Non-forest Plant Communities of the Northern Oregon Coast Range and Vicinity

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USFS Northwest Ecology Group
Plant Communities

Mesic Meadows

Roemer’s fescue (*Festuca roemeri*) – coastal

Roemer’s fescue – high Coast Range

Blue wild rye (*Elymus glaucus*)

Star-flowered false lily-of-the-valley – California sedge (*Maianthemum stellatum-Carex californica*)

Golden slenderbanner (*Thermopsis gracilis* [syn. *T. montana]*)

Virginia strawberry – California oatgrass (*Fragaria virginiana-Danthonia californica*)

Dry Meadows

Oregon sunshine (*Eriophyllum lanatum*) – Coast Range

California fescue (*Festuca californica*)

Dry Rock Gardens

Spreading phlox (*Phlox diffusa*)—Coast Range

Wallace’s spikemoss – Cascade desert parsley (*Selaginella wallaceii-Lomatium martindalei*)

Moist Rock Gardens

Crevice alumroot-Merten’s saxifrage (*Heuchera michrantha – Saxifraga mertensiana*)

Rusty saxifrage-short camas (*Saxifraga ferruginea-Camassia quamash*)
Non-Forest Plant Community Classification

Methods

Field

1) In 2013 – 2014, reconnaissance observations were made across non-forest habitats on FS and BLM land in the Coast Range and Cascade foothills within the Salem BLM district area for plant communities that did not fit the USFS Northwest Oregon Non-forest Plant Community guide. One area within the Eugene BLM district was surveyed in 2015. Surveys were limited to prioritized selected USGS quad maps and some additional known special habitat areas.

2) Plots were then placed to best represent the plant community.

3) Plot size was standardized where possible per habitat type: standard meadow plots were 100 m$^2$ and subsampled in six 1 m$^2$ quadrats; standard rock garden plots were 10 m$^2$ and subsampled in three 1 m$^2$ quadrats. Plot dimension or area was adjusted if required to best represent the plant community.

4) Sample size—the objective was to sample a minimum of 5 plots per suspected new plant community across all topographic positions observed.

5) Percent cover of plant species was estimated in 1 m$^2$ pvc quadrats as well as the following data: thatch, exposed rock, gravel, and bare soil. Plant species with a trace presence were recorded in the larger macroplot. Environmental data recorded for each of the sites were elevation, slope, aspect, topographic moisture class, topographic macro position class, topographic micro position class.

Data Analyses

1) Data—Percent cover of plants was square root transformed. The following PRISM climate data were extracted to x,y coordinate plot centers: annual precipitation; Summer, Fall, Winter, and Spring precipitation; minimum December temperature; maximum August temperature. Headload was calculated using aspect and slope, following McCune & Keon (2002).

2) Comparing Cascade Range and new plant community data— Data from similar plant communities in the Non-forest Plant Communities of the northern Oregon Cascades (McCain et al. 2014) were combined with the new data and analyzed with One-Way Cluster Analysis using PC-ORD software (McCune & Mefford 2002) to determine group membership of the plots.

3) Determining plant community groups –The new plant community dataset was run through One-Way Cluster Analysis multiple times with group selections varying from 5 to 19 groups; this procedure allows the cluster algorithm to objectively assign plots to groups based on plant community composition. The plant community group sets, from 5 to 19 plant communities, were each run through Indicator Species Analyses in PC-ORD software to get an average p-value per number of group divisions. The lowest average p-value can indicate the optimum number of groups that are contained in the dataset (McCune & Grace 2002). A final cluster analysis was run to define plant community groups, using the Sorensen distance measure and the flexible beta linkage (beta = -0.25). Indicator Species Analysis was used to identify plant species indicators for each of the communities, and these were further tested in Multiple Response Permutation Procedures analysis in PC-ORD software, which tests membership among groups (McCune & Mefford 2002). Plant community groups were named based on most significant indicator species or highest constancy in the group.
Plant community and environmental gradient relationships—The plant community data set and a secondary matrix of field collected and calculated environmental data were run through Non-metrical Multidimensional Scaling Ordination (NMS) in PC-ORD software to examine community and environmental relationships; parameters were 400 maximum iterations, 0.00001 instability criterion, 6 starting axes, 40 real runs, and 50 randomized runs. NMS graph axes were rotated to maximize environmental parameters. Plant community groups were also plotted with selected average precipitation and temperature data to further illustrate climate and plant community relationships. Environmental data were also summarized as plot averages for each community.

Results

1) Cascade Range vs. new plant community data—Cascade plant community plots reasonably separated from new plant community plots in cluster analysis (Fig 1).

2) New plant community groups—Indicator species analysis (ISA) initially suggested 14 plant community groups were present in the new dataset. Three groups of ‘junk’ plots were removed to arrive at 11 plant community groups; one of those groups was split into two groups, based on species composition and environmental parameter differences (Fig 2). The result is 12 plant communities that appear different than those found in the Cascades: Roemer’s fescue—coastal, Roemer’s fescue—high bald, blue wild rye, star-flowered lily-of-the-valley—California sedge, golden slenderbanner, California fescue, Virginia strawberry—California oatgrass, Oregon Sunshine—Coast Range, spreading phlox—Coast Range, Wallace’s spikemoss—Cascade desert parsley, rusty saxifrage—short camas, crevice alumroot—wood saxifrage (Fig 3). ISA found indicator plant species for each group (Table 1). The most significant ISA indicator species for the Roemer’s fescue type were those found in the coastal version of the community (Table 1). MRPP found all plant communities to be significantly different (Table 2-at end of doc).

3) Environmental parameters—Several plant communities were separated out into defined windows of precipitation and temperature (Fig 4, Fig 5).

These plant communities are draft types and review is needed to determine final defined plant communities.

NEEDS FOR FINAL VERSION
-reviewed plant communities
-finalized maps with consistent text and landmarks
-compare and reference all prior plant community work
-complete NRCS soil types
-flesh out this outline, standardize formatting and write final report
-index
-key to final plant community types
-complete species constancy tables for each group in an appendix.
-literature cited
-complete pollinator and wildlife habitat importance information per type
Figure 1. One-Way Cluster Analysis results of combined new non-forest and most similar Cascade Range plant community data from McCain et al. (2014). Cascade Range plots are those with eight digit plot numbers.
Figure 2. Results of average Indicator Species Analysis (ISA) average p-value per set of cluster identified plant community group sets: 5 groups through 19 groups.
Table 1. Indicator Species Analysis results. Top two, if there was more than one, significant indicator species per group.

<table>
<thead>
<tr>
<th>Community Group</th>
<th>Species</th>
<th>Indicator Value</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>THGR6</td>
<td>THGR6</td>
<td>100</td>
<td>0.0002</td>
</tr>
<tr>
<td>SEWA-LOMAS</td>
<td>SEWA</td>
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<tr>
<td></td>
<td>PHNE2</td>
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<td>FECA</td>
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<td>0.001</td>
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<td>LIAP</td>
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<td>0.001</td>
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<td>ERLA6</td>
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<td>BADE2</td>
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<td>ELGL</td>
<td>ELGL</td>
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<td>ERCA14</td>
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<td></td>
<td>SAME7</td>
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<td>FERO</td>
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<td>36.1</td>
<td>0.0004</td>
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<tr>
<td></td>
<td>LULI2*</td>
<td>100</td>
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<tr>
<td></td>
<td>PSCA13*</td>
<td>100</td>
<td>0.0002</td>
</tr>
</tbody>
</table>

* = coast FERO indicators
Figure 4. Non-metric Multidimensional Scaling Ordination results for new plant community data ordinated on environmental gradients. Plus symbols are centroids of plot clusters for each plant community.
Figure 5. Plant community plot averages for minimum December temperature and Annual precipitation
Summary
Roemer’s fescue dominated meadow on moderately steep slopes, with relatively shallow soil near the coast. The presence of Camas and monkey flower indicates the occurrence of seeps. All plots sampled were located in the Cape Perpetua area on Siuslaw National Forest. This plant community was likely more common prior to the influx of invasive non-native plants. All other sites observed with potential were dominated by non-native pasture grasses. Other intact sites may exist that were not known at the time of this study. Another similar Roemer’s fescue community occurs at higher elevation (above 850 meters) in a colder climatic zone in the Coast Range; it differs mostly in the forb component.

Several species found in this plant community, including Roemer’s fescue, are known to be important hosts for pollinators.

N = 4          Siuslaw NF
FERO [low elevation – coast]. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Mean Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERO</td>
<td>Festuca roemeri</td>
<td>Roemer's fescue</td>
<td>graminoid</td>
<td>33.1</td>
<td>100</td>
</tr>
<tr>
<td>LURI</td>
<td>Lupinus rivularis</td>
<td>Riverbank lupine</td>
<td>forb</td>
<td>1.2</td>
<td>100</td>
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<tr>
<td>PRVU</td>
<td>Prunella vulgaris</td>
<td>common selfheal</td>
<td>forb</td>
<td>1.0</td>
<td>100</td>
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<tr>
<td>PSCA13</td>
<td>Pseudognaphalium californicum</td>
<td>California cudweed</td>
<td>forb</td>
<td>0.8</td>
<td>100</td>
</tr>
<tr>
<td>POGL8</td>
<td>Potentilla glandulosa</td>
<td>sticky cinquefoil</td>
<td>forb</td>
<td>0.6</td>
<td>100</td>
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<tr>
<td>CLAM</td>
<td>Clarkia amoena</td>
<td>farewell-to-Spring</td>
<td>forb</td>
<td>1.3</td>
<td>75</td>
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<td>BRCO3</td>
<td>Brodiaea coronaria</td>
<td>crown bodiaea</td>
<td>forb</td>
<td>0.8</td>
<td>75</td>
</tr>
<tr>
<td>ALAM2</td>
<td>Allium amplectens</td>
<td>narrowleaf onion</td>
<td>forb</td>
<td>0.5</td>
<td>75</td>
</tr>
<tr>
<td>MASA</td>
<td>Madia sativa</td>
<td>coast tarweed</td>
<td>forb</td>
<td>0.2</td>
<td>75</td>
</tr>
<tr>
<td>CAQU2</td>
<td>Camassia quamash</td>
<td>small camas</td>
<td>forb</td>
<td>1.5</td>
<td>50</td>
</tr>
<tr>
<td>DACA3</td>
<td>Danthonia californica</td>
<td>California oatgrass</td>
<td>graminoid</td>
<td>1.4</td>
<td>50</td>
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<tr>
<td>BRSI</td>
<td>Bromus sitchensis</td>
<td>Alaska brome</td>
<td>graminoid</td>
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<tr>
<td>DAPU3</td>
<td>Daucus pusillus</td>
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<td>50</td>
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<tr>
<td>ELGL</td>
<td>Elymus glaucus</td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>0.2</td>
<td>50</td>
</tr>
<tr>
<td>LOFO2</td>
<td>Lotus formosissimus</td>
<td>seaside bird's-foot trefoil</td>
<td>forb</td>
<td>0.2</td>
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<td>LIBI</td>
<td>Linanthus bicolor</td>
<td>true babysstars</td>
<td>forb</td>
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</tr>
<tr>
<td>MIGU</td>
<td>Mimulus guttatus</td>
<td>seep monkey flower</td>
<td>forb</td>
<td>0.1</td>
<td>50</td>
</tr>
</tbody>
</table>

Soils (NRCS 2016): Klickitat stony loam, 30-50% slopes; Neskowin rock outcrop complex, 20 to 99% slopes.
**Summary**

Roemer’s fescue dominated meadow on high (above 850 meters) Coast Range balds; plots were sampled on Marys Peak, Grass Mountain, Prairie Mountain, and a small remnant site on Saddlebag Mountain. This type mostly occurs on south and southwest facing slopes and is similar to a low elevation Roemer’s fescue type, which occupies a warmer climatic environment near the coast on shallower soils. The coastal type differs in the forb component, which is a different species complex and is more diverse. A Roemer’s fescue community is known to occur at lower elevations in the foothills of the Willamette Valley, but those areas were not investigated in this study.

Several species found in this plant community, including Roemer’s fescue, are known to be important hosts for pollinators.

N=7  Salem BLM, Siuslaw NF
**Conductivity table. Mean canopy cover for species in greater than 29% of plots.**

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Mean Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FERO</td>
<td>Festuca roemeri</td>
<td>Roemer's fescue</td>
<td>graminoid</td>
<td>27.7</td>
<td>100</td>
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<tr>
<td>PTAQ</td>
<td>Pteridium aquilinum</td>
<td>bracken fern</td>
<td>fern</td>
<td>19.2</td>
<td>71</td>
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<td>ELGL</td>
<td>Elymus glaucus</td>
<td>blue wild rye</td>
<td>graminoid</td>
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<td>71</td>
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<td>California oatgrass</td>
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<td>California sedge</td>
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<td>CEAR4</td>
<td>Cerastium arvense</td>
<td>meadow chickweed</td>
<td>forb</td>
<td>0.1</td>
<td>43</td>
</tr>
<tr>
<td>LULA4</td>
<td>Lupinus latifolius</td>
<td>broadleaf lupine</td>
<td>forb</td>
<td>17.2</td>
<td>29</td>
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<tr>
<td>LUCO6</td>
<td>Luzula comosa</td>
<td>Pacific woodrush</td>
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<td>early blue violet</td>
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**Environmental table.**

<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
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<td>Climate</td>
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<td></td>
</tr>
<tr>
<td>Minimum December Temperature</td>
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<td></td>
</tr>
<tr>
<td>Temperature °C</td>
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<td>Annual Precipitation cm</td>
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<td>Physical</td>
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<tr>
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<td>Gravel Cover %</td>
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<td>Rock Cover %</td>
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<td>Bare Soil Cover %</td>
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<tr>
<td>Thatch %</td>
<td>36.16</td>
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<td>65.83</td>
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</table>

Aspect: S = 3, SW = 3, W = 1

Soils (NRCS 2016): Mulkey medial loam, 3-30% slopes, Valsetz-Yellowstone complex, 3-30% slopes
**Summary**

This community is dominated by blue wild rye and occurs in the meadow plant community complex on high Coast Range balds. It has been observed occurring adjacent to the Roemer’s fescue type on mostly south facing slopes. Environmental factors separating the two plant communities are subtle and may have to do with soil properties or disturbance history. The closest plant community described in the Cascades Non-forest Plant Community Guide (McCain et al. 2014) is the blue wild rye – California brome type, but it has only a few species in common. Plots were sampled on Marys Peak and Grass Mountain.

N = 6   Salem BLM, Siuslaw NF
ELGL. Constancy table. Mean canopy cover for species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Row Labels</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Mean Cover (%)</th>
<th>Constancy (%)</th>
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<tbody>
<tr>
<td>ELGL</td>
<td>Elymus glaucus</td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>19.11</td>
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<td>LULA4</td>
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<td>forb</td>
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<tr>
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<td>chamisso sedge</td>
<td>graminoid</td>
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</tbody>
</table>

ELGL. Environmental table.

<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
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<tr>
<td>Climate</td>
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</tr>
<tr>
<td>Minimum December Temperature °C</td>
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<td>-1.62</td>
<td>0.00</td>
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<tr>
<td>Annual Precipitation cm</td>
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<td>28.58</td>
<td>32.01</td>
</tr>
<tr>
<td>Summer Temperature °C</td>
<td>16.20</td>
<td>15.67</td>
<td>16.37</td>
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<tr>
<td>Physical</td>
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<tr>
<td>Elevation m</td>
<td>1083</td>
<td>850</td>
<td>1293</td>
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<tr>
<td>Slope %</td>
<td>23.00</td>
<td>2.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Gravel Cover %</td>
<td>0.04</td>
<td>0.00</td>
<td>0.20</td>
</tr>
<tr>
<td>Rock Cover %</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>0.73</td>
<td>0.00</td>
<td>5.18</td>
</tr>
<tr>
<td>Soil Depth (A horizon) cm</td>
<td>60.00</td>
<td>60.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Thatch %</td>
<td>59.66</td>
<td>24.50</td>
<td>96.30</td>
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<tr>
<td>Aspect: SE = 3, S = 2, SW = 2, W = 1, E = 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Soils (NRCS 2016): Mulkey medial loams, 3-30% and 30-60% slopes
Summary

Mesic meadow community dominated by California sedge and starry false lily-of-the-valley is found on mostly north and east slopes on Coast Range balds. Sites on other aspects tend to be shaded by adjacent forest stands. Plots were sampled on Marys Peak and Prairie Mountain.

N = 11 plots, Salem BLM, Siuslaw NF
CACA9 – MAST4. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Species Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Average Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CACA9</td>
<td>Carex californica</td>
<td>California sedge</td>
<td>graminoid</td>
<td>26.4</td>
<td>91</td>
</tr>
<tr>
<td>MAST4</td>
<td>Maianthemum stolonifera</td>
<td>starry false lily-of-the-valley</td>
<td>forb</td>
<td>33.2</td>
<td>82</td>
</tr>
<tr>
<td>LICO</td>
<td>Lilium columbianum</td>
<td>Columbia lily</td>
<td>forb</td>
<td>0.2</td>
<td>73</td>
</tr>
<tr>
<td>FERO</td>
<td>Festuca roemeri</td>
<td>Roemer's fescue</td>
<td>graminoid</td>
<td>6.1</td>
<td>73</td>
</tr>
<tr>
<td>LUCO6</td>
<td>Luzula comosa</td>
<td>Pacific woodrush</td>
<td>graminoid</td>
<td>1.5</td>
<td>64</td>
</tr>
<tr>
<td>ACMI2</td>
<td>Achillea millefolium</td>
<td>yarrow</td>
<td>forb</td>
<td>3.7</td>
<td>64</td>
</tr>
<tr>
<td>CEAR4</td>
<td>Cerastium arvense</td>
<td>meadow chickweed</td>
<td>forb</td>
<td>0.8</td>
<td>55</td>
</tr>
<tr>
<td>VIGL</td>
<td>Viola glabella</td>
<td>pioneer violet</td>
<td>forb</td>
<td>3.6</td>
<td>54</td>
</tr>
<tr>
<td>LULA4</td>
<td>Lupinus latifolius</td>
<td>broadleaf lupine</td>
<td>forb</td>
<td>10.3</td>
<td>45</td>
</tr>
<tr>
<td>DACA3</td>
<td>Danthonia californica</td>
<td>California oatgrass</td>
<td>graminoid</td>
<td>2.4</td>
<td>36</td>
</tr>
<tr>
<td>BRCA5</td>
<td>Bromus carinatus</td>
<td>California brome</td>
<td>graminoid</td>
<td>5.3</td>
<td>36</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum December Temperature C°</td>
<td>-1.44</td>
<td>-1.62</td>
<td>-0.32</td>
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<tr>
<td>Annual Precipitation cm</td>
<td>28.51</td>
<td>27.75</td>
<td>28.58</td>
</tr>
<tr>
<td>Summer Temperature C°</td>
<td>15.78</td>
<td>15.67</td>
<td>16.92</td>
</tr>
<tr>
<td>Physical</td>
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</tr>
<tr>
<td>Elevation m</td>
<td>1305</td>
<td>1200</td>
<td>1363</td>
</tr>
<tr>
<td>Slope %</td>
<td>12.00</td>
<td>2.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Gravel Cover %</td>
<td>0.05</td>
<td>0.00</td>
<td>0.30</td>
</tr>
<tr>
<td>Rock Cover %</td>
<td>0.25</td>
<td>0.00</td>
<td>2.70</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>0.32</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Soil Depth (A horizon) cm</td>
<td>60.00</td>
<td>60.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Thatch %</td>
<td>31.83</td>
<td>3.70</td>
<td>52.50</td>
</tr>
</tbody>
</table>

Aspect: N = 3, NW = 2, NE = 1, E = 2, SE = 2, SW = 1
Mesic meadow

*Thermopsis gracilis* [syn *T. montana*] (Slender goldenbanner)

THGR6

**Summary**

This slender goldenbanner dominated plant community, which usually contains blue wild rye, was observed on south facing Coast Range balds at around 1000 meters in elevation. It was observed at Grass Mountain, Little Grass Mountain, and Bald Mountain on Salem BLM. It occurred adjacent to the Roemer’s fescue and blue wild rye types described in this document. Environmental factors separating the slender goldenbanner plant community from those in close proximity are subtle and may have to do with soil properties or disturbance history.

Slender golden banner and other species found in this plant community are known to be important hosts for pollinators.

[Note: Is this an artifact of disturbance (possibly a disturbed blue wild rye type) or could it be described as a plant community?]

N = 5 Salem BLM
THGR6. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Ave Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>THGR6</td>
<td><em>Thermopsis gracilis</em></td>
<td>slender goldenbanner</td>
<td>forb</td>
<td>56.57</td>
<td>100</td>
</tr>
<tr>
<td>PTAQ</td>
<td><em>Pteridium aquilinum</em></td>
<td>bracken fern</td>
<td>fern</td>
<td>19.14</td>
<td>100</td>
</tr>
<tr>
<td>RUUR</td>
<td><em>Rubus ursinus</em></td>
<td>California blackberry</td>
<td>shrub</td>
<td>13.27</td>
<td>80</td>
</tr>
<tr>
<td>ELGL</td>
<td><em>Elymus glaucus</em></td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>6.46</td>
<td>80</td>
</tr>
<tr>
<td>GAAP2</td>
<td><em>Galium aparine</em></td>
<td>bedstraw</td>
<td>forb</td>
<td>0.20</td>
<td>80</td>
</tr>
<tr>
<td>ACMI2</td>
<td><em>Achillea millefolium</em></td>
<td>yarrow</td>
<td>forb</td>
<td>1.90</td>
<td>60</td>
</tr>
<tr>
<td>CACA9</td>
<td><em>Carex californica</em></td>
<td>California sedge</td>
<td>graminoid</td>
<td>1.13</td>
<td>60</td>
</tr>
<tr>
<td>CEAR4</td>
<td><em>Cerastium arvense</em></td>
<td>meadow chickweed</td>
<td>forb</td>
<td>0.90</td>
<td>60</td>
</tr>
<tr>
<td>CAPA14</td>
<td><em>Carex pachystachya</em></td>
<td>camisso sedge</td>
<td>graminoid</td>
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<tr>
<td>AGPA8</td>
<td><em>Agrostis pallens</em></td>
<td>seashore bentgrass</td>
<td>graminoid</td>
<td>0.54</td>
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<tr>
<td>MESU</td>
<td><em>Melica subulata</em></td>
<td>Alaska oniongrass</td>
<td>graminoid</td>
<td>0.09</td>
<td>60</td>
</tr>
<tr>
<td>BRCA5</td>
<td><em>Bromus carinatus</em></td>
<td>California brome</td>
<td>graminoid</td>
<td>6.34</td>
<td>40</td>
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<tr>
<td>LULA4</td>
<td><em>Lupinus latifolius</em></td>
<td>broadleaf lupine</td>
<td>forb</td>
<td>0.28</td>
<td>40</td>
</tr>
<tr>
<td>FRVE</td>
<td><em>Fragaria vesca</em></td>
<td>woodland strawberry</td>
<td>forb</td>
<td>0.27</td>
<td>40</td>
</tr>
<tr>
<td>OXSU</td>
<td><em>Oxalis suksdorfia</em></td>
<td>Suksdorf wood sorrel</td>
<td>forb</td>
<td>0.22</td>
<td>40</td>
</tr>
<tr>
<td>LICO</td>
<td><em>Lilium columbianum</em></td>
<td>Columbia lily</td>
<td>forb</td>
<td>0.06</td>
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</tbody>
</table>

THGR6. Environmental Table.

<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
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<td></td>
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</tr>
<tr>
<td>Minimum December Temperature</td>
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<td>0.55</td>
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<td>Annual Precipitation</td>
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</tr>
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<td>Summer Temperature</td>
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<td>16.48</td>
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<tr>
<td>Physical</td>
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<td></td>
<td></td>
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<td>Elevation</td>
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<td>867.00</td>
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<td>5.00</td>
<td>25.00</td>
</tr>
<tr>
<td>Gravel Cover</td>
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<tr>
<td>Rock Cover</td>
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<td>0.00</td>
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<tr>
<td>Bare Soil Cover</td>
<td>0.02</td>
<td>0.00</td>
<td>0.10</td>
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<td>Soil Depth (A horizon) cm</td>
<td>60.00</td>
<td>60.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Thatch</td>
<td>53.75</td>
<td>10.00</td>
<td>98.70</td>
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<tr>
<td>Aspect: SE=3, S=1, SW=1</td>
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<td></td>
</tr>
</tbody>
</table>
Mesic Meadow

*Fragaria virginiana* – *Danthonia californica* (Virginia strawberry--California oatgrass)

FRVI – DACA3

**Summary**

This strawberry and California oatgrass dominated community makes up Mt Hebo’s summit meadows, where not overtaken by exotic weeds. It can also be found in a few small areas on Marys Peak. This plant community may occur on other high balds in the Coast Range. This plant community is important because it contains the blue violet, which is the sole food source of the Oregon Silverspot Butterfly (OSB) caterpillar, and Mt Hebo currently holds Oregon’s largest population; OSB nectar plants, yarrow and golden rod, are also components of this plant community.

Several species found in this plant community, including California oatgrass, are known to be important hosts for pollinators.

N = 7  Siuslaw NF
FRVI – DACA3. Constancy table. Mean canopy cover for native species in greater than 30% of plots

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Mean Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRVI</td>
<td>Fragaria virginiana</td>
<td>Virginia strawberry</td>
<td>forb</td>
<td>21.6</td>
<td>100</td>
</tr>
<tr>
<td>DACA3</td>
<td>Danthonia californica</td>
<td>California oatgrass</td>
<td>graminoid</td>
<td>6.9</td>
<td>100</td>
</tr>
<tr>
<td>LUCO6</td>
<td>Luzula comosa</td>
<td>Pacific woodrush</td>
<td>graminoid</td>
<td>0.9</td>
<td>100</td>
</tr>
<tr>
<td>PTAQ</td>
<td>Pteridium aquilinum</td>
<td>bracken fern</td>
<td>fern</td>
<td>7.5</td>
<td>86</td>
</tr>
<tr>
<td>LULA4</td>
<td>Lupinus latifolius</td>
<td>broadleaf lupine</td>
<td>forb</td>
<td>2.0</td>
<td>86</td>
</tr>
<tr>
<td>ACMI2</td>
<td>Achillea millefolium</td>
<td>yarrow</td>
<td>forb</td>
<td>3.5</td>
<td>71</td>
</tr>
<tr>
<td>VIAD</td>
<td>Viola adunca</td>
<td>early blue violet</td>
<td>forb</td>
<td>0.9</td>
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<td>IRTE</td>
<td>Iris tenax</td>
<td>tough leaf iris</td>
<td>forb</td>
<td>5.1</td>
<td>57</td>
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<td>CACA9</td>
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<td>California sedge</td>
<td>graminoid</td>
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<td>57</td>
</tr>
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<td>SOCA6</td>
<td>Solidago canadensis</td>
<td>western goldenrod</td>
<td>forb</td>
<td>1.4</td>
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<tr>
<td>AGPA8</td>
<td>Agrostis pallens</td>
<td>seashore bentgrass</td>
<td>graminoid</td>
<td>0.9</td>
<td>43</td>
</tr>
<tr>
<td>FERO</td>
<td>Festuca roemeri</td>
<td>Roemer's fescue</td>
<td>graminoid</td>
<td>0.8</td>
<td>43</td>
</tr>
<tr>
<td>RUUR</td>
<td>Rubus ursinus</td>
<td>California blackberry</td>
<td>shrub</td>
<td>0.5</td>
<td>43</td>
</tr>
<tr>
<td>LICO</td>
<td>Lilium columbianum</td>
<td>Columbia lily</td>
<td>forb</td>
<td>0.1</td>
<td>43</td>
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</table>


<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum December Temp</td>
<td>C°</td>
<td>-0.64</td>
<td>-0.19</td>
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<tr>
<td>Annual Precipitation</td>
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<td>40.48</td>
</tr>
<tr>
<td>Summer Temp</td>
<td>C°</td>
<td>15.30</td>
<td>16.28</td>
</tr>
<tr>
<td>Physical</td>
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<td></td>
<td></td>
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<tr>
<td>Elevation</td>
<td>m</td>
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<tr>
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<td>%</td>
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<td>Gravel Cover</td>
<td>%</td>
<td>1.33</td>
<td>6.00</td>
</tr>
<tr>
<td>Rock Cover</td>
<td>%</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td>Bare Soil Cover</td>
<td>%</td>
<td>3.45</td>
<td>16.20</td>
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<td>Soil Depth (A horizon)</td>
<td>cm</td>
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<tr>
<td>Thatch</td>
<td>%</td>
<td>32.59</td>
<td>51.25</td>
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<td>Aspect: W = 3, SW = 2, SE = 1, E = 1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Summary

This dry meadow community occurs on the east flank of the Coast Range above 700 meters on moderately steep, thin soil bands between rock outcrops, which hosts a Martindale’s Lomatium rock garden plant community. An integration of the Martindale’s Lomatium and Oregon sunshine plant communities occur on this landscape as well. Plots were sampled on Mill Creek Ridge, Dorn Peak, and Rickreall Ridge, Salem BLM. Cheatgrass (*Bromus tectorum*), dogtail grass (*Cynosurus echinatus*), and soft brome (*Bromus hordeaceus*) have invaded most sites visited in these areas. This community is important because it contains several plant species important to pollinators, including the Pacific dotted blue butterfly, which the butterflies and caterpillars feed almost exclusively on buckwheats. A similar Oregon sunshine community occurs in the Cascades (McCain et al. 2014), but differs in enough species to separate out as at least a Coast Range phase.

Oregon sunshine and other species found in this plant community are known to be important hosts for pollinators.

N = 5 plots Salem BLM
### Constancy Table

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Mean Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERLA6</td>
<td>Eriophyllum lanatum</td>
<td>Oregon sunshine</td>
<td>forb</td>
<td>6.2</td>
<td>100</td>
</tr>
<tr>
<td>ELGL</td>
<td>Elymus glaucus</td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>1.1</td>
<td>100</td>
</tr>
<tr>
<td>DACA3</td>
<td>Danthonia californica</td>
<td>California oatgrass</td>
<td>graminoid</td>
<td>1.0</td>
<td>100</td>
</tr>
<tr>
<td>ACM2</td>
<td>Achillea millefolium</td>
<td>yarrow</td>
<td>forb</td>
<td>2.6</td>
<td>80</td>
</tr>
<tr>
<td>CLAM</td>
<td>Clarkia amoena</td>
<td>farewell-to-Spring</td>
<td>forb</td>
<td>0.9</td>
<td>80</td>
</tr>
<tr>
<td>BRCA5</td>
<td>Bromus carinatus</td>
<td>California brome</td>
<td>graminoid</td>
<td>0.9</td>
<td>80</td>
</tr>
<tr>
<td>LOMI</td>
<td>Lotus micranthus</td>
<td>desert deervetch</td>
<td>forb</td>
<td>0.5</td>
<td>80</td>
</tr>
<tr>
<td>LOUT</td>
<td>Lomatium utriculatum</td>
<td>common lomatium</td>
<td>forb</td>
<td>0.5</td>
<td>80</td>
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<tr>
<td>MAEX</td>
<td>Madia exigua</td>
<td>small tarweed</td>
<td>forb</td>
<td>0.5</td>
<td>80</td>
</tr>
<tr>
<td>ACLE8</td>
<td>Achnatherum lemmoni</td>
<td>Lemmon's needlegrass</td>
<td>graminoid</td>
<td>0.5</td>
<td>80</td>
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<tr>
<td>ERCO</td>
<td>Eriogonum compositum</td>
<td>arrowleaf buckwheat</td>
<td>forb</td>
<td>1.3</td>
<td>60</td>
</tr>
<tr>
<td>KOMA</td>
<td>Koeleria macrantha</td>
<td>prairie Junegrass</td>
<td>graminoid</td>
<td>0.5</td>
<td>60</td>
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<tr>
<td>ERUM</td>
<td>Eriogonum umbellatum</td>
<td>sulfur flower buckwheat</td>
<td>forb</td>
<td>0.4</td>
<td>60</td>
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<td>LUCO6</td>
<td>Luzula comosa</td>
<td>Pacific woodrush</td>
<td>graminoid</td>
<td>0.3</td>
<td>60</td>
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<tr>
<td>BRCO3</td>
<td>Brodiaea coronaria</td>
<td>crown brodiaea</td>
<td>forb</td>
<td>0.1</td>
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<tr>
<td>BADE2</td>
<td>Balsamorhiza deltoidea</td>
<td>deltoid balsamroot</td>
<td>forb</td>
<td>2.9</td>
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<td>Veronica sp.</td>
<td>speedwell</td>
<td>forb</td>
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<td>Daucus pusillus</td>
<td>American wild carrot</td>
<td>forb</td>
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<tr>
<td>GISP3</td>
<td>Githopsis specularioides</td>
<td>common bluecup</td>
<td>forb</td>
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### Environmental Table

<table>
<thead>
<tr>
<th>Environmental Variables</th>
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<th>Maximum</th>
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<tr>
<td>Climate</td>
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<td>Minimum December Temperature C°</td>
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<td>Annual Precipitation cm</td>
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<td>Summer Temperature C°</td>
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<td>7.50</td>
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<tr>
<td>Rock Cover %</td>
<td>0.34</td>
<td>0.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>22.60</td>
<td>0.40</td>
<td>73.75</td>
</tr>
<tr>
<td>Soil Depth (A horizon) cm</td>
<td>13.20</td>
<td>3.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Thatch %</td>
<td>17.93</td>
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</table>

Aspect: S = 1, NE = 1, W = 1, SW = 1, E = 1
Dry Meadow

Festuca californica (California fescue)

FECA

Summary

This California fescue dominated community was observed in large meadow gaps of Oregon oak stands on the west flank of Cascade Range foothills. These sites were in the Coburg Hills on Eugene BLM. Only 2 plots were sampled. This plant community needs further work and data may already reside in FS Ecology Oak datasets. Query additional data and include in this non-forest plant community document or add these data to a future Oak community analysis?

N = 2       Eugene BLM
FECA. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Ave Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FECA</td>
<td>Festuca californica</td>
<td>California fescue</td>
<td>graminoid</td>
<td>35.05</td>
<td>100</td>
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<tr>
<td>GASH</td>
<td>Gaultheria shallon</td>
<td>salal</td>
<td>shrub</td>
<td>5.55</td>
<td>100</td>
</tr>
<tr>
<td>SYAL</td>
<td>Symphoricarpus alba</td>
<td>common snowberry</td>
<td>shrub</td>
<td>3.00</td>
<td>100</td>
</tr>
<tr>
<td>ELGL</td>
<td>Elymus glaucus</td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>1.56</td>
<td>100</td>
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<tr>
<td>FRVI</td>
<td>Fragaria virginiana</td>
<td>Virginia strawberry</td>
<td>forb</td>
<td>0.31</td>
<td>100</td>
</tr>
<tr>
<td>LIAP</td>
<td>Ligusticum apiifolium</td>
<td>celeryleaf licorice root</td>
<td>forb</td>
<td>0.13</td>
<td>100</td>
</tr>
<tr>
<td>TODI</td>
<td>Toxicodendron diversilobum</td>
<td>poison oak</td>
<td>shrub</td>
<td>8.75</td>
<td>50</td>
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<tr>
<td>RUUR</td>
<td>Rubus ursinus</td>
<td>California blackberry</td>
<td>shrub</td>
<td>6.75</td>
<td>50</td>
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<td>IRTE</td>
<td>Iris tenax</td>
<td>tough leaf Iris</td>
<td>forb</td>
<td>1.25</td>
<td>50</td>
</tr>
<tr>
<td>PTAQ</td>
<td>Pteridium aquilinum</td>
<td>bracken fern</td>
<td>fern</td>
<td>1.15</td>
<td>50</td>
</tr>
<tr>
<td>ANAR3</td>
<td>Angelica arguata</td>
<td>Lyall's angelica</td>
<td>forb</td>
<td>1.00</td>
<td>50</td>
</tr>
<tr>
<td>LAHO2</td>
<td>Lathyrus holochlorus</td>
<td>thinline pea</td>
<td>forb</td>
<td>0.32</td>
<td>50</td>
</tr>
<tr>
<td>VIAM</td>
<td>Vicia americana</td>
<td>American vetch</td>
<td>forb</td>
<td>0.26</td>
<td>50</td>
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<tr>
<td>ROGY</td>
<td>Rosa gymnocarpa</td>
<td>dwarf rose</td>
<td>shrub</td>
<td>0.26</td>
<td>50</td>
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<td>MAGR3</td>
<td>Madia gracilis</td>
<td>grassy tarweed</td>
<td>forb</td>
<td>0.22</td>
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<tr>
<td>GAAP2</td>
<td>Galium aparine</td>
<td>bedstraw</td>
<td>forb</td>
<td>0.10</td>
<td>50</td>
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<tr>
<td>HODI</td>
<td>Holodiscus discolor</td>
<td>oceanspray</td>
<td>shrub</td>
<td>0.06</td>
<td>50</td>
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<tr>
<td>QUGA</td>
<td>Quercus garryana</td>
<td>Oregon oak</td>
<td>tree</td>
<td>0.06</td>
<td>50</td>
</tr>
<tr>
<td>VAPA</td>
<td>Vaccinium parviflorum</td>
<td>red huckleberry</td>
<td>shrub</td>
<td>0.06</td>
<td>50</td>
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FECA. Environmental table.

<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
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<tbody>
<tr>
<td>Climate</td>
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<td></td>
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<tr>
<td>Minimum December Temperature °C</td>
<td>-0.38</td>
<td>-0.38</td>
<td>-0.38</td>
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<td>Annual Precipitation cm</td>
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<td>17.42</td>
<td>17.42</td>
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<td>0.00</td>
<td>0.10</td>
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<tr>
<td>Physical</td>
<td></td>
<td></td>
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<tr>
<td>Elevation m</td>
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<td>Slope %</td>
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<tr>
<td>Gravel Cover %</td>
<td>733.00</td>
<td>733.00</td>
<td>733.00</td>
</tr>
<tr>
<td>Rock Cover %</td>
<td>20.00</td>
<td>15.00</td>
<td>25.00</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>0.11</td>
<td>0.00</td>
<td>0.22</td>
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<tr>
<td>Soil Depth (A horizon) cm</td>
<td>28.50</td>
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<tr>
<td>Thatch %</td>
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<td>77.50</td>
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</table>

Aspect: W=2
Phlox diffusa (spreading phlox) – Coast Range

Phlox diffusa

Summary
This Phlox dominated dry rock garden community is found at the highest elevation (>4000’) in the coast range on South and West facing slopes in thin-soil areas around exposed rock outcrops. So far it has only been observed on Marys Peak. Phlox diffusa plants have been found on Sugarloaf Mountain and Saddle Mountain farther North in the Oregon Coast Range (CPNH 2016); these areas would be worth future surveys for this Phlox diffusa community. The P. diffusa plant community described in the northern Oregon Cascades non-forest guide has only a few species in common.

Several species found in this plant community are known to be important hosts for pollinators.

N = 3 plots (Siuslaw NF) Marys Peak
PHDI3. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Ave Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHDI3</td>
<td><em>Phlox diffusa</em></td>
<td>spreading phlox</td>
<td>Forb</td>
<td>20.2</td>
<td>100</td>
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<tr>
<td>LOMA5</td>
<td><em>Lomatium martindaleii</em></td>
<td>Cascade desert parsley</td>
<td>Forb</td>
<td>4.3</td>
<td>100</td>
</tr>
<tr>
<td>ALCR4</td>
<td><em>Allium crenatum</em></td>
<td>Olympic onion</td>
<td>Forb</td>
<td>2.2</td>
<td>100</td>
</tr>
<tr>
<td>PECAN5</td>
<td><em>Pentsemon cardwellii</em></td>
<td>Cardwell's beardtongue</td>
<td>Forb</td>
<td>2.2</td>
<td>100</td>
</tr>
<tr>
<td>FERO</td>
<td><em>Festuca roemerii</em></td>
<td>Roemer's fescue</td>
<td>graminoid</td>
<td>1.8</td>
<td>100</td>
</tr>
<tr>
<td>CAHI9</td>
<td><em>Castilleja hispidum</em></td>
<td>harsh paintbrush</td>
<td>Forb</td>
<td>1.2</td>
<td>100</td>
</tr>
<tr>
<td>SIDOD</td>
<td><em>Sidalcea douglassii</em></td>
<td>Douglas’ catchfly</td>
<td>Forb</td>
<td>0.9</td>
<td>100</td>
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<td>ERCA14</td>
<td><em>Erysimum capitatum</em></td>
<td>western wallflower</td>
<td>Forb</td>
<td>0.1</td>
<td>100</td>
</tr>
<tr>
<td>GICA5</td>
<td><em>Gilia capitata</em></td>
<td>blue gilia</td>
<td>Forb</td>
<td>0.1</td>
<td>100</td>
</tr>
<tr>
<td>LULE2</td>
<td><em>Lupinus lepidus</em></td>
<td>Pacific lupine</td>
<td>Forb</td>
<td>0.7</td>
<td>67</td>
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<tr>
<td>LUCO6</td>
<td><em>Luzula comosa</em></td>
<td>Pacific woodrush</td>
<td>Forb</td>
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<tr>
<td>CEAR4</td>
<td><em>Cerastium arvense</em></td>
<td>meadow chickweed</td>
<td>Forb</td>
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<tr>
<td>ACMI2</td>
<td><em>Achillea millefolia</em></td>
<td>yarrow</td>
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<td>COPA3</td>
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<td>blue-eyed Mary</td>
<td>Forb</td>
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<tr>
<td>APAN2</td>
<td><em>Apocynum androsaemifolium</em></td>
<td>dogbane</td>
<td>Forb</td>
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<td>33</td>
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<tr>
<td>KOMA</td>
<td><em>Koeleria macrantha</em></td>
<td>prairie junegrass</td>
<td>graminoid</td>
<td>0.3</td>
<td>33</td>
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<tr>
<td>ERUM</td>
<td><em>Eriogonum umbellatum</em></td>
<td>sulphur-flowered buckwheat</td>
<td>Forb</td>
<td>0.1</td>
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PHDI3. Environmental table.

<table>
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<th>Environmental Variables</th>
<th>Mean</th>
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<th>Maximum</th>
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<td></td>
<td></td>
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<td>Minimum December Temp C°</td>
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<td>-0.55</td>
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<td>28.11</td>
<td>28.60</td>
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<td>Summer Temp C°</td>
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<td>15.67</td>
<td>15.67</td>
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<td>1308.00</td>
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<td>18.33</td>
<td>15.00</td>
<td>20.00</td>
</tr>
<tr>
<td>Gravel Cover %</td>
<td>34.63</td>
<td>6.40</td>
<td>62.50</td>
</tr>
<tr>
<td>Rock Cover %</td>
<td>18.33</td>
<td>14.00</td>
<td>25.00</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>5.85</td>
<td>0.75</td>
<td>10.00</td>
</tr>
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<td>Soil Depth (A horizon) cm</td>
<td>2.00</td>
<td>0.50</td>
<td>3.00</td>
</tr>
<tr>
<td>Thatch %</td>
<td>0.26</td>
<td>0.10</td>
<td>0.50</td>
</tr>
<tr>
<td>Aspect: S=2, W=1</td>
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</tr>
</tbody>
</table>
Dry Rock Garden

Selaginella wallaceii– Lomatium martindaleii (Wallace’s spikemoss – Cascade desert parsley)

SEWA – LOMA5

Summary

This spikemoss dominated community with sparse forbs occurs on mostly South facing rock outcrops through-out the Coast Range study area. This plant community is often invaded by the moss, Racomitrium canescens, which often occupies a large area of the habitat. Sites sampled were from Mill Creek Ridge, Rickreall Ridge, and Prairie Mountain on Salem BLM and the Cape Perpetua area on Siuslaw NF. This plant community is similar to the Rock Garden [steep, xeric] type described in the northern Oregon Cascades non-forested plant community guide, which is also spikemoss dominated. However, Cascades community’s grass and forb component is entirely different. A larger sample size in the Coast Range type might include some other dry site plants in common with the Cascades description, Oceanspray and stonecrop; the potential additional species in common are not likely to combine them.

Several species found in this plant community are known to be important hosts for pollinators.

N = 8 plots, Salem BLM, Siuslaw NF
SEWA-LOMA5. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Ave Cover (%</th>
<th>Constancy (%)</th>
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<tbody>
<tr>
<td>SEWA</td>
<td><em>Selaginella wallaceii</em></td>
<td>Wallace's spikemoss</td>
<td>fern allie</td>
<td>6.1</td>
<td>100</td>
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<tr>
<td>LOMA5</td>
<td><em>Lomatium martindaleii</em></td>
<td>Cascade desert parsley</td>
<td>forb</td>
<td>2.8</td>
<td>75</td>
</tr>
<tr>
<td>PHNE2</td>
<td><em>Phacelia nemoralis</em></td>
<td>shade phacelia</td>
<td>forb</td>
<td>1.5</td>
<td>63</td>
</tr>
<tr>
<td>CLAM</td>
<td><em>Clarkia amoena</em></td>
<td>farewell-to-Spring</td>
<td>forb</td>
<td>0.2</td>
<td>50</td>
</tr>
<tr>
<td>ELGL</td>
<td><em>Elymus glaucus</em></td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>0.1</td>
<td>50</td>
</tr>
<tr>
<td>ALCR4</td>
<td><em>Allium crenatum</em></td>
<td>Olympic onion</td>
<td>forb</td>
<td>0.1</td>
<td>50</td>
</tr>
<tr>
<td>GICA5</td>
<td><em>Gilia capitata</em></td>
<td>blue gilia</td>
<td>forb</td>
<td>0.1</td>
<td>50</td>
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<td>MAEX</td>
<td><em>Madia exigua</em></td>
<td>small tarweed</td>
<td>forb</td>
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<td>38</td>
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<table>
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<tr>
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<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum December Temperature °C</td>
<td>1.47</td>
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<td>Annual Precipitation cm</td>
<td>21.54</td>
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<td>23.11</td>
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<tr>
<td>Summer Temperature °C</td>
<td>15.90</td>
<td>13.64</td>
<td>16.72</td>
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<td>Physical</td>
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<tr>
<td>Elevation m</td>
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<tr>
<td>Slope %</td>
<td>80.00</td>
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</tr>
<tr>
<td>Gravel Cover %</td>
<td>0.14</td>
<td>0.00</td>
<td>0.40</td>
</tr>
<tr>
<td>Rock Cover %</td>
<td>30.66</td>
<td>5.00</td>
<td>60.00</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>0.25</td>
<td>0.00</td>
<td>0.40</td>
</tr>
<tr>
<td>Soil Depth (A horizon) cm</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
</tr>
<tr>
<td>Thatch Cover %</td>
<td>0.28</td>
<td>0.10</td>
<td>1.00</td>
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<tr>
<td>Aspect: S=5, SE=2, E=1</td>
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</tbody>
</table>
**Mesic Rock Garden**

*Heuchera macrantha-Saxifraga mertensiana*
(crevice alumroot-Merten’s saxafrage)

HEMI7-SAME7

**Summary**

This saxifrage and moss dominated community was found on the steep, north side rock wall of Rickreall Ridge on Salem BLM. Some dry site species, such as oceanspray and Douglas’ catchfly occur in dry microsites within this community. This plant community is expected to occur on similar moist steep rock faces at mid-elevation areas in the northern Coast Range. Like the Coast Range dry rock garden community described in this work, it has species in common with the Rock Garden type described in the northern Oregon Cascades non-forest plant community guide. However, this Coast Range type only has a few species in common with that in the Cascades. With only 3 plots and one location, this type needs further study.

Several species found in this plant community are known to be important hosts for pollinators.

N = 3 (Salem BLM)
HEMI7-SAME7. Constancy table. Mean canopy cover for native species in greater than 30% of plots.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Ave Cover (%)</th>
<th>Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEMI7</td>
<td><em>Heuchera micrantha</em></td>
<td>crevice alumroot</td>
<td>forb</td>
<td>15.5</td>
<td>100</td>
</tr>
<tr>
<td>SIDOD</td>
<td><em>Sidalcea douglassii</em></td>
<td>Douglas' catchfly</td>
<td>forb</td>
<td>2.1</td>
<td>100</td>
</tr>
<tr>
<td>LOMA5</td>
<td><em>Lomatium martindaleii</em></td>
<td>Cascade desert parsley</td>
<td>forb</td>
<td>0.3</td>
<td>100</td>
</tr>
<tr>
<td>Moss1</td>
<td>Moss need ID</td>
<td>moss</td>
<td>moss</td>
<td>65</td>
<td>100</td>
</tr>
<tr>
<td>SAME7</td>
<td><em>Saxifraga mertensiana</em></td>
<td>wood saxifrage</td>
<td>forb</td>
<td>18</td>
<td>67</td>
</tr>
<tr>
<td>SEWA</td>
<td><em>Selaginella wallacei</em></td>
<td>Wallace's spikemoss</td>
<td>fern allie</td>
<td>2</td>
<td>67</td>
</tr>
<tr>
<td>MOPA2</td>
<td><em>Montia parviflora</em></td>
<td>littleleaf miner's lettuce</td>
<td>forb</td>
<td>0.3</td>
<td>67</td>
</tr>
<tr>
<td>SESP</td>
<td><em>Sedum spathulifolium</em></td>
<td>broadleaf stonecrop</td>
<td>forb</td>
<td>0.3</td>
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</tr>
<tr>
<td>HODI</td>
<td><em>Holodiscus discolor</em></td>
<td>oceanspray</td>
<td>shrub</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>POGR9</td>
<td><em>Potentilla gracilis</em></td>
<td>slender cinquefoil</td>
<td>forb</td>
<td>0.6</td>
<td>33</td>
</tr>
<tr>
<td>BRCA5</td>
<td><em>Bromus carinatus</em></td>
<td>California brome</td>
<td>graminoid</td>
<td>0.1</td>
<td>33</td>
</tr>
<tr>
<td>ELGL</td>
<td><em>Elymus glaucus</em></td>
<td>blue wild rye</td>
<td>graminoid</td>
<td>0.1</td>
<td>33</td>
</tr>
</tbody>
</table>

HEMI7-SAME7. Environmental table.

<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
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</thead>
<tbody>
<tr>
<td>Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum December Temperature C°</td>
<td>0.08</td>
<td>0.08</td>
<td>0.08</td>
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<tr>
<td>Annual Precipitation cm</td>
<td>25.32</td>
<td>25.32</td>
<td>25.32</td>
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<tr>
<td>Summer Temperature C°</td>
<td>15.87</td>
<td>15.87</td>
<td>15.87</td>
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<tr>
<td>Physical</td>
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</tr>
<tr>
<td>Elevation m</td>
<td>871.33</td>
<td>867.00</td>
<td>880.00</td>
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<tr>
<td>Slope %</td>
<td>81.67</td>
<td>75.00</td>
<td>90.00</td>
</tr>
<tr>
<td>Gravel Cover %</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Rock Cover %</td>
<td>38.67</td>
<td>8.50</td>
<td>65.00</td>
</tr>
<tr>
<td>Bare Soil Cover %</td>
<td>0.10</td>
<td>0.10</td>
<td>0.10</td>
</tr>
<tr>
<td>Soil Depth (A horizon) cm</td>
<td>0.67</td>
<td>0.50</td>
<td>1.00</td>
</tr>
<tr>
<td>Thatch Cover %</td>
<td>0.90</td>
<td>0.10</td>
<td>2.50</td>
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<tr>
<td>Aspect: NW=3</td>
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</table>
Summary
This saxifrage and camas plant community occupies seasonally wet areas flat topped or mild sloped rock outcrops. It was observed and sampled on the summits of Mt Hebo on the Siuslaw NF and Little Grass Mountain on Salem BLM. Camas is known to be important to local tribes.

N = 5 plots (Siuslaw NF, Salem BLM)
SAFE-CAQU2. Constancy table. Canopy cover for native species with greater than 30% constancy.

<table>
<thead>
<tr>
<th>Plant Code</th>
<th>Scientific Name</th>
<th>Common Name</th>
<th>Type</th>
<th>Ave Cover (%)</th>
<th>Ave Constancy (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAQU2</td>
<td><em>Camassia quamash</em></td>
<td>small camas</td>
<td>forb</td>
<td>5.7</td>
<td>100</td>
</tr>
<tr>
<td>SAFE</td>
<td><em>Saxifraga ferruginea</em></td>
<td>russethair saxifrage</td>
<td>forb</td>
<td>3.8</td>
<td>100</td>
</tr>
<tr>
<td>PECA16</td>
<td><em>Penstamen cardwellii</em></td>
<td>Cardwell's beardtongue</td>
<td>forb</td>
<td>1.1</td>
<td>60</td>
</tr>
<tr>
<td>MOPA2</td>
<td><em>Montia parviflora</em></td>
<td>littleleaf miner's lettuce</td>
<td>forb</td>
<td>0.5</td>
<td>60</td>
</tr>
<tr>
<td>STERE2</td>
<td><em>Stereocaulon sp.</em></td>
<td>snow lichen</td>
<td>lichen</td>
<td>5.0</td>
<td>60</td>
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<tr>
<td>AGPA8</td>
<td><em>Agrostis pallens</em></td>
<td>seashore bentgrass</td>
<td>graminoid</td>
<td>1.8</td>
<td>40</td>
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<tr>
<td>MADIA</td>
<td><em>Madia sp.</em></td>
<td>tarweed</td>
<td>forb</td>
<td>0.5</td>
<td>40</td>
</tr>
<tr>
<td>CEAR4</td>
<td><em>Cerastium arvense</em></td>
<td>meadow chickweed</td>
<td>forb</td>
<td>0.5</td>
<td>40</td>
</tr>
</tbody>
</table>

SAFE-CAQU2. Environmental table.

<table>
<thead>
<tr>
<th>Environmental Variables</th>
<th>Mean</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum December Temperature  C°</td>
<td>0.03</td>
<td>-0.28</td>
<td>0.55</td>
</tr>
<tr>
<td>Annual Precipitation  cm</td>
<td>37.91</td>
<td>33.08</td>
<td>40.56</td>
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<tr>
<td>Summer Temperature  C°</td>
<td>14.88</td>
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<td>16.48</td>
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<tr>
<td>Physical</td>
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<tr>
<td>Elevation  m</td>
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<td>883.00</td>
<td>1060.00</td>
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<td>Slope</td>
<td>12.20</td>
<td>5.00</td>
<td>25.00</td>
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<tr>
<td>Gravel Cover  %</td>
<td>2.58</td>
<td>0.10</td>
<td>8.80</td>
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<tr>
<td>Rock Cover  %</td>
<td>18.16</td>
<td>1.10</td>
<td>42.50</td>
</tr>
<tr>
<td>Bare Soil Cover  %</td>
<td>1.28</td>
<td>0.00</td>
<td>6.40</td>
</tr>
<tr>
<td>Soil Depth (A horizon)  cm</td>
<td>8.20</td>
<td>0.00</td>
<td>30.00</td>
</tr>
<tr>
<td>Thatch</td>
<td>0.74</td>
<td>0.10</td>
<td>2.30</td>
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<tr>
<td>Aspect: S=2, SW=1, W=2</td>
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<td></td>
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</tbody>
</table>
Table 2a. Mult-Response Permutation Procedure (MRPP) results for testing plant community group membership. P-values <0.05 indicate plant community group species composition is significantly different. T = test statistic and indicates the strength of separation between groups. A = agreement statistic and indicates heterogeneity within groups.

<table>
<thead>
<tr>
<th>Group Comparisons</th>
<th>T</th>
<th>A</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ELGL vs. FRVI-DACA3</td>
<td>-8.60495986</td>
<td>0.25005988</td>
<td>0.0001</td>
</tr>
<tr>
<td>ELGL vs. HEMI7-SAFE7</td>
<td>-6.21944243</td>
<td>0.21528369</td>
<td>0.0002</td>
</tr>
<tr>
<td>ELGL vs. MAST4-CACA9</td>
<td>-8.30401845</td>
<td>0.15524678</td>
<td>0.0000</td>
</tr>
<tr>
<td>ELGL vs. PHDI3</td>
<td>-6.73974497</td>
<td>0.31251188</td>
<td>0.0002</td>
</tr>
<tr>
<td>ELGL vs. SAFE7-CAQU2</td>
<td>-7.57667907</td>
<td>0.20903926</td>
<td>0.0001</td>
</tr>
<tr>
<td>ELGL vs. ERLA6</td>
<td>-7.67487523</td>
<td>0.21276172</td>
<td>0.0001</td>
</tr>
<tr>
<td>ELGL vs. FECA</td>
<td>-5.28265684</td>
<td>0.23038278</td>
<td>0.0005</td>
</tr>
<tr>
<td>ELGL vs. FERO-coast</td>
<td>-7.08434503</td>
<td>0.28358144</td>
<td>0.0001</td>
</tr>
<tr>
<td>ELGL vs. FERO-high</td>
<td>-6.06844871</td>
<td>0.126902</td>
<td>0.0002</td>
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<td>ELGL vs. SEWA-LOMA5</td>
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<td>0.24754699</td>
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<td>ELGL vs. THGR6</td>
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<td>0.20099605</td>
<td>0.0001</td>
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<tr>
<td>ERLA6 vs. ELGL</td>
<td>-7.67487523</td>
<td>0.21276172</td>
<td>0.0001</td>
</tr>
<tr>
<td>ERLA6 vs. FERO-high</td>
<td>-6.79207315</td>
<td>0.23058528</td>
<td>0.0004</td>
</tr>
<tr>
<td>ERLA6 vs. FRVI-DACA3</td>
<td>-6.69264584</td>
<td>0.26551629</td>
<td>0.0004</td>
</tr>
<tr>
<td>ERLA6 vs. HEMI7-SAFE7</td>
<td>-4.30839999</td>
<td>0.24927409</td>
<td>0.0035</td>
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<tr>
<td>ERLA6 vs. MAST4-CACA9</td>
<td>-7.86012845</td>
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</tr>
<tr>
<td>ERLA6 vs. PHDI3</td>
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</tr>
<tr>
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<tr>
<td>ERLA6 vs. FECA</td>
<td>-3.66559273</td>
<td>0.31884733</td>
<td>0.0103</td>
</tr>
<tr>
<td>ERLA6 vs. FERO-coast</td>
<td>-5.11349278</td>
<td>0.3376838</td>
<td>0.0027</td>
</tr>
<tr>
<td>ERLA6 vs. SEWA-LOMA5</td>
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<td>FECA vs. ELGL</td>
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<td>0.23038278</td>
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<tr>
<td>FECA vs. ERLA6</td>
<td>-3.66559273</td>
<td>0.31884733</td>
<td>0.0103</td>
</tr>
<tr>
<td>FECA vs. FERO-high</td>
<td>-4.52935543</td>
<td>0.26274017</td>
<td>0.0059</td>
</tr>
<tr>
<td>FECA vs. FRVI-DACA3</td>
<td>-4.31838967</td>
<td>0.30475552</td>
<td>0.0059</td>
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<tr>
<td>FECA vs. HEMI7-SAFE7</td>
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<tr>
<td>Group Comparisons</td>
<td>T</td>
<td>A</td>
<td>p-value</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------</td>
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<tr>
<td>FERO-coast vs. ELGL</td>
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<td>0.0001</td>
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<td>FERO-coast vs. ERLA6</td>
<td>-5.11349278</td>
<td>0.3376838</td>
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<tr>
<td>FERO-coast vs. FERO-high</td>
<td>-4.75990908</td>
<td>0.13630664</td>
<td>0.0009</td>
</tr>
<tr>
<td>FERO-coast vs. FERI-DACA3</td>
<td>-6.19704978</td>
<td>0.37785945</td>
<td>0.0006</td>
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<td>FERO-coast vs. HEMI7-SAFE7</td>
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<td>FERO-high vs. FERI-DACA3</td>
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<td>-4.52935543</td>
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<td>FERO-high vs. FERO-coast</td>
<td>-4.75990908</td>
<td>0.13630664</td>
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<td>0.22800459</td>
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<td>FERO-high vs. THGR6</td>
<td>-6.76324744</td>
<td>0.28338996</td>
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<td>FRVI-DACA3 vs. HEMI7-SAFE7</td>
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<td>0.0006</td>
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<td>0.0002</td>
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<tr>
<td>FRVI-DACA3 vs. SAFE7-CAQU2</td>
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## Table 2c. Cont.

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Literature Cited


Literature to be cited in full report draft.

