

**Appendix K**  
**2008 Botanical Technical Report**

# Special-Status Plant Species Surveys for the Decommissioning of the Kilarc-Cow Creek Hydroelectric Project, FERC Project No. 606

PREPARED FOR: Pacific Gas and Electric Company under contract to CH2M Hill

PREPARED BY: North State Resources, Inc.

DATE: May 23, 2008

This technical memorandum provides the results of botanical surveys performed for special-status plant species by North State Resources, Inc. (NSR) in support of Pacific Gas and Electric Company's (PG&E's) planned decommissioning of the Cow Creek portion of Kilarc-Cow Creek, FERC Project No. 606. The botanical surveys were performed to determine the presence or absence of special-status plant species. Botanical surveys planned for the Kilarc portion of the Kilarc-Cow Creek project were not performed because of access issues.

This memorandum is organized as follows:

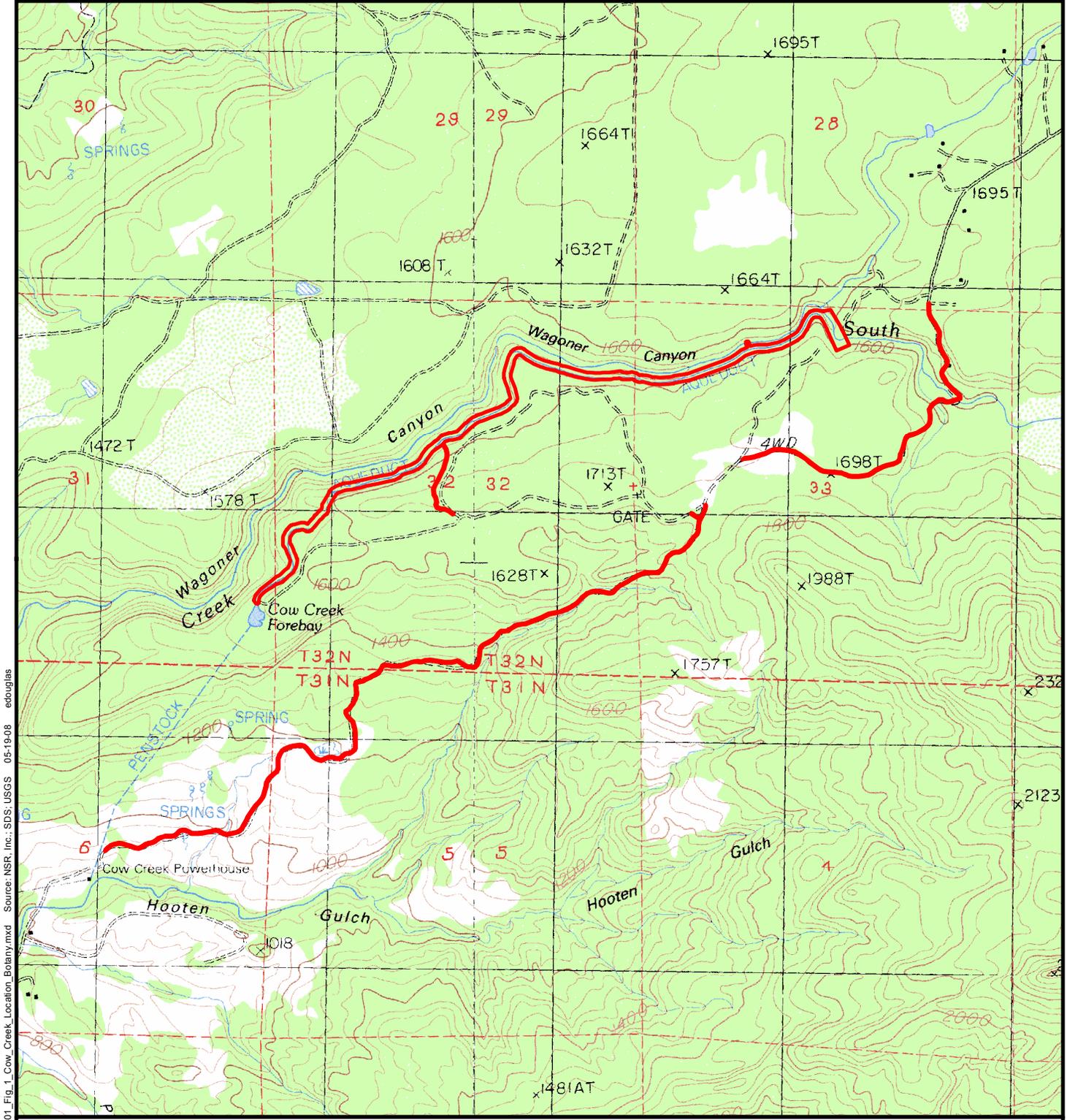
- Introduction
- Background
- Methods
- Results and Discussion
- References

## Introduction

NSR prepared this Draft Technical Memorandum to supplement the previously prepared biological resources report (ENTRIX 2007). This technical memorandum presents the results of botanical data collected during field surveys at the Cow Creek development in April 2008. Botanical data presented herein will be used to assist PG&E in determining potential impacts to the environment associated with future decommissioning activities.

## Background

Upon PG&E's approval of NSR's Botanical Survey Plan, NSR conducted botanical surveys for the planned decommissioning of the Cow Creek portion of Kilarc-Cow Creek, FERC Project No. 606. This task consisted of performing one-visit botanical surveys on the Cow Creek development located in central southern Shasta County, California. Specifically, NSR conducted botanical surveys on the main canal within the FERC project boundary and four existing roads outside the FERC project boundary at the Cow Creek development on April 18 and April 22, 2008 (see Figure 1).

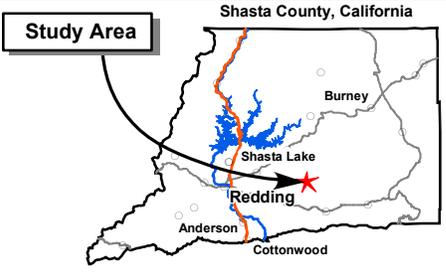
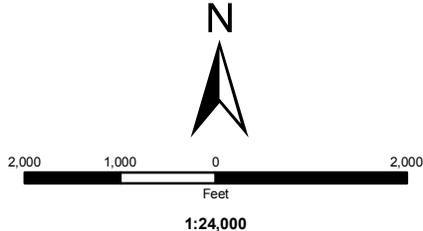


Path: 28601\_Kilarc-Cow\_DecommissionGIS28601\_Fig\_1\_Cow\_Creek\_Location\_Boatany.mxd Source: NSR, Inc.; SDS; USGS 05-19-08 edougles

Study Area

**Public Land Survey:**  
 Township: 32N Range: 1W Section: 28  
 Township: 32N Range: 1W Sections: 31, 32 & 33  
 Township: 31N Range: 1W Section: 5 & 6  
 Meridian: MDB&M

**USGS 7.5 Minute Quad:**  
 Clough Gulch - 1985  
 Inwood - 1985



**Figure 1**  
**Study Area and Vicinity**

## Methods

### Pre-Survey Reconnaissance

A pre-survey field reconnaissance was conducted on April 1, 2008. The locations of access roads, locked gates, and private properties were noted. It was determined that the roads required to access parts of the study area were accessible with PG&E gate keys. Gate access reduced the amount of foot travel required to perform the botanical surveys.

### Pre-Survey Planning

For the purposes of this project, special-status plant species are defined as vascular plants that are: (1) designated as rare by the state or federal governments; (2) listed as threatened or endangered under the federal Endangered Species Act (ESA) or the California Endangered Species Act (i.e., listed species); (3) proposed for listing as threatened or endangered under the ESA; and/or (4) candidates for listing as threatened or endangered under the ESA. Other special-status plants are those included on the California Native Plant Society's (CNPS's) List 1A, 1B, 2, 3 or 4.

A target list of special-status plants developed by ENTRIX in 2007 was used by all surveyors in the field; the target list is provided as Exhibit A. Through project planning meetings with CH2M Hill, ENTRIX, and PG&E, NSR understood that the primary focal species was Butte County fritillary (*Fritillaria eastwoodiae*) at the Cow Creek development. However, NSR also understood that other special-status plant taxa not currently known to occur in the project vicinity could be present in the form of a disjunct population, range extension, or simply a new occurrence for the region. Therefore, botanists with expertise in the special-status plants and their habitats that could occur in the region were used to perform the surveys.

Prior to the botanical surveys, an NSR botanist queried the California Natural Diversity Database (CNDDDB) for records of special-status plants known to occur in the *Inwood, California, Miller Mountain, California*, and surrounding U.S. Geological Survey (USGS) quadrangles (California Department of Fish and Game 2003). The CNDDDB is a database consisting of reported observations of special-status plant species, wildlife species, and special plant communities. Consequently, it is limited to reported sightings and is not a comprehensive list of special-status plant species that could occur in a particular area. The query results are presented in Exhibit B.

NSR also performed a search of the CNPS Electronic Inventory, which allows users to query the Inventory of Rare and Endangered Vascular Plants of California using a specified set of search criteria (California Native Plant Society 2008). For this project, a query was performed for all known special-status plant occurrences in the *Inwood, California, Miller Mountain, California*, and surrounding USGS quadrangles. The search results are presented in Exhibit B.

The target list developed by ENTRIX and the results of the CNDDDB and CNPS queries were combined to formulate a more robust list of special-status plant species with a potential to occur in the Cow Creek development study area. Special-status plant taxa with known occurrences within the two quadrangles that include the Kilarc-Cow Creek Hydroelectric Project and surrounding quadrangles at elevations greater than 1,000 feet above the highest elevation at the Kilarc development were excluded from the list.

NSR generated field maps that were used by all surveyors in the field. The field maps were generated using the project boundary shapefiles provided by PG&E's project team. Digital color aerial imagery and a contour data layer were acquired from the National Agriculture Imagery Program and USGS, respectively. The field maps were used to aid surveyors in navigating to and within the Cow Creek development.

## Field Surveys

NSR coordinated scheduling for the field surveys with CH2M Hill staff at least five business days in advance of planned survey activities; the scheduling included completion and submittal of the Power Generation Field Work Notification form to CH2M Hill. NSR botanists notified the PG&E Pit 3 switching center daily upon entry to and exit from the project area by cell phone. Tailboard meetings were held each morning prior to initiating field surveys, at which time items identified in the pre-task safety plan [PTSP (see Exhibit C)] were discussed. The PTSP was signed by all surveyors at the end of each tailboard meeting and faxed to CH2M Hill at the end of each day. A job hazard analysis (JHA) was also submitted to CH2M Hill to ensure the safety of the team completing the botanical surveys (see Exhibit C).

NSR botanists Ms. Merissa Hanisko and Mr. Chris Riddle conducted one-visit botanical surveys to document all vascular plant taxa encountered within the project area described above. The surveys were floristic and included documentation of all vascular plant taxa encountered. Taxonomic nomenclature was applied to vascular plants in accordance with *The Jepson Manual* (Hickman 1993). Survey methodology employed was in general accordance with the specifications presented in *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities* (California Department of Fish and Game 2000).

The botanical surveys were limited to the South Cow Creek Canal (i.e., the main canal at the Cow Creek development) within the FERC project boundary, as shown on Preliminary Field Maps C-1 through C-3 dated March 20, 2008, and the footprint established for new access roads at the Cow Creek development.

Botanical field data collected during the survey included a comprehensive list of all vascular plant species detected and a description of each special-status plant occurrence. For the special-status plant occurrences, the following data were also recorded: date of visit; visit number; surveyor's name; occurrence identifier; associated species and plant community; soil type; disturbance type (if present) and historic/recent determination; estimate of individuals; size in square feet or acres; and phenological stage(s). The location of each special-status plant occurrence was recorded in the form of UTM coordinates with the use of a Garmin GPS unit.

## Results and Discussion

Table 1 presents NSR's target list of special-status plant species with potential to occur at the Cow Creek development. Table D-1 presents a list of all vascular plant species detected in the Cow Creek development study area (see Exhibit D).

**Table 1. Special-Status Plant Species With Potential to Occur in the Kilarc-Cow Creek Hydroelectric Project Area**

Common Name <i>Scientific Name</i>	Status FED/ST/CNPS	General Habitat	Identification Period
Henderson's bent grass <i>Agrostis hendersonii</i>	—/—/3.2	Valley and foothill grassland (mesic), vernal pools; elevation 70-305 meters	April-May

**Table 1. Special-Status Plant Species With Potential to Occur in the Kilarc-Cow Creek Hydroelectric Project Area**

<b>Common Name Scientific Name</b>	<b>Status FED/ST/CNPS</b>	<b>General Habitat</b>	<b>Identification Period</b>
Scalloped moonwort <i>Botrychium crenulatum</i>	—/—/2.2	Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps (freshwater); elevation 1268-3280 meters	June-July
Rattlesnake fern <i>Botrychium virginianum</i>	—/—/2.2	Bogs and fens, lower montane coniferous forest (mesic), meadows and seeps, riparian forest/streams; elevation 728-1300 meters	June-September
Long-haired star-tulip <i>Calochortus longebarbatus</i> var. <i>longebarbatus</i>	—/—/1B.2	Great Basin scrub, lower montane coniferous forest (openings and drainages), meadows and seeps, vernal pools/clay, mesic; elevation 1005-1900 meters	June-August
Callahan's mariposa lily <i>Calochortus syntrophus</i>	—/—/3.1	Cismontane woodland, lower montane coniferous forest, valley and foothill grassland (vernally mesic); elevation 525-886 meters	May-June
Butte County morning-glory <i>Calystegia atriplicifolia</i> ssp. <i>buttensis</i>	—/—/1B.2	Chaparral, lower montane coniferous forest/rocky, sometimes roadside; elevation 600-1524 meters	May-July
Fox sedge <i>Carex vulpinoidea</i>	—/—/2.2	Marshes and swamps (freshwater), riparian woodland; elevation 30-1200 meters	May-June

**Table 1. Special-Status Plant Species With Potential to Occur in the Kilarc-Cow Creek Hydroelectric Project Area**

<b>Common Name Scientific Name</b>	<b>Status FED/ST/CNPS</b>	<b>General Habitat</b>	<b>Identification Period</b>
Shasta clarkia <i>Clarkia borealis</i> ssp. <i>arida</i>	—/—/1B.1	Cismontane woodland, lower montane coniferous forest (openings); elevation 490-595 meters	June-August
Northern clarkia <i>Clarkia borealis</i> ssp. <i>borealis</i>	—/—/1B.3	Chaparral, cismontane woodland, lower montane coniferous forest; elevation 400-1340 meters	June-September
Silky cryptantha <i>Cryptantha crinita</i>	—/—/1B.2	Cismontane woodland, lower montane coniferous forest, riparian forest, riparian woodland, valley and foothill grassland/ gravelly streambeds; elevation 61-1215 meters	April-May
Mountain lady's-slipper <i>Cypripedium montanum</i>	—/—/4.2	Broadleaved upland forest, cismontane woodland, lower montane coniferous forest, North Coast coniferous forest; elevation 185-2225 meters	March-August
Butte County fritillary <i>Fritillaria eastwoodiae</i>	—/—/3.2	Chaparral, cismontane woodland, lower montane coniferous forest (openings)/ sometimes serpentinite; elevation 50-1500 meters	March-June
Boggs Lake hedge-hyssop <i>Gratiola heterosepala</i>	—/E/1B.2	Marshes and swamps (lake margins), vernal pools/clay; elevation 10-2375 meters	April-August

**Table 1. Special-Status Plant Species With Potential to Occur in the Kilarc-Cow Creek Hydroelectric Project Area**

<b>Common Name Scientific Name</b>	<b>Status FED/ST/CNPS</b>	<b>General Habitat</b>	<b>Identification Period</b>
Baker's globe mallow <i>Liamna bakeri</i>	—/—/4.2	Chaparral, Great Basin scrub, lower montane coniferous forest (openings), pinyon and juniper woodland/volcanic, often burned areas; elevation 1000-2500 meters	June-September
Red Bluff dwarf rush <i>Juncus leiospermus</i> var. <i>leiospermus</i>	—/—/1B.1	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools/ vernal mesic; elevation 35-1020 meters	March-May
Bellinger's meadowfoam <i>Limnanthes floccosa</i> ssp. <i>bellingiana</i>	—/—/1B.2	Cismontane woodland, meadows and seeps/mesic; elevation 290-1100 meters	April-June
Shasta snow-wreath <i>Neviusia cliftonii</i>	—/—/1B.2	Cismontane woodland, lower montane coniferous forest, riparian woodland/often streamsides; sometimes carbonate, volcanic, or metavolcanic; elevation 300-500 meters	April-June
Slender Orcutt grass <i>Orcuttia tenuis</i>	T/E/1B.1	Vernal pools; elevation 35-1760 meters	May-October
Ahart's paronychia <i>Paronychia ahartii</i>	—/—/1B.1	Cismontane woodland, valley and foothill grassland, vernal pools; elevation 30-510 meters	March-June
Newberry's cinquefoil <i>Potentilla newberryi</i>	—/—/2.3	Marshes and swamps (drying margins), vernal pools; elevation 1300-2200 meters	May-August

**Table 1. Special-Status Plant Species With Potential to Occur in the Kilarc-Cow Creek Hydroelectric Project Area**

<b>Common Name Scientific Name</b>	<b>Status FED/ST/CNPS</b>	<b>General Habitat</b>	<b>Identification Period</b>
Brownish beaked-rush <i>Rhynchospora capitellata</i>	—/—/2.2	Lower montane coniferous forest, meadows and seeps, marshes and swamps, upper montane coniferous forest/mesic; elevation 455-2000 meters	July-August
Sanford's arrowhead <i>Sagittaria sanfordii</i>	—/—/1B.2	Marshes and swamps (assorted shallow freshwater); elevation 0-650 meters	May-October
Long-stiped campion <i>Silene occidentalis</i> ssp. <i>longistipitata</i>	—/—/1B.2	Chaparral, lower montane coniferous forest, upper montane coniferous forest; elevation 1000-2000 meters	June-August
English Peak greenbriar <i>Smilax jamesii</i>	—/—/1B.3	Broadleaved upland forest, lower montane coniferous forest, marshes and swamps, North Coast coniferous forest/streambanks and lake margins; elevation 580-2500 meters	May-August
Marsh hedge nettle <i>Stachys palustris</i> ssp. <i>pilosa</i>	—/—/2.3	Great Basin scrub (mesic); meadows and seeps; elevation 1200-1770 meters	June-August
Siskiyou clover <i>Trifolium siskiyouense</i>	—/—/3.2	Meadows and seeps/mesic; elevation 880-1500 meters	June-July
Oval-leaved viburnum <i>Viburnum ellipticum</i>	—/—/2.3	Chaparral, cismontane woodland, lower montane coniferous forest; elevation 215-1400 meters	May-June

NSR biologists Mr. Colby J. Boggs and Ms. Heather Kelly detected a single occurrence of big-scale balsamroot (*Balsamorhiza macrolepis* var. *macrolepis*), and NSR botanists Ms. Merissa Hanisko and Mr. Chris Riddle confirmed the detection. Big-scale balsamroot is a perennial, herbaceous plant in the sunflower family (Asteraceae); this taxon is not listed under either the federal or California endangered species acts, but it is listed on CNPS List 1B. Big-scale balsamroot is endemic to California and was previously only known to occur between Tehama and Santa Clara counties in the foothills of the inner Coast Ranges and between Butte and Mariposa counties in the foothills of the Sierra Nevada (California Native Plant Society 2008).

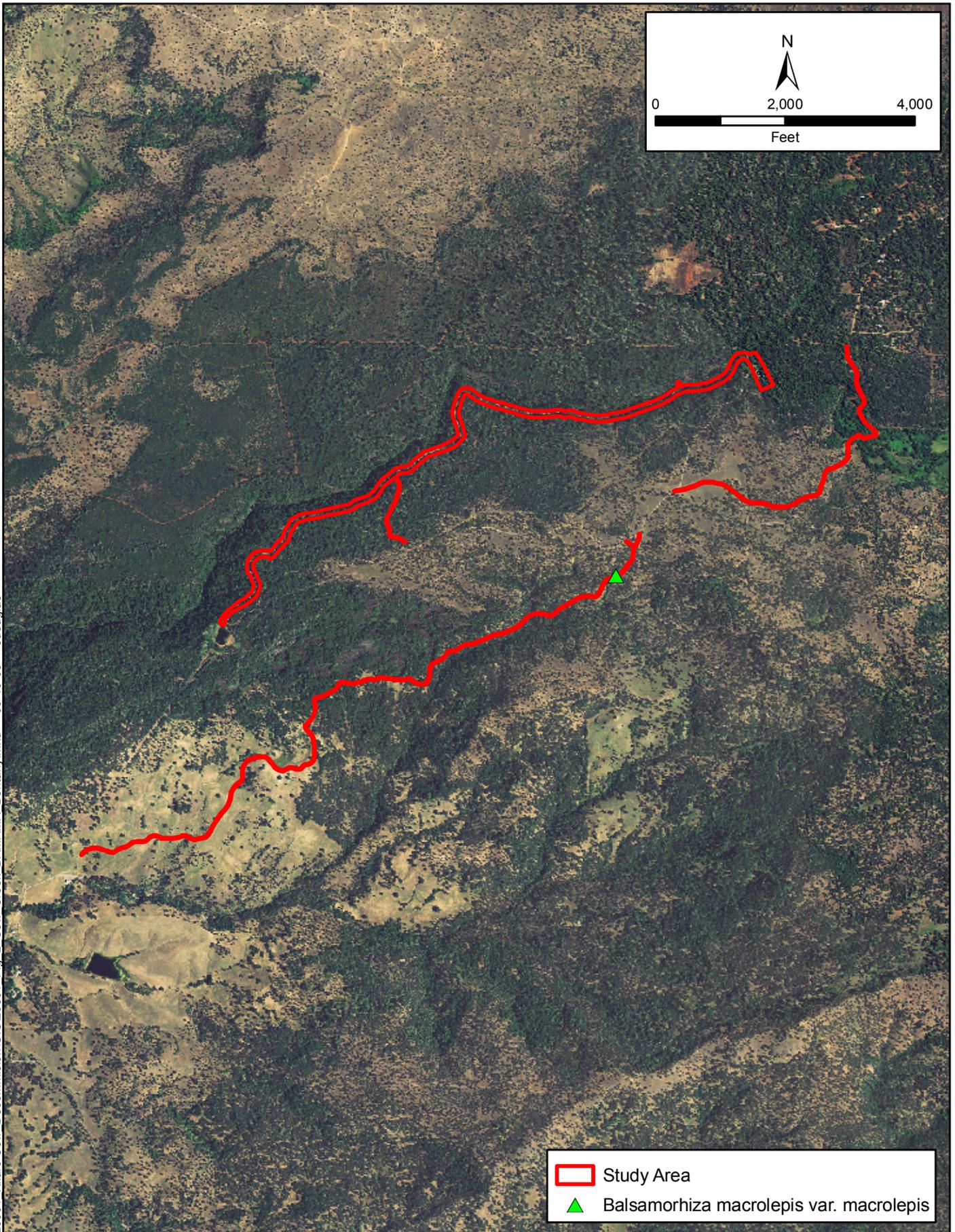
The big-scale balsamroot occurrence consisted of 23 individual plants located adjacent to an existing road outside the FERC project boundary between the Cow Creek Powerhouse and the Cow Creek Forebay. Ecological parameters of the big-scale balsamroot occurrence were documented on NSR's Special-Status Plant Occurrence Discovery Record (see Exhibit E); representative photographs for this taxon are also presented in Exhibit E. The location of the big-scale balsamroot occurrence is shown on Figure 2.

The detection of big-scale balsamroot at the Cow Creek development is the first reported occurrence of this taxon in Shasta County. The nearest known occurrence of big-scale balsamroot is located approximately 36.5 miles to the southwest within the *Rosewood, California* USGS quadrangle in Tehama County (California Department of Fish and Game 2003); however, this occurrence has not been relocated since the original collection of this taxon was made in 1899. Two other known occurrences are located in Tehama County; both are located within the *Riley Ridge, California* USGS quadrangle and occur more than 55 miles from the big-scale balsamroot occurrence at the Cow Creek development. All other known occurrences for big-scale balsamroot are located more than 70 miles to the south. Therefore, the big-scale balsamroot occurrence at the Cow Creek development represents a significant range extension for this taxon.

## References

- California Department of Fish and Game. 2000. *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*. California Department of Fish and Game. Sacramento, California.
- California Department of Fish and Game. 2003. *Rarefind*, CD-ROM version 3.1.0 (commercial version dated March 30, 2008). California Department of Fish and Game, Biogeographic Data Branch, California Natural Diversity Data Base. Sacramento, California.
- California Native Plant Society. 2008. *Inventory of Rare and Endangered Plants*, version 7-08a (accessed on March 31, 2008 and May 19, 2008). California Native Plant Society. Sacramento, California. Available at: <http://cnps.web.aplus.net/cgi-bin/inv/inventory.cgi>
- ENTRIX. 2007. *Draft Botanical, and Terrestrial and Aquatic Wildlife Resources Report for the Kilarc-Cow Creek Project, FERC No. 606*. Concord, California.
- Hickman, J.C. (ed.). 1993. *The Jepson Manual: Higher Plants of California*. University of California Press. Berkeley, California.

26601 Kilarc-Cow Decommission\GIS\26601\_Fig\_2\_Cow\_Creek\_BAMAMA\_Bontany.mxd 05-19-08 edouglas



**Figure 2**  
**Location of Special-Status Plant Species**

**EXHIBIT A**

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***ENTRIX Special-Status Plant Species Target List***

Scientific Name	Status	Flowering Period	Life Form
Bogg's Lake hedge-hyssop <i>Gratiola heterosepala</i>	CE, CNPS 1B	Apr-Jun	Annual herb
Butte County fritillary <i>Fritillaria eastwoodiae</i>	CNPS 3	Mar-May	Perennial herb (bulbiferous)
Shasta clarkia <i>Clarkia borealis</i> ssp. <i>arida</i>	CNPS 1B	Jun-Aug	Annual herb
Ahart's paronychia <i>Paronychia ahartii</i>	CNPS 1B	Mar-Jun	Annual herb
Shasta snow wreath <i>Neviusia cliffonii</i>	CNPS 1B	May-Jun	Shrub (deciduous)
CE = listed by California as Endangered. CNPS = California Native Plant Society 1B = rare, threatened or endangered in California and elsewhere. 3 = need more information Status and flowering period information from CNDDDB (CDFG 2003a) and CNPS data base (CNPS, 2000).			

*EXHIBIT B*

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*CNDDDB Query Results*

*CNPS Search Results*

California Department of Fish and Game  
Natural Diversity Database  
Selected Elements by Scientific Name - Portrait  
Cow Creek Development  
Inwood and Eight Surrounding Quadrangles

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Agrostis hendersonii</i> Henderson's bent grass	PMPOA040K0			G1Q	S1.1	3.2
2 <i>Botrychium crenulatum</i> scalloped moonwort	PPOPH010L0			G3	S2.2	2.2
3 <i>Botrychium virginianum</i> rattlesnake fern	PPOPH010H0			G5	S1.2	2.2
4 <i>Carex vulpinoidea</i> brown fox sedge	PMCYP03EN0			G5	S2.2	2.2
5 <i>Clarkia borealis</i> ssp. <i>arida</i> Shasta clarkia	PDONA05061			G3T1	S1.2	1B.1
6 <i>Cryptantha crinita</i> silky cryptantha	PDBOR0A0Q0			G1	S1.1	1B.2
7 <i>Fritillaria eastwoodiae</i> Butte County fritillary	PMLIL0V060			G3Q	S3.2	3.2
8 <i>Gratiola heterosepala</i> Boggs Lake hedge-hyssop	PDSCR0R060		Endangered	G3	S3.1	1B.2
9 <i>Iliamna bakeri</i> Baker's globe mallow	PDMAL0K010			G4	S3.2	4.2
10 <i>Juncus leiospermus</i> var. <i>leiospermus</i> Red Bluff dwarf rush	PMJUN011L2			G2T2	S2.2	1B.1
11 <i>Limnanthes floccosa</i> ssp. <i>bellingermaniana</i> Bellinger's meadowfoam	PDLIM02041			G4T2	S1.1	1B.2
12 <i>Orcuttia tenuis</i> slender orcutt grass	PMPOA4G050	Threatened	Endangered	G3	S3.1	1B.1
13 <i>Paronychia ahartii</i> Ahart's paronychia	PDCAR0L0V0			G2	S2.1	1B.1
14 <i>Rhynchospora capitellata</i> brownish beaked-rush	PMCYP0N080			G5	S2S3	2.2

California Department of Fish and Game  
 Natural Diversity Database  
 Selected Elements by Scientific Name - Portrait  
 Kilarc Development  
 Miller Mtn and Eight Surrounding Quadrangles

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 Botrychium crenulatum scalloped moonwort	PPOPH010L0			G3	S2.2	2.2
2 Botrychium virginianum rattlesnake fern	PPOPH010H0			G5	S1.2	2.2
3 Calochortus longebarbatus var. longebarbatus long-haired star-tulip	PMLIL0D0R1			G4T4	S3.2	1B.2
4 Calystegia atriplicifolia ssp. buttensis Butte County morning-glory	PDCON04012			G5T3	S3.2	1B.2
5 Clarkia borealis ssp. borealis northern clarkia	PDONA05062			G3T2	S2.3	1B.3
6 Cryptantha crinita silky cryptantha	PDBOR0A0Q0			G1	S1.1	1B.2
7 Fritillaria eastwoodiae Butte County fritillary	PMLIL0V060			G3Q	S3.2	3.2
8 Hulsea nana little hulsea	PDAST4Z060			G4	S2.3	2.3
9 Iliamna bakeri Baker's globe mallow	PDMAL0K010			G4	S3.2	4.2
10 Neviusia cliftonii Shasta snow-wreath	PDROS14020			G2	S2.2	1B.2
11 Paronychia ahartii Ahart's paronychia	PDCAR0L0V0			G2	S2.1	1B.1
12 Potentilla newberryi Newberry's cinquefoil	PDROS1B130			G3G4	S2.3?	2.3
13 Silene occidentalis ssp. longistipitata long-stiped campion	PDCAR0U161			G4T1	S1.2	1B.2
14 Stachys palustris ssp. pilosa hairy marsh hedge-nettle	PDLAM1X1A0			G5T5	S2.3	2.3

## CNPS Inventory of Rare and Endangered Plants

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### ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
<u><b>Agrostis hendersonii</b></u>	Poaceae	annual herb	Apr-May	<ul style="list-style-type: none"> <li>•Valley and foothill grassland (VFGrs)(mesic)</li> <li>•Vernal pools (VnPls)</li> <li>•Bogs and fens (BgFns)</li> </ul>	70 - 305 meters	List 3.2
<u><b>Botrychium crenulatum</b></u>	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Meadows and seeps (Medws)</li> <li>•Marshes and swamps (MshSw)(freshwater)</li> <li>•Bogs and fens (BgFns)</li> </ul>	1268 - 3280 meters	List 2.2
<u><b>Botrychium virginianum</b></u>	Ophioglossaceae	perennial herb	Jun-Sep	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)(mesic)</li> <li>•Meadows and seeps (Medws)</li> <li>•Riparian forest (RpFrS)/streams</li> <li>•Great Basin scrub (GBScr)</li> </ul>	728 - 1300 meters	List 2.2
<u><b>Calochortus longebarbatus</b></u> var. <u><b>longebarbatus</b></u>	Liliaceae	perennial bulbiferous herb	Jun-Aug	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)(openings and drainages)</li> <li>•Meadows and seeps (Medws)</li> <li>•Vernal pools (VnPls)/clay, mesic</li> <li>•Cismontane woodland (CmWld)</li> </ul>	1005 - 1900 meters	List 1B.2
<u><b>Calochortus syntrophus</b></u>	Liliaceae	perennial bulbiferous herb	May-Jun	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Valley and foothill grassland (VFGrs)(vernally mesic)</li> </ul>	525 - 886 meters	List 3.1
<u><b>Calystegia atriplicifolia</b></u> ssp. <u><b>buttensis</b></u>	Convolvulaceae	perennial rhizomatous herb	May-Jul	<ul style="list-style-type: none"> <li>•Chaparral (Chprl)</li> <li>•Lower montane coniferous forest (LCFrS)/rocky, sometimes roadside</li> </ul>	600 - 1524 meters	List 1B.2
<u><b>Carex vulpinoidea</b></u>	Cyperaceae	perennial herb	May-Jun	<ul style="list-style-type: none"> <li>•Marshes and swamps (MshSw)(freshwater)</li> <li>•Riparian woodland (RpWld)</li> <li>•Cismontane woodland (CmWld)</li> </ul>	30 - 1200 meters	List 2.2
<u><b>Clarkia borealis</b></u> ssp. <u><b>arida</b></u>	Onagraceae	annual herb	Jun-Aug	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)(openings)</li> <li>•Chaparral (Chprl)</li> </ul>	490 - 595 meters	List 1B.1
<u><b>Clarkia borealis</b></u> ssp. <u><b>borealis</b></u>	Onagraceae	annual	Jun-Sep	<ul style="list-style-type: none"> <li>•Cismontane woodland (CmWld)</li> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Cismontane woodland</li> </ul>	400 - 1340 meters	List 1B.3

<b><u>Cryptantha crinita</u></b>	Boraginaceae	annual herb	Apr-May	(CmWld) •Lower montane coniferous forest (LCFrS) •Riparian forest (RpFrS) •Riparian woodland (RpWld) •Valley and foothill grassland (VFGrs)/gravelly streambeds •Chaparral (Chprl) •Cismontane woodland (CmWld)	85 - 1215 meters	List 1B.2
<b><u>Fritillaria eastwoodiae</u></b>	Liliaceae	perennial bulbiferous herb	Mar-Jun	•Lower montane coniferous forest (LCFrS) (openings)/sometimes serpentinite •Marshes and swamps (MshSw)(lake margins) •Vernal pools (VnPls)/clay	50 - 1500 meters	List 3.2
<b><u>Gratiola heterosepala</u></b>	Scrophulariaceae	annual herb	Apr-Aug	•Alpine boulder and rock field (AlpBR)	10 - 2375 meters	List 1B.2
<b><u>Hulsea nana</u></b>	Asteraceae	perennial herb	Jul-Aug	•Subalpine coniferous forest (SCFrS)/rocky or gravelly, volcanic •Chaparral (Chprl) •Cismontane woodland (CmWld)	1720 - 3355 meters	List 2.3
<b><u>Juncus leiospermus var. leiospermus</u></b>	Juncaceae	annual herb	Mar-May	•Meadows and seeps (Medws) •Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)/vernally mesic •Cismontane woodland (CmWld)	35 - 1020 meters	List 1B.1
<b><u>Limnanthes floccosa ssp. bellingeriana</u></b>	Limnanthaceae	annual herb	Apr-Jun	•Meadows and seeps (Medws)/mesic •Cismontane woodland (CmWld)	290 - 1100 meters	List 1B.2
<b><u>Neviusia cliftonii</u></b>	Rosaceae	perennial deciduous shrub	Apr-Jun	•Lower montane coniferous forest (LCFrS) •Riparian woodland (RpWld)/often streamsidess; sometimes carbonate, volcanic, or metavolcanic	300 - 500 meters	List 1B.2
<b><u>Orcuttia tenuis</u></b>	Poaceae	annual herb	May-Sep (Oct) Months in parentheses are uncommon.	•Vernal pools (VnPls) •Cismontane woodland (CmWld)	35 - 1760 meters	List 1B.1
<b><u>Paronychia ahartii</u></b>	Caryophyllaceae	annual herb	Mar-Jun	•Valley and foothill grassland (VFGrs) •Vernal pools (VnPls)	30 - 510 meters	List 1B.1
<b><u>Potentilla newberryi</u></b>	Rosaceae	perennial herb	May-Aug	•Marshes and swamps (MshSw)(drying margins) •Vernal pools (VnPls)	1300 - 2200 meters	List 2.3

<b><u>Rhynchospora capitellata</u></b>	Cyperaceae	perennial herb	Jul-Aug	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Meadows and seeps (Medws)</li> <li>•Marshes and swamps (MshSw)</li> <li>•Upper montane coniferous forest (UCFrS)/mesic</li> </ul>	455 - 2000 meters	List 2.2
<b><u>Sagittaria sanfordii</u></b>	Alismataceae	perennial rhizomatous herb emergent	May-Oct	<ul style="list-style-type: none"> <li>•Marshes and swamps (MshSw)(assorted shallow freshwater)</li> <li>•Chaparral (Chprl)</li> </ul>	0 - 650 meters	List 1B.2
<b><u>Silene occidentalis ssp. longistipitata</u></b>	Caryophyllaceae	perennial herb	Jun-Aug	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Upper montane coniferous forest (UCFrS)</li> <li>•Broadleafed upland forest (BUFrS)</li> <li>•Lower montane coniferous forest (LCFrS)</li> </ul>	1000 - 2000 meters	List 1B.2
<b><u>Smilax jamesii</u></b>	Smilacaceae	perennial rhizomatous herb	May-Jul (Aug) Months in parentheses are uncommon.	<ul style="list-style-type: none"> <li>•Marshes and swamps (MshSw)</li> <li>•North Coast coniferous forest (NCFrS)</li> <li>•Upper montane coniferous forest (UCFrS)/streambanks and lake margins</li> </ul>	580 - 2500 meters	List 1B.3
<b><u>Stachys palustris ssp. pilosa</u></b>	Lamiaceae	perennial rhizomatous herb	Jun-Aug	<ul style="list-style-type: none"> <li>•Great Basin scrub (GBScr) (mesic)</li> <li>•Meadows and seeps (Medws)</li> </ul>	1200 - 1770 meters	List 2.3
<b><u>Trifolium siskiyouense</u></b>	Fabaceae	perennial herb	Jun-Jul	<ul style="list-style-type: none"> <li>•Meadows and seeps (Medws) mesic</li> </ul>	880 - 1500 meters	List 3.2

## CNPS Inventory of Rare and Endangered Plants

Status: Plant Press Manager window with 15 items - Mon, Mar. 31, 2008 14:55 c

Reformat list as:

### ECOLOGICAL REPORT

scientific	family	life form	blooming	communities	elevation	CNPS
<u><b>Botrychium crenulatum</b></u>	Ophioglossaceae	perennial rhizomatous herb	Jun-Sep	<ul style="list-style-type: none"> <li>•Bogs and fens (BgFns)</li> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Meadows and seeps (Medws)</li> <li>•Marshes and swamps (MshSw)(freshwater)</li> <li>•Bogs and fens (BgFns)</li> <li>•Lower montane coniferous forest (LCFrS)(mesic)</li> <li>•Meadows and seeps (Medws)</li> <li>•Riparian forest (RpFrS)/streams</li> <li>•Great Basin scrub (GBScr)</li> <li>•Lower montane coniferous forest (LCFrS)(openings and drainages)</li> <li>•Meadows and seeps (Medws)</li> <li>•Vernal pools (VnPls)/clay, mesic</li> <li>•Cismontane woodland (CmWld)</li> </ul>	1268 - 3280 meters	List 2.2
<u><b>Botrychium virginianum</b></u>	Ophioglossaceae	perennial herb	Jun-Sep	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)(mesic)</li> <li>•Meadows and seeps (Medws)</li> <li>•Riparian forest (RpFrS)/streams</li> <li>•Great Basin scrub (GBScr)</li> <li>•Lower montane coniferous forest (LCFrS)(openings and drainages)</li> <li>•Meadows and seeps (Medws)</li> <li>•Vernal pools (VnPls)/clay, mesic</li> <li>•Cismontane woodland (CmWld)</li> </ul>	728 - 1300 meters	List 2.2
<u><b>Calochortus longebarbatus</b></u> var. <u><b>longebarbatus</b></u>	Liliaceae	perennial bulbiferous herb	Jun-Aug	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)(openings and drainages)</li> <li>•Meadows and seeps (Medws)</li> <li>•Vernal pools (VnPls)/clay, mesic</li> <li>•Cismontane woodland (CmWld)</li> </ul>	1005 - 1900 meters	List 1B.2
<u><b>Calochortus syntrophus</b></u>	Liliaceae	perennial bulbiferous herb	May-Jun	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Valley and foothill grassland (VFGrs)(vernally mesic)</li> <li>•Chaparral (Chprl)</li> </ul>	525 - 886 meters	List 3.1
<u><b>Calystegia atriplicifolia</b></u> ssp. <u><b>buttensis</b></u>	Convolvulaceae	perennial rhizomatous herb	May-Jul	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)/rocky, sometimes roadside</li> <li>•Chaparral (Chprl)</li> <li>•Cismontane woodland (CmWld)</li> </ul>	600 - 1524 meters	List 1B.2
<u><b>Clarkia borealis</b></u> ssp. <u><b>borealis</b></u>	Onagraceae	annual	Jun-Sep	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Cismontane woodland (CmWld)</li> <li>•Lower montane coniferous forest (LCFrS)</li> </ul>	400 - 1340 meters	List 1B.3
<u><b>Cryptantha crinita</b></u>	Boraginaceae	annual herb	Apr-May	<ul style="list-style-type: none"> <li>•Lower montane coniferous forest (LCFrS)</li> <li>•Riparian forest (RpFrS)</li> <li>•Riparian woodland (RpWld)</li> <li>•Valley and foothill grassland (VFGrs)/gravelly streambeds</li> <li>•Chaparral (Chprl)</li> <li>•Cismontane woodland (CmWld)</li> </ul>	85 - 1215 meters	List 1B.2
<u><b>Fritillaria</b></u>		perennial		<ul style="list-style-type: none"> <li>•Cismontane woodland (CmWld)</li> </ul>	50 - 1500	List

<b><u>eastwoodiae</u></b>	Liliaceae	bulbiferous herb	Mar-Jun	•Lower montane coniferous forest (LCFrS) (openings)/sometimes serpentinite	meters	3.2
<b><u>Hulsea nana</u></b>	Asteraceae	perennial herb	Jul-Aug	•Alpine boulder and rock field (AlpBR) •Subalpine coniferous forest (SCFrS)/rocky or gravelly, volcanic •Cismontane woodland (CmWld)	1720 - 3355 meters	List 2.3
<b><u>Neviusia cliftonii</u></b>	Rosaceae	perennial deciduous shrub	Apr-Jun	•Lower montane coniferous forest (LCFrS) •Riparian woodland (RpWld)/ often streambanks; sometimes carbonate, volcanic, or metavolcanic	300 - 500 meters	List 1B.2
<b><u>Potentilla newberryi</u></b>	Rosaceae	perennial herb	May-Aug	•Marshes and swamps (MshSw)(drying margins) •Vernal pools (VnPls)	1300 - 2200 meters	List 2.3
<b><u>Silene occidentalis ssp. longistipitata</u></b>	Caryophyllaceae	perennial herb	Jun-Aug	•Chaparral (Chprl) •Lower montane coniferous forest (LCFrS) •Upper montane coniferous forest (UCFrS) •Broadleafed upland forest (BUFrS) •Lower montane coniferous forest (LCFrS)	1000 - 2000 meters	List 1B.2
<b><u>Smilax jamesii</u></b>	Smilacaceae	perennial rhizomatous herb	May-Jul (Aug) Months in parentheses are uncommon.	•Marshes and swamps (MshSw) •North Coast coniferous forest (NCFrS) •Upper montane coniferous forest (UCFrS)/streambanks and lake margins	580 - 2500 meters	List 1B.3
<b><u>Stachys palustris ssp. pilosa</u></b>	Lamiaceae	perennial rhizomatous herb	Jun-Aug	•Great Basin scrub (GBScr) (mesic) •Meadows and seeps (Medws)	1200 - 1770 meters	List 2.3
<b><u>Trifolium siskiyouense</u></b>	Fabaceae	perennial herb	Jun-Jul	•Meadows and seeps (Medws) mesic	880 - 1500 meters	List 3.2

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*EXHIBIT C*  
*Pre-Task Safety Plan*  
*Job Hazard Analysis*

# CH2MHILL

## Pre-Task Safety Plan (PTSP)

Project: _____ Location: _____ Date: _____		
Supervisor: _____ Job Activity: _____ _____		
Task Personnel: _____ _____ _____ _____		
List Tasks: _____ _____ _____ _____		
Tools/Equipment Required for Tasks (ladders, scaffolds, fall protection, cranes/rigging, heavy equipment, power tools): _____ _____ _____		
Potential H&S Hazards, including chemical, physical, safety, biological and environmental (check all that apply):		
<input type="checkbox"/> Chemical burns/contact	<input type="checkbox"/> Trench, excavations, cave-ins	<input type="checkbox"/> Ergonomics
<input type="checkbox"/> Pressurized lines/equipment	<input type="checkbox"/> Overexertion	<input type="checkbox"/> Chemical splash
<input type="checkbox"/> Thermal burns	<input type="checkbox"/> Pinch points	<input type="checkbox"/> Poisonous plants/insects
<input type="checkbox"/> Electrical	<input type="checkbox"/> Cuts/abrasions	<input type="checkbox"/> Eye hazards/flying projectile
<input type="checkbox"/> Weather conditions	<input type="checkbox"/> Spills	<input type="checkbox"/> Inhalation hazard
<input type="checkbox"/> Heights/fall > 6 feet	<input type="checkbox"/> Overhead Electrical hazards	<input type="checkbox"/> Heat/cold stress
<input type="checkbox"/> Noise	<input type="checkbox"/> Elevated loads	<input type="checkbox"/> Water/drowning hazard
<input type="checkbox"/> Explosion/fire	<input type="checkbox"/> Slips, trip and falls	<input type="checkbox"/> Heavy equipment
<input type="checkbox"/> Radiation	<input type="checkbox"/> Manual lifting	<input type="checkbox"/> Aerial lifts/platforms
<input type="checkbox"/> Confined space entry	<input type="checkbox"/> Welding/cutting	<input type="checkbox"/> Demolition
Other Potential Hazards (Describe): _____ _____ _____ _____		

# CH2MHILL

Hazard Control Measures (Check All That Apply):			
<b>PPE</b> <input type="checkbox"/> Hard Hat <input type="checkbox"/> Thermal/lined <input type="checkbox"/> Eye <input type="checkbox"/> Dermal/hand <input type="checkbox"/> Hearing <input type="checkbox"/> Respiratory <input type="checkbox"/> Reflective vests <input type="checkbox"/> Flotation device	<b>Protective Systems</b> <input type="checkbox"/> Sloping <input type="checkbox"/> Shoring <input type="checkbox"/> Trench box <input type="checkbox"/> Barricades <input type="checkbox"/> Competent person <input type="checkbox"/> Locate buried utilities <input type="checkbox"/> Daily inspections	<b>Fire Protection</b> <input type="checkbox"/> Fire extinguishers <input type="checkbox"/> Fire watch <input type="checkbox"/> Non-spark tools <input type="checkbox"/> Grounding/bonding <input type="checkbox"/> Intrinsically safe equipment	<b>Electrical</b> <input type="checkbox"/> Lockout/tagout <input type="checkbox"/> Grounded <input type="checkbox"/> Panels covered <input type="checkbox"/> GFCI/extension cords <input type="checkbox"/> Power tools/cord inspected
<b>Fall Protection</b> <input type="checkbox"/> Harness/lanyards <input type="checkbox"/> Adequate anchorage <input type="checkbox"/> Guardrail system <input type="checkbox"/> Covered opening <input type="checkbox"/> Fixed barricades <input type="checkbox"/> Warning system	<b>Air Monitoring</b> <input type="checkbox"/> PID/FID <input type="checkbox"/> Detector tubes <input type="checkbox"/> Radiation <input type="checkbox"/> Personnel sampling <input type="checkbox"/> LEL/O2 <input type="checkbox"/> Other	<b>Proper Equipment</b> <input type="checkbox"/> Aerial lift/ladders/scaffolds <input type="checkbox"/> Forklift/heavy equipment <input type="checkbox"/> Backup alarms <input type="checkbox"/> Hand/power tools <input type="checkbox"/> Crane with current inspection <input type="checkbox"/> Proper rigging <input type="checkbox"/> Operator qualified	<b>Welding &amp; Cutting</b> <input type="checkbox"/> Cylinders secured/capped <input type="checkbox"/> Cylinders separated/upright <input type="checkbox"/> Flash-back arrestors <input type="checkbox"/> No cylinders in CSE <input type="checkbox"/> Flame retardant clothing <input type="checkbox"/> Appropriate goggles
<b>Confined Space Entry</b> <input type="checkbox"/> Isolation <input type="checkbox"/> Air monitoring <input type="checkbox"/> Trained personnel <input type="checkbox"/> Permit completed <input type="checkbox"/> Rescue	<b>Medical/ER</b> <input type="checkbox"/> First-aid kit <input type="checkbox"/> Eye wash <input type="checkbox"/> FA-CPR trained personnel <input type="checkbox"/> Route to hospital	<b>Heat/Cold Stress</b> <input type="checkbox"/> Work/rest regime <input type="checkbox"/> Rest area <input type="checkbox"/> Liquids available <input type="checkbox"/> Monitoring <input type="checkbox"/> Training	<b>Vehicle/Traffic</b> <input type="checkbox"/> Traffic control <input type="checkbox"/> Barricades <input type="checkbox"/> Flags <input type="checkbox"/> Signs
<b>Permits</b> <input type="checkbox"/> Hot work <input type="checkbox"/> Confined space <input type="checkbox"/> Lockout/tagout <input type="checkbox"/> Excavation <input type="checkbox"/> Demolition <input type="checkbox"/> Energized work	<b>Demolition</b> <input type="checkbox"/> Pre-demolition survey <input type="checkbox"/> Structure condition <input type="checkbox"/> Isolate area/utilities <input type="checkbox"/> Competent person <input type="checkbox"/> Hazmat present	<b>Inspections:</b> <input type="checkbox"/> Ladders/aerial lifts <input type="checkbox"/> Lanyards/harness <input type="checkbox"/> Scaffolds <input type="checkbox"/> Heavy equipment <input type="checkbox"/> Cranes and rigging	<b>Training:</b> <input type="checkbox"/> Hazwaste <input type="checkbox"/> Construction <input type="checkbox"/> Competent person <input type="checkbox"/> Task-specific (THA) <input type="checkbox"/> Hazcom
<b>Field Notes:</b> _____ _____ _____			

Name (Print): \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

<b>Activity:</b> Special-Status Plant Species Survey	<b>Date:</b> 04/15/08
	<b>Project:</b> Kilarc-Cow Creek Hydroelectric Project – Special-Status Plant Species Survey
<b>Description of the work:</b> Conduct a survey for special-status plants species along the proposed access roads, canals, and impoundments to be decommissioned as part of the Kilarc-Cow Creek Hydroelectric Project. The surveys will be conducted on foot and locations of identified special-status plants species will be recorded on field maps. Work trucks will be used to access survey sites within the project area.	<b>Site Supervisor:</b> Colby Boggs – North State Resources, Inc.
	<b>Site Safety Officer:</b> Colby Boggs – North State Resources, Inc.
	<b>Review for latest use: Before the job is performed.</b>

<b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)	<b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)	<b>Hazard Controls</b> (Develop specific controls for each potential hazard)
Operating vehicle travel to and from project site	Hazards associated with vehicle travel on major highways and dirt roads: breakdowns, flat tires, collisions, maintenance, collision with animals, skidding of road, icy/muddy roads, poor visibility, backing, obstacles in roadway	General: Daily vehicle condition inspection (check fluids, tire pressure, wipers, lights, etc.); use defensive driving techniques, identify evacuation routes and air ambulance pick up locations; drivers shall not use cell phone while driving; carry emergency equipment (shovel, fire extinguisher, first aid kit); check spare and tire removal equipment. Passengers must ride inside the cab only – no passengers in the truck bed. Forest Roads: Drive at safe speeds; use seat belts; use lights; use care around brush; clear roadway instead of driving around; drive on main roadway; check road conditions; follow safe distance; keep windows clean; park so you don't have to back up to leave (use a spotter, always face danger); use low gears when descending; chock tires or set parking brake. Watch out for oncoming vehicles when driving on single lane roads – use turnouts. Passengers in truck must ride inside the cab – no passengers should ride in the truck bed.
Walking/Working in the field (variable terrain)	Hazards for walking/working in the field: falling/poor footing, falling objects; damage to eyes; bee/wasp stings; ticks; rattlesnakes; bears/mountain lions; poison oak; illegal activities (marijuana activities); exposure to livestock such as cows and bulls; accident/injury response; and exposure to bloodborne pathogens may occur when rendering first aid or CPR.	Falling/poor footing: watch footing; use caution around logs, rock burrows; use alternate routes on steep slopes; appropriate footwear. Eye damage: watch for brush and branches; wear sunglasses or eye protection. Bee/wasp stings: watch for allergic reactions with bee stings; notify dispatcher and get person to doctor immediately; flag known nests; pack

<p align="center"><b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)</p>	<p align="center"><b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)</p>	<p align="center"><b>Hazard Controls</b> (Develop specific controls for each potential hazard)</p>
<p>Walking/Working in the field (continued from previous page)</p>		<p>appropriate treatment (inhaler, Benadryl, Epi-pen) if you are prone to a reaction; Do not administer medication that is not prescribed to the recipient.</p> <p>Ticks: wear long sleeves; tuck pants into socks or boots; visually check in field and at home.</p> <p>Rattlesnakes: watch footing for rattlesnakes; retreat from rattlesnakes, negotiate and new path to avoid; wear appropriate footwear or snake guards</p> <p>Bears/Mountain lions: Dangerous when they feel threatened, sow with cubs, near den, obstructing their path; never approach bears, make noise; look big, never crouch or bend over, make eye contact, if bear/lion attacks, fight back; if they don't leave, you should.</p> <p>Poison oak: learn to identify; avoid bushes if possible; wear long sleeves; tuck in pants into socks or boots; use prophylactic oils and after exposure cleansers (Tecnu), don't wear exposed clothing twice without laundering.</p> <p>Illegal activities: If evidence of irrigation, planting equipment or anything suspicious is observed, leave immediately, note location and notify your supervisor.</p> <p>Livestock: During pedestrian surveys, make your presence known and allow livestock enough room to avoid confrontation; do not verbally or physically harass livestock. Drive slowly where livestock is free to roam over roads.</p> <p>Accident/injury: Review emergency procedures. Confirm emergency telephone numbers, evacuation routes, assembly areas, and route to hospital and communicate this information to all onsite personnel. Designate emergency vehicle for field teams and keep keys in a safe location known to all field staff. Inventory and check site emergency equipment, supplies and potable water.</p> <p>Bloodborne pathogens: Exposure controls and personal protective equipment in first aid kit.</p>
<p>Stream Crossings</p>	<p>Footing, swift water, balance</p>	<p>Footing: Cross logs on hands and knees, walk through in appropriate footwear or tennis shoes, put on dry boots once across</p> <p>Balance: Use walking stick or pole for balance</p> <p>Swift water: avoid swift water, do not cross water deeper than mid-thigh.</p>

<p align="center"><b>Work Activity Sequence</b> (Identify the principal steps involved and the sequence of work activities)</p>	<p align="center"><b>Potential Health and Safety Hazards</b> (Analyze each principal step for potential hazards)</p>	<p align="center"><b>Hazard Controls</b> (Develop specific controls for each potential hazard)</p>
<p>Communication</p>	<p>Safety, crew unity, lost</p>	<p>Talk to each other, know where fellow crew members are; carry radios and spare batteries, have back up communications plan using cell phones and/or radios; have a meeting time and place; let someone know your exact location and time of return; if lost, don't panic, look at topo map and try to find a recognizable reference point, radio your partner.</p> <p><i>Power Generation Filed Work Notification, PG-S071 rev 1</i> must be submitted to the PG&amp;E power generation supervisor at least three business days prior to field work. Each team must call the PG&amp;E switching center at the beginning and end of each field day (530.335-5660). As cell phone coverage is not available in some areas, plan accordingly.</p>
<p>Environmental Considerations</p>	<p>Heat stress, cold stress, wind</p>	<p>Heat stress: Be aware of weather conditions, dress appropriately; know symptoms of heat exhaustion, heat cramps, heat stroke; drink small amounts of water throughout the day, acclimatize to heat over a period of weeks, workload and duration of physical exertion may need altered to acclimatize; eat as well as consume water to maintain electrolytes; carry enough water - each person must have at least two gallons of water available during a day; and don't drink water from streams (<i>giardia</i>) unless water is properly treated (e.g., water filter).</p> <p>Cold stress: Dress in layers; wear head protection; maintain energy level; acclimatize to cold climates; maintain adequate food and water intake; be aware of weather conditions. Appropriate rain gear is a must in cool weather. Team members should observe one another for initial signs of cold-related or heat-related disorders.</p> <p>Wind: Wind affects heat loss; avoid working in old, defective timber especially hardwoods due to snag hazards.</p>

<b>Equipment to be used</b> (List equipment to be used in the work activity)	<b>Inspection Requirements</b> (List inspection requirements for the work activity)	<b>Training Requirements</b> (List training requirements including hazard communication)
Field Vehicle	Ensure that vehicle is safe to operate prior to field work.	None
Cameras	Ensure that cameras are in good working order prior to field work and that extra batteries and memory sticks are provided for field staff.	None

**PRINT NAME**

**SIGNATURE**

**Supervisor Name:** \_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Safety Officer Name:** \_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**Employee Name(s):** \_\_\_\_\_

\_\_\_\_\_

**Date/Time:** \_\_\_\_\_

**EXHIBIT D**

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***Table D-1: Vascular Plant Species Observed at  
the Cow Creek Development Study Area***

**Table D-1: Vascular Plant Species Observed at the Cow Creek Development Study Area**

Survey Dates: April 18 and April 22, 2008

Surveyors: Chris Riddle and Merissa Hanisko

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<b>Foothill Woodland / Mixed Conifer Type</b>		
<i>Acer macrophyllum</i>	big leaf maple	Aceraceae
<i>Aesculus californica</i>	california buckeye	Hippocastanaceae
<i>Agoseris retrorsa</i>	mountain dandelion	Poaceae
<i>Aira caryophyllea</i>	european hairgrass	Poaceae
<i>Allium</i> sp. (not a rare taxon)	onion	Liliaceae
<i>Alnus rhombifolia</i>	white alder	Betulaceae
<i>Anaphalis margaritacea</i>	pearly everlasting	Asteraceae
<i>Apocynum androsaemifolium</i>	dogbane	Apocynaceae
<i>Arceuthobium americanum</i>	dwarf mistletoe	Viscaceae
<i>Arctostaphylos patula</i>	green leaf manzanita	Ericaceae
<i>Arctostaphylos viscida</i>	white leaf manzanita	Ericaceae
<i>Aristolochia californica</i>	dutchmans pipe	Aristolochiaceae
<i>Asarum hartwegii</i>	wild ginger	Aristolochiaceae
<i>Asclepias</i> sp.	milkweed	Asclepiadaceae
<i>Avena barbata</i>	oat	Poaceae
<i>Balsamorhiza deltoidea</i>	balsamroot	Asteraceae
<i>Balsamorhiza macrolepis</i> var. <i>macrolepis</i>	big-scale balsamroot	Asteraceae
<i>Berberis aquifolium</i>	oregon grape	Berberidaceae
<i>Bromus diandrus</i>	rip gut brome	Poaceae
<i>Bromus hordeaceus</i>	brome	Poaceae
<i>Bromus tectorum</i>	cheatgrass	Poaceae
<i>Calocedrus decurrens</i>	incense cedar	Cupressaceae
<i>Calochortus monophyllus</i>	mariposa lily	Liliaceae
<i>Carex multicaulis</i>	sedge	Cyperaceae
<i>Carex</i> sp. (not a rare taxon)	sedge	Cyperaceae
<i>Castilleja applegatei</i>	wavy-leaved indian paintbrush	Scrophulariaceae
<i>Ceanothus cuneatus</i>	buck brush	Rhamnaceae
<i>Ceanothus integerrimus</i>	deer brush	Rhamnaceae
<i>Ceanothus lemmonii</i>	california lilac	Rhamnaceae
<i>Cercocarpus betuloides</i>	birch-leaf mountain mohogany	Rhamnaceae
<i>Cersis occidentalis</i>	redbud	Fabaceae
<i>Chlorogalum pomeridianum</i>	soap plant	Liliaceae
<i>Cirsium vulgare</i>	bull thistle	Asteraceae
<i>Claytonia parviflora</i>	miners lettuce	Portulacaceae
<i>Convolvulus</i> sp.	morning glory	Convolvulaceae
<i>Cynoglossum grande</i>	hound's tongue	Boraginaceae
<i>Cynosurus dactylis</i>	dogtail	Poaceae
<i>Delphinium nudicale</i>	red larkspur	Scrophulariaceae
<i>Dicentra formosa</i>	bleeding heart	Papaveraceae
<i>Dichelostemma capitatum</i>	blue dicks	Liliaceae
<i>Dodecatheon hendersonii</i>	mosquito bills	Primulaceae
<i>Draba</i> sp.	draba	Brassicaceae
<i>Eriogonum</i> sp.	buckwheat	Polygonaceae

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<b>Foothill Woodland / Mixed Conifer Type (cont.)</b>		
<i>Eriophyllum lanatum</i>	wooly sunflower	Asteraceae
<i>Erisimum capitatum</i>	western wallflower	Brassicaceae
<i>Fritillaria recurva</i>	scarlet fritillary	Liliaceae
<i>Galium aparine</i>	goose grass	Rubiaceae
<i>Galium bolanderi</i>	bolander's bedstraw	Rubiaceae
<i>Geranium molle</i>	wild geranium	Geraniaceae
<i>Heuchera</i> sp.	alum root	Saxifragaceae
<i>Hypericum perforatum</i>	klamath weed	Hypericaceae
<i>Juncus tenuis</i>	rush	Juncaceae
<i>Lactuca serriola</i>	prickly lettuce	Asteraceae
<i>Linaria vulgaris</i>	butter and eggs	Scrophulariaceae
<i>Lolium perenne</i>	ryegrass	Poaceae
<i>Lomatium</i> sp.	lomatium	Apiaceae
<i>Lonicera hispidula</i>	chaparral honeysuckle	Caprifoliaceae
<i>Lotus micranthus</i>	lotus	Fabaceae
<i>Lotus</i> sp.	lotus	Fabaceae
<i>Lupinus bicolor</i>	miniature lupine	Fabaceae
<i>Lupinus</i> sp.	lupine	Fabaceae
<i>Luzula comosa</i>	wood rush	Juncaceae
<i>Medicago lupulina</i>	yellow trefoil	Fabaceae
<i>Monardella</i> sp.	coyote mint	Lamiaceae
<i>Nasella</i> sp.	needlegrass	Poaceae
<i>Nemophila heterophylla</i>	fivespot	Hydrophyllaceae
<i>Osmorhiza chilensis</i>	sweetsicily	Apiaceae
<i>Paxistima myrsinites</i>	oregon boxwood	Celastraceae
<i>Pedicularis densiflora</i>	indian warrior	Scrophulariaceae
<i>Pentagramma triangularis</i>	goldback fern	Pteridaceae
<i>Petrorhagia dubius</i>	pink	Caryophyllaceae
<i>Philadelphus lewisii</i>	mock orange	Philadelphaceae
<i>Phoradendron villosum</i>	oak mistletoe	Viscaceae
<i>Pinus ponderosa</i>	yellow pine	Pinaceae
<i>Pinus sabiniana</i>	grey pine	Pinaceae
<i>Plantago lanceolata</i>	english plantain	Plantaginaceae
<i>Poa bulbosa</i>	bulbous poa	Poaceae
<i>Polygala cornuta</i>	milkwort	Polygalaceae
<i>Polypodium calirhiza</i>	polypody	Polypodiaceae
<i>Polystichum munitum</i>	sword fern	Dryopteridaceae
<i>Populus fremontii</i>	fremont cottonwood	Salicaceae
<i>Prunella vulgaris</i>	self heal	Lamiaceae
<i>Prunus subcordata</i>	wild cherry	Rosaceae
<i>Pseudotsuga menziesii</i>	douglas-fir	Pinaceae
<i>Quercus chrysolepis</i>	canyon live oak	Fagaceae
<i>Quercus garryana</i>	oregon white oak	Fagaceae
<i>Quercus kelloggii</i>	california black oak	Fagaceae
<i>Quercus wislizeni</i>	interior live oak	Fagaceae
<i>Ranunculus</i> sp.	buttercup	Ranunculaceae
<i>Rhamnus illicifolia</i>	holly-leaf redberry	Rhamnaceae
<i>Rhamnus tomentella</i>	hoary coffeeberry	Rhamnaceae
<i>Rosa gymnocarpa</i>	wood rose	Rosaceae

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<b>Foothill Woodland / Mixed Conifer Type (cont.)</b>		
<i>Rubus discolor</i>	himalayan blackberry	Rosaceae
<i>Rubus laciniatus</i>	cut-leaved blackberry	Rosaceae
<i>Rumex crispus</i>	curly dock	Polygonaceae
<i>Sanicula tuberosa</i>	sanicle	Apiaceae
<i>Selaginella hansenii</i>	spike-moss	Selaginellaceae
<i>Sisyrinchium</i> sp.	blue-eyed grass	Iridaceae
<i>Symphoricarpos albus</i>	common snow berry	Caprifoliaceae
<i>Taraxacum officinale</i>	dandelion	Asteraceae
<i>Thysanocarpus curvipes</i>	fringe-pod	Brassicaceae
<i>Torilis arvensis</i>	torilis	Apiaceae
<i>Toxicodendrom diversilobum</i>	poison oak	Anacardiaceae
<i>Trientalis latifolia</i>	western star flower	Primulaceae
<i>Trifolium hirtum</i>	rose clover	Fabaceae
<i>Trifolium</i> sp.	clover	Fabaceae
<i>Umbellularia californica</i>	california bay-laurel	Lauraceae
<i>Vicea sativa</i> ssp. <i>nigra</i>	common vetch	Fabaceae
<i>Vitis californica</i>	wild grape	Vitaceae

#### Riparian Type

<i>Adiantum capillus-veneris</i>	maiden-hair fern	Pteridaceae
<i>Alnus rhombifolia</i>	white alder	Betulaceae
<i>Artemesia douglasiana</i>	mugwort	Asteraceae
<i>Carex</i> sp. (not a rare taxon)	sedge	Cyperaceae
<i>Carex</i> sp. (not a rare taxon)	sedge	Cyperaceae
<i>Conium maculatum</i>	poison hemlock	Apiaceae
<i>Cystopteris fragilis</i>	fragile fern	Dryopteridaceae
<i>Darmera peltata</i>	indian rhubarb	Saxifragaceae
<i>Equisetum arvense</i>	horsetail	Equisetaceae
<i>Equisetum hyemale</i> ssp. <i>affine</i>	scouring rush	Equisetaceae
<i>Juncus effusus</i>	rush	Juncaceae
<i>Kelloggia galioides</i>	kelloggia	Rubiaceae
<i>Poa</i> sp.	poa	Poaceae
<i>Potentilla</i> sp.	cinquefoil	Ranunculaceae
<i>Salix exigua</i>	narrow-leaved willow	Salicaceae
<i>Salix laevigata</i>	red willow	Salicaceae

#### Oak Savannah Type

<i>Amsinckia</i> sp.	Fiddleneck	Boraginaceae
<i>Avena barbata</i>	oat	Poaceae
<i>Bromus diandrus</i>	ripgut brome	Poaceae
<i>Bromus horedeaceus</i>	brome	Poaceae
<i>Castilleja</i> sp.	indian paintbrush	Scrophulariaceae
<i>Chammomila suaveolens</i>	pinapple weed	Asteraceae
<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae
<i>Cynosurus echinatus</i>	dogtail	Poaceae
<i>Dichelostemma capitatum</i>	blue dicks	Liliaceae
<i>Erodium brachycarpum</i>	storks bill fillaree	Geraniaceae

<b>Scientific Name</b>	<b>Common Name</b>	<b>Family Name</b>
<b>Oak Savannah Type (cont.)</b>		
<i>Geranium molle</i>	geranium	Geraniaceae
<i>Hordeum</i> sp.	barley	Poaceae
<i>Lepidium</i> sp.	peppergrass	Brassicaceae
<i>Linaria vulgaris</i>	toadflax	Scrophulariaceae
<i>Lotus wrangelianus</i>	lotus	Fabaceae
<i>Lupinus bicolor</i>	miniature lupine	Fabaceae
<i>Lupinus</i> sp.	lupine	Fabaceae
<i>Medicago polymorpha</i>	burclover	Fabaceae
<i>Pentagramma triangularis</i>	goldback fern	Pteridaceae
<i>Petrorhagia dubia</i>	pink	Caryophyllaceae
<i>Pinus sabiniana</i>	grey pine	Pinaceae
<i>Plantago minima</i>	plantain	Plantaginaceae
<i>Poa bulbosa</i>	poa	Poaceae
<i>Quercus douglasii</i>	blue oak	Fagaceae
<i>Quercus lobata</i>	california white oak	Fagaceae
<i>Quercus wislizeni</i>	interior live oak	Fagaceae
<i>Ranunculus barbata</i>	buttercup	Ranunculaceae
<i>Ranunculus</i> sp.	buttercup	Ranunculaceae
<i>Rhamnus tomentella</i>	hoary coffeeberry	Rhamnaceae
<i>Rumex crispus</i>	curly dock	Polygonaceae
<i>Sagina apetala</i>	pearlwort	Caryophyllaceae
<i>Senecio jacobaea</i>	old man in spring	Asteraceae
<i>Sherardia arvensis</i>	field madder	Rubiaceae
<i>Stellaria</i> sp.	chickweed	Caryophyllaceae
<i>Taeniatherum caput-medusae</i>	medusa head	Poaceae
<i>Torilis arvensis</i>	torilis	Apiaceae
<i>Toxicodendron diversilobum</i>	poison oak	Anacardiaceae
<i>Trifolium hirtum</i>	rose clover	Fabaceae
<i>Trifolium</i> sp.	clover	Fabaceae
<i>Vicea sativa</i> ssp. <i>nigra</i>	vetch	Fabaceae
<i>Vicea villosa</i>	vetch	Fabaceae
<i>Vulpia</i> sp.	vulpia	Poaceae
<i>Zigadenus venenosus</i>	death camas	Liliaceae

**EXHIBIT E**

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***NSR Special-Status Plant Species Occurrence Discovery Record for  
Balsamorhiza macrolepis var. macrolepis  
Representative Photographs of  
Balsamorhiza macrolepis var. macrolepis***



## SPECIAL-STATUS PLANT SPECIES OCCURRENCE DISCOVERY RECORD

**DISCOVERY DATE:** 21 April 2008 and 22 April 2008    **DISCOVERED BY:** Boggs & Kelly and Hanisko & Riddle

**SPECIES:** *Balsamorhiza macrolepis* var. *macrolepis*

**OCCURRENCE IDENTIFIER:** BAMAMA 1

### LOCATION

**STUDY AREA UNIT:** Cow    **VISIT NUMBER:** 1

**QUAD(S):** Inwood, CA    **LOCATION (directions, landmarks, etc.):** adjacent to new access road

**UTM Zone:** 10T    **Easting:** 4492841    **Northing:** 0585530

### OCCURRENCE

POINT or  POLYGON (check one)

**SIZE (sq. ft.):** 24    **NUMBER of INDIVIDUALS:** 23

**DESCRIPTION (phenology, age class, density, etc.):** ~75% of individuals in bloom; many of the small individuals not in bloom

### PHOTOGRAPHIC DOCUMENTATION

**PROVIDE PHOTO # and DESCRIPTION (e.g., close-up, looking north, associated habitat, etc.):**  
21 April – Photo 1 (habitat), Photo 2 (close-up); 22 April – Photo 3 (close-up), Photo 4 (habitat)

### HABITAT

**ELEVATION (feet):** 1690    **ASPECT (degrees):** 225    **SLOPE (percent):** 15

**PLANT COMMUNITY:** Blue Oak Woodland

**SOILS**

**SOIL MAP UNIT NAME (NRCS CODE):** TcE – Toomes very rocky loam, 0 to 50 percent slopes

**TEXTURE (e.g., clay loam):** very rocky clay loam

**DISTURBANCE**

**NATURE of DISTURBANCE:** None

**CURRENT CONDITION of OCCURRENCE:** Stable

**POSSIBLE FUTURE THREATS:** widening and/or regrading road, spraying herbicides, and other improvements to and/or maintenance of road

**ASSOCIATED PLANTS LIST [\* = dominant(s) for each group]**

**TREES:**

*Quercus douglasii*\*  
*Pinus sabiniana*

**SHRUBS:**

none

**HERBS:**

*Dichelostemma capitatum*  
*Lupinus bicolor*  
*Avena barbata*\*  
*Chlorogalum pomeridianum*  
*Bromus sp.*\*  
*Ranunculus occidentalis*



Photo 1 - view of habitat associated with *Balsamorhiza macrolepis* var. *macrolepis*; note proximity to existing road



Photo 2 - close-up view of *Balsamorhiza macrolepis* var. *macrolepis*



Photo 3 - another close-up view of *Balsamorhiza macrolepis* var. *macrolepis*



Photo 4 - another view of habitat associated with *Balsamorhiza macrolepis* var. *macrolepis*

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