

Botanical Survey for the
Turner Ranch/S&W Properties
Timber Harvest Plan (THP)

*Prepared
By
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For
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I.) Introduction and Objectives

The following report describes a botanical survey and *preliminary impact assessment*. A botanical survey was conducted in order to determine the environmental effects of the proposed Turner Ranch/S&W Properties Timber Harvest Plan (THP), on all botanical resources, including special status plants (rare, threatened, and endangered plants) and plant communities, within the project area. Special status plants are not limited to those that have been listed by state and federal agencies but include any plants that, based on all available data, can be shown to be rare, threatened, or endangered.¹ Rare plant communities are those communities that are of highly limited distribution. These communities may or may not contain special status plants.

This botanical survey was conducted to determine whether special status or locally significant plants and plant communities will be affected by the proposed project. The survey and assessment were performed, to the greatest extent feasible, in a manner consistent with the "California Native Plant Society's (CNPS) Botanical Survey Guidelines"², "The California Department of Fish and Game's (CDFG) Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities"³ and with the "California Environmental Quality Act" environmental impact assessment criteria⁴.

II.) Project Location and Description

The proposed THP area is approximately 42 acres in size and is located south of Eureka, in Humboldt County CA. The project is accessed via and adjacent to Elk River Road. The actual parcel (APN #304-07-105) is approximately 87 acres and is bisected by Elk River Road, however the forested area and proposed harvesting is located on the eastern portion of the property. The western portion of the property is open range/grasslands dominated by annual and perennial non-native plants and weedy species. The proposed harvest area is zoned Timber Production Zone (TPZ). The legal description is SW ¼ of Section 15 in 20 Township 4 North, Range 1 West, Humboldt County, HB&M. The THP area is located on the Fields Landing 7.5' USGS Quadrangle (Figure 2). The THP proposes to harvest the stand using a combination of selection and group selection. All areas will be tractor logged.

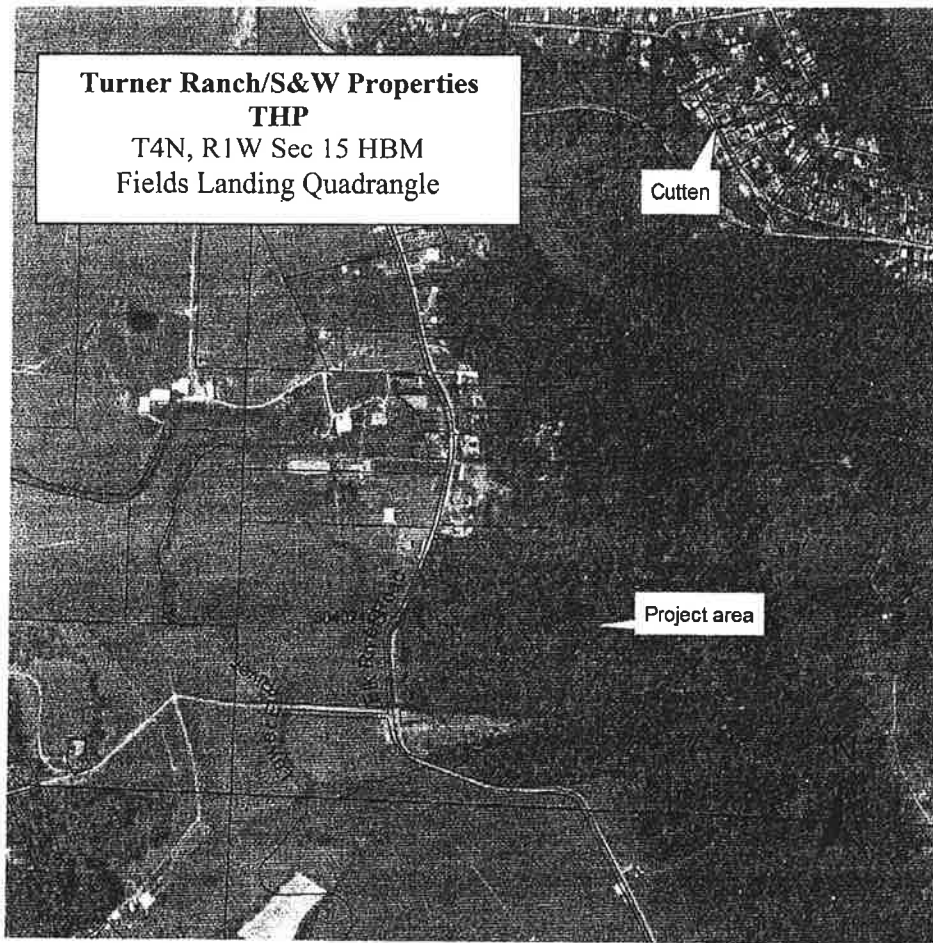


Figure 1.) Turner Ranch/S&W Properties THP

III.) Biological Setting and Scoping

The THP area is located in the Lower Elk River watershed and is composed primarily of North Coast Conifer Forest dominated by *Sequoia sempervirens* (coast redwood) and *Picea sitchensis* (Sitka spruce). The THP area is primarily mesic with a moderately dense canopy. The area contains un-named seasonal drainages which flow towards Elk River. Soils mapped within the THP area are Larabee and Empire (McLaughlin & Harradine 1965). Elevations within the THP range from 40 feet to 320 feet. Slope steepness ranges from flat to 70% with an average of approximately 15%. Aspect is primarily western.

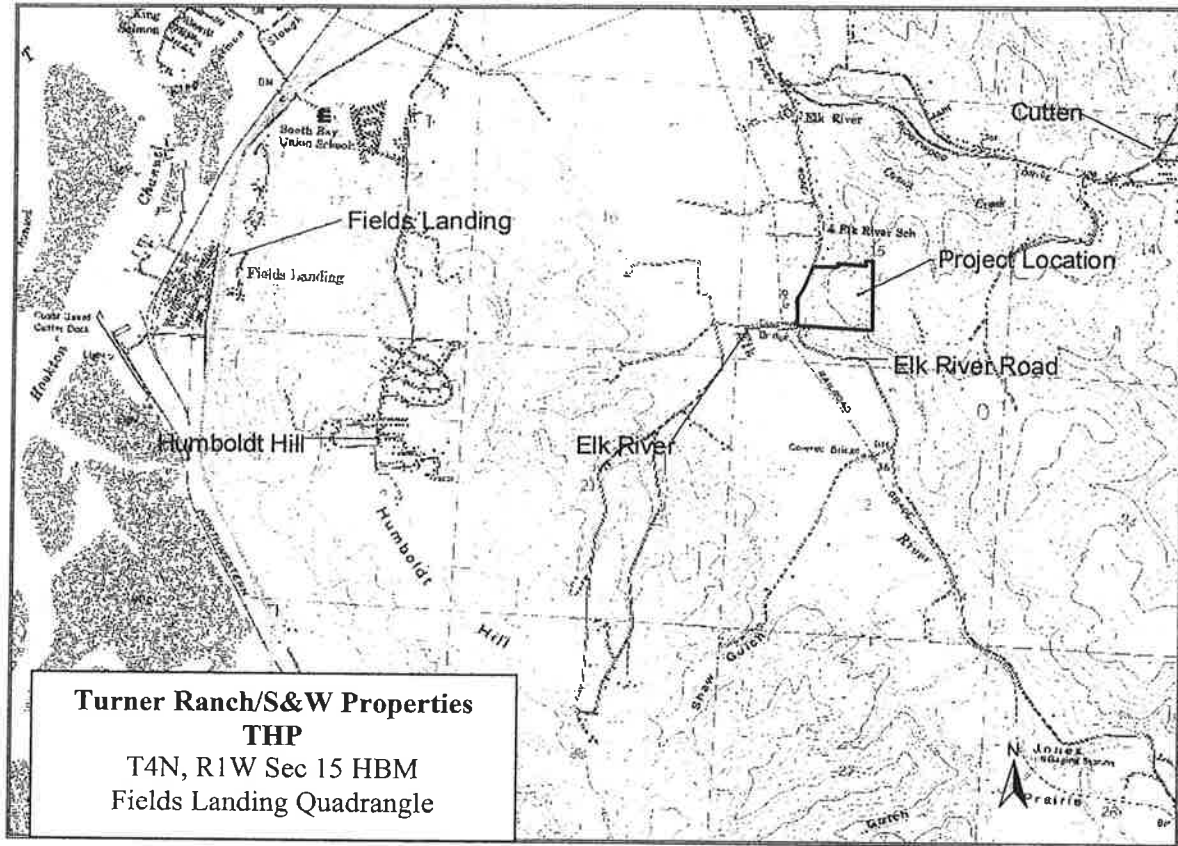


Figure 2.) Biological setting- Lower Elk River Watershed. Map is not to scale. (Map created by Tamara Camper using Arcview 3.2 and the Fields Landing USGS 7.5' DRG)

This project was scoped with the *CNPS Rare Plant Online Inventory*⁵ and *CDFG Natural Diversity Database*⁶ using the Fields Landing 7.5' USGS quadrangle occupied by the THP and all immediately adjacent quadrangles. A list of all plants encountered during scoping is provided in Appendix B. The list of plants generated by the scoping process was narrowed down through habitat assessment. Plants that could not occur within the project area, due to habitat restrictions, were removed from the target species list. Plants listed in Table 1 below are target species based on occurrences found in the region and a guideline for plant surveys. The list is not all-inclusive, and habitat for additional rare plants could exist in the project area. For this reason, an attempt was made to identify all species on site to the lowest taxonomic level to determine rarity status.

Table 1.) Final List of Target Plants

Scientific name	Common name	Blooms	CNPS
Anomobryum julaceum	slender silver-moss		List 2.2
Carex arcta	northern clustered sedge	Jun-Sep	List 2.2
Erythronium revolutum	coast fawn lily	Mar-Jul(Aug)	List 2.2
Fissidens pauperculus	minute pocket-moss		List 1B.2
Gilia capitata ssp. pacifica	Pacific gilia	Apr-Aug	List 1B.2
Lathyrus palustris	marsh pea	Mar-Aug	List 2.2
Layia carnosa	beach layia	Mar-Jul	List 1B.1
Lilium occidentale	western lily	Jun-Jul	List 1B.1
Lycopodium clavatum	running-pine	Jun-Aug	List 2.3
Monotropa uniflora	Indian-pipe	Jun-Aug(Sep)	List 2.2
Montia howellii	Howell's montia	Mar-May	List 2.2
Packera bolanderi var. bolanderi	seacoast ragwort	(Apr)May-Jul	List 2.2
Sidalcea malviflora ssp. patula	Siskiyou checkerbloom	May-Aug	List 1B.2
Sidalcea oregana ssp. eximia	coast checkerbloom	Jun-Aug	List 1B.2

IV.) Survey Methodology

Tamara Camper (professional biologist) spent approximately 4.5 hours surveying the project area for rare plant habitat and occurrences. The survey was conducted on June 28, 2007. This botanical survey was conducted in the field when special status and locally significant plants were both evident and identifiable. When feasible, occurrences of the plants (reference sites) were observed to determine that the plants were identifiable at the time of survey. This survey employed intuitively controlled, habitat focused techniques. The majority of the effort involved in the survey focused on potential rare plant habitat including ridges, roads, openings and wet areas.

This survey was floristic in nature and every plant observed was identified to species, subspecies, or variety to the greatest degree feasible. In order to properly characterize the site, a complete list of plants observed on the site has been included in this botanical survey report. Holland's Preliminary Descriptions of Terrestrial Plant Communities of California was used to describe habitat and community types. The Jepson manual⁷ was used to designate scientific nomenclature. Numerous site visits throughout the year and 100% coverage is necessary to identify all plants located at a site. *As this survey was conducted in one day, the list of flora attached to this report represents the majority of plants present and not the entire flora.*

V.) Survey Results

The area is dominated by coast redwood with smaller amounts of Sitka spruce, *Pseudotsuga menziesii* (Douglas fir) and *Abies grandis* (Grand fir). *Alnus rubra* (red alder) and *Acer macrophyllum* (big-leaf maple) are abundant in moist, open areas. Dominant species in the understory include *Vaccinium ovatum* (evergreen huckleberry), *Gaultheria shallon* (salal), *Rubus discolor* (Himalayan blackberry), and *Polystichum munitum* (sword fern). The herbaceous layer ranges from very dense in open areas to sparse in closed-canopy areas. Dominant species include *Asarum caudatum* (wild ginger), *Oxalis oregana* (redwood sorrel) and *Viola sempervirens* (evergreen violet). Roads and skid trails near Elk River Road are densely vegetated with grasses and herbaceous plants including *Leucanthemum vulgare* (ox-eyed daisy), *Plantago lanceolata* (English plantain), *Hypochaeris radicata* (hairy cat's ear), *Galium aparine* (bedstraw), *Dactylis glomerata* (orchard grass), *Lolium perenne* (perennial ryegrass), *Holcus lanatus* (velvet grass), and *Anthoxanthum odoratum* (sweet vernal grass). These species also dominate the open areas near the southern and eastern portions of the property. *Lonicera involucrata* (twinberry), *Pteridium aquilinum* var. *pubescens* (bracken fern), *Rhamnus purshiana* (cascara), *Bacharris pilularis* (coyote brush), and *Myrica californica* (wax myrtle) are dense in forest/grassland interfaces. Riparian vegetation in seasonal drainages is dominated by *Rubus ursinus* (California blackberry), *Rubus discolor* (Himalayan blackberry), *Rubus spectabilis* (salmonberry), *Polystichum munitum* (sword fern), and *Stachys ajugoides* (hedgenettle). A complete list of species observed is provided in Appendix A.

Table 2.) Survey Results for Target Plants

Scientific name	Common name	Habitat present on site	Present?
<i>Anomobryum julaceum</i>	slender silver-moss	Possible on bare soil/roads	NO
<i>Carex arcta</i>	northern clustered sedge	Possible in wet open areas	NO
<i>Erythronium revolutum</i>	coast fawn lily	Possible on roadbanks/streams	NO
<i>Fissidens pauperculus</i>	minute pocket-moss	Likely on roadbanks/streams	NO
<i>Gilia capitata</i> ssp. <i>pacifica</i>	Pacific gilia	Possible in openings/grasslands	NO
<i>Lathyrus palustris</i>	marsh pea	Possible in flat riparian areas	NO
<i>Lilium occidentale</i>	western lily	Possible in flat riparian areas	NO
<i>Lycopodium clavatum</i>	running-pine	Likely throughout plan	NO
<i>Monotropa uniflora</i>	Indian-pipe	Possible in closed-canopy areas	NO
<i>Montia howellii</i>	Howell's montia	Possible on roads	NO
<i>Packera bolanderi</i> var. <i>bolanderi</i>	seacoast ragwort	Likely on roadsides	NO
<i>Sidalcea malviflora</i> ssp. <i>patula</i>	Siskiyou checkerbloom	Likely on roads and open areas	NO
<i>Sidalcea oregana</i> ssp. <i>eximia</i>	coast checkerbloom	Likely on roads and open areas	NO

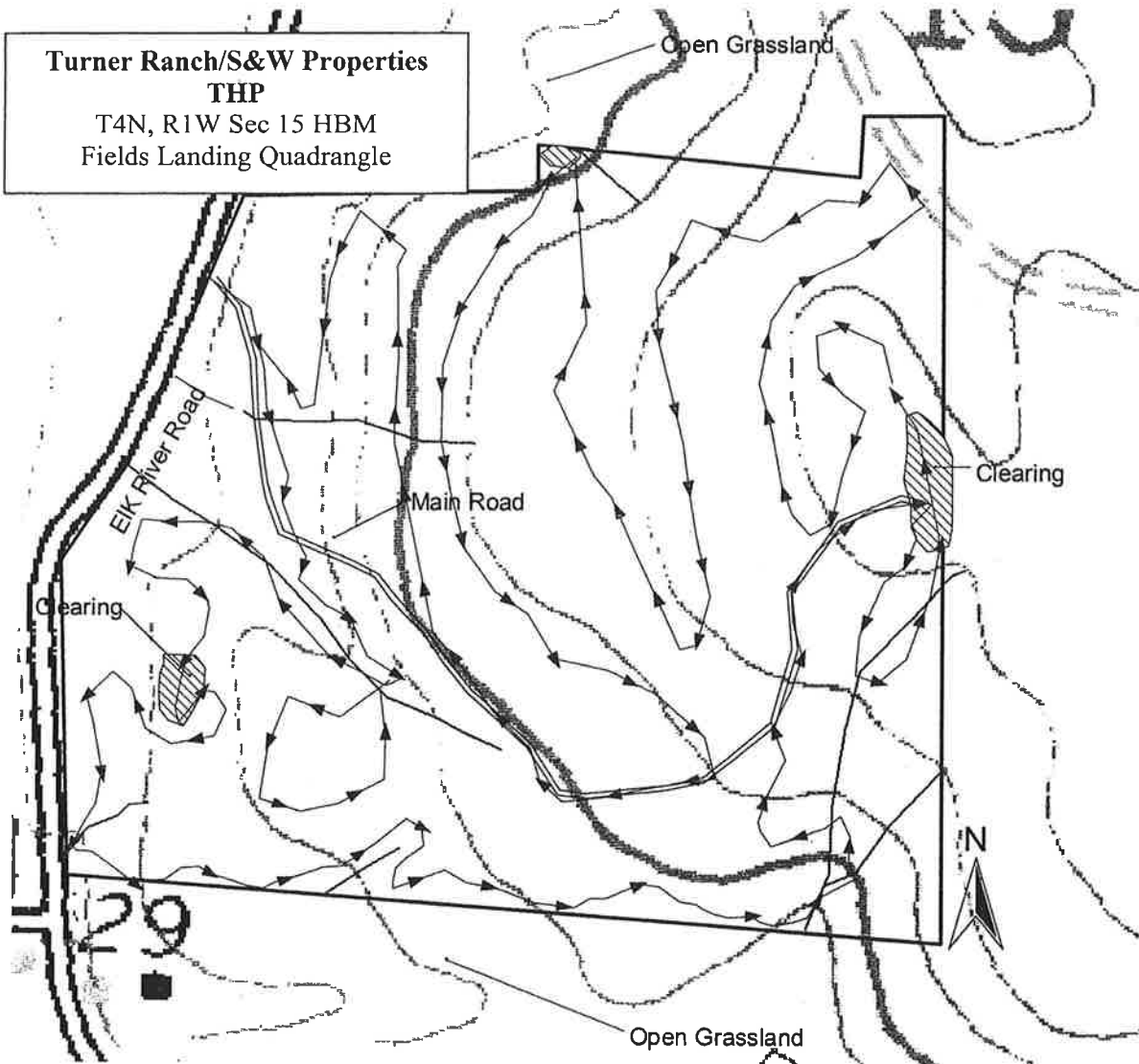


Figure 3.) Survey routes in the THP. Arrows represent survey routes. Polygons with crosshatch are open areas in the forested canopy. General location of drainages is indicated with dashed lines. Mapping is approximate and not intended to supersede THP map. (Map created by Tamara Camper using Arcview 3.2 and the Fields Landing USGS 7.5' DRG).

VI.) Impact Assessment

No rare species or special status plants were observed during the floristic survey. Given the relatively high coverage of the area and timing of the floristic survey, it is unlikely that any rare species are extant in the project area. The area does contain high quality habitat for some rare species including running pine, seacoast ragwort, Siskiyou checkerbloom and coast checkerbloom. It also contains marginal habitat for other rare species listed on the tables above. Plants were removed from the target species list if they were listed in coastal communities and other communities absent from the project area; however coastal species are often found in North Coast Conifer forest areas at the end of their range. Due to the proximity of this project to the coast, there is a chance that potential habitat could occur for these species, however these species were not observed during the field survey. A complete list of plants known near the area is provided in Appendix B.

The area likely contains habitat for the minute pocket moss on bare soils near streams and mesic areas. Bryophyte diversity was relatively sparse. Although the majority of bryophytes were not collected and identified, Tamara Camper visited a reference site for minute pocket moss and examined any species which were similar to the minute pocket moss. As the name implies, the plants are very small and can be difficult for general botanists to positively identify. No reference sites were known for the slender silver moss, and habitat may have been present, however the species is generally reported to be on ephemerally wet rocky outcrops and the project area did not contain many large rocks or outcrops. Bryophytes were sight identified using "Contributions to the Bryoflora of California"⁹, "A Photographic Field Guide to Mosses, Lichens & Ferns of Northwest North America"¹⁰, and "Bryophytes of Jolly Giant Creek: A Field Guide to the Common Species"¹¹.

Impacts to existing vegetation and potential habitat for rare species include canopy removal, soil disturbance and compaction, and potential changes to hydrology. The project area is currently dominated by native vegetation and species that are more tolerant of a dense overstory canopy and sparse to moderate understory. Many species, especially bryophytes and fungal species, may be intolerant of the change in canopy and ground disturbance that will occur as the result of the proposed timber harvest plan. These species will likely be impacted by the proposed logging activities. The area may experience an increase in invasive species as well. However many native species, including rare species, require ground disturbance and a more open canopy and these species may be positively impacted by the proposed activities. Post harvest site preparation activities including burning, planting, herbicide spraying or residential development may further impact species present in the area.

VII.) Recommendations and Mitigation Measures

Mitigation measures are not proposed for the Turner Ranch/S&W Properties -THP at this time. Impacts to vegetation can be minimized by using existing skidtrails and roads and following the guidelines provided by the Forest Practice Rules regarding sensitive wet areas. Adverse impacts due to the spread of invasive species may be reduced by washing trucks and equipment prior to entering the area and minimizing ground disturbance when feasible.

VIII.) Copies of NDDDB Survey Forms (Not applicable)

IX.) Name and Qualifications of Field Investigator

The person conducting this botanical survey, Tamara Camper, possesses the following qualifications:

Experience conducting floristic field surveys-(7 years)

Knowledge of plant taxonomy and plant community ecology and classification

Familiarity with the plants of the area, including special status and locally significant plants

Familiarity with the appropriate state and federal statutes related to plants and plant collecting

Experience with analyzing impacts of a project on native plants and communities

B.S. Environmental Science: Western Washington University (Fall 1999)

M.A. Biology (Botany): Humboldt State University Spring 2007

X.) References Cited, Persons Contacted, Herbaria Visited and Location of Voucher Specimens

¹State of California. 2001. *California Environmental Quality Act Guidelines*. Office of Planning and Research, §15065 & §15380.

²CNPS. 2001. "CNPS Botanical Survey Guidelines". *Inventory of Rare and Endangered Plants of California* (sixth edition). Rare Plant Scientific Advisory Committee, David P. Tibor, Convening Editor. California Native Plant Society. Sacramento, CA.

³California Department of Fish and Game. 2000 *Guidelines for Assessing the Effects of Proposed Developments on Rare, Threatened and Endangered Plants and Plant Communities*. Sacramento, CA.

⁴State of California. 2001. *California Environmental Quality Act Guidelines*. Office of Planning and Research, Appendix G.

⁵CDFG (California Department of Fish and Game). 2006. *California Natural Diversity Database (CNDDDB)*, Commercial version, California Department of Fish and Game, Sacramento, CA. Accessed September 20, 2006.

⁶California Native Plant Society (CNPS) 2006. *Online Inventory of Rare and Endangered Vascular Plants of California*. California Native Plant Society. Sacramento, CA. Accessed June 20, 2007 at www.cnps.web.aplus.net/cgi-bin/inv/inventory.cgi

- ⁷Holland, R.F. 1986. *Preliminary Descriptions of the Terrestrial Plant Communities of California*. Unpublished report. State of California, The Resources Agency, Department of Fish and Game, Natural Heritage Division. Sacramento, CA.
- ⁸Hickman, J.C. 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, CA
- ⁹Norris, D. H. and J. R. Shevock 2004a. *Contributions toward a bryoflora of California*. I. A specimen-based catalogue of mosses. *Madroño* 51: 1-131.
- ¹⁰Vitt, D.H, R.B Bovey and J.E. Marsh. 1988. *A Photographic Field Guide: Mosses, Lichens and Ferns of Northwest North America*. Lone Pine Publishing. Edmonton, Alberta
- ¹¹Lundby, D. 1995. *Bryophytes of Jolly Giant Creek: a field guide to common species*. Unpublished Document. Arcata, CA

Appendix A-Floristic list

Trees

Abies grandis
Acer macrophyllum
Alnus rubra
Picea sitchensis
Pseudotsuga menziesii var. *menziesii*
Sequoia sempervirens

Shrubs

Baccharis pilularis
Berberis nervosa
Ceanothus thyrsiflorus
Cotoneaster sp.
Cytisus scoparius
Erica lusitanica
Gaultheria shallon
Holodiscus discolor
Ilex aquifolium
Lonicera involucrata
Myrica californica
Rhamnus purshiana
Ribes menziesii
Ribes sanguineum var. *sanguineum*
Rosa sp.
Rubus discolor
Rubus leucodermis
Rubus parviflorus
Rubus spectabilis
Salix sp.
Sambucus racemosa
Vaccinium ovatum
Vaccinium parvifolium

Grasses, Sedges and Rushes

Agrostis sp.
Aira caryophylla
Alopecurus sp.

Anthoxanthum odoratum
Avena sp.
Briza maxima
Briza minor
Bromus laevipes
Bromus spp.
Carex deweyana ssp. *leptopoda*
Carex gynodimorpha
Carex hendersonii
Carex multicosata
Cortaderia jubata
Cynosurus echinatus
Dactylis glomerata
Glyceria elata
Hierchloe occidentalis
Holcus lanatus
Hordeum sp.
Juncus effusus
Juncus ensifolius
Juncus patens
Lolium perenne
Luzula comosa
Poa annua
Scirpus microcarpus

Ferns and Allies
Adiantum aleuticum
Athyrium filix-femina
Blechnum spicant
Dryopteris expansa
Equisetum arvense
Pentagramma triangularis ssp. *triangularis*
Polystichum munitum
Pteridium aquilinum

Herbs and Vines

Achillea millefolium
 yarrow

Appendix A-Floristic list

<i>Achlys triphylla</i>	vanilla leaf	creeping buttercup
<i>Adenocaulon bicolor</i>	trail plant	California blackberry
<i>Anagallis arvensis</i>	scarlet pimpernil	sheep sorrel
<i>Anaphalis margaritaceae</i>	pearly everlasting	curly dock
<i>Asarum caudatum</i>	wild ginger	Pacific sanicle
<i>Bellis perennis</i>	English daisy	California figwort
<i>Cirsium</i> sp.	thistle	blue eyed-grass
<i>Claytonia perfoliata</i>	miner's lettuce	sow thistle
<i>Conium maculatum</i>	poison hemlock	hedge nettle
<i>Coryza canadensis</i>	horse weed	chickweed, starwort
<i>Cynoglossum grande</i>	hound's tongue	dandelion
<i>Daucus pusillus</i>	wild carrot	fringecups
<i>Digitalis purpurea</i>	foxglove	pig-a-back plant, youth-on-age
<i>Disporum smithii</i>	Smith's fairy bells	torilis
<i>Epilobium ciliatum</i> ssp. <i>ciliatum</i>	purple-leaved willowherb	starflower
<i>Fragaria vesca</i>	wood strawberry	little hop clover, shamrock
<i>Galium aparine</i>	goose-grass	white clover
<i>Galium</i> sp.	bedstraw	western trillium
<i>Geranium molle</i>	dovefoot geranium	stinging nettle
<i>Gnaphalium</i> sp.	cudweed	giant vetch
<i>Heracleum lanatum</i>	cow parsnip	common vetch
<i>Hypochoeris radicata</i>	hairy cat's-ear	stream violet
<i>Iris</i> sp.	iris (ornamental)	redwood violet
<i>Leucanthemum vulgare</i>	ox-eye daisy	modesty
<i>Linum bienne</i>	common flax	
<i>Lonicera hispidula</i>	hairy honeysuckle	
<i>Lotus corniculatus</i>	birdfoot trefoil	
<i>Marah oreganus</i>	coast manroot	
<i>Mentha pulegium</i>	pennyroyal	
<i>Mimulus guttatus</i>	yellow monkeyflower	
<i>Oenanthе sarmentosa</i>	Pacific water-parsley	
<i>Osmorhiza chilensis</i>	mountain sweet-cicely	
<i>Oxalis oregana</i>	redwood sorrel	
<i>Petasites frigidus</i> var. <i>palmatum</i>	coltsfoot	
<i>Plantago lanceolata</i>	plantain	
<i>Plantago maritima</i>	seaside plantain	
<i>Prunella vulgaris</i>	self-heal	

Appendix B: All plants encountered during scoping procedure.*

Scientific name	Blooming window	Communities	Elevation	CNPS
Abronia umbellata ssp. breviflora	Jun-Oct	•Coastal dunes (CoDns)	0 - 10 meters	List 1B.1
Anomobryum julaceum		•Broadleafed upland forest (BUFRs) •Lower montane coniferous forest (LCFRs) •North Coast coniferous forest (NCFrs)/damp rock and soil on outcrops, usually on roadcuts	100 - 1000 meters	List 2.2
Astragalus pycnostachyus var. pycnostachyus	Apr-Oct	•Coastal dunes (CoDns)(mesic) •Coastal scrub (CoScr) •Marshes and swamps (MshSw)(coastal salt, streamsides)	0 - 30 meters	List 1B.2
Carex arcta	Jun-Sep	•Bogs and fens (BgFns) •North Coast coniferous forest (NCFrs)(mesic)	60 - 1400 meters	List 2.2
Carex leptalea	Mar-Jul	•Bogs and fens (BgFns) •Meadows and seeps (Medws)(mesic) •Marshes and swamps (MshSw)	0 - 700 meters	List 2.2
Carex lyngbyei	May-Aug	•Marshes and swamps (MshSw)(brackish or freshwater)	0 - 10 meters	List 2.2
Carex praticola	May-Jul	•Meadows and seeps (Medws)(mesic)	0 - 3200 meters	List 2.2
Castilleja affinis ssp. litoralis	Jun	•Coastal bluff scrub (CBSCr) •Coastal dunes (CoDns) •Coastal scrub (CoScr)/sandy	15 - 100 meters	List 2.2
Castilleja ambigua ssp. humboldtiensis	Apr-Aug	•Marshes and swamps (MshSw)(coastal salt)	0 - 3 meters	List 1B.2
Clarkia amoena ssp. whitneyi	Jun-Aug	•Coastal bluff scrub (CBSCr) •Coastal scrub (CoScr)	10 - 100 meters	List 1B.1
Cordylanthus maritimus ssp. palustris	Jun-Oct	•Marshes and swamps (MshSw)(coastal salt)	0 - 10 meters	List 1B.2
Erysimum menziesii ssp. eurekaense	Mar-Apr	•Coastal dunes (CoDns)	0 - 10 meters	List 1B.1
Erythronium revolutum	Mar-Jul(Aug)	•Bogs and fens (BgFns) •Broadleafed upland forest (BUFRs) •North Coast coniferous forest (NCFrs)/mesic, streambanks	0 - 1325 meters	List 2.2
Fissidens pauperculus		•North Coast coniferous forest (NCFrs)(damp coastal soil)	10 - 100 meters	List 1B.2
Gilia capitata ssp. pacifica	Apr-Aug	•Coastal bluff scrub (CBSCr) •Chaparral (Chprl)(openings) •Coastal prairie (CoPrr) •Valley and foothill grassland (VFGrs)	5 - 869 meters	List 1B.2
Gilia millefoliata	Apr-Jul	•Coastal dunes (CoDns)	2 - 30 meters	List 1B.2
Hesperovax sparsiflora var. brevifolia	Mar-Jun	•Coastal bluff scrub (CBSCr)(sandy) •Coastal dunes (CoDns)	0 - 215 meters	List 2.2
Hesperolinon adenophyllum	May-Aug	•Chaparral (Chprl) •Cismontane woodland (CmWld) •Valley and foothill grassland (VFGrs)/usually serpentinite	150 - 1315 meters	List 1B.2
Lathyrus japonicus	May-Aug	•Coastal dunes (CoDns)	1 - 30 meters	List 2.1
Lathyrus palustris	Mar-Aug	•Bogs and fens (BgFns) •Coastal prairie (CoPrr) •Coastal scrub (CoScr) •Lower montane coniferous forest (LCFRs) •Marshes and swamps (MshSw) •North Coast coniferous forest (NCFrs)/mesic	1 - 100 meters	List 2.2
Layia carnosa	Mar-Jul	•Coastal dunes (CoDns) •Coastal scrub (CoScr)(sandy)	0 - 60 meters	List 1B.1
Lilium occidentale	Jun-Jul	•Bogs and fens (BgFns) •Coastal bluff scrub (CBSCr) •Coastal prairie (CoPrr) •Coastal scrub (CoScr) •Marshes and swamps (MshSw)(freshwater) •North Coast coniferous forest (NCFrs)(openings)	2 - 185 meters	List 1B.1

Appendix B: All plants encountered during scoping procedure continued....

Lycopodium clavatum	Jun-Aug	•Lower montane coniferous forest (LCFRs)(mesic) •Marshes and swamps (MshSw)	45 - 1225 meters	List 2.3
Monotropa uniflora	Jun-Aug(Sep)	•North Coast coniferous forest (NCFrs)(mesic)/often edges, openings, and roadsides •Broadleafed upland forest (BUFRs) •North Coast coniferous forest (NCFrs)	10 - 550 meters	List 2.2
Montia howellii	Mar-May	•Meadows and seeps (Medws) •North Coast coniferous forest (NCFrs) •Vernal pools (VnPIs)/vernally mesic, sometimes roadsides	0 - 730 meters	List 2.2
Packera bolanderi var. bolanderi	(Apr)May-Jul	•Coastal scrub (CoScr) •North Coast coniferous forest (NCFrs)/sometimes roadsides	30 - 650 meters	List 2.2
Puccinellia pumila	Jul	•Marshes and swamps (MshSw)(coastal salt)	1 - 10 meters	List 2.2
Sidalcea malviflora ssp. patula	May-Aug	•Coastal bluff scrub (CBScr) •Coastal prairie (CoPrr) •North Coast coniferous forest (NCFrs)/often roadcuts	15 - 815 meters	List 1B.2
Sidalcea oregana ssp. eximia	Jun-Aug	•Lower montane coniferous forest (LCFRs) •Meadows and seeps (Medws) •North Coast coniferous forest (NCFrs)	5 - 1340 meters	List 1B.2
Spergularia canadensis var. occidentalis	Jun-Aug	•Marshes and swamps (MshSw)(coastal salt)	0 - 3 meters	List 2.1
Viola palustris	Mar-Aug	•Bogs and fens (BgFns)(coastal) •Coastal scrub (CoScr)(mesic)	0 - 150 meters	List 2.2

*Target species list provided by "nine-quad search" from CNPS online rare plant inventory accessed June 20, 2007 at www.cnps.web.aplus.net/cgi-bin/inv/inventory.cgi