

THE
ZENA
PROPERTY



RARE PLANT AND
BUTTERFLY SURVEY AND
BLACKBERRY MAPPING

SALIX ASSOCIATES

• SUBMITTED TO • BARRY SIMS
TROUT MOUNTAIN FORESTRY

RARE VASCULAR PLANT AND BUTTERFLY SURVEY, AND INVASIVE BLACKBERRY SURVEY AND MAPPING ON THE ZENA PROPERTY

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*Zena Property (general location).
About 7 miles west of Keizer, Oregon*

Cover aerial courtesy of Trout Mountain Forestry.

1 Background and Executive Summary

Salix Associates was requested to survey the Zena Forest Property for rare plants of wetland prairie, upland prairie and savanna for Taylor's Checkerspot and Fender's Blue butterflies, and to produce a map of heavy infestations of exotic blackberry on the Zena Property in Polk County, Oregon.

The site was surveyed five times from April 10 through June 19, with different portions targeted in different surveys in an effort to maximize the potential of finding target rare species. Because all of the target species are prairie and savanna species, the survey efforts focused on those areas containing open habitats. However, surveys also occurred in some forested areas and in gaps where rare species occurrence also was possible. The habitats with the highest potential occurrence of any species were surveyed two or more times.

2 Site Information

Survey Dates	10 April 7 & 14 May 5 & 19 June 2008	Personnel	R. Brainerd, B. Newhouse (Salix Associates)	
County, State	Polk, Oregon	TRS	Portions of: T06S, R04W, Sec. 26, 27, 28, 33, 35 and T07S, R04W, Sec. 2, 3	
Approx. acres	Entire site: 1460+	TRS centroid	Center of the SW ¼ of the NE ¼ of Sec. 24 (T06S, R04W)	
UTM centroid	NAD 83 CONUS	Zone 10	487315 mE	4984024 mN
Elevation	218 feet to 990 feet		Search radius: approximately 1.5 miles	
Access	Entrance roads from Oak Grove Road (which borders a portion of the west side of the site), and from Zena Road (which borders a portion of the north side). Site specific access directions provided by S. Duemling, site manager, who lives adjacent.			
General Notes	Site has been managed for many years for timber production. Surveys concentrated on open or partially open habitats.			
Target rare species	None observed.			
Other rare species	Meadow checkermallow, White-breasted (Slender-billed) nuthatch, Yellow-breasted chat, Western gray squirrel, Western pond turtle (fide others)			

The condition of the site varies, but in general, exotic vegetation dominates forest understories and open areas (almost exclusively) because of many years of disturbance associated with forest management and harvesting activities. Prior grazing also may have contributed to this condition. Remnant native herbaceous plant populations observed on the site are relatively tolerant of disturbance and competition from exotic species, and they often occur in small amounts, and most often in forested habitats. Little to no native vegetation remains in areas of

former prairie, which appear to have been either plowed or ripped and planted with trees. Encroachment by both Armenian and European Blackberry (*Rubus armeniacus* & *R. vestitus*) is widespread. Small oak woodland, savanna and prairie remnants are encroached upon by exotic blackberries, Scot's Broom (*Cytisus scoparius*) and Poison-Oak (*Toxicodendron diversilobum*), as well as many exotic grasses.

3 Survey Methods

Based on preliminary surveys and habitat analysis by the Oregon Natural Heritage Information Center staff (Scheuring & Riggs 2006), the USFWS (2007) and Pacific Habitat Services (2007), and our further research, potential rare species habitats were identified on the site and the following list of potentially-occurring rare species to be targeted by the surveys was submitted, approved and used as a guide for scheduling project surveys.

Rare butterflies and vascular plant species with federal status were targeted by the survey project and are shown in the table below.

Latin name	Common name	Normal survey dates	Habitat
• Invertebrates			
<i>Euphydryas editha taylori</i>	Taylor's checkerspot Butterfly (TCB)	Mid April, Late April, Early May	Upland prairie. Host plant: Narrow-leaved plantain.
<i>Plebejus icarioides fenderi</i>	Fender's blue butterfly (FBB)	Mid May, Late May, Early June	Upland prairie (occ. wetland prairie). Host plant: Kincaid's lupine, rarely, Spurred or Sickle-keeled lupine.
• Plants			
<i>Erigeron decumbens</i> var. <i>decumbens</i>	Willamette Valley Daisy	Early to late June	Upland to wetland prairie, savanna
<i>Delphinium oregonum</i>	Oregon larkspur	Mid May, Late May/Early June	Upland to moist; prairie to woodland
<i>Delphinium pavonaceum</i>	Peacock larkspur	Mid May, Late May/Early June	Upland to moist prairie
<i>Lathyrus holochlorus</i>	Thin-leaved peavine	Mid May, Late May/Early June	Savanna, woodland edges and gaps, riparian terraces
<i>Lomatium bradshawii</i>	Bradshaw's lomatium	Mid April, late April/early May	Moist to wet prairie
<i>Lupinus sulphureus</i> ssp. <i>kincaidii</i>	Kincaid's lupine	Mid May, Late May/Early June	Upland prairie, savanna, woodland gaps
<i>Sericocarpus</i>	White-topped aster	May (vegetatively) or	Upland to moist prairie,

<i>rigidus</i>		August (in flower)	savanna.
<i>Sidalcea nelsoniana</i>	Nelson's checkermallow	Early to late June	Moist prairie, savanna, & (rarely) woodland

In addition to the target species listed above, we made incidental observations of potentially-occurring rare wildlife species, particularly noting the presence of any from the following list.

• Birds	Common Name
Grassland (prairie)	Vesper sparrow, Western meadowlark
Savanna	Chipping sparrow, Western bluebird, Slender-billed (White-breasted) nuthatch*
Oak woodland/forest	Acorn woodpecker, Western bluebird, Slender-billed (White-breasted) nuthatch*
Shrubland	Willow flycatcher, Yellow-breasted chat*
• Amphibians, Reptiles and Mammals	
Prairie/savanna	Western pond turtle, Painted turtle
Savanna/woodland	Western gray squirrel*
Wetlands/riparian	N. red-legged frog

* = Seen during plant/butterfly surveys

Potential rare species habitats were marked on aerial photos, and rare species surveys were focused in those target habitats where occurrence of the species was possible. We also surveyed many small roadside openings going to and from the target areas.

Phenology during the 2008 growing season was approximately 2 to 3 weeks later than normal, and in general, the flowering season was shortened somewhat. We adjusted our survey times accordingly, based on our observations of nearby populations and/or discussions with others conducting nearby surveys. Surveys for rare species occurred on April 10 (preliminary reconnaissance), May 7 and 9, and June 19 and 25. Rare plant surveys were performed in typical "intuitive meanders" in all the target habitats during appropriate times, with "intensive" surveys used in the (relatively) best habitats.

Surveying for rare butterfly species primarily entails searching for adults in the correct habitat (with host plant and nectar plants present or nearby), during the flight season, on sunny days with temperatures at or above 60 degrees F and little to no wind.

Suitable habitat for Taylor's checkerspot butterflies includes prairies, usually with a native bunchgrass component, and with the host plant (Narrow-leaved plantain, *Plantago lanceolata*) present. Taylor's checkerspots apparently "host-jumped" historically from a native species of paintbrush (*Castilleja hirsuta* and/or *C. levisecta*) to the exotic Narrow-leaved plantain – which contains similar secondary chemicals important to the butterfly larvae which feed on it. The primary nectar plant for Taylor's checkerspots at the two known Willamette Valley locations (in Benton County) is Broadpetal strawberry. The flight season in 2008 occurred during the late portion of the time window shown on the above table.

Fender's blue butterflies use Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*) as their primary host plant, and rarely other closely related or hybridized lupines (Spurred lupine and Sickie keeled lupine; *Lupinus arbustus* and *L. albicaulis*). Because they are not strong flyers, they tend to be found fairly close to their host plants or suitable nectar plants.

4 Results

The vast majority of the site is forested with Douglas fir. Forest understories are dominated in many areas by invasive exotic species such as Sweet Cherry, Shining Geranium, and Armenian and European blackberries. These species are dominant in many areas once occupied by native plants, and they alter light availability and soil characteristics where they prevail.

Small areas where Oregon white oak dominates are being degraded by one or more of the following:

- encroachment by Douglas fir;
- dense regeneration and resulting high density of small diameter oaks;
- underplanting with Douglas fir; and
- Armenian/European blackberries, shining geranium, and other exotics.

All the target prairie and oak habitats appear to have undergone significant disturbance in the past, and have very few populations of native herbaceous plants remaining. At least two former prairie areas were mechanically treated (one was plowed and one was ripped) before they were planted with conifers (Duemling, pers. comm.). In both cases, the native species that may have been present were replaced by opportunistic exotic species. The native herbaceous species remaining are in small quantities; many on the attached plant list are represented on the site by only a few plants.

Exotic species dominate the herbaceous layer in remnant prairie and savanna habitats, and many of these are invasive. They include grasses such as Colonial bentgrass, Tall fescue, and several species of annual, exotic, invasives; forbs such as Longstem geranium, False dandelion and Narrow-leaved plantain; and woody species such as Armenian and European blackberry, English hawthorn and Scot's broom. Native species either encroaching or planted in these habitats include several species of conifers and poison-oak.

Most of the few native species remaining in the herbaceous layer of open habitats are tolerant of some disturbance and competition. Examples are Self-heal, California oatgrass, Ookow, Oregon sunshine, Broadpetal strawberry, Foothill sedge and Woodrush. Ruderal (disturbance-dependent) native herbaceous species found on the site include Tall annual willowherb, Cleavers, Pineapple weed and Skunkweed.

The attached vascular plant list shows all species recorded during our surveys. Of the 237 vascular plant taxa seen on the site (see the introductory table preceding the list), 125 taxa (53%) are native, and 112 (47%) are considered exotic (introduced, non-native, naturalized). Of the 112 exotic taxa, 46 (41%) are considered invasive. In summary, the number of exotic and invasive exotic species on the site is very high. In forested areas, tree cover is almost

entirely native, and shrub and herb layer cover is a mix of native and exotic species. In more open habitats there is especially high exotic cover in the shrub and herb layers.

Rare Plant Survey Results

We did not find any target rare plant species during the surveys. The lack of sightings is consistent with the high level of habitat disturbance, poor habitat quality and low occurrence of all native herbaceous species.

Earlier reports of the perennial Kincaid's lupine on the site were withdrawn by the source (Duemling, pers. comm.), as those plants were determined to be the annual Smallflower lupine.

One non-target rare plant, Meadow checkermallow, was found about 0.15 miles east of the "Y" in the road at (NAD83) UTM10T 486869mE, 4983504mN (± 3 meters). Meadow checkermallow is listed as a Candidate species by the State of Oregon. It has no federal status.

Rare Butterfly Survey Results

No Taylor's checkerspot was found on the Zena site, and no other species of checkerspot was seen. We found the Taylor's checkerspot larval host plant (Narrow-leaved plantain) to be common and widespread on the site, but Broadpetal strawberry and other potential early season nectar plant species are rare. In general, the potential habitats for Taylor's checkerspot historically were very disturbed on the site, and no longer are suitable.

No Fender's blues were observed, and no suitable lupine host plants were found in our surveys. We often noted Silvery blue butterflies during our surveys, which are much more common and use a wider variety of host plants (lupines, vetches, deervetches, peas, etc., including both native and exotic species). Silvery blues are noted on the attached list of wildlife species.

Other Wildlife

Although beyond the scope of the project, we recorded incidental sightings or identifiable signs of additional wildlife species that were encountered on the site during the scheduled surveys. Included in these are several uncommon to rare species: Western gray squirrel, Slender-billed (White-breasted) nuthatch and Yellow-breasted chat.

Invasive Blackberry

Armenian and European blackberries are very common on the site. In the past, these two species have been misidentified as Himalayan blackberry (*Rubus discolor*), which has not been documented in Oregon. We were requested to map the largest infestations of exotic blackberries to be used as a potential tool by future landowners and managers (Sims, pers. comm.). The attached map shows the largest areas where one or both of these species is dominant.

5 Bibliography

Pacific Habitat Services. 2007. (Map) Approximate location of wetlands on Zena timber property.

Scheuring, E. and Riggs, E. 2006. Natural resources inventory for At-Risk Species at Zena timber holdings, Polk Co., Oregon. Oregon Natural Heritage Information Center.

Trout Mountain Forestry. 2007. Zena forest draft management plan. Prepared for Trust for Public Land.

USFWS. 2007. Restoration priority areas for Zena property (map). US Fish and Wildlife Service map on file.

6 Personal Communications

Duemling, Sarah. (Site Manager)
Sims, Barry. (Trout Mountain Forestry)

7 Attachments

- A Vascular plants of the Zena Property
- B Wildlife of the Zena Property
- C Field notes
- D Maps (4) of surveyed areas and field notes sites (submitted separately)
- E Maps (4) of invasive blackberry, largest infestations (submitted separately)

Attachment A: Vascular Plants of the Zena Property

Vascular Plant Nativity by Layer

GROUP	TOTAL	Native All	Exotic All	% Native	Native Rare	Exotic Invasive
Trees	26	11	15	42	0	2
Shrubs	26	18	8	69	0	6
Forbs	138	71	67	51	1	27
Graminoids	41	19	22	46	0	11
Ferns & Allies	6	6	0	100	0	0
Total	237	125	112	53	1	46

List of Vascular Plants

N/E = Native/Exotic; R/I = Rare/Invasive. Rare is a subcategory of Native, and Invasive is a subcategory of Exotic (Non-native, Introduced, Alien).

Latin name	Common name	N/E	R/I	Comments
TREES				
<i>Abies grandis</i>	Grand Fir	N		
<i>Acer macrophyllum</i>	Bigleaf Maple	N		
<i>Alnus rubra</i>	Red Alder	N		
<i>Arbutus menziesii</i>	Pacific Madrone	N		
<i>Calocedrus decurrens</i>	Incense Cedar	N		
<i>Castanea sp.</i>	Chestnut	E		Planted at Magic Meadow
<i>Cornus nuttallii</i>	Pacific dogwood	N		
<i>Crataegus monogyna</i>	English Hawthorn	E	I	
<i>Crataegus monogyna x suksdorfii</i>	Hybrid Hawthorn	E		Native-exotic hybrid.
<i>Crataegus suksdorfii</i>	Suksdorf's Hawthorn	N		
<i>Fraxinus latifolia</i>	Oregon Ash	N		
<i>Juglans cf. nigra</i>	Black Walnut	E		Possibly <i>J. hindsii</i> ?
<i>Juglans cf. regia</i>	English Walnut	E		Seedling

<i>Malus x domestica</i>	Domestic Apple	E		
<i>Pinus ponderosa</i>	Ponderosa Pine	N		
<i>Populus trichocarpa</i>	Black Cottonwood	N		
<i>Prunus avium</i>	Mazzard, Sweet, or Bird Cherry	E	I	Extensive in forest understories.
<i>Prunus domestica</i>	Domestic Cherry	E		
<i>Pseudotsuga menziesii</i> var. <i>menziesii</i>	Douglas-fir	N		
<i>Pyrus communis</i>	Domestic Pear	E		
<i>Quercus garryana</i> var. <i>garryana</i>	Oregon White Oak	N		
<i>Rhamnus purshiana</i>	Cascara Buckthorn	N		
<i>Robinia pseudoacacia</i>	Black Locust	E		
<i>Salix lasiandra</i> ssp. <i>lasiandra</i>	Pacific Willow	N		
<i>Sequoia gigantea</i>	Giant Sequoia	E		Planted stand present in east-central portion of site.
<i>Thuja plicata</i>	Western Redcedar	N		
SHRUBS				
<i>Acer circinatum</i>	Vine Maple	N		
<i>Amelanchier alnifolia</i>	Pacific Serviceberry	N		
<i>Baccharis pilularis</i>	Coyote Brush	N		One large shrub noted in NE.
<i>Berberis aquifolium</i>	Tall Oregongrape	N		
<i>Corylus cornuta</i> var. <i>californica</i>	California Hazel	N		
<i>Cytisus scoparius</i>	Scot's Broom	E	I	Especially large infestations in northeast section.
<i>Holodiscus discolor</i>	Oceanspray	N		
<i>Ilex aquifolium</i>	English Holly	E	I	Scattered in shade.
<i>Oemleria cerasiformis</i>	Osoberry	N		
<i>Physocarpus capitatus</i>	Ninebark	N		
<i>Prunus spinosa</i>	Sloe	E		Mostly near northeast entrance.
<i>Rosa eglanteria</i>	Sweetbriar Rose	E	I	
<i>Rosa gymnocarpa</i>	Baldhip Rose	N		
<i>Rosa nutkana</i> var. <i>nutkana</i>	Nootka Rose	N		
<i>Rubus armeniacus</i>	Armenian Blackberry	E	I	Extensive.
<i>Rubus laciniatus</i>	Evergreen or Cutleaf Blackberry	E	I	
<i>Rubus leucodermis</i>	Blackcap	N		
<i>Rubus parviflorus</i>	Thimbleberry	N		
<i>Rubus vestitus</i>	European Blackberry	E	I	Fairly common.
<i>Salix hookeriana</i>	Hooker's Willow	N		
<i>Salix scouleriana</i>	Scouler's Willow	N		

<i>Salix sitchensis</i>	Sitka Willow	N	
<i>Sambucus racemosa</i>	Red Elderberry	N	
<i>Symphoricarpos albus</i> var. <i>laevigatus</i>	Common Snowberry	N	
<i>Syringa vulgaris</i>	Lilac	E	Planted on south edge of road, west end of Magic Meadow
<i>Toxicodendron diversilobum</i>	Poison-oak	N	
FORBS			
<i>Achillea millefolium</i>	Yarrow	N	
<i>Adenocaulon bicolor</i>	Pathfinder	N	
<i>Agoseris grandiflora</i>	Large-Flowered Agoseris	N	
<i>Anaphalis margaritacea</i>	Pearly Everlasting	N	
<i>Anthemis cotula</i>	Mayweed	E	
<i>Apocynum androsaemifolium</i>	Spreading Dogbane	N	
<i>Arctium minus</i>	Burdock	E	
<i>Barbarea orthoceras</i>	American Wintercress	N	
<i>Bellis perennis</i>	English Lawn Daisy	E	
<i>Calochortus tolmiei</i>	Tolmie's Cat's Ear Lily	N	A few plants noted.
<i>Camassia quamash</i> var. <i>maxima</i>	Common Camas	N	A few plants noted.
<i>Capsella bursa-pastoris</i>	Shepherd's Purse	E	
<i>Cardamine hirsuta</i>	Hairy Bittercress	E	
<i>Cardamine nuttallii</i> var. <i>nuttallii</i>	Spring Beauty	N	
<i>Castilleja attenuata</i>	Narrow-leaved Paintbrush	N	In NE steep meadow; in a few square meters.
<i>Centaurea</i> cf. <i>maculosa</i>	Spotted Knapweed	E	I
<i>Centaureum erythraea</i>	Common Centaury	E	
<i>Cerastium fontanum</i> ssp. <i>vulgare</i>	Common Chickweed	E	
<i>Cerastium glomeratum</i>	Stick Chickweed	E	
<i>Circaea alpina</i>	Enchanter's Nightshade	N	
<i>Cirsium arvense</i>	Canada Thistle	E	I
<i>Cirsium vulgare</i>	Bull Thistle	E	I
<i>Claytonia parviflora</i> ssp. <i>parviflora</i>	Small-flowered Miner's Lettuce	N	
<i>Claytonia perfoliata</i> ssp. <i>perfoliata</i>	Miner's Lettuce	N	
<i>Claytonia sibirica</i>	Candyflower	N	
<i>Comandra umbellata</i>	Bastard Toadflax	N	In west portion of SW oak habitat.
<i>Convolvulus arvensis</i>	Field Bindweed	E	
<i>Corallorhiza maculata</i>	Spotted Coralroot	N	
<i>Crepis setosa</i>	Rough Hawksbeard	E	

<i>Daucus carota</i>	Wild Carrot; Queen Ann's Lace	E	I	
<i>Delphinium menziesii</i>	Menzies' Larkspur	N		Two small patches; east section of SW oaks.
<i>Dichelostemma congestum</i>	Ookow	N		
<i>Dipsacus fullonum</i>	Teasel	E	I	
<i>Draba verna</i>	Spring Whitlowgrass	N		
<i>Drymocallis glandulosa</i> var. ?	Sticky Cinquefoil	N		Formerly: <i>Potentilla glandulosa</i>
<i>Epilobium brachycarpum</i>	Tall Annual Willowherb	N		
<i>Eriophyllum lanatum</i>	Oregon Sunshine	N		
<i>Erodium cicutarium</i>	Crane's Bill	E		
<i>Erythronium oreganum</i>	Fawn Lily	N		
<i>Fragaria virginiana</i> var. <i>platyphylla</i>	Broadpetal Strawberry	N		
<i>Galium aparine</i>	Cleavers	N		
<i>Galium odoratum</i>	Sweet Woodruff	E		
<i>Geranium columbinum</i>	Longstem Geranium	E	I	
<i>Geranium dissectum</i>	Cutleaf Geranium	E	I	
<i>Geranium lucidum</i>	Shining Geranium	E	I	Extremely invasive in shady areas. Well established on site and spreading rapidly.
<i>Geum macrophyllum</i> var. <i>macrophyllum</i>	Large-leaved Avens	N		
<i>Hedera hibernica</i>	Irish Ivy	I	I	Nearly identical to English Ivy (<i>H. helix</i>).
<i>Heracleum lanatum</i>	Cow Parsnip	N		
<i>Hypericum calycinum</i>	St. John's Wort (ornamental)	E		
<i>Hypericum perforatum</i>	St. John's Wort	E	I	
<i>Hypochaeris radicata</i>	False Dandelion; Cat's Ear	E	I	
<i>Iris tenax</i>	Oregon Iris	N		
<i>Lactuca muralis</i>	Wall Lettuce	E	I	
<i>Lactuca serriola</i>	Prickly Lettuce	E		
<i>Lamium purpureum</i>	Red Dead Nettle	E		
<i>Lapsana communis</i>	Nipplewort	E		
<i>Lathyrus aphaca</i>	Yellow Vetchling	E	I	
<i>Lathyrus sphaericus</i>	Grass Pea	E		
<i>Leontodon taraxacoides</i> ssp. <i>taraxacoides</i>	Hairy Hawkbit	E		
<i>Leptosiphon bicolor</i>	Bicolored Linanthus	N		
<i>Leucanthemum vulgare</i>	Oxeye Daisy	E	I	
<i>Ligusticum apiifolium</i>	Celery-leaved Lovage	N		
<i>Linum bienne</i>	Narrow-Leaved Flax	E		
<i>Lonicera hispidula</i>	Hairy Honeysuckle	N		

Lotus micranthus	Small-Flowered Deervetch	N		Lots of this or similar species in meadows, but veg. in early surveys.
Lotus pinnatus	Bog Lotus	N		Cf. this taxon roadside at tiny waterfall, below SW oaks, E section.
Lotus purshianus	Spanish Clover	N		
Lupinus polycarpus	Smallflower Lupine	N		L. bicolor also may be present.
Madia glomerata	Mountain Tarweed	N		
Matricaria discoidea	Pineapple Weed	N		
Marah oreganus	Wild Cucumber	N		
Melissa officinalis	Lemon Mint	E	I	
Mimulus guttatus	Monkeyflower	N		
Moenchia erecta ssp. erecta	Munchkin Chickweed	E		
Montia fontana	Water Chickweed	N		
Montia linearis	Narrow-leaved Montia	N		
Myosotis discolor	Yel. & Blue Flowered Forget-Me-Not	E		
Narcissus sp.	Daffodil	E		
Navarettia intertexta	Skunkweed	N		
Nemophila parviflora	Small-flowered Grove-Lover	N		
Osmorhiza berteroi	Sweet Cicely	N		
Parentucellia viscosa	Parentucellia	E	I	
Phoradendron villosum	Oak Mistletoe	N		Parasite on oaks; host plant for Great Blue (or Purple) Hairstreak
Plagiobothrys scouleri	Scouler's Popcorn Flower	N		
Plantago lanceolata	Narrow-Leaved Plantain	E		Host plant for Taylor's Checkerspot butterfly (TCB). Exotic species, but original TCB host plants (likely Castilleja sp. in Willamette Valley), no longer present, and TCBs have host-jumped onto this species. It is widespread in open areas on the site, as it is throughout the region. Other habitat elements for TCBs are not present.
Plantago major	English Plantain	E		
Polygonum aviculare ssp. ?	Prostrate Knotweed	E		
Prunella vulgaris var. lanceolata	Native Self-heal	N		
Prunella vulgaris var. vulgaris	European Self-heal	E		
Ranunculus muricatus	Spiny-fruited Buttercup	E		
Ranunculus occidentalis	Western Buttercup	N		
Ranunculus orthorhynchus var. orthorhynchus	Straight-Beaked Buttercup	N		A few plants noted.

<i>Ranunculus repens</i>	<i>Creeping Buttercup</i>	E	I	
<i>Ranunculus uncinatus</i>	Small-flowered Buttercup	N		
<i>Rubus ursinus</i>	Dewberry	N		
<i>Rumex acetosella</i>	<i>Sheep Sorrel</i>	E		
<i>Rumex crispus</i>	<i>Curly Dock</i>	E		
<i>Rumex obtusifolius</i>	<i>Bitterdock</i>	E		
<i>Rumex salicifolius</i>	Willow-leaved Dock	N		
<i>Sanicula bipinnatifida</i>	Purple Snakeroot	N		Very few plants.
<i>Sanicula crassicaulis</i>	Pacific Sanicle or Pacific Snakeroot	N		
<i>Satureja douglasii</i>	Yerba Buena	N		
<i>Scandix pecten-veneris</i>	<i>Lady's Comb</i>	E		
<i>Senecio jacobaea</i>	<i>Tansy Ragwort</i>	E	I	
<i>Sherardia arvensis</i>	<i>Sherardia</i>	E	I	
<i>Sidalcea campestris</i>	Meadow Checkermallow	N	R	One plant; road shoulder 0.15 mi east of the "y"
<i>Silybum marimum</i>	<i>Milk Thistle</i>	E	I	
<i>Solidago canadensis</i> var. <i>salebrosa</i>	Canada Goldenrod	N		
<i>Sonchus asper</i>	<i>Prickly Sow Thistle</i>	E		
<i>Sonchus oleraceus</i>	<i>Common Sow Thistle</i>	E		
<i>Stachys cooleyae</i>	Cooley's Hedgenettle	N		
<i>Symphotrichum hallii</i>	Hall's Aster	N		
<i>Taraxacum officinale</i>	<i>Common Dandelion</i>	E		
<i>Tellima grandiflora</i>	Fringecup	N		
<i>Torilis arvensis</i>	<i>Torilis</i>	E		
<i>Toxicoscordion venenosum</i>	Death Camas	N		
<i>Tragopogon dubius</i>	<i>Yellow Salsify</i>	E		
<i>Trientalis latifolia</i>	Woodland Starflower	N		
<i>Trifolium dubium</i>	<i>Least Hop Clover</i>	E	I	
<i>Trifolium hybridum</i>	<i>Alsike Clover</i>	E		
<i>Trifolium repens</i>	<i>White Clover</i>	E		
<i>Trifolium subterraneum</i>	<i>Subterranean Clover</i>	E	I	
<i>Triphysaria pusilla</i>	Dwarf Owlclover	N		
<i>Typha latifolia</i>	Cattails	N		
<i>Urtica dioica</i>	Stinging Nettles	N		
<i>Valeriana locusta</i>	<i>European Corn Salad</i>	E	I	
<i>Veratrum</i> cf. <i>californicum</i> var. <i>caudatum</i>	Corn Lily	N		Unusual on the WV floor. One patch in SW corner.

<i>Veronica americana</i>	American Brooklime	N		
<i>Veronica peregrina</i> var. <i>xalapensis</i>	Purslane	N		
<i>Veronica scutellata</i>	Marsh Speedwell	N		
<i>Veronica serpyllifolia</i> var. <i>serpyllifolia</i>	<i>Thyme-leaved Speedwell</i>	E		
<i>Vicia americana</i> var. <i>americana</i>	American Vetch	N		
<i>Vicia hirsuta</i>	<i>Hairy Vetch</i>	E	I	
<i>Vicia sativa</i>	<i>Common Vetch</i>	E	I	
<i>Vicia tetrasperma</i>	<i>Slender Vetch</i>	E	I	
<i>Vicia villosa</i> var. <i>glabrescens</i>	<i>Winter Vetch</i>	E	I	Common. <i>V. cracca</i> very similar.
<i>Vinca major</i>	<i>Common Periwinkle</i>	E		Large infested area, south of Magic Meadow.
<i>Viola praemorsa</i> ssp. <i>praemorsa</i>	Upland Yellow Violet	N		One small patch in E portion of SW oaks.
GRAMINOIDS				
<i>Agrostis capillaris</i>	<i>Colonial Bentgrass</i>	E		
<i>Agrostis</i> cf. <i>stolonifera</i>	<i>Creeping Bentgrass</i>	E		
<i>Aira caryophyllea</i> var. <i>caryophyllea</i>	<i>Silver Hairgrass</i>	E		
<i>Alopecurus pratensis</i>	<i>Meadow Foxtail</i>	E		
<i>Anthoxanthum odoratum</i>	<i>Sweet Vernalgrass</i>	E		
<i>Arrhenatherum elatius</i>	<i>Tall Oatgrass</i>	E	I	
<i>Avena fatua</i>	<i>Wild Oats</i>	E	I	
<i>Bromus hordeaceus</i> ssp. <i>hordeaceus</i>	<i>Soft Brome</i>	E	I	
<i>Bromus rigidus</i>	<i>Ripgut Brome</i>	E	I	
<i>Bromus sitchensis</i>	Sitka Brome	N		May hybridize w/BROCAR
<i>Bromus sterilis</i>	<i>Sterile Brome</i>	E	I	
<i>Bromus vulgaris</i>	Soft Brome	N		
<i>Carex densa</i>	Dense Sedge	N		
<i>Carex hendersonii</i>	Henderson's Sedge	N		
<i>Carex leptopoda</i>	Taperfruit Shortscale Sedge	N		
<i>Carex obnupta</i>	Slough Sedge	N		
<i>Carex pellita</i>	Woolly Sedge	N		
<i>Carex tumulicola</i>	Foothill Sedge	N		
<i>Cynosurus cristatus</i>	<i>Crested Dogtail</i>	E		
<i>Cynosurus echinatus</i>	<i>Hedgehog Dogtail</i>	E	I	
<i>Dactylis glomerata</i>	<i>Orchardgrass</i>	E	I	
<i>Danthonia californica</i>	California Oatgrass	N		Small amounts.
<i>Elymus glaucus</i>	Blue Wildrye	N		

<i>Festuca roemerii</i>	Roemer's Fescue	N		Small traces.
<i>Glyceria</i> sp.	Mannagrass	N		Likely <i>G. striata</i> .
<i>Holcus lanatus</i>	<i>Common Velvetgrass</i>	E	/	
<i>Holcus mollis</i>	<i>Creeping Velvetgrass</i>	E	/	
<i>Juncus bufonius</i>	Toad Rush	N		
<i>Juncus effusus</i> var. <i>pacificus</i>	Pacific Soft Rush	N		
<i>Juncus ensifolius/oxymenis</i>	Iris-leaved/Pointed Rush	N		.
<i>Juncus patens</i>	Spreading Rush	N		
<i>Juncus occidentalis</i>	Slender Rush	N		
<i>Luzula comosa</i>	Wood Rush	N		
<i>Melica subulata</i>	Alaska Oniongrass	N		
<i>Phalaris arundinaceus</i>	<i>Reed Canarygrass</i>	E		<i>There may be a native type, but this is exotic.</i>
<i>Poa annua</i>	<i>Annual Bluegrass</i>	E		
<i>Poa pratensis</i>	<i>Kentucky Bluegrass</i>	E		
<i>Poa trivialis</i>	<i>Roughstalk Bluegrass</i>	E		
<i>Schedonorus arundinaceus</i>	<i>Tall Fescue</i>	E		
<i>Taeniatherum caput-medusae</i>	<i>Medusahead</i>	E	/	
<i>Ventenata dubia</i>	<i>Ventenata</i>	E	/	
FERNS				
<i>Athyrium filix-femina</i>	Lady Fern	N		
<i>Cystopteris fragilis</i>	Fragile Fern	N		
<i>Equisetum telmateia</i> var. <i>braunii</i>	Giant Horsetail	N		
<i>Polypodium glycyrrhiza</i>	Licorice Fern	N		
<i>Polystichum munitum</i>	Sword Fern	N		Coastal Shield Fern (<i>Dryopteris arguta</i>) noted roadside, nearby.
<i>Pteridium aquilinum</i>	Bracken	N		

Attachment B: Wildlife of the Zena Property

Polk County, OR; May & June 2008

Incidental sightings only. N/E = Native/Exotic.
Richard Brainerd, Bruce Newhouse (Salix Associates)

Common name	N/E	Comment
Birds		
American Crow	N	Year-round resident.
American Robin	N	Year-round resident. Also, many migrants
Bewick's Wren	N	Year-round resident.
Black-capped Chickadee	N	Year-round resident.
Black-headed Grosbeak	N	Summer resident/breeder.
Black-throated Gray Warbler	N	Summer resident/breeder.
Brown Creeper	N	Year-round resident.
California Quail	N	Year-round resident.
Common Raven	N	Year-round resident.
Common Yellowthroat	N	Summer resident/breeder. Occasionally overwinter.
Dark-eyed Junco	N	Year-round resident, mostly nest at higher elevations, but may nest on site.
Evening Grosbeak	N	Mostly migrants.
House Finch	N	Year-round resident.
Hutton's Vireo	N	Year-round resident.
Mourning Dove	N	Year-round resident.
Northern Flicker	N	Year-round resident.
Orange-crowned Warbler	N	Summer resident/breeder.
Pacific Slope Flycatcher	N	Summer resident/breeder.
Purple Finch	N	Year-round resident.
Red-breasted Sapsucker	N	Year-round resident.
Red-tailed Hawk	N	Year-round resident. Additional overwinter.
Song Sparrow	N	Year-round resident.
Spotted Towhee	N	Year-round resident.
Steller's Jay	N	Year-round resident.
Swainson's Thrush	N	
Turkey Vulture	N	Year-round resident. (Seen overhead.) Some may occasionally overwinter.
Warbling Vireo	N	Summer resident/breeder.
Western Bluebird	N	NW Corner of site.
Western Scrub-jay	N	
Western Tanager	N	Summer resident/breeder.
Western Wood-pewee	N	Summer resident/breeder.
White-breasted Nuthatch	N	Year-round resident.
Wilson's Warbler	N	

Yellow-breasted Chat	N	Summer resident/breeder. Uncommon.
Butterflies & Moths		
Duskywing, unidentified	N	Likely, Propertius duskywing (Erynnis propertius).
Painted Lady	N	One seen on N road, sunning in road.
Sara Orangetip	N	One seen along N road edge.
Silvery Blue	N	Fairly regular in prairie habitats.
Spring Azure	N	Two seen in N area wetlands
Dragonflies		
Darner (teneral)	N	Photographed.
Other Insects		
Bumblebee	N	Bombus cf. vosnesenskii
Mammals		
Black-tailed Deer	N	
Douglas' Squirrel	N	
Townsend's Chipmunk	N	
Western Gray Squirrel	N	
Reptiles		
Garter Snake	N	Thamnophis sp. Not identified to species.

Attachment C: Zena Field Notes

KEY:

AEIG = Annual, exotic, invasive grass (exotic *Bromus* spp., *Cynosurus echinatus*, *Taeniatherum caput-medusae*, etc.)

Numbers correspond to aerial photos.

2008-05-07 (BN)

First 2 hours with Emily (at request of Sarah). Temps in mid-morning were in 50s, so began with LOMBRA surveys. Temps after noon warmed above 60, so then began upland/oak habitat surveys for Taylor's Checkerspots. (Silvery Blues seen flying, but no checkerspots.)

Overall observations for SW corner meadow complex:

All of the meadows appear to have been highly disturbed in the past. Almost no native forbs are present, and only a very few durable native graminoids remain. It is likely that a broadcast herbicide treatment was applied historically. Dominant species visible at this early season survey time (phenology is approximately 2-3 weeks slower than average years) include: *Schedonorus arundinaceus*, *Alopecurus pratensis*, *Holcus lanatus*, and *Rubus vestitus* and *R. armeniacus*. Scattered populations of native graminoids include *Carex densa*, *C. tumulicola*, *Juncus effusus* var. *pacificus*, *J. tenuis/occidentalis*, *J. patens*. *Pinus ponderosa* (8' – 20' tall) are planted in upper portions of many meadows, and some patches of *Thuja plicata* (8' – 12' tall) also are planted. *Fraxinus latifolia* is a dominant along the small creek below and between the meadows in the western "arm," and it is encroaching out into wet meadows to the west of the creek, and occasionally to the east. Exotic species of blackberry (*Rubus* spp.) are present around most meadow edges, between planted trees, along and in the riparian corridor, and in large patches in the meadows.

Specific notes for SW corner meadows

1. *Dipsacus fullonum* & exotic pasture grasses dominant (*Schedonorus arundinaceus*, *Holcus lanatus*, etc.). Native present in small amounts: *Juncus occidentalis*, *J. patens*, *Carex densa*. *Pinus ponderosa* planted on many edges, and occasionally *Thuja plicata*.
2. Last meadow to north on east side of creek. Sloped to west; seepy; *Schedonorus arundinaceus* dominant. *Carex tumulicola* present in some patches. Photo viewing west shows meadow, riparian, *Pinus ponderosa*, *Quercus garryana*.
3. Slightly drier meadow than 1 or 2. *Schedonorus arundinaceus* dominant, *Pinus ponderosa* to north and west about 20' tall (planted). North-most of west side meadows.
4. Second meadow down from N end, E side; very wet. Dominants include: *Juncus effusus* var. *pacificus*, *Rubus armeniacus*, and *Schedonorus arundinaceus*.
5. Drier than meadow #4. *Thuja plicata* saplings planted in lower half, *Pinus ponderosa* in upper half.

6. *Schedonorus arundinaceus* dominant above, with occasional, planted *Pinus ponderosa*.
7. Viewed NE from road to SW. *Dipsacus fullonum* (likely with exotic pasture grasses underneath) and *Rubus vestitus* dominant. *Fraxinus latifolia* and radio tower on butte visible behind meadow in photo. Occasional *Pinus ponderosa* planted.
8. Narrow riparian corridor, near southwest corner of property. *Fraxinus latifolia* / (*Crataegus monogyna*) – (*Rosa nutkana*) / *Heracleum lanatum* / *Carex leptopoda* community more prevalent. Some *Veratrum cf. californicum* in patches under *F. latifolia* and in adjacent, open meadow along tiny trib. Some *Cystopteris fragilis* along creek edge in above community.
9. Somewhat drier. *Schedonorus arundinaceus* dominates in areas with taller vegetation. In a few smaller areas with shorter vegetation, *Cynosurus echinatus* appears to dominate, with other exotic vegetation. Small meadow above is very similar, with a somewhat higher proportion of exotic *Vicia* species present.
10. Dominated by annual bromes, *Holcus lanatus*, and other exotics.

SW oaks area (east section):

This area is a mosaic of mostly *Quercus garryana* woodlands with several prairie openings dominated by exotic graminoids. No very large *Quercus garryana* were noted. Much *Toxicodendron diversilobum* and *Cytisus scoparius* encroachment present.

11. West facing *Quercus garryana* slope above narrow, dry ravine. *Quercus garryana* / *Amelanchier alnifolia* / *Toxicodendron diversilobum* / *Geranium lucidum*. Also present: *Crataegus monogyna*, *Cytisus scoparius*.
12. Grassy opening. *Cytisus scoparius* mostly in lower portion. "DANCAL" waypoint. *Danthonia californica* and *Luzula comosa*, two native graminoids, are fairly common in a couple of patches. *Toxicodendron diversilobum* and *Quercus garryana* present at edges (*Toxicodendron diversilobum* encroaching). Silvery blues (2) flying. *Vicia sativa* in flower, fairly common. Many annual exotic grasses (e.g., bromes) present. *Plantago lanceolata* widely scattered. One *Calochortus tolmiei* in flower. Slope aspect to SSE.
13. Grassy opening just below (to southwest of) 12. East end: small patch of *Delphinium menziesii* (about 20) and *Viola praemorsa ssp. praemorsa* (about 8) ("DELMEN" waypoint.) These two species definitely are threatened here by encroachment of *Geranium lucidum*. Also encroaching: *Dactylis glomerata*, exotic annual grasses, *Cytisus scoparius*, *Toxicodendron diversilobum*. Natives present: *Festuca roemeri* (one clump noted), *Danthonia californica*, *Luzula comosa*, *Ranunculus occidentalis*, *Carex tumulicola*. All are sparsely scattered in small populations, except the *Danthonia californica*, which exists in some significant patches.
14. "SANBIP" waypoint. Small gap below #13 with some *Sanicula bipinnatifida*.

NE/Wedding area meadows

15. In the large meadow below to the south, *Plantago lanceolata* is dense in many areas. *Vicia sativa* is common. Dominated by exotic annual pasture grasses. Natives very sparse and scattered: *Danthonia californica* (a few patches), *Agoseris* cf. *grandiflora*, *Leptosiphon bicolor* seen.) Sun mostly out, just above 60 degrees, two Silvery Blues flying in this area.

2008-05-09 (BN)

Temps in mid-morning were in 50s, so began with walk north from entrance sign up first road in SW. Temps by late morning warmed above 60, so began upland/oak habitat surveys for Taylor's Checkerspots. (Silvery Blues seen flying, but no checkerspots.)

First road to north from SW entrance sign

16. (*Pseudotsuga menziesii*) / *Quercus garryana* / *Prunus avium* – *Amelanchier alnifolia* / *Symphoricarpos albus* / - is a dominant community in most of the area. *Rubus* lines roadsides, covers some gaps. Shrub layer dense in most areas, also contains: *Oemleria cerasiformis*, *Crataegus monogyna*, *Corylus cornuta* var. *californica*, *Acer macrophyllum*. *Pseudotsuga menziesii* about 2-4' tall planted in some small gaps. Some planted *Thuja plicata* appears older.

SW Oaks (west section)

17. W side of road, three openings described from south to north (largest to smallest). All are very disturbed, surrounded by conifer forest (and bordered on their east sides by the road). Largest opening dominated by moss (cf. *Polytrichum*), *Agrostis capillaris/stolonifera*, other weeds; one patch of *Luzula comosa*. Two smaller meadows to north of that are very similar, less moss.
18. E side of road: cluster of openings surrounded by oak woodlands. Still slightly cool, about 55 deg., mostly cloudy. The western opening (nearest the road) is the largest. In the center is an area dominated by shorter vegetation, although mostly it is AEIG species, with some *Schedonorus arundinacea* and *Geranium lucidum* at edges in shade to part shade. Center has patches of *Carex tumulicola*, a few clumps of *Danthonia californica*, two clumps of *Festuca roemerii*, some *Plantago lanceolata*. Only potential nectar plant noted: *Lathyrus sphaericus*. In the east meadow are a few clumps of *Danthonia californica*, three *Calochortus tolmiei*, one *Delphinium menziesii*. Overwhelmingly dominated by AEIG. *Geranium lucidum* at all edges, and a couple of small patches of *Ranunculus occidentalis* are present.

Toxicodendron diversilobum widespread and common in these meadows except for the centers. Several *Pinus ponderosa* were planted in the lower portions of the west meadow, but about 50% have died. There are about 7 clumps of *Festuca roemerii* running east-west near the center of the meadow, and there are about 12 more about 50 feet west in *Quercus garryana*. Sunny, 60 deg. +, breeze calm to slight. Silvery Blues flying.

19. Small opening two to three hundred meters to south: *Schedonorus arundinaceus* dominant. Some *Luzula comosa*, small amounts *Danthonia californica* and *Carex tumulicola*. One clump *Festuca roemerii*. Encroachment from *Cytisus scoparius*, *Toxicodendron diversilobum*. Very little *Plantago lanceolata*. 60 deg., mostly sunny.

NE section, SW of NE corner. Along Wedding Place Road

20. Small meadow cluster. Largest opening in north dominated by *Agrostis* cf. *stolonifera* and AEIG, with some *Luzula comosa*, and *Dactylis glomerata* dominant at edges and in north half. Trace of *Plantago lanceolata*. Dense stands of *Quercus garryana* (~5" dbh) to north (photo) and southeast. 60 deg., sunny, calm, no leps. Two smaller meadows have a few clumps of *Danthonia californica* in two small openings to south.
21. AEIG dominate, but *Danthonia californica* and *Luzula comosa* dominant in small patches. Some *Plantago lanceolata*, but no nectar plants.
22. Silvery Blue nectaring on *Vicia sativa*. There is a trace of that nectar plant, but none others. Many small oaks surround the meadow.
23. Large meadow complex. *Pseudotsuga menziesii* and *Pinus ponderosa* planted in much of the area. Dominants include *Agrostis capillaris*, *Daucus carota*, AEIG. Some *Vicia sativa* present, with several Silvery Blues nectaring. A trace of *Plantago lanceolata* present. One area with *Castilleja attenuata*, otherwise all exotics (photos). Traces of *Danthonia californica* present. Parallel grooves and terraces across hill (and lack of significant native herbaceous species) indicate that it likely was scarified/ripped.

Northern east-west drainage area

24. Wetland. Taller dominant vegetation is mostly *Phalaris arundinacea*. Much of area planted with *Pinus ponderosa*. In areas with shorter vegetation, dominants include exotics, *Luzula comosa*, *Juncus effusus* var. *pacificus*, and *Juncus patens*. Photos taken. Northwest end of area is upland, planted with *Pinus ponderosa*. *Schedonorus arundinaceus* dominant between. Two flowering stems of *Camassia quamash*.
25. Similar to northwest end of Meadow 24. Some is damp, most is drier. All is disturbed.

NE corner oak-prairie area

26. Very weedy pair of meadows, with: *Cytisus scoparius* / *Dactylis glomerata* – AEIG – *Geranium* spp. Traces of *Danthonia californica*, *Luzula comosa* and *Fragaria virginiana* var. *platyphylla*.
27. Huge *Cytisus scoparius* infestation, with some exotic *Rubus* mixed in. Any small gaps present are dominated by AEIG, *Vicia sativa*, other weeds. Very disturbed.
28. Unassigned number.

2008-06-19 (DB)**Small moist meadow along east boundary near middle**

29. Weedy moist meadow dominated by *Alopecurus pratensis*, *Schedonorus arundinaceus*, *Agrostis capillaris/stolonifera*. Drains east, but nearly flat. Dense *Rubus armeniacus* and *Rubus laciniatus* at margins. Also some young *Thuja plicata*, *Salix hookeriana*, *Corylus cornuta* var. *californica*. Small inundated areas present resulting from small creeks entering the area, likely seasonal. Lower (east) part wetter with *Juncus effusus* an additional dominant. Small patch of *Hypericum calycinum* present on north edge. Overall very weedy meadow dominated mostly by introduced perennial grasses. Few natives present.

Moist to mesic meadows and riparian corridor along east boundary, north of middle

30. West end: moist meadow/shrubland dominated by *Alopecurus pratensis*, *Schedonorus arundinaceus*, *Rubus armeniacus*. Scattered *Carex densa*, *Fraxinus latifolia*, *Thuja plicata*. Likely will become solid *Rubus armeniacus*. Few natives present. The *Thuja plicata* likely was planted. Drains east but nearly flat.
31. Forested riparian corridor. Drains east. Dominants = *Fraxinus latifolia*/*Carex obnupta*-*Polystichum munitum*.
32. Moist scrub-shrub. Nearly flat. Dominants = *Fraxinus latifolia*/*Rubus armeniacus*/*Schedonorus arundinaceus*-*Alopecurus pratensis*. Very weedy. Will become *Fraxinus latifolia* forest if left alone, probably with *Rubus armeniacus* understory. Scattered *Crataegus monogyna*, and *Prunus spinosa*. *Pseudotsuga menziesii* and *Thuja plicata* planted.
33. Young *Pseudotsuga menziesii* plantation ca. 15 years-old. Gentle east aspect. Understory with *Rubus armeniacus*.
34. Young *Pseudotsuga menziesii* plantation ca. 15 years-old. Gentle east aspect. Understory with *Rubus armeniacus*.
35. Moist meadow/open shrubland. Slopes gently north, flattening in the bottom. Appears to have been plowed or scarified in some way. Dominants = exotic perennial grasses (*Schedonorus arundinaceus*, *Agrostis capillaris/stolonifera*, *Alopecurus pratensis*). Heavy colonization by *Crataegus monogyna*, and some *Fraxinus latifolia*. Scattered *Carex tumulicola*, *Carex densa*, *Juncus tenuis*, but overall few natives. Very low native diversity. Forbs nearly non-existent. There are a few large *Quercus garryana* along the east edge.

NW corner

36. *Pinus ponderosa* plantation in weedy upland meadow. SW aspect, slope 10-20%. Dominants = *Pinus ponderosa*/*Agrostis capillaris/stolonifera*-*Vicia sativa*-*Plantago lanceolata*. Trees ca. 6 years-old. Virtually no native species present. Area was disked at planting (fide Sarah).

37. Oak forest on NNE aspect, slope = 40-50%. Overstory of 8-16" *Quercus garryana* with a few widely scattered, large, spreading oaks. Understory dominated by *Prunus avium* which is beginning to enter the overstory, and by *Symphoricarpos albus*, *Toxicodendron diversilobum*, *Amelanchier alnifolia*, *Polystichum munitum*. Also present in herb layer: *Osmorhiza berteroi*, *Galium aparine*, *Erythronium oregonum*. Mostly native except the *Prunus avium*.
38. Moist-mesic meadow on west aspect. Slope ca. 15-20%. Dominated by *Schedonorus arundinaceus*, *Rubus armeniacus*, and planted *Pinus ponderosa*. *Crataegus monogyna* is common. Some *Cytisus scoparius* also present. Few native herbs.
39. *Pinus ponderosa* plantation, ca. 15 years-old. Dominants = *Pinus ponderosa*, *Rubus ursinus*, *Schedonorus arundinaceus*. Also common are *Rubus armeniacus*, *Crataegus monogyna*. Few natives present. Same slope and aspect as 38. Some openings with veg similar to 38.
40. Pasture planted to exotic pasture grasses (*Schedonorus arundinaceus*, *Poa pratensis*) and *Trifolium repens*. West aspect, 10-30% slope. Drier areas dominated by *Bromus hordeaceus*. No natives except *Triphysaria pusilla*. Grazed by horses, maybe cows.

SW oaks area (west section): Small openings west of the road are very weedy (#17 above), dominated by annual grasses (*Bromus* spp., *Cynosurus echinatus*) and *Agrostis capillaris*. Very few native plants. East of the road in oak forest (#18 above) the understory is very weedy with non-native grasses including *Schedonorus arundinaceus*, *Cynosurus echinatus*, *Dactylis glomerata*, and plenty of *Geranium lucidum*. Many areas, especially in the south and east parts of this area are dominated by dense shrubs including *Rubus armeniacus*, *Toxicodendron diversilobum*, *Crataegus monogyna*. Few natives observed. No rare or uncommon species observed.

SW oaks area (east section, # 11-14 above): Similar to SW oaks west section, but with natives a bit more common. Natives observed include *Danthonia californica*, *Eriophyllum lanatum*, *Fragaria virginiana*, and one *Festuca roemerii* clump. Most areas heavily dominated by exotics, but a few patches dominated by *Danthonia californica* and exotic grasses. *Cytisus scoparius* thickets scattered in some openings. *Rubus armeniacus* is common in forest understory areas. *Toxicodendron diversilobum* is dominant in understory and meadow edge areas. *Arrhenatherum elatius* is present at low density in the lower opening along the east edge. This is the only location that I have seen this species on the site (so far). No rare or uncommon species observed.

Other: *Sidalcea campestris* – one plant in flower on side of road 0.15 mile east of the "Y."
UTM: NAD83 10T 486869 4983504 +/- 3 meters.