

## APPENDIX A

## PLANT ASSOCIATIONS

The analysis area lies mostly within the Western Hemlock plant series (89 percent), but also contains the Pacific silver fir series (5 percent), Grand Fir series (3 percent) and Douglas-fir series (3 percent). These series are named for the climax species which eventually dominates the forested plant community. Douglas-fir is currently the dominant tree species within the watershed because it is long-lived species which regenerated after historic wildfires. Major disturbances such as wildfires, windstorms, landslides, floods, insects, pathogens and human activity determine the successional pathways within a landscape. As a result of these disturbances, each plant community within the watershed has vegetation that occurs over a range of successional stages.

Plant series classifications alone, however, are not sufficient to characterize the analysis area. The following discussion on the groupings of plant association provides a more complete assessment of the conditions.

Plant Association Groups (PAGs) are combinations of plant associations (Table 1). Plant associations are finer scale classifications of potential vegetation communities. PAGs are useful in identifying differences in stand structural characteristics, species composition and successional pathways.

Table 1: plant Associations Included in Plant Association Groups (PAGs)

PAG	Common name for PAG	Plant Associations included in PAG	Ecoclass	Acres
1406	Douglas-fir/Oregon grape-salal-oceanaspray-moderate elevation	PSME/HODI-MANE2 PSME/HODI-SYMPH PSME/HODI-WHMO PSME/HODI/GRASS	CDS216 CDS217 CDS213 CDS212	<b>119</b>
1407	Douglas-fir/poison oak-warm, often low elevation	PSME/COCO6- SYMO/POMU	CDS312	<b>225</b>
1607	Grand fir-moist to mesic, low elevation	ABGR/ACCI/POMU ABR/MANE2-GASH	CWS527 CWS528	<b>108</b>
1609	Grand fir/oceanaspray-poison oak-westside low elevation	ABGR/COCO6/VAHE ABGR/HODI/POMU	CWS555 CWS529	<b>246</b>
	Oregon White oak/bluebunch wheatgrass			<b>8</b>
2208	Pacific silver fir/oxalis-high precipitation	ABAM/OXOR-NOW Coast	CFF155	<b>586</b>

PAG	Common name for PAG	Plant Associations included in PAG	Ecoclass	Acres
1903	Western hemlock-warm, transitional to Douglas-fir zone	PSME/MANE2-GASH TSHE/ACTR-DRY-NWO Coast TSHE/MANE2-DRY-NWO Coast TSHE/MANE2-GASH-DRY-NWO Coast	CDS512 CHF232 CHS152 CHS154	<b>358</b>
1906	Western hemlock/Oregon grape-salal	TSHE/MANE2/OXOR-NWO Coast TSHE/MANES/POMU-NWO Coast TSHE/RUSP-GASH TSHE/VAOV2	CHS155 CHS156 CHS423 CHS610	<b>3494</b>
1907	Western hemlock/Oxalis-swordfern-moist	TSHE/ACCI-GASH/POMU-NWO Coast TSHE/ACCI/POMU-NWO Coast TSHE/OXOR-NWO Coast TSHE/POMU-NWO Cascades TSHE/POMU-NWO Coast	CHS230 CHS222 CHF141 CHF150 CHF142	<b>5284</b>
1908	Western hemlock/salmonberry-wet	TSHE/RUSP TSHE/RUSP-ACCI	CHS421 CHS422	<b>580</b>
1909	Western hemlock/Alaska huckleberry/oxalis	TSHE/OXOR-ACTR TSHE/VAAL/OXOR-NWO Coast	CHF231 CHS616	<b>977</b>

See McCain and Diaz (2002) for descriptions of each Plant Association.

The distribution of the plant association groups have been mapped and modeled for the Siuslaw National Forest.

#### *Stand Structure*

Natural old growth stands in the watershed span a range in structure and composition. Ecology plots provide data for stands in three western hemlock plant associations, from 550-2570 feet elevation. These include the Western hemlock/Oregon oxalis-vanilla leaf, Western hemlock/dwarf Oregon grape-salal, and Western hemlock/vine maple-California hazel plant associations.

Most of the Marys Peak old growth is dominated by giant (>48" dbh) Douglas fir between 200 and 300 years old. In some stands, trees over 6 feet in diameter are not rare.



Old growth stand in the Western hemlock/dwarf Oregon grape-salal plant association

There are two main patterns in stand structure in the watershed. One type has a single cohort of Douglas fir, reflecting nearly complete stand replacing fires. The other pattern suggests at least one intermediate disturbance. Three stands (half of the sample) have remnant Douglas fir giants, survivors from a previous stand (as evidenced by tree ages one or two hundred years older than younger site trees). The survivors served as seed sources and significant structural diversity after disturbance.



This old growth stand shows the fully developed understory typical of late successional forests in this plant association group. At this site, 45% of the basal area is in Douglas fir over 4 feet in diameter.

Species composition on most samples is nearly pure Douglas fir. Western hemlock was a major component of only one of the sampled stands (63% of total basal area, compared to an average of 13% over 6 samples, 3 with 0%). In this Western hemlock/oxalis-vanilla leaf stand, the western hemlock seems to have established with a younger cohort of Douglas fir. Generally, other species (western hemlock, western redcedar, Pacific yew, big leaf maple, Pacific dogwood) established beneath the pioneering Douglas fir, or in gaps later in stand development. Western redcedar, western hemlock, and Pacific yew were the most common conifers, with grand fir occurring on a single site. Douglas fir were the only trees in the giant (>48" dbh) class. Western hemlock and western

redcedar grew into the large (32-48") class on a single site each. Hardwoods (big leaf maple or Pacific dogwood) were present in 2/3 of the plots. Big leaf maple plays a significant role in stand diversity in some sites, especially in the pole (10-15" dbh), small (15-21" dbh), and medium (21-32" dbh) size classes.

Overall average live basal area was 269 sq.ft/acre (range 190-339 sq.ft/acre). Snag basal area averaged 15 sq.ft/acre (range 0-32 sq.ft/acre). Snag levels were highly variable. Some plots had few snags clearly due to snag falling or salvage.

#### *Noble fir stands:*

No Ecology program stand structure data are available for the noble fir stands in the elevations above 3400 feet. Most are mid-seral, site tree and species composition data from 3 reconnaissance plots that show a range of stand types. Two plots are now about 100 years old; one was mixed noble fir/Douglas fir, the other had minor western hemlock. The highest elevation plot was in a pure noble fir stand now about 160 years old (see photos). The site tree there was 46" dbh.

#### *Marys Peak meadow complex*

The extensive grassy balds atop Marys Peak are rare special habitats in the Coast Range, as are the nearly



Noble fir stand near the summit of Marys Peak.



Beautiful oxalis and starry false Solomons seal understory beneath noble fir

pure noble fir stands on the north and east border of the meadows. The meadow complex occupies approximately 185 acres. Rocky outcrops occupy a small area within the meadow complex, which otherwise is suitable for tree growth. The xerophytic rock garden occupying the outcrops is a limited edaphic/topographic climax community adapted to skeletal, rocky soils and a south west exposure. Several species in the rock garden are disjunct coastal populations, separated by 70 miles to next nearest occurrences in the

Cascades. There are three main plant communities in the deeper soil meadow complex: red fescue-bent grass-sedge community, arrow-leafed groundsel community, and iris community (Snow 1984). The size of the meadow complex, the presence of the higher elevation noble firs, and the rock garden species make Marys Peak a unique site in the Coast Range.