

CFR 501, Wenatchee Field Trip 2005: Site Descriptions and Observations

Transect	Aspect	Slope	Description
1ASH	120deg (S)	35-45	Shallow basin on south facing slope near small drainage chute (dry) in sandy substrate. Sandstone outcroppings to the left (east). Soil is shallow and mostly sandy with little organic horizon. Litter is , 1 in. deep and composed mostly of PIPO needles. The stand is open with several standing dead and down trees (mostly PIPO). Overstory is open with mostly PIPO with some PSME. Understory is open and somewhat sparse, mostly bitterbrush and ceanothis. Evidence of Bark beetle mortality. Fire scars small or grown over suggesting historic low fire intensity. Evidence of recent harvesting/thinning.
1ANL	N	45-50	Slope varied along hillside across transect (45-50%). Some spots along transect with large amount of understory and groundcover while others have mostly litter and grass. Litter is composed of mostly PSME leaves and cones with more small woody debris compared to S slope. Understory patchy at larger scales. PSME is main overstory component with some large PIPO intermixed. Also some ABGR. Dry draw noted to west of our area beyond our transect. Current disturbance appears to be bark beetles due to several standing dead trees with beetle damage as well as evidence of beetle activity on live trees. Area overall rather variable with portion of transect in grassy area with few other understory shrubs.
1BSH	S	30	Slope shallower than previous sites but steep below sample area. Ground heavily covered in grass with small amount of low plants sticking through. Litter composed mostly of needles with small pieces of woody debris and leaves. Some larger tree limbs on ground starting to decay. Understory patchy but generally open with larger shrubs and grass as main understory. Mostly PIPO overstory with some PSME and others. More plant diversity than A sites. Fire scars on some PIPO in area and significant beetle damage. Site is high up slope far from drainage.
1BNL	N	70	Steep slope. Soil darker than previous sites with more organic matter. Soil also coarser with larger particles though mostly still sandy. Litter is mostly fir needles and woody debris. Stand is dense with many young trees and low shrubs. ABGR, PSME are predominant on transect. Area has some large PIPO and LAOC though none were found along transect. Transect location also in an area of suspected rootrot and subsequent windthrow associated with tree mortality. Fire may have been important early in the establishment of the stand but appears to not have returned in the lifetime of many of the current overstory trees. Site is on hillslope above stream approx 500 ft.
1CSL	S	34	Slope fairly uniform compared to other sites. Soil has less litter (some PSME needles) and lots of gravel (basalt?). Some twigs common nad about 60% cover of grass over bare ground. Few dead tree limbs on ground. Many trees with lichen on bark and branches. Trees mostly PSME with some larger PIPO. Stand is open with very little understory growth. Somewhat patchy with denser sections on lower part of slope. Transect not near drainage. Fire scars seen on large pines.
1CNH	N	55	Uniform steep slope. Soil dry and light brown with thick layer of ABLA leaves and cone scales. Several downed trees in different directions, possibly from wind. Understory mostly bare with some grass but not many other species. Stand fairly uniform and partially closed with mostly ABLA and occasional LAOC, PICO, PSME. No noticeable beetle damage or fire scars. High up on slope but below ridgeline and well sheltered by overstory.
2ASH	SOUTH	30%	The ground is covered with litter - downed branches and conifer needles. The understory in and around transect is about 60% shrubs with 40% herbaceous species. The canopy cover is about 30%. Grass grows up under shrubs with almost no bare soil exposed. There are not many downed logs and no stumps near or adjacent to our transect. There is a large exposed rock outcrop to the east. Within the stand there are recently cut stumps and some trees, not right by transect, with fire scars. Tree species are mostly Pipo but also Psme. The sizes of the Pipo range from small to large and make up most of the mature trees in the stand. The Psme range from small to 1 large. There does not appear to be a lot of beetle or insect sign, but there is evidence of mistletoe infections. At the west end of our transect there are a group of trees in various stages of decline. There is a recently dead tree that is still holding onto brown needles. One of the trees has insect holes, but also has several fungal fruiting bodies at base. Lower branches of the trees covered in wolf lichen. The older trees have self thinned and it is the younger trees that appear to have branches all the way or near to the ground.
2ANL	NORTH	40	Overall the canopy is closed with about 70% canopy coverage. There is 1 large Pipo but with many Psme all about the same size though some are larger and some smaller. There is more diversity in the understory than on transect 2ASH with less grass and more shrubs. The ground is covered by a lot of litter composed of pieces of bark, downed branches, needles and cones equating to a lot of potential fine fuels. There is a number of lichen species including wolf lichens. There is evidence of mistletoe infection. The sandy, ashy soil is covered by duff and litter with little bare soil exposed and very few rocks. Overall the woody material is greater than 50% decomposed. There is some evidence of healed over fire scars. This stand is more dense than 2ASH and is also shadier under the canopy and smells moister. There is evidence of red squirrel activity, with cones stripped of scales and seeds. There is evidence of historic logging though no stumps on our transect. Many smaller diameter trees have bent over or broken off, falling in all directions possibly indicating snow damages.
2BSH	SOUTH	25	Our transect was about 200m from the top of the slope. The canopy is partially closed and the stand has medium density (being between 2ASH and 2ANL). The understory is grassy and the soil is covered with duff and litter. The species composition is some very very large Pipo (gorgeous) and many Psme of various sizes. The CWD is made up of downed logs, branches and fine fuels like needles and cones. There are shrub clumps (willow) growing to about breast height that are living but also have a lot of smaller diameter dead stems. There are spirea and prince's pine in understory. Some evidence of fire scars, cat faces on some of the larger tree's trunks also some charcoal. The soil is not rocky. There are some conifers growing in clumps but the shrubs definitely grow in clumps and some shrub clumps have trees growing out of them. Not much sign of logging activity. There are wolf lichens and other lichens on tree branches. Evidence of red squirrel activity.

Transect	Aspect	Slope	Description
2BNL	NORTH	45	Abgr in understory is of different sizes. The site is mossy, very dense and has a lot of understory. The overall canopy cover is partial but will become closed in the future as the Abgr grow taller. The shrubs and understory are taller and there are more species than on 2BSH. There are standing snags likely Larix and Abgr. Woody debris is moderate and made up mostly of downed branches and trees. The downed trees fall in all directions. The soil is moist and spongy with alot of moss and a deep layer of duff and litter, but not many rocks. There are no obvious signs of insect damage though some of the snags do have insect holes. There is also some evidence of mistletoe infection in 1 Psme. We do not see any sign of fire scars.
2CSL	SOUTH	40	There is very little shrub cover and the canopy cover is open. The species composition is Psme and Pipo. There is evidence of mistletoe infection in a large dead Psme. The sizes of the trees are large or small but with fewer in between. Overall the slope is open and not dense. The ground is covered with forbs, and the soil is rocky with bare ground exposed. There is very little litter. There are some lichens but mostly wolf lichen. There is not alot of woody debris on the ground, especially not fine materials, most of the dead branches are held as ladder fuels on the trees. There is 1 large Pipo with fire scars at the base and a nearby Psme has a broken top with 3 new leaders. Sagebrush is the main woody shrub species. We also have alot of elk scat along our transect.
2CNL	NORTH	55	Laoc and Abla make up the most of the overstory though also Pien, Psme and Pico. The range of tree sizes doesn't seem as wide as it has been on other sites. There are no large woody shrubs and the ground is covered sparsely by forbs or small not very woody shrubs. The soil is mostly covered with litter, cones, moss and downed woody debris. The large downed woody debris falls in all directions. There is some evidence of mistletoe infection, though no fire scars. Some sign of insect/beetles in bole of Abla. There is alot of litter of all sizes and downed wood. The small trees seem to be mostly in the larger openings in the canopy but not many under the larger established trees. There is wolf lichens and also other species of lichen on the trees.
3ANL	North	45	lots of ine litter, more fine woody debris; build-up of downed logs; sandy loam soil under humus and litter; clumps of tall dense understory; fir-dominated overstory; main slope down to channel (no side drainages visible); scattered PIPO overstory
3BSH	South	30	fairly open stand; organic layer above soil; dense understory (grass); scattered overstory shrubs; dominant PIPO overstory, evidence of woodpecker holes; some downed wood
3CSL	South	35	fairly open stand; consistent slope; rocky soil with clay and loam; litter layer minimal; grass, herbs, sage with clumps of subalpine fir; minimal woody debris; signs of soil erosion due to rockiness
3CNH	North	40	snowing!; rocky soil; litter accumulation; lots of coarse wood under forested canopy; grassy; low shrub understory; ABLA dominated overstory
3ASH	South	35	1940' elevation; sandy w/a little clay; washout gully 3-5m, 1/2m deep; little/no overstory; fine litter--needles dominant, cones, dead herbs; patches of shrubs in grass w/bare patches
3BNL	North	40	high quantity of woody debris--decomposing; diverse shrub/herb, PSME & ABGR; fine grain soil, thick humus
4ANL	360	40	On a gradual hill, facing north. Lots of thick needle litter and moss on ground. No exposed rock. Multiple downed small (2-3" diameter) PSME trees. Patching groundcover and understory. Many ages of trees but mostly young PSME and ABGR with some older PIPO and a few PSME in the overstory. Understory is dense and composed of young PSME and ABGR. Transect located about 200meters from drainage. PIPO and PSME are the largest trees.
4ASH	180	120	Very sparsely vegetated on a very steep sandy/sandstone slope where transect is located. Downslope from us, it is a relatively open stand dominated by large PIPO with thick needle litter and some large downed logs. Up near the top of the slope (where transect was located), there is almost no cover, with the exception of one dead PIPO leaning over the transect. The transect goes into a small drainage that contains bitterbrush and cherry along with a downed log (facing downslope). The large trees around the site show clear evidence of fire.
4BNL	360	120	Very steep slope covered with lots of medium to large downed logs at transect location. Transect runs through a rootrot patch as is evidenced by the lamination on the downed logs as well as the state of their root wads. Many small ABGR are recolonizing the site in a fairly patchy distribution. There are ~2m trees at one end of the transect then the middle has short trees and then we get into some larger trees (2-5m) at the other end. Site has some standing snags and is upslope of a perennial drainage. Wetter area vegetation is found here such as the grand fir and black caps.
4BSH	180	90	About 30 meters downslope from the ridgeline. Sparse canopy with large, firescared ponderosa present. Some areas of thick needle litter and others fairly thin to no litter or moss. Smaller trees look to have established in hollows left by older, fallen trees.
4CNH	360	100	Fairly open meadow-like patch. Douglas fir and Ponderosa pine are biggest trees present. Meadow is mosly grass with small herbs and some small sage brush bushes. Patches of PIPO and PSME. Rich loam soil with head-sized gravel scattered on slope. Patchy bare ground and rock as well as some moss. Downed tree upslope but dead wood is mostly relegated to a few patches of trees at the edges of the meadow.
4CSL	180	110	Steep sloped hillside with large downed wood. Transect is located about 10-15 meters upslope from road) Significan ABLA regeneration. Forested slope dominated by ABLA with a few large PSME. Litter fall is about a 1" duff layer over a fairly mineral sandy soil. Litterfall is ABLA and PSME. Vaccinium appears to be the dominant shrub in the understory. Our transect falls partially within an opening created in part by a large downed log (douglas fir). Snow was falling at the time of the transect
5ANSH	South	35%	Sandstone dominated, PIPO dominated, lots of grass. We are in a 1/4 acre big gap. Several LWD pieces. Recently thinned, but only a few big dominants removed. Covered with needles. Large wood created by beetle mortality, some mistletoe in area. At the start of our tape, two dominant trees were removed which probably provided shade/overstory cover. A bit of a draw to the upper NNW of us. We saw 1 PSME seeling @ 1 meter, another seedling nearby. Both were at the bottom of a draw. We also saw a 1 meter tall Maple ACMA in the same area.

Transect	Aspect	Slope	Description
5ANL	North	30%	As we walked through the stand, there were patches of dense younger trees, but there is also some open patches w/ larger trees. We ran our transect starting in small gap and ending in a dense patch. Most overstory is large PIPO and there are several of the same size that have fallen over. There was a tall willow close to our transect. Other species noted are oceanspray and Aster.
5BSH	South	60?%	Southfacing steep slope, sandstone formation in the grand fir/doug fir zone. Relatively dry cool site, drainage is especially cool. Large old ponderosa in overstory. Understory is grassy all of our bare ground has needles. At the end of our plot, there is a large LARCH 3 meters up slope.
5BNL	North	60%	Very steep, our transect began in a super dense young stand, crossed a gap, and re-entered dense young forest once again. Cool, more moist than South slope. Thick duff layer, generally more dead wood, Less PIPO still ABGR/PSME association with BENE understory. Particularly a dense stand.
5CNH	North	55%	At very high elevation, this site was dominated by lidgepole pine. Here, we are in a subalpine stand about 5550 ft. Very dark soil, less rocky duff layer not nearly as deep as yesterdays N slope. Lots of down wood. Much less grass here,
5CSML	South	30%	Rocky thick duff in a patchy subalpine meadow. Trees are mature, lots of cones on the ground. Fairly open canopy, rocky substrate, smaller than golf ball. Massive ponderosa with branches all the way to the ground, old doug firs and some subalpine firs in the understory.
7BNU	N	70	~ 15 upslope from discussion spot. Steeper, thick duff layer (~1.5"), more moss; much more down wood. Seemingly more moist (but raining); large component of ABGR w/ PSME; soil silt/sand; less grass; understory mostly composed of suppressed trees; much standing dead wood, LWD; dense stand characteristics of mixed sizes; ABGR seems more dominant than PSME; PIPO present but not evident on site; no evidence of insect damage, fire
7BSL	S	36	~ 25m downslope from discussion spot. Comparably more bare ground than site A; some rocks; soil silt/sand; bare ground to ~20%; litter (50%) ~1/4 inch; 1% moss; PIPO needles, grass litter, some lichens and herbs; down/burned trees; little evid. Disease; understory patchy ceanothus (fire resist.?) herb layer mostly grasses. STAND: patchy, mostly PIPO, some PSME & ABGR; 1 Larix; different sizes; largest = PIPO; fire scars on lwd and larger PIPO; no evid. windthrow or insects. Suggests regular fire regime: branches pruned pretty high; Density seems low enough that insects not a factor. SPATIAL: clumping not too evident but nearby seems more than Site A. More rocks, finer silty soil.
7CNL	N	58	~ 8-10 m downslope from road. Soil not rocky; silt/sand; thick lwd load; much down timber (random orientation suggests not windthrow); large PSME and = large ABLA; most regeneration is ABLA (comprises most of understory). Duff layer (1") mostly needles and decomposing wood; large old LAOC w/fire scars; dense stand, no obvious clumping; gaps caused by root rot/windthrow/insects/disease.
7ASL	South	18	The soils are sandy with nearly 100% covered in 1/4-1/2" litter. The prominent understory plants are ceanothus (60%), snowberry (20%), and gramminoids (20%). The overstory is primarily comprised of very large ponderosa that are patchy in composition le
7ANU	North	15	The soils are sandy with plant cover or roughly 1" of litter and woody debris. The understory is compised of mixed age trees, in a patchy/open compisition with mixed Douglas Fir, Ponderosa, and Lodgepole pines. The largest trees are primarily Ponderososa
7CSU	South	12	The soil is primarily rock and sand with open bare patches and areas of upto 1/2" of litter primarily composed of needles and grass. The area is open with adult trees being Douglas Fir, Subaplne Fir, and Lodge pole pine. The understory is primarily gra
8ASL	167	0.249328	N47.43480, W120.54025. Sandstone hill slope, not so rocky. Pretty open area. PIPO is the main treespecies with PSME mixed in. Pretty thick duff layer consisting mainly of PIPO needles. The understory is dominated by CEVE PRSP shrub, PUTR and snowberry. the standing live PIPO near the start of the transect has many woodpecker hole in the bark, and the is evidence of pine beetles having attacked the tree. Also there are big leaf maple found sporatically on the hillside.
8ANU	9	0.3249197	Lat./Long.: N47.43134, W120.53448. Open ridge/toe of hill . Grassy meadow with downed logs and trees. PSME, PIPO dominant species, many young trees. The sight distance is much shorter than south slope. The stand is more mixed than the south slope. evidence of fire disturbance. Animal signs are woodpecker holes and bear scratchiong. the transect appears to be roughly mid-slope from th drainage. The re is a thick duff layer. a deer trail parallels much of the transect.
8BSL	168	0.2679492	Lat./Long.: N47.34737,W120.71220. PIPO & PSME are dominant overstory with larch, very rocky soil and moss on ground, with a few big PSME stumps. Evidence of fire on stumps. The PSME have mistletoe and the stand is generally dense and brushy. The major plants seen in the understory are SEVE, HODI SASC, AMAL, ROSP and PAMY. Our transect runs roughly parallel to an elk trail Elk scat were found on the trail. the transect is in the upper 1/3 of the slope.
8BNU	358	0.6248693	Lat./Long.: N47.34446,W120.71001.The over story is ABGR, PSME, & LAOC. The understory is dominated by SPBE ACTR sword fern ASSP ROSP, MOSS, HESP, PAMY & MANE. There are lots of small slash, several standing dead trees, and logs, many are decomposing (further along in decomposition) Again the re is a game trai lnear the transec. Mistletoe is in PSME. Evidence of spruce budworm in ABGR. Possible root rot in small clearing that has sword fern. Canopy cover is more closed than the south facing slope. There is evidence of fire on the old logs. There is much more moss coverage on the ground than the south facing slope. Thin soil
8CSU	164	0.249328	Lat./Long.: N47.30399, W120.51180. Fairly open w/ currant (RICE), grasses & sagebrush. Scattered PSME, ABLA, PIPO & LAOC. Amny very large PSME. Thin soilds, rocky (basalt) with rocky out crop in transect. Much gopher activity throughout the area. Light duff layer. Many of the larger trees(PSME) with evidence of broken tops -were these windblown?
8CNL	66	0.4452287	Lat./Long.: not taken no satellite reception. Thicker overstory than the rest of the sites. Looks to be composed of ABLA, PSME, and one engleman spruce. There were a lot of downed logs (From windthrow?). There was a lot of moss on the ground and logs. It was much wetter than the earlier sites. There were several ABLA seedlings and a light duff layer. It was steep and cold.

Transect	Aspect	Slope	Description
9BSL	SOUTH	60	Our transect was the lowest one. Trees are patchily distributed over the south slope and seem to consist of three distinct age classes. The tallest trees are Ponderosa pine and Douglas fir (pine are dominant in number). Smaller overstory trees consist of Douglas fir, Grand fir, and Ponderosa pine. The woods are open. Most of our transect lies in a clearing. Understory vegetation is fairly dense within the clearing but pathy across the slope as a whole. Within the clearing, it consists mostly of ceanothus (snowbrush) and serviceberry thickets with spirea, graminoids, and rose filling in the gaps between thickets (spirea and ceanothus are the most abundant). Ocean spray occurs along the edges of the clearing. Other species present in small numbers include yarrow, choke cherry, penstemon, Purshiana tridentata, hawkweed, Oregon grape, and arrow leaf. Small numbers of large downed wood are distributed throughout the slope and there are some standing dead trees. Some of the nearby Douglas fir have witches brooms and some have dead tops, but no mistletoe was observed. Fire scars and charred wood provide evidence of past fires. Much of the unvegetated ground is covered in a relatively thin litter layer, but there are also patches of bare ground, especially on the steeper sections of the slope. The soil is dry, sandy and rocky.
9CNL	NORTH		The site is characterized by a dense overstory of multi-aged subalpine fir. Beneath this dense overstory, the understory is extremely sparse. There is a lot of downed wood littering the ground--more than we've seen at any other site. The ground is moist. There is one very large standing dead tree near the center of our transect. Its bark is scaly compared to the smooth bark of the subalpine fir--its species is unknown. The logs that littered the site were both very large and very small. This site was located at high elevation.
9CSU	SOUTH		Our transect was the lowest one. The site is very open/ sparsely treed. Trees grow in clusters, one of which intersects with our transect. The largest trees are Ponderosa pine. Medium sized trees on the open slope consist of Douglas fir. However, medium-sized western larch and subalpine fir lie at the edge of the clearing. One seedling was observed in the vicinity of the transect and it was a Douglas fir. Sagebrush, the only woody understory vegetation, has a patchy distribution across the slope. The remaining understory vegetation consists of tufted graminoids and flowers, both of which are densest within the shade of the trees. The ground is rocky (basalt?) with patches of exposed soil except under the trees where litter dominates. Litter consists mostly of needles and senesced graminoids with some cones, rock, and wood. The slope gets rockier and vegetation gets smaller and more sparse as you go up the slope. There is a limited amount of large woody debris on site and a few standing snags. This site was located at a very high elevation and was very cold.
9BNU	NORTH	90	The slope is very steep and the ground is moist (much more moist than the south-facing slope). This site was dominated by Grand Firs as both the youngest and the oldest trees seen in a clumped fashion on the hillside. Within clumps, the trees were very dense. There were three distinct age classes of trees. The understory consisted of some woody debris, but mostly of small ground cover plants like vaccinium (berry bushes), roses, and spirea betchulafolia. The understory vegetation was much more diverse than the south slope. Understory vegetation in open areas consists mostly of graminoids and spirea. This site also had a bit of moss on the ground that was covering the rapidly decaying logs and woody debris. Litter was comprised mostly of needles. The soil was more organic than the south slope which was very sandy and rocky. There seemed to be no evidence of fire scars on these trees. The area in general was very steep, shaded and had partial overstory cover.
9ASL	SOUTH		Altitude is 1846 feet +/-22 feet. The site is sparsely vegetated. Vegetation consists of a Ponderosa pine overstory with an understory of young pine, snowbrush, rose, snowberry, Oregon grape, choke cherry, young Douglas fir, Purshiana tridentata, and red-stemmed ceanothus. Snowbrush and snowberry dominate the understory. Trees range in size from 3-1/2 to 55 cm diameter. There is some evidence of bark beetle damage on one of the trees in our transect (gallery observed) and nearby trees show evidence of at least 2 fires (one scarred the tree and another left charcoal on the scar). Woody vegetation occurs in clumps and tufted graminoids blanket the area between clumps. The ground is covered with a thin layer of plant litter. Litter consists of dead graminoids, pine cones, leaves, needles, and some small dead wood. There is some bare ground on the site but it is mostly covered. There are a few downed trees in the vicinity, oriented parallel to the slope.
9ANU	NORTH	64	Our transect was the highest one. Its altitude was 1934 feet and was characterized as low elevation, mild and moist. This area was mesic and much fuller than the south aspect site A. It also had a greater diversity of trees. Trees tended to grow in clusters so that the overstory had partial coverage. This area had very tall, old Ponderosa pine, but there were also many large Douglas fir. There were numerous Douglas fir saplings and young trees in the open gaps between tall trees. Grand fir could be found in some areas. Douglas fir occurred in a variety of age classes. However, only one age class of Ponderosa pine was represented (they were the oldest trees). The only seedlings found were of Douglas fir. The beginning of our transect was very open. The ground was grassy in the open areas and had a great deal of Douglas fir seedlings, spirea, and graminoids. Oceanspray, rose, and rattlesnake plantain also occurred. There was very little to no exposed soil. The second half of our transect ran through a dense mixed age stand of Douglas fir. The understory was dominated by oceanspray, but rose and spirea also occurred. The groundcover was dominated by needle litter and small logs.