross sections

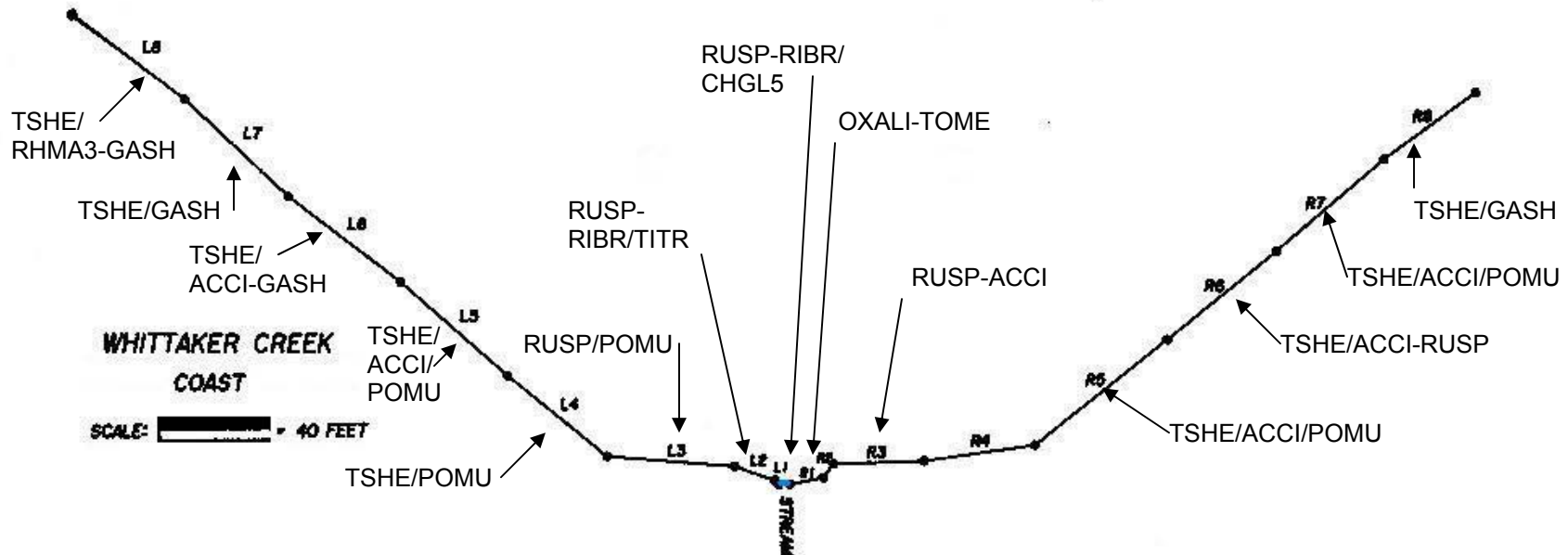


Slope distance from creek (feet)	150	50	0	50	150	50
Conifer basal area (Sq. ft/acre)	100	80	20	200	240	
Hardwood basal area (Sq. ft/acre)	20	20	0	80	80	

Valley cross sections

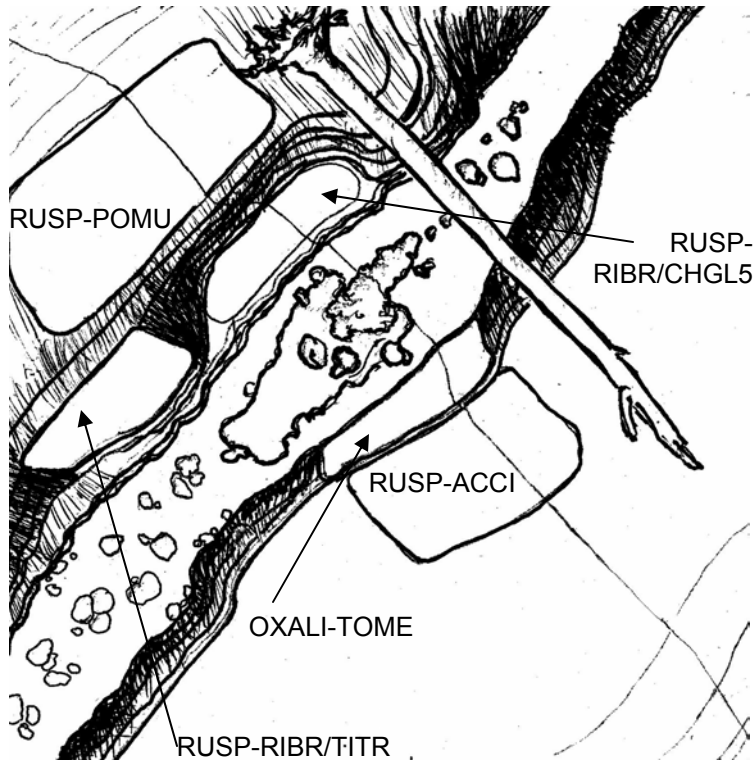
Whittaker Creek (Eugene BLM)

Watershed	Stream order	Elevation	Bankfull width	Stream aspect	Transect length (slope distance)
Siuslaw River	3	680'	17'	30	614'



Riparian: This is a tributary to the Siuslaw River, about 15 miles south of the West Fork Deadwood Creek site. It shows a similar array of communities although the Whittaker Creek is a simply one channel system at this site. This transect illustrates the community/geomorphic surface relationships typical of Coast Range streams in moderate to high precipitation zones. The Salmonberry-stink currant/water-carpet community is found at the channel margin. Above that level, the Salmonberry-stink currant-foamflower phase occurs on the active floodplain (L2). Salmonberry/sword fern occupies a broad terrace (L3). On the right, Sorrel-piggyback plant occupies the channel margin. The Salmonberry-vine maple community is on the elevated terrace (R3).

Valley cross sections



Upland: The upland associations on the left limb of the transect range from the moist Western hemlock/sword fern (TSHE/POMU-NWO Coast) at the toeslope through the well-drained Western hemlock/vine maple-salal (TSHE/ACCI-GASH-NWO Coast) or Western hemlock/salal (TSHE/GASH-NWO Coast) to Western hemlock/rhododendron-salal (TSHE/RHMA3-GASH-NWO Coast), typical of upper slopes in the southern portion of the Coast Range. On the right transect, wet Western hemlock/vine maple-salmonberry (TSHE/ACCI-RUSP) gives way to mid-slope moist Western hemlock/vine maple/sword fern (TSHE/ACCI/POMU). Well-drained Western hemlock/vine maple-salal (TSHE/ACCI-GASH-NWO Coast) is in the upper slope position.

Slope distance from creek (feet)	300	250	200	150	100	50	0	50	100	150	200	250	300
Conifer basal area (Sq. ft/acre)	220	220	140	120	140	80		180	220	80	40	80	220
Hardwood basal area (Sq. ft/acre)	20	0	0	0	20	30		0	0	20	40	0	0