E-4: Line 407 East Additional Rare Plant Survey

GALLAWAY
CONSULTING, INC.

August 6, 2007

Attn: Benjamin Hart
TRC
80 Stone Pine Road, Suite 200
Half Moon Bay, CA 94019

Re: PG&E Line 407 East Additional Rare Plant Survey (GCI Project # 2006-043)

Dear Mr. Hart,

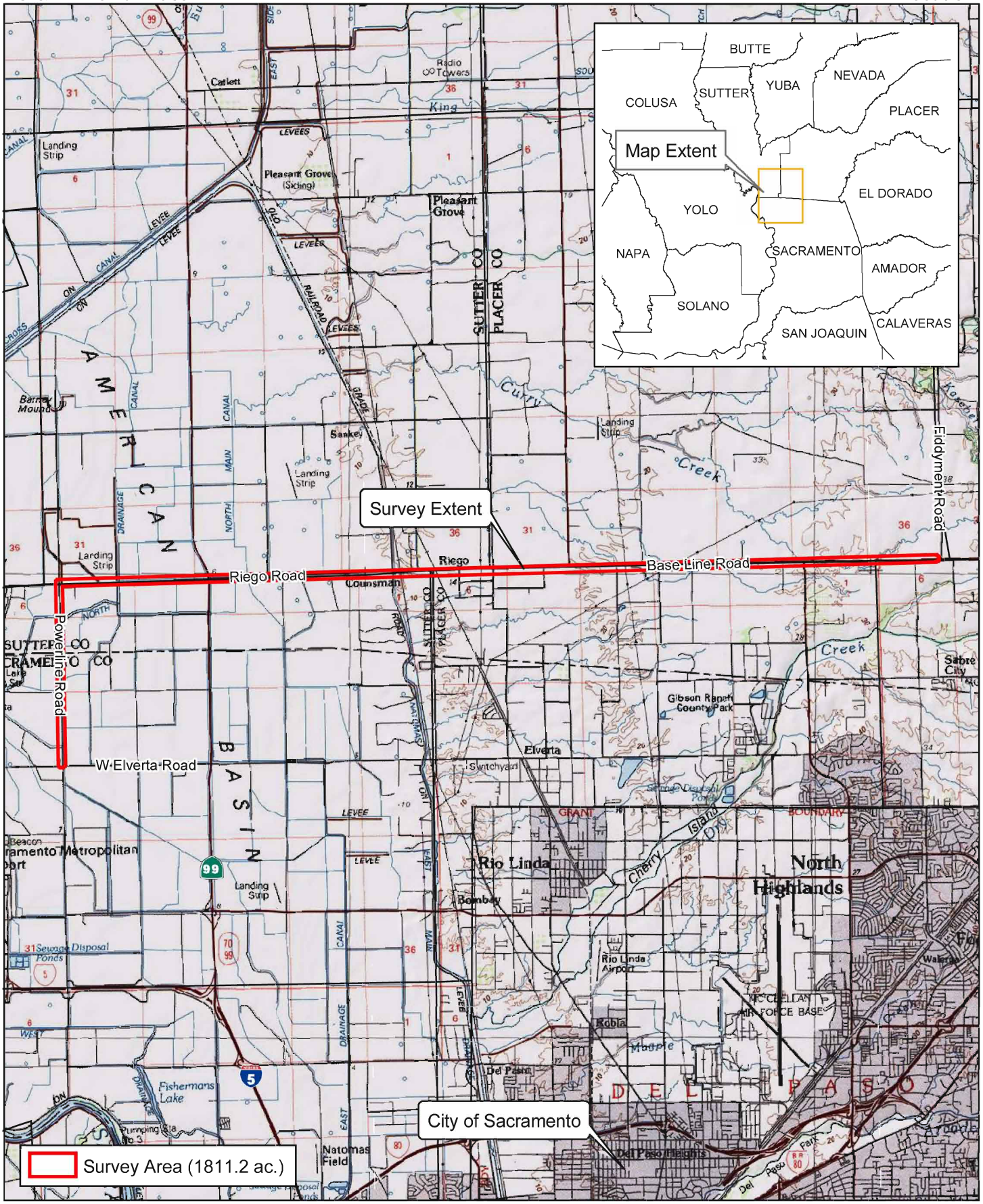
As requested, Gallaway Consulting, Inc. (GCI) conducted a protocol-level botanical survey for the PG&E Line 407 East project (project) in Placer, Sacramento, and Sutter Counties, California on May 14, 2007 in portions of the survey area that were previously inaccessible (GCI, August 2006). The California Native Plant Society (CNPS) database was utilized to compile a list of special-status plant species with a potential to occur within a 1000-foot survey corridor centered on the proposed natural gas pipeline alignment (**Attachment A**).

Biological Setting

The study area encompasses a 1811.2 acre corridor of rural, urban, and developed land in portions of Verona, Rio Linda, Roseville, Citrus Heights, Taylor Monument, and Pleasant Grove U. S. Geological Survey (USGS) quadrangles (**Figure 1**).

The Property is composed of flat to gently sloping annual grassland in the Sacramento Central Valley in the northern California Floristic Province. Habitat types occurring within the project include rice fields, annual grassland, urban/residential, fresh emergent wetland, riverine, and irrigated row crop fields. Additionally, multiple vernal pools occur within the survey area. Due to below average rainfall and the unseasonably long dry period during the 2006-2007 winter, the amount of plant seed germination was reduced from previous years. Additionally, the considerable dry period created an early spring growing season and plants which normally bloom in late spring to early summer were already in bloom during the time of this plant survey. The survey area does, however, contain potentially suitable habitat for the sixteen special-status plant species on the CNPS list compiled and California Natural Diversity Database (CNDDB) occurrences for three CNPS list 1B plant species were found within 5-miles of the project (**Figure 2**).

PG & E Line 407 East **Location**



USGS 7.5' Quad.
Map Date: July 5, 2006.

0 1 2 Miles

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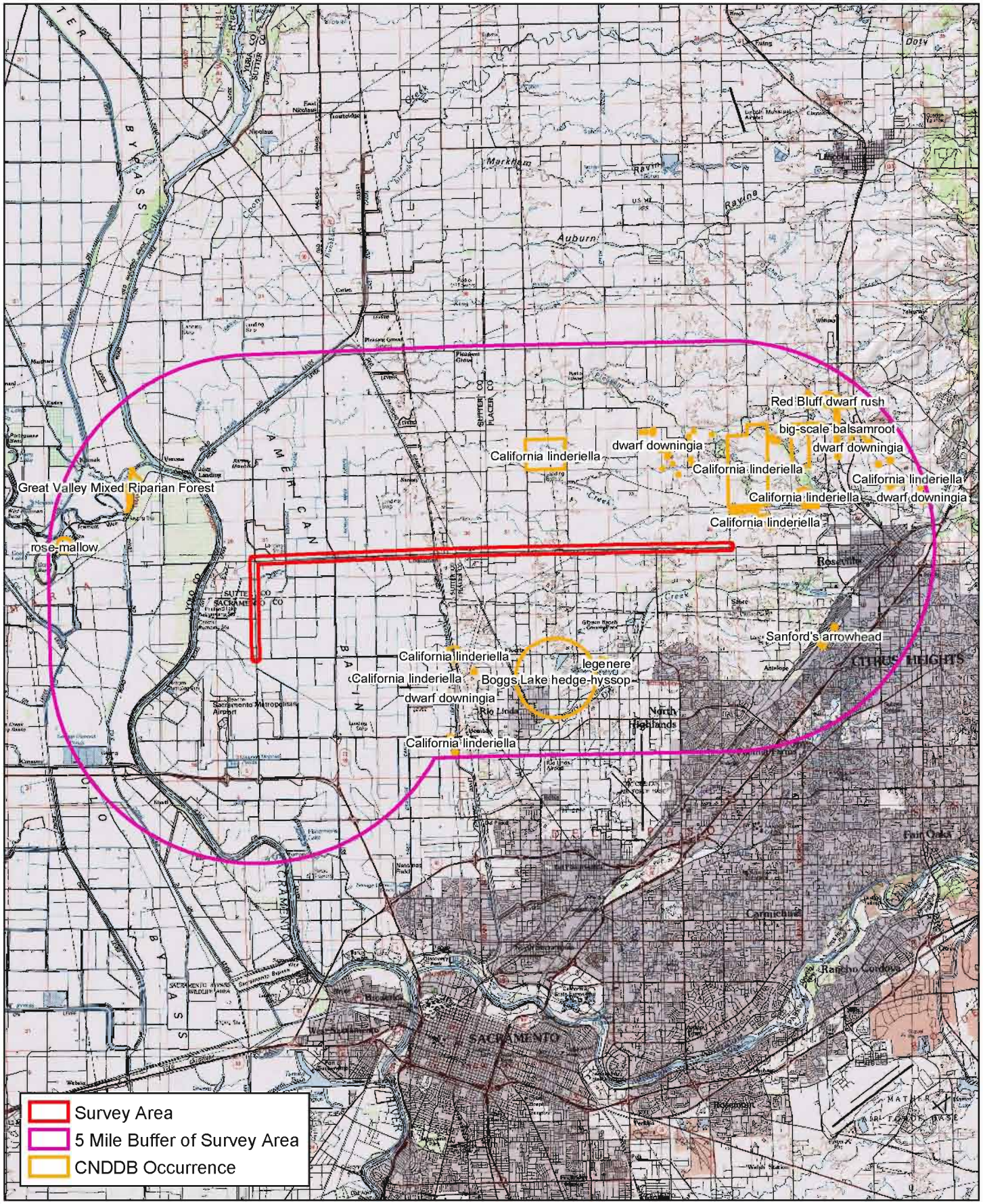
Figure 1.

PG&E Line 407 East **CNDDB Occurrence**



CNDDB Occurrence provided by CDFG (Feb. 7, 2006).
CNDDB occurrences inlcude plants only.
Map Date: July 27, 2006.

0 1 2 4 Miles

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Figure 2.

Methodology

A list of special-status plant species with the potential to occur within the survey area was compiled using the CNPS and CNDDB databases located online. The list of plant species surveyed for onsite is presented in **Table 1**.

The protocol-level plant survey was conducted on May 14, 2007, during the appropriate flowering window of the target species identified in the records search, by GCI botanist Elena Alfieri and assisted by biologist Breanna Owens (see **Attachment B** for Botanist Qualifications). Surveys were conducted in accordance with the U.S. Fish and Wildlife Service (USFWS) *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (January 2000) and the California Department of Fish and Game (CDFG) *Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, Endangered Plants and Natural Communities* (May 2000) (**Attachment C**). The portions of the project that were inaccessible during the original survey in 2006 were surveyed on foot and all suitable habitat was closely inspected for special-status plant species.

If target species were located during the survey, a Trimble GeoXT would be used to record population occurrences as vegetation 'areas' or 'points'. Vegetation *areas* typically consist of populations where plants occur consistently with no more than 15-20 ft. between groupings; whereas *points* are isolated spot locations that do not exceed 10 individual plants. Population sizes would be estimated by one of the following methods:

1. Hand counting of each plant, particularly where population sizes are small.
2. Using estimated head/flower counts to tally plants in densely populated areas.
3. Using plant density estimation through an arbitrary number of meter tape counts which would be conducted in representative populations. Plant counts would then ultimately be estimated by multiplying the average plant/m^2 by total vegetation area (m^2).

Results

No special-status plant species were observed in the survey area during the field survey on May 14, 2007. Though two occurrences of dwarf downingia were found nearby by GCI botanists in the project area surveyed in May of 2006, this plant species was not observed during the May 14, 2007 protocol-level plant survey conducted in the previously inaccessible portions of the project (**Figure 3**). In addition, CNDDB occurrences for Bogg's Lake hedge-hyssop, Sanford's arrowhead, legenere, big-scale balsamroot, Redbluff dwarf rush, and rose mallow were also found within 5-miles of the project, however, these species were also not observed during the 2007 protocol-level plant survey (**Figure 2**).

Table 1. Special-status Plant Species that Occur, or May Occur within the PG&E Line 407 East Project Area, Placer, Sutter and Sacramento Counties, CA.

Common Name (*Scientific Name*)	**Status** Fed/State/ CNPS	**Associated Habitats**	**Potential for Occurrence***
Ahart's Dwarf Rush (*Juncus leiospermus var. ahartii*)	__/__/1B	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, vernal pools / vernally mesic areas. (Mar-May)	None. Not detected during protocol-level surveys.
Big-scale Balsam Root (*Balsamorhiza macrolepis* var. *macrolepis*)	__/__/1B	Cismontane woodlands and chaparral. Valley and Foothill grasslands. Sometimes serpentinite. (Mar-June)	None. Not detected during protocol-level surveys.
Bogg's Lake Hedge-Hyssop (*Gratiola heterosepala*)	__/SE/1B	Marshes and swamps. Vernal pools. (Apr-Aug)	None. Not detected during protocol-level surveys.
Brittlescale (*Atriplex depressa)*	__/__/1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, and vernal pools (alkaline, clay). (May-Oct)	None. Not detected during protocol-level surveys.
Dwarf Downingia (*Downingia pusilla*)	__/__/2	Valley and foothill grasslands. Vernal pools. (Mar-May)	None. Not detected during protocol-level surveys.
Legenere (*Legenere limosa*)	__/__/1B	Vernal pools, 1-880 meters. (Apr-Jun)	None. Not detected during protocol-level surveys.
Ferris's Milk-vetch (*Astralagus tener* var. *ferrisiae*)	__/__/1B	Meadows and seeps, valley and foothill grassland. (Apr-May)	None. Not detected during protocol-level surveys.
Heartscale (*Atriplex cordulata)*	__/__/1B	Chenopod scrub, meadows and seeps, valley and foothill grassland (saline or alkaline). (Apr-Oct)	None. Not detected during protocol-level surveys.
Heckard's Peppergrass (*Lepidium latipes* var. *heckardii*)	__/__/1B	Valley and foothill grassland (alkaline flats). (Mar-May)	None. Not detected during protocol-level surveys.
Hispid Bird's-beak (*Cordylanthus mollis ssp. hispidus*)	__/__/1B	Meadows and seeps, playas, and alkaline valley and foothill grassland. (Jun-Sep)	None. Not detected during protocol-level surveys.
Palmate-bracted Bird's-beak (*Cordylanthus palmatus*)	FE/SE/1B	Seasonally-flooded, saline-alkali soils in lowland plains along the edges of channels and drainages. (May-Oct)	None. Not detected during protocol-level surveys.
Pincusion Navarretia (*Navarretia myersii* ssp. *myersii)*	__/__/1B	Vernal pools. (May)	None. Not detected during protocol-level surveys.
Red Bluff Dwarf Rush *(Juncus leiospermus* var. *leiospermus)*	__/__/1B	Chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland and vernal pools and habitats. (Mar-May)	None. Not detected during protocol-level surveys.
Rose-mallow (*Hibiscus lasiocarpus*)	__/__/2	Marshes and swamps (freshwater). (Jun-Sep)	None. Not detected during protocol-level surveys.
Sacramento Orcutt Grass (*Orcuttia viscida*)	FE/SE/1B	Vernal pools. (Apr-Jul)	None. Not detected during protocol-level surveys.
Sanford's Arrowhead (*Sagittaria sanfordii*)	__/__/1B	Marshes and swamps, assorted shallow freshwater. (May-Oct)	None. Not detected during protocol-level surveys.

San Joaquin Spearscale (*Atriplex joaquiniana*)	__/__/1B	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland (alkaline). (Apr-Oct)	None. Not detected during protocol-level surveys.

CODE DESIGNATIONS

FE = Federally-listed Endangered **FT** = Federally-listed Threatened **FC** = Federal Candidate Species **SE** = State-listed Endangered **ST** = State-listed Threatened	**CNPS 1B** = Rare or Endangered in California or elsewhere **CNPS 2** = rare or Endangered in California, more common elsewhere **CNPS 3** = More information is needed **CNPS 4** = Plants with limited distribution

***Potential for occurrence:** for plants it is considered the potential to occur during the survey period. The categories for the potential for occurrence include:

None: The species is known not to occur, and has no potential to occur onsite based on sufficient surveys, the lack of suitable habitat, and/or the site is well outside of the known distribution of the species.

Low: Potential habitat onsite is sub-marginal and the species is not known to occur in the vicinity of the property. Protocol-level surveys are not recommended.

Moderate: Suitable habitat is present onsite and the species is known to occur in the vicinity of the property.

High: Habitat onsite is highly suitable for the species and there are reliable records close to the site, but the species was not observed.

Known: Species was detected onsite or a recent reliable record exists for the property.

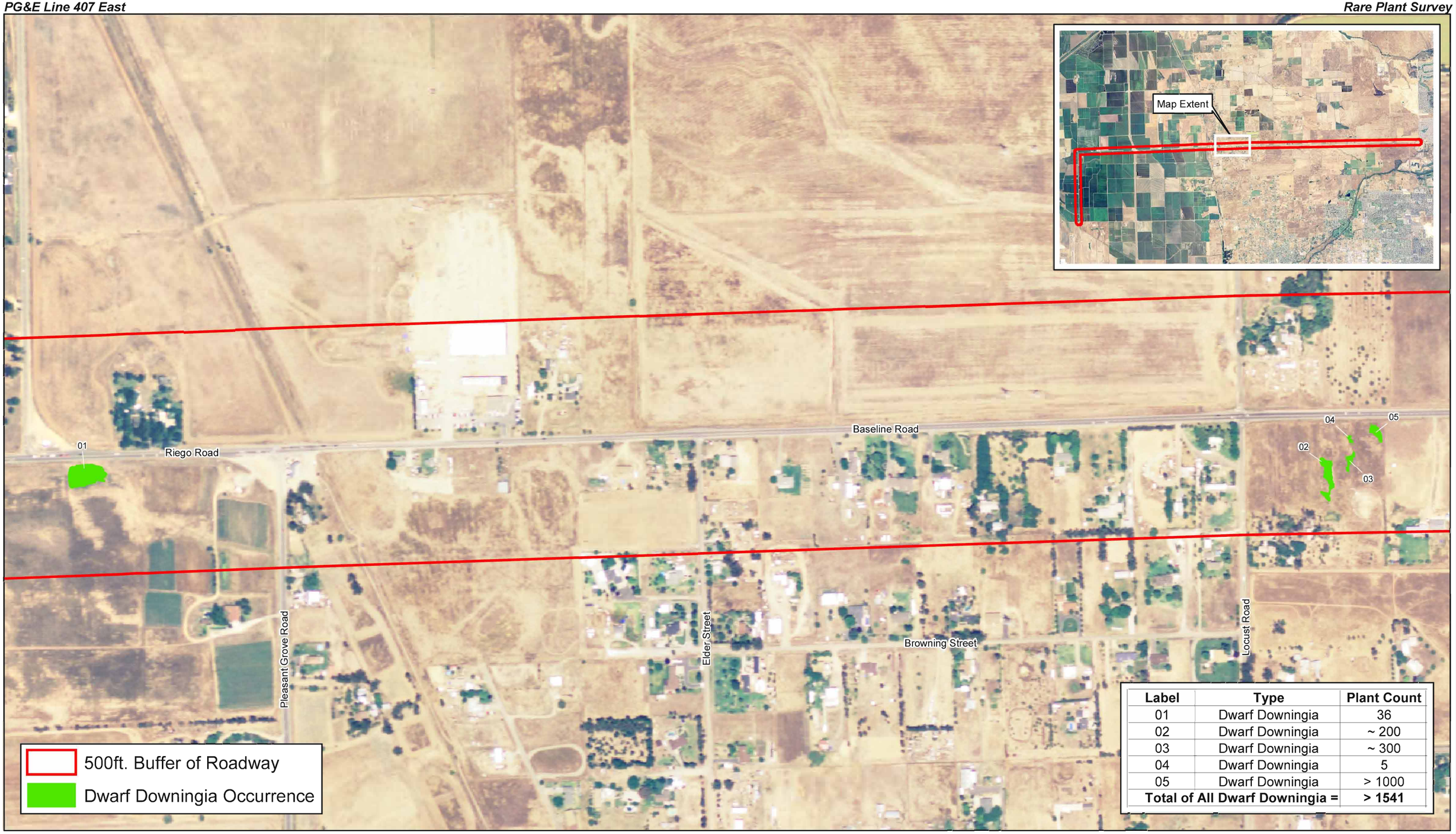
If you have any further questions or concerns, please feel free to call me at (530) 343-8327.

Sincerely,

_____

Elena Alfieri
Botanist, Gallaway Consulting, Inc.

Encl: **Attachments A, B, & C**



Label	Type	Plant Count
01	Dwarf Downingia	36
02	Dwarf Downingia	~ 200
03	Dwarf Downingia	~ 300
04	Dwarf Downingia	5
05	Dwarf Downingia	> 1000
Total of All Dwarf Downingia =		**> 1541**

Project site derived from 500 ft. buffer of road centerline.
Survey Dates: May 5, 2006/Surveyors: CK,SI,EA.
Date of Aerial: Feb. 2005 (NAIP).
Map Date: July 27, 2006/Revisions:

0 200 400 Feet

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Figure 3.

References

California Department of Fish and Game. 2006. Natural Diversity Data Base records search of the USGS Quadrangles within and adjacent to the Meadowview Drive Property. Sacramento, CA.

California Department of Fish and Game. 1983 (Revised May 2000). Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities. Sacramento, CA.

California Native Plant Society (CNPS). 2006. Inventory of Rare and Endangered Plants (online edition, v7-06a). California Native Plant Society. Sacramento, CA. Accessed on May 9, 2007 from http://www.cnps.org/inventory

Gallaway Consulting, Inc. August 2006. *Special Status and Listed Plant Report: PG&E Line 123 Extension/Line 407 (Phase 1)/Metro Air Park Distribution Feeder Main.* Chico, CA.

Hickman, James C., editor. 1993. *The Jepson Manual Higher Plants of California.* University of California Press, Berkeley.

Mayer, K.E. and W.F. Laudenslayer. 1988. A Guide to Wildlife Habitats of California. California Department of Forestry and Fire Protection. Sacramento, CA.

Sawyer, J.O. and T. Keeler-Wolf. 1995. A Manual of California Vegetation. California Native Plant Society. Sacramento, CA.

Skinner, M. and B. Pavlik. 2001. Inventory of rare and endangered vascular plants of California, 5th edition. California Native Plant Society. Sacramento, CA.

USFWS. 2000. Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants. Sacramento, CA.

ATTACHMENT A

CNPS 9 QUADRANGLE PLANT LIST

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:05 b

{QUADS_123} =~ m/513A|529C|529D|512B|512C|528C|513B|513(Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.] [search history]

Your Quad Selection: Taylor Monument (513A) 3812165, Knights Landing (529C) 3812176, Verona (529D) 3812175, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Pleasant Grove (528C) 3812174, Grays Bend (513B) 3812166, Davis (513C) 3812156, Sacramento West (513D) 3812155

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex cordulata	heartscale	Chenopodiaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:02 b

{QUADS_123} =~ m/528D|512A|512B|527B|527C|511B|528A|528E Search

Tip: Words meant to be searched as a unit should be wrapped in quotes, e.g., "coastal dunes". [all tips and help.] [search history]

Your Quad Selection: Roseville (528D) 3812173, Citrus Heights (512A) 3812163, Rio Linda (512B) 3812164, Gold Hill (527B) 3812182, Rocklin (527C) 3812172, Folsom (511B) 3812162, Lincoln (528A) 3812183, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174

Hits 1 to 11 of 11

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Clarkia biloba ssp. brandegeeae**	Brandegee's clarkia	Onagraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Navarretia myersii ssp. myersii**	pincushion navarretia	Polemoniaceae	List 1B.1
		1	**Orcuttia viscida**	Sacramento Orcutt grass	Poaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.


powered by
WODA

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:01 b

{QUADS_123} =~ m/512B|528C|528D|513A|513D|529D|512A|512(Search

Tip: Having trouble with a multi-word search? Try a single word, e.g. `ginger` or `cobra`.
[all tips and help.][search history]

Your Quad Selection: Rio Linda (512B) 3812164, Pleasant Grove (528C) 3812174, Roseville (528D) 3812173, Taylor Monument (513A) 3812165, Sacramento West (513D) 3812155, Verona (529D) 3812175, Citrus Heights (512A) 3812163, Sacramento East (512C) 3812154, Carmichael (512D) 3812153

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Balsamorhiza macrolepis var. macrolepis**	big-scale balsamroot	Asteraceae	List 1B.2
		1	**Cordylanthus mollis ssp. hispidus**	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	**Downingia pusilla**	dwarf downingia	Campanulaceae	List 2.2
		1	**Gratiola heterosepala**	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	**Hibiscus lasiocarpus**	rose-mallow	Malvaceae	List 2.2
		1	**Juncus leiospermus var. ahartii**	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	**Juncus leiospermus var. leiospermus**	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	**Legenere limosa**	legenere	Campanulaceae	List 1B.1
		1	**Sagittaria sanfordii**	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:06 b

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Tip: Word fragments must be completed with a wildcard, e.g., `esch* hyp*` for Eschscholzia hypecoides. [all tips and help.] [search history]

Your Quad Selection: Pleasant Grove (528C) 3812174, Citrus Heights (512A) 3812163, Rio Linda (512B) 3812164, Verona (529D) 3812175, Nicolaus (529A) 3812185, Taylor Monument (513A) 3812165, Roseville (528D) 3812173, Lincoln (528A) 3812183, Sheridan (528B) 3812184

Hits 1 to 9 of 9

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	Asteraceae	List 1B.2
		1	Cordylanthus mollis ssp. hispidus	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	List 1B.1
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:03 b

{QUADS_123} =~ m/512A|528C|528D|511B|511C|527C|512B|512(Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Citrus Heights (512A) 3812163, Pleasant Grove (528C) 3812174, Roseville (528D) 3812173, Folsom (511B) 3812162, Buffalo Creek (511C) 3812152, Rocklin (527C) 3812172, Rio Linda (512B) 3812164, Sacramento East (512C) 3812154, Carmichael (512D) 3812153

Hits 1 to 12 of 12

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Balsamorhiza macrolepis var. macrolepis	big-scale balsamroot	Asteraceae	List 1B.2
		1	Clarkia biloba ssp. brandegeeae	Brandegee's clarkia	Onagraceae	List 1B.2
		1	Cordylanthus mollis ssp. hispidus	hispid bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Juncus leiospermus var. ahartii	Ahart's dwarf rush	Juncaceae	List 1B.2
		1	Juncus leiospermus var. leiospermus	Red Bluff dwarf rush	Juncaceae	List 1B.1
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Navarretia myersii ssp. myersii	pincushion navarretia	Polemoniaceae	List 1B.1
		1	Orcuttia tenuis	slender Orcutt grass	Poaceae	List 1B.1
		1	Orcuttia viscida	Sacramento Orcutt grass	Poaceae	List 1B.1
		1	Sagittaria sanfordii	Sanford's arrowhead	Alismataceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

Inventory of Rare and Endangered Plants

v7-07c 7-09-07

Status: search results - Mon, Aug. 6, 2007, 13:00 b

{QUADS_123} =~ m/529D|513A|513B|528B|528C|512B|529A|529E Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Verona (529D) 3812175, Taylor Monument (513A) 3812165, Grays Bend (513B) 3812166, Sheridan (528B) 3812184, Pleasant Grove (528C) 3812174, Rio Linda (512B) 3812164, Nicolaus (529A) 3812185, Sutter Causeway (529B) 3812186, Knights Landing (529C) 3812176

Hits 1 to 10 of 10

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	Astragalus tener var. tener	alkali milk-vetch	Fabaceae	List 1B.2
		1	Atriplex depressa	brittlescale	Chenopodiaceae	List 1B.2
		1	Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	List 1B.2
		1	Carex lenticularis var. limnophila	lakeshore sedge	Cyperaceae	List 2.2
		1	Cordylanthus palmatus	palmate-bracted bird's-beak	Scrophulariaceae	List 1B.1
		1	Downingia pusilla	dwarf downingia	Campanulaceae	List 2.2
		1	Gratiola heterosepala	Boggs Lake hedge-hyssop	Scrophulariaceae	List 1B.2
		1	Hibiscus lasiocarpus	rose-mallow	Malvaceae	List 2.2
		1	Legenere limosa	legenere	Campanulaceae	List 1B.1
		1	Lepidium latipes var. heckardii	Heckard's pepper-grass	Brassicaceae	List 1B.2

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

No more hits.

ATTACHMENT B

BOTANIST QUALIFICATIONS

Elena Alfieri
BOTANIST
Gallaway Consulting, Inc.
117 Meyers Street, Suite 110, Chico, CA 95928
Starting and ending dates: May 2006 – present

EDUCATION

BACHELOR OF SCIENCE in EVIRONMENTAL BIOLOGY AND MANAGEMENT, BOTANICAL EMPHASIS – ***Interdisciplinary Degree***
Department of Biological Sciences, University of California, Davis
Awarded in December 2004

EXPERIENCE

Elena Alfieri has over 2 years of experience conducting botanical/rare plant surveys, wetland delineations, and valley elderberry longhorn beetle surveys (VELB) in project sites ranging from 1 to 2,000 acres, and habitat classification and mapping for the U.S. Department of Agriculture Forest Service. Ms. Alfieri has also acquired extensive knowledge of greenhouse management and exotic and native plant maintenance and identification through her many years working for the U.C. Davis Botanical Conservatory. Course work for Ms. Alfieri during her attendance at U.C. Davis included multiple plant taxonomy, plant biology and paleobotany classes. During her time at Gallaway Consulting, Inc. Ms. Alfieri has gained experience in assisting with protocol-level wet season vernal pool invertebrate surveys. Her areas of expertise include general botanical surveys and plant identification, rare plant surveys, and wetland delineations. Her recent work includes conducting protocol-level Butte County meadowfoam surveys for the Byrne Habitat Conservation Bank in Chico, California.

ATTACHMENT C

USFWS AND CDFG SURVEY PROTOCOL

Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants

January, 2000

These guidelines describe protocols for conducting botanical inventories for federally listed, proposed and candidate plants, and describe minimum standards for reporting results. The Service will use, in part, the information outlined below in determining whether the project under consideration may affect any listed, proposed. or candidate plants, and in determining the direct, indirect, and cumulative effects.

Field inventories should be conducted in a manner that will locate listed, proposed, or candidate species (target species) that may be present. The entire project area requires a botanical inventory, except developed agricultural lands. The field investigator(s) should:

1. Conduct inventories at the appropriate times of year when target species are present and identifiable. Inventories will include all potential habitats. Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species.

2. If available, use a regional or local reference population to obtain a visual image of the target species and associated habitat(s). If access to reference populations(s) is not available, investigators should study specimens from local herbaria.

3. List every species observed and compile a comprehensive list of vascular plants for the entire project site. Vascular plants need to be identified to a taxonomic level which allows rarity to be determined.

4. Report results of botanical field inventories that include:

a. a description of the biological setting, including plant community, topography, soils, potential habitat of target species, and an evaluation of environmental conditions, such as timing or quantity of rainfall, which may influence the performance and expression of target species

b. a map of project location showing scale, orientation, project boundaries, parcel size, and map quadrangle name

c. survey dates and survey methodology(ies)

d. if a reference population is available, provide a written narrative describing the target species reference population(s) used, and date(s) when observations were made

e. a comprehensive list of all vascular plants occurring on the project site for each habitat type

f. current and historic land uses of the habitat(s) and degree of site alteration

g. presence of target species off-site on adjacent parcels, if known

h. an assessment of the biological significance or ecological quality of the project site in a local and regional context

5. If target species is(are) found, report results that additionally include: a. a map showing federally listed, proposed and candidate species distribution as they relate to the proposed project b. if target species is (are) associated with wetlands, a description of the direction and integrity of flow of surface hydrology. If target species is (are) affected by adjacent off-site hydrological influences, describe these factors. c. the target species phenology and microhabitat, an estimate of the number of individuals of each target species per unit area; identify areas of high, medium and low density of target species over the project site, and provide acres of occupied habitat of target species. Investigators could provide color slides, photos or color copies of photos of target species or representative habitats to support information or descriptions contained in reports. d. the degree of impact(s), if any, of the proposed project as it relates to the potential unoccupied habitat of target habitat.

6. Document findings of target species by completing California Native Species Field Survey Form(s) and submit form(s) to the Natural Diversity Data Base maintained by the Natural Heritage Division of the California Department of Fish & Game. Documentation of determinations and/or voucher specimens may be useful in cases of taxonomic ambiguities, habitat or range extensions.

7. Report as an addendum to the original survey, any change in abundance and distribution of target plants in subsequent years. Project sites with inventories older than 3 years from the current date of project proposal submission will likely need additional survey.

8. Adverse conditions may prevent investigator(s) from determining presence or identifying some target species in potential habitat(s) of target species. Disease, drought, predation, or herbivory may preclude the presence or identification of target species in any year. An additional botanical inventory(ies) in a subsequent year(s) may be required if adverse conditions occur in a potential habitat(s). Investigator(s) may need to discuss such conditions.

Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities

State of California
THE RESOURCES AGENCY
Department of Fish and Game
December 9, 1983
Revised May 8, 2000

The following recommendations are intended to help those who prepare and review environmental documents determine **when** a botanical survey is needed, **who** should be considered qualified to conduct such surveys, **how** field surveys should be conducted, and **what** information should be contained in the survey report. The Department may recommend that lead agencies not accept the results of surveys that are not conducted according to these guidelines.

1. Botanical surveys are conducted in order to determine the environmental effects of proposed projects on all rare, threatened, and endangered plants and plant communities. Rare, threatened, and endangered plants are not necessarily limited to those species which have been "listed" by state and federal agencies but should include any species that, based on all available data, can be shown to be rare, threatened, and/or endangered under the following definitions:

A species, subspecies, or variety of plant is "endangered" when the prospects of its survival and reproduction are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, or disease. A plant is "threatened" when it is likely to become endangered in the foreseeable future in the absence of protection measures. A plant is "rare" when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens.

Rare natural communities are those communities that are of highly limited distribution. These communities may or may not contain rare, threatened, or endangered species. The most current version of the California Natural Diversity Database's List of California Terrestrial Natural Communities may be used as a guide to the names and status of communities.

2. It is appropriate to conduct a botanical field survey to determine if, or to the extent that, rare, threatened, or endangered plants will be affected by a proposed project when:

a. Natural vegetation occurs on the site, it is unknown if rare, threatened, or endangered plants or habitats occur on the site, and the project has the potential for direct or indirect effects on vegetation; or
b. Rare plants have historically been identified on the project site, but adequate information for impact assessment is lacking.

3. Botanical consultants should possess the following qualifications:

a. Experience conducting floristic field surveys;
b. Knowledge of plant taxonomy and plant community ecology;
c. Familiarity with the plants of the area, including rare, threatened, and endangered species;
d. Familiarity with the appropriate state and federal statutes related to plants and plant collecting; and,
e. Experience with analyzing impacts of development on native plant species and communities.

4. Field surveys should be conducted in a manner that will locate any rare, threatened, or endangered species that may be present. Specifically, rare, threatened, or endangered plant surveys should be:

a. Conducted in the field at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Usually, this is when the plants are flowering.

When rare, threatened, or endangered plants are known to occur in the type(s) of habitat present in the project

area, nearby accessible occurrences of the plants (reference sites) should be observed to determine that the species are identifiable at the time of the survey.

b. Floristic in nature. A floristic survey requires that every plant observed be identified to the extent necessary to determine its rarity and listing status. In addition, a sufficient number of visits spaced throughout the growing season are necessary to accurately determine what plants exist on the site. In order to properly characterize the site and document the completeness of the survey, a complete list of plants observed on the site should be included in every botanical survey report.

c. Conducted in a manner that is consistent with conservation ethics. Collections (voucher specimens) of rare, threatened, or endangered species, or suspected rare, threatened, or endangered species should be made only when such actions would not jeopardize the continued existence of the population and in accordance with applicable state and federal permit requirements. A collecting permit from the Habitat Conservation Planning Branch of DFG is required for collection of state-listed plant species. Voucher specimens should be deposited at recognized public herbaria for future reference. Photography should be used to document plant identification and habitat whenever possible, but especially when the population cannot withstand collection of voucher specimens.

d. Conducted using systematic field techniques in all habitats of the site to ensure a thorough coverage of potential impact areas.

e. Well documented. When a rare, threatened, or endangered plant (or rare plant community) is located, a California Native Species (or Community) Field Survey Form or equivalent written form, accompanied by a copy of the appropriate portion of a 7.5 minute topographic map with the occurrence mapped, should be completed and submitted to the Natural Diversity Database. Locations may be best documented using global positioning systems (GPS) and presented in map and digital forms as these tools become more accessible.

5. Reports of botanical field surveys should be included in or with environmental assessments, negative declarations and mitigated negative declarations, Timber Harvesting Plans (THPs), EIR's, and EIS's, and should contain the following information:

a. Project description, including a detailed map of the project location and study area.
b. A written description of biological setting referencing the community nomenclature used and a vegetation map.
c. Detailed description of survey methodology.
d. Dates of field surveys and total person-hours spent on field surveys.
e. Results of field survey including detailed maps and specific location data for each plant population found. Investigators are encouraged to provide GPS data and maps documenting population boundaries.
f. An assessment of potential impacts. This should include a map showing the distribution of plants in relation to proposed activities.
g. Discussion of the significance of rare, threatened, or endangered plant populations in the project area considering nearby populations and total species distribution.
h. Recommended measures to avoid impacts.
i. A list of all plants observed on the project area. Plants should be identified to the taxonomic level necessary to determine whether or not they are rare, threatened or endangered.
j. Description of reference site(s) visited and phenological development of rare, threatened, or endangered plant(s).
k. Copies of all California Native Species Field Survey Forms or Natural Community Field Survey Forms.
l. Name of field investigator(s).
m. References cited, persons contacted, herbaria visited, and the location of voucher specimens.