SACRAMENTO MUNICIPAL UTILITY DISTRICT
UPPER AMERICAN RIVER PROJECT
(FERC NO. 2101)

SPECIAL-STATUS PLANTS AND INVASIVE/NOXIOUS WEEDS TECHNICAL REPORT

Prepared by:

Devine Tarbell & Associates, Inc.
Sacramento, California

Prepared for:

Sacramento Municipal Utility District
Sacramento, California

JULY 2004

TABLE OF CONTENTS

Section & Description **Page**

TABLE OF CONTENTS

Section & Description **Page**

LIST OF TABLES

Table No. & Description **Page**

LIST OF APPENDICES

Appendix & Description

LIST OF APPLICABLE STUDY PLANS

Description

- Special-status Plants Study Plan
- Invasive/Noxious Weeds Study Plan

5.7 Special Status Plants Study Plan

5.7.1 Pertinent Issue Questions

The Special Status Plant Study addresses Terrestrial Resource Issue Questions:

6. What special status plants are affected by Project operations, maintenance and recreation activities?
27. What is the distribution of special status plants affected by Project operations, maintenance and recreation activities?

5.7.2 Background

A number of special status plants are known to occur within the Project area (SMUD 2001). For the purpose of this study, special status plant species are defined as those plant species that are: 1) listed, proposed or under review as rare, threatened or endangered under the Federal Endangered Species Act (ESA) or California ESA; 2) considered rare or endangered by the California Native Plant Society (CNPS); or 3) designated as sensitive species or species of concern by the U.S. Department of Agriculture, Forest Service (USFS). Mapping of these populations will allow for a more complete analysis of how to protect these populations from any adverse impacts from Project operations and activities. FERC regulations require that an applicant for a new license address continuing Project impacts, including to ESA listed species, and provide mitigation for these impacts. This study will assist in meeting FERC regulations as well as ESA and USFS guidelines.

5.7.3 Study Objectives

The objectives of the Special Status Plants Study are to: 1) determine if the Project affects special status plant species and 2) determine how identified Project-related impacts can be mitigated through the protection and restoration of special status plant species habitat within environmental, economic, and engineering constraints.

5.7.4 Study Area and Sampling Locations

The study area will include: 1) all areas within the FERC Project Boundary; and 2) water fluctuation zones in Project reaches described in the Initial Information Package (IIP) (SMUD 2001). It is understood that additional study areas (e.g. the developed and dispersed recreation areas being identified by the Recreation TWG and the Project roads being identified through the Project Sources of Sediment Study in coordination with the Recreation and Aquatic TWGs) will be added to this study area where appropriate. However, field surveys will be restricted to areas where the Licensee has legal access (e.g., ownership/easement rights, public lands) and within reasonable safety limits. Some of this area was surveyed for SMUD by KEA Environmental, Inc. as reported in *Botanical Resources Inventory Upper American River Project*. Areas that were not surveyed by KEA will be surveyed in the 2002 flowering season beginning in April or May 2002. The results of the Vegetation Mapping Study will also be used to determine where suitable habitat for special status plant species within the Study Area may be present. Note: river reaches will be sampled based on potential habitat, accessibility and potential for disturbance.

5.7.5 Information Needed From Other Studies

The only information required from other studies is the vegetation map that will be generated as part of the Vegetation Mapping Study. Information from previous special status plant surveys conducted in the Study Area will be used to supplement the results of this effort.

5.7.6 Study Methods and Schedule

As discussed above, SMUD's IIP includes a comprehensive list of special status plant species that have some likelihood of occurring in the study area. In addition, much of the area within the Project boundary has already been surveyed and the results reported in the report entitled *Botanical Resources Inventory Upper American River Project*. Areas that were not included in this study will be surveyed in the 2002 flowering season beginning in April or May 2002.

Survey protocol will follow CNPS "Guidelines for Assessing Effects of Proposed Developments on Rare Plants and Plant Communities." The guidelines require that botanical surveys that are conducted to determine the environmental effects of a proposed development project should be directed to all rare, threatened, and endangered plants and rare plant communities and will be floristic in nature; that they be conducted during the time of year when these species are identifiable (usually during the flowering stage of the species); that the field searches be conducted in a manner that will locate any rare or endangered species that may be present; and that the field investigator be familiar with the flora of the region (CNPS 2001). For the species within the UARP study area, the flowering period for all of the plants that could potentially occur within the study area is primarily from May to June, with some in July, depending on elevation and climatic conditions.

5.7.7 Analysis

The locations of all special status plant species observed will be recorded and plotted on Geographic Information System (GIS) maps. Photographs showing diagnostic floral characteristics, growth forms, and habitat characteristics will be taken of any special status plant species observed within the Study Area. Voucher specimens for verification will be collected in accordance with government collecting regulations.

5.7.8 Study Output

Study results will be presented to the Terrestrial Resources Technical Working Group (TWG) and Plenary Group toward the end of 2002. However, the ultimate study output will be a written report that includes the issues addressed, objectives, study area, methods, results, analysis, discussion, conclusions and, where appropriate, a discussion of a range of options to protect and/or enhance sensitive plant communities including the feasibility of each. The reports will also include: 1) narrative descriptions of special status plant species occurrence, current status and threats, phenology, and habitat requirements; and 2) GIS-generated maps that identify the location of the special status plants within the study area. The report will be prepared in a format that allows the information to be inserted directly into the Licensee-prepared Draft Environmental Assessment that will be submitted to FERC with the Licensee's application for a new license.

5.7.9 Preliminary Estimated Study Cost

SMUD's consultant estimates that this study will cost $60,400 ± 20 percent.

5.7.10 Plenary Group Endorsement

The Plenary Group approved this study plan on February 6, 2002. The participants at the meeting who said they could "live with" the study plan were California Department of Fish and Game, California Native Plant Society, California Outdoors, California Sportsfishing Protection Alliance, El Dorado County, El Dorado County Citizens for Water, Friends of El Dorado County, National Parks Service, Placer County Water Agency, Sacramento Municipal Utility District, State Water Resources Control Board, Taxpayers or El Dorado County, U.S Bureau of Land Management and Eldorado National Forest. None of the participants at the meeting said they could not "live with" the study plan though PG&E abstained since this study plan does not apply to the Chili Bar Project.

5.7.11 Literature Cited

CNPS (California Native Plant Society). 2001. California Native Plant Society's inventory of rare and endangered plants of California. California Native Plant Society, Special Publication #1, Sixth Edition.

Sacramento Municipal Utility District. 2001. Initial Information Package for Relicensing of the Upper American River Project (FERC Project No. 2101). Sacramento, CA.

5.5 Invasive/Noxious Weeds Study Plan

5.5.1 Pertinent Issue Questions

The invasive/noxious weeds study addresses Terrestrial Resource Issue Questions:

5. Where and to what extent do Project operations contribute to the establishment, maintenance and expansion of invasive/noxious weeds within the Project area?
26. What is the distribution of invasive/noxious weeds within the Project area?

5.5.2 Background

In general, vehicles and public access can contribute to the spread of invasive weeds. In addition, construction and maintenance activities can disturbe native vegetation and increase the potential for colonization by invasive weeds. Maintenance activities under power lines where vegetation is cleared can also open up areas for colonization by invasive weeds. This study will determine to what extent project operations such as the use of project roads and the creation of disturbed areas that are open to colonization by weeds (e.g., clearing of transmission line rights-of-way) contribute to the distribution and establishment of invasive (noxious) weeds. A preliminary vegetation map has been prepared for the project area that also shows the locations of noxious weeds that were identified by the Eldorado National Forest (ENF) as being of concern (KEA Environmental, Inc. 2000). A discussion of invasive species is also included in the Initial Information Package (IIP) submitted in July 2001 (SMUD 2001). Nine populations of four noxious weed species were found and documented during the 2000 botanical inventory. However, this study did not cover stream reaches and transmission line corridors in detail and the IIP did not provide a discussion of how project operations contribute to the establishment, maintenance, and expansion of invasive weed populations within the study area.

5.5.3 Study Objectives

The objectives of the Invasive (Noxious) Weeds Study are to: 1) determine if and where the project contributes to the spread of invasive (noxious) weeds; and 2) determine how identified project-related impacts can be mitigated within environmental, economic, and engineering constraints.

5.5.4 Study Area and Sampling Locations

The Invasive (Noxious) Weeds Study Area includes: 1) all areas within FERC Project boundary, and 2) water fluctuation zones within river reaches below Project facilities. It is understood that additional study areas (e.g. the developed and dispersed recreation areas being identified by the Recreation TWG and the Project roads being identified through the Project Sources of Sediment Study in coordination with the Recreation and Aquatic TWGs) will be added to this study area where appropriate. Field surveys will be restricted to those areas where the Licensee has legal access (e.g., ownership/easement rights, public lands) and where access is within reasonable safety limits.

5.5.5 Information Needed From Other Studies

Information is available from the vegetation mapping that was conducted in 2000, recent aerial photography obtained by SMUD, and additional mapping done by the ENF. Information obtained from the vegetation mapping for 2002 will be included in the final report for invasive weeds. A list of targeted invasive weed species will be established based on ENF and other agency input.

5.5.6 Study Methods And Schedule

Populations of invasive weeds will be mapped concurrently with field surveys to be conducted for the Vegetation Mapping and Special Status Plant Species studies during the spring and summer of 2002. For the purpose of this study, invasive weed species are defined as those plant species currently listed as noxious weeds by the ENF, and El Dorado and Sacramento counties. Survey protocol will follow California Native Plant Society (CNPS) “Guidelines for Assessing Effects of Proposed Developments on Rare Plants and Plant Communities.” Identified populations

will be recorded with Global Positioning System (GPS) instruments as practicable. These data will be used to construct Geographic Information System (GIS) maps of observed invasive/non-native plant infestations.

5.5.7 Analysis

Identified populations of noxious weeds will be evaluated with respect to likely sources of introductions (e.g., vehicles, recreationists) and opportunities for control or eradication. Protocols will follow the Noxious Weeds Management Strategy implemented for the *Sierra Nevada Forest Plan Amendment, Final Environmental Impact Statement* (USDA 2001). This requires that a project-level noxious weed risk assessment be conducted. The weed risk assessment serves as the primary mechanism for prescribing weed prevention measures. There are 3 priorities for weed management: Priority 1 is to prevent the introduction of new invaders; Priority 2 is to conduct early treatment of new infestations; and Priority 3 is to contain and control established infestations. The invasive/noxious weed study will use the management strategies and weed control guidelines developed by the Forest Service for the Sierra Nevada region.

5.5.8 Study Output

Study results will be presented to the Terrestrial Resources Technical Working Group (TWG) and the Plenary Group at the end of 2002. However, the ultimate study output will be a written report that includes the issues addressed, objectives, study area, methods, results, analysis, discussion, and conclusions. Where appropriate, the discussion will explore the range of options available for the control or eradication of these infestations, including the feasibility of each option. The report will be prepared in a format that will allow the information to be inserted directly into the Licensee-prepared Draft Environmental Assessment that will be submitted to FERC with the Licensee's application for a new license.

5.5.9 Preliminary Estimated Study Cost

SMUD's consultant estimates that this study will cost $44,000 ± 20 percent.

5.5.10 Plenary Group Endorsement

The Plenary Group approved this study plan on February 6, 2002. The participants at the meeting who said they could "live with" the study plan were California Department of Fish and Game, California Native Plant Society, California Outdoors, California Sportsfishing Protection Alliance, El Dorado County, El Dorado County Citizens for Water, Friends of El Dorado County, National Parks Service, Placer County Water Agency, Sacramento Municipal Utility District, State Water Resources Control Board, Taxpayers or El Dorado County, U.S Bureau of Land Management and Eldorado National Forest. None of the participants at the meeting said they could not "live with" the study plan though PG&E abstained since this study plan does not apply to the Chili Bar Project.

5.5.11 Literature Cited

KEA Environmental, Inc. 2000. Botanical resources inventory Upper American River Project, Sacramento Municipal Utilities District, Pacific Ranger District, Eldorado National Forest. Prepared for Sacramento Municipal Utilities District. Submitted to Tetra Tech, Inc., submitted by KEA Environmental, Inc. October 2000.

SMUD (Sacramento Municipal Utility District). 2001. Initial information package for relicensing of the Upper American River Project (FERC Project No. 2101). Sacramento, CA.

USDA (U.S. Department of Agriculture, Forest Service). 2001. Sierra Nevada forest plan amendment, final environmental impact statement, record of decision. USDA Forest Service, Pacific Southwest Region.

SPECIAL-STATUS PLANTS AND NOXIOUS WEEDS TECHNICAL REPORT

SUMMARY

SMUD documented thirteen special-status plants in 2000 and 2003, including one (*Allium jepsonii* [Jepson's onion]) not previously known from El Dorado County. In addition, an unlisted species first described in 2002 (*Pseudostellaria sierrae*, no common name) was found. Maps and GIS files for all occurrences were prepared.

Special-status plants are not uniformly distributed in the study area: a few key habitats support most occurrences. Chief among these is the gabbro chaparral near Pine Hill, in the western section of the study area. This area, traversed by UARP transmission lines, supports three FESA-listed species (*Ceanothus roderickii* [Pine Hill ceanothus], *Fremontodendron decumbens* [Pine Hill flannelbush], *Senecio layneae* [Layne's butterweed]), and one Species of Concern (*Wyethia reticulata* [El Dorado mule-ears]) that are largely restricted to its unique soil type. Also notable in the western section of the study area is a serpentine-soil outcrop in the Greenstone Country subdivision near Lotus Road, northeast of the town of Rescue. In addition to the first known occurrence of *Allium jepsonii* in El Dorado County, this area supports hundreds of mostly annual native forbs found nowhere else in the study area.

Similarly, in the southeast section of the study area rock outcrops and chaparral near UARP reservoirs and facilities support *Phacelia stebbinsii* (Stebbins' phacelia), *P. vallicola*, (mariposa phacelia), Bolandra *californica*, (Sierra bolandra), and *Calochortus clavatus* var. *avius* (Pleasant Valley mariposa lily). Meadows near Ice House Reservoir support *Drosera rotundifolia* (round-leaved sundew). Only *Taxus brevifolia* (Pacific yew) and *Viola tomentosa* (wooly violet) are found in the forested habitats most common in the study area, and these in riparian zones and granitic gravel and duff, respectively.

SMUD documented ten target weed species from the study area in 2000 and 2003. Maps and GIS files for all occurrences were prepared. Weeds are concentrated in the western, unforested section of the study area, and are especially prevalent near development, along roadsides, in agricultural fields, and in annual grassland and oak woodland habitats. In this western area, physical disturbance is uniformly associated with dominance by *Centaurea solstitialis* (yellow starthistle) or *Taeniatherum caput-medusae* (medusahead). However, this dynamic is largely absent from the eastern, forested sections: few weeds occur in forested habitats in the study area, even where transmission line clearing has resulted in bare soil and sparsely vegetated areas. Burned land areas along the Jones Fork-Union Valley transmission line are a notable exception, supporting strong infestations of *Bromus tectorum* and *B. diandrus*. UARP facilities were examined in 2000 and several were found to support populations of: *Centaurea solstitialis* (White Rock Powerhouse and access roads, Slab Creek Dam and access roads, Camino Reservoir and Jaybird Powerhouse and access road, Union Valley Reservoir campgrounds); *Cytisus scoparius* (Scotch broom) (White Rock Powerhouse access roads, tunnel adit, and penstock); *Aegilops triuncialis* (goatgrass) (Slab Creek Reservoir access roads, Camino Reservoir access road); *Carduus pychnocephalus* (White Rock Powerhouse and access roads, Slab Creek Reservoir and access roads, Brush Creek Reservoir access road, Camino Reservoir access road); and *Chondrilla juncea* (rush skeletonweed) (Camino Reservoir access road).

1.0 INTRODUCTION

This technical report is one in a series of reports prepared by Devine Tarbell & Associates, Inc., (DTA) for the Sacramento Municipal Utility District (SMUD) as an appendix to SMUD's application to the Federal Energy Regulatory Commission (FERC) for a new license for the Upper American River Project (UARP or Project). The report addresses special-status plants and invasive/noxious weeds in the immediate vicinity of UARP facilities and features. This report includes the following sections:

- **BACKGROUND** – Summarizes the applicable study plan approved by the UARP Relicensing Plenary Group; a brief description of the issue questions addressed, in part, by the study plan; the objectives of the study plan; the study area, and agency information requests. In addition, requests by resource agencies for additions to this technical report are described in this section.
- **METHODS** – A description of the methods used in the study, including a listing of study sites.
- **RESULTS** – A description of the most important data results. Raw data, where copious, and detailed model results are provided by request in a separate compact disc (CD) for additional data analysis and review by interested parties.
- **LITERATURE CITED** – A listing of all literature cited in the report.

This technical report does not include a detailed description of the UARP Alternative Licensing Process (ALP) or the UARP, which can be found in the following sections of SMUD's application for a new license: the UARP Relicensing Process, Exhibit A (Project Description), Exhibit B (Project Operations), and Exhibit C (Construction).

Also, this technical report does not include a discussion regarding the effects of the UARP on special-status plants and invasive/noxious weeds and related environmental resources, nor does the report include a discussion of appropriate protection, mitigation, and enhancement measures. An impacts discussion regarding the UARP is included in the applicant-prepared preliminary draft environmental assessment (PDEA) document, which is part of SMUD's application for a new license. Development of resource measures will occur in settlement discussions, which will commence in 2004, and will be reported on in the PDEA.

2.0 BACKGROUND

The UARP Relicensing Plenary Group approved two study plans that pertain specifically to special-status plants and invasive/noxious weeds: the Special-Status Plants Study Plan and the Invasive and Noxious Weeds Study Plan. Each of these is discussed below.

2.1 Special-Status Plants Study Plan

On February 6, 2002, the UARP Relicensing Plenary Group approved the Special-Status Plants Study Plan that was developed by and approved by the UARP Terrestrial Technical Working Group (TWG) on January 11, 2002. The study plan was designed to address, in part, the following issues questions developed by the UARP Relicensing Plenary Group:

Issue Question 6.	What special-status plants are affected by Project operations, maintenance and recreation activities?
Issue Question 27.	What is the distribution of special-status plants affected by Project operations, maintenance and recreation activities?

For the purpose of this study, special-status plants were defined as those vascular plants that are: 1) listed, proposed or under review as rare, threatened or endangered under the Federal Endangered Species Act (ESA) or California ESA (CESA); 2) considered rare or endangered by the California Native Plant Society (CNPS); or 3) designated as sensitive species or species of concern by the U.S. Department of Agriculture, Forest Service (Forest Service).

The primary objectives of the study were to determine:

1. If the UARP affects special-status plant species; and

2. How identified UARP-related impacts can be mitigated through the protection and restoration of special-status plant species habitat within environmental, economic, and engineering constraints.

As stated above, this *Special-Status Plants and Invasive/Noxious Weeds Technical Report* does not address the second portion of Issue Question 6 or the portions of the objectives dealing with UARP effects and potential protection, mitigation and enhancement measures. These issues will be addressed during settlement discussions and in the PDEA.

The study area specified in the Special-Status Plants Study Plan included: 1) all areas within the UARP FERC Project Boundary to which SMUD has legal access; and 2) water fluctuation zones in UARP Reaches. The study area did not include Pacific Gas and Electric Company's Chili Bar Reservoir area or the Reach Downstream of Chili Bar. In the Special-Status Plants Study Plan, it was also noted that lands surrounding UARP Reservoirs and Facilities were surveyed during 2000 (KEA 2000), and that such lands would not need additional surveys. In addition, it was noted that " river reaches will be sampled based on potential habitat, accessibility, and potential for disturbance." At the March 18, 2003 Terrestrial TWG meeting, it was agreed that assessments of UARP Reaches conducted during the Riparian Vegetation study (see the *Riparian Vegetation and Wetlands Technical Report*) would be sufficient to address special-status plants, because many UARP Reaches are dangerously inaccessible, and because few special-status plants have the potential to occur in their water fluctuation zones. The amended study area for the Special-Status Plants Study thus included all lands within the UARP FERC Project Boundary not surveyed in 2000; the bulk of these lands are found in the various UARP Transmission Line Corridors. The results reported below include those described in SMUD's 2000 botanical report as well as those from 2003.

2.2 Invasive/Noxious Weeds Study Plan

On February 6, 2002, the UARP Relicensing Plenary Group approved the Invasive/Noxious Weeds Study Plan that was developed by and approved by the UARP Terrestrial (TWG) on January 11, 2002. The study plan was designed to address, in part, the following issues questions developed by the UARP Relicensing Plenary Group:

Issue Question 5.	Where and to what extent do Project operations contribute to the establishment, maintenance and expansion of invasive/noxious weeds within the Project area?
Issue Question 26.	What is the distribution of invasive/noxious weeds within the Project area?

The primary objectives of the study were to determine:

1. If and where the UARP contributes to the spread of invasive (noxious) weeds; and

2. How identified UARP-related impacts can be mitigated within environmental, economic, and engineering constraints.

This *Special-Status Plants and Invasive/Noxious Weeds Technical Report* does not address Issue Question 5 or the portions of the objectives dealing with UARP effects and potential protection, mitigation and enhancement measures. These issues will be addressed during settlement discussions and in the PDEA. This technical report describes the methods used and the location and distribution of invasive/noxious weeds.

The study area included the same area as the Special-Status Plants Study Plan, which is described above.

The study methods were similar to those described for the Special-Status Plants Study Plan described above. The results reported below include those described in SMUD's 2000 botanical report as well as those from 2003.

2.3 Water Year Types

As described in the *Water Temperature Technical Report*, the UARP Relicensing Water Balance Model Subcommittee established five water year types to be applied to all preliminary analysis with the understanding that the UARP Relicensing Plenary Group, with cause, may modify the current water year types in the future. For reference purposes, the water types that applied to the period when fieldwork for the Special-Status Plants Study Plan and the Invasive/Noxious Weeds Study Plan was performed are described in Table 2.3-1 below.

Table 2.3-1. Water year types applied to individual months of years 2001-2003. [1]

Year	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
2003	BN	BN	BN	D	BN	BN	BN	BN	BN	BN	BN	BN

[1] D = Dry water year; BN = Below normal water year

2.4 Agency Requested Information

In a letter dated December 17, 2003 to SMUD, the agencies identified, by study, information they believed they needed to begin settlement discussions, with the understanding that additional information might be requested. Neither the Special-Status Plants Study Plan nor the Invasive/Noxious Weeds Study Plan was specifically addressed. However, the agencies general comment regarding terrestrial studies is pertinent:

- All studies will need GIS shape files showing habitat/vegetation types and spatial relationships with meta-data.

In a May 13, 2004 letter, the agencies stated in regards to the *Special-Status Plants and Invasive/Noxious Weeds Technical Report* (February 2004) the following:

- We have reviewed this study report and have no comments on the report.

On June 22, 2004, the UARP Terrestrial Working Group met to discuss the adequacy of UARP terrestrial resources technical reports. The Technical Working Group concluded that for the *Special-Status Plants and Invasive/Noxious Weeds Technical Report*:

- The Issue Questions and Objectives stated in the study plan are adequately addressed by the information provided in the technical report; and
- The methods employed were adequate to address Issue Questions and Objectives.

3.0 METHODS

The methods used for both the special-status plants and invasive/noxious weeds studies conformed to the methods in the UARP Relicensing Plenary Group-approved study plans. These methods are described in detail below.

3.1 Special-Status Plants

The special-status plant study survey methods followed California Native Plant Society guidelines for rare plant surveys (CNPS 2001). A list of potentially occurring special-status plant taxa was developed prior to fieldwork, using a combination of literature reviews, professional expertise, agency guidance, and the results of a 2003 California Natural Diversity Database search for El Dorado, Placer, Amador, and Sacramento counties. In addition, the United States Fish and Wildlife Service (USFWS) provided information on known special-status plants in a letter dated April 16, 2001, and the United States Forest Service (USFS) provided the same in correspondence dated November 29, 2000. The resulting list of potentially occurring taxa is provided as Appendix A to this technical report. Although this list was used to guide survey efforts, surveys were floristic in nature, identifying all plants encountered. Species that could not be identified in the field were pressed for subsequent examination, and taxonomic experts in particular genera consulted when necessary. A full plant list is provided as Appendix B to this technical report.

Special-status plant surveys were conducted when phenologically appropriate, from April 28 to July 5, 2003. Some particularly diverse areas (e.g., the Pine Hill area; see below) required multiple survey passes to ensure full coverage and account for differing plant phenologies. Varying levels of survey intensity were used in the field. Most lands were addressed using a moderate-level survey, in which multiple surveyors walked transects with additional effort assigned to areas of special interest, such as seeps and outcrops. Physically disturbed (e.g., developed) or ecologically disturbed areas (e.g., annual grasslands) were surveyed at a reconnaissance or light level of intensity.

Documented special-status plant occurrences were mapped in the field on 1:24,000 Unites States Geological Survey (USGS) maps or 1:4,800 orthophoto map sheets, habitat information was collected, and potential threats (e.g., recreational use or noxious weeds) noted. Occurrence maps were digitized to form a GIS layer using ArcGIS software, and this layer combined with existing topographic and UARP GIS coverage to produce 1:24,000 scale special-status plant maps for the entire study area. The resulting maps show both special-status plant and invasive/noxious weed occurrences, and are provided as Appendix C to this report. These maps divide the special-status plants and noxious weed study area into four sections: the Northeast, including Rubicon, Gerle Creek, and Loon Lake reservoirs; the Southeast, including Union Valley, Ice House, Junction, and Camino reservoirs; the Southwest, including Brush Creek and Slab Creek reservoirs, and the West, including the UARP transmission line corridor from White Rock powerhouse to Folsom Junction.

3.2 Noxious Weeds

Noxious weed surveys were conducted concurrently with special-status plant surveys during May, June, and July 2003 with follow-up mapping of developed areas and late-season species in August and September 2003. (This study area did not include UARP reservoirs and facilities, which were surveyed in 2000.) Surveys targeted those species listed by the Eldorado National Forest as "A", or highly invasive; potentially less invasive, "B" listed species that are not currently known from the study area; *Bromus tectorum* (cheatgrass) and *Bromus diandrus* (ripgut grass), both annual grasses of concern to the USFS (Taylor 2003); and four species recommended by the El Dorado County Department of Agriculture in 2001: *Cardaria chalepensis* (lens-pod whitetop), *Euphorbia oblongata* (oblong spurge), *Foeniculum vulgare* (fennel), and *Spartium junceum* (Spanish broom) (Table 3.2-1).

Occurrences of target invasive/noxious weeds were mapped in the field on 1:24,000 USGS quad maps or 1:4,800 orthophoto map sheets. Occurrence maps were digitized to form a GIS layer using ArcGIS software, and this layer combined with existing topographic and UARP GIS coverage to produce 1:24.000 scale maps for the entire study area. The resulting maps show both special-status plant and invasive/noxious weed occurrences, and are provided as Appendix C to this report. While most noxious weed occurrences are mapped within their observed boundaries, those in highly disturbed areas (e.g., annual grasslands, which often support unmappably complex and shifting populations of *Aegilops triuncialis* [goatgrass], *Taeniatherum caput-medusae* [medusahead], and other weeds) are generally represented by the boundaries of their habitat, where they are grouped as Annual Grasses rather than by individual species.

Table 3.2-1. Noxious Weed Study target species. Species with an asterisk are not currently known from the Eldorado National Forest (Taylor 2004).		
Name	**Common name**	**ENF Listing Status**
Aegilops triuncialis	goatgrass	A
Bromus diandrus	ripgut grass	B
Bromus tectorum	cheatgrass	B
*Cardaria chalepensis**	lens-pod whitetop	none
*Carduus nutans**	musk thistle	A
Carduus pycnocephalus	Italian thistle	A
*Centaurea bieberstienii**	spotted knapweed	A
*Centaurea diffusa**	diffuse knapweed	B
Centaurea solstitialis	yellow starthistle	A
Chondrilla juncea	rush skeletonweed	A
*Cirsium arvense**	Canada thistle	A
Cytisus scoparius	Scotch broom	A
*Euphorbia esula**	leafy spurge	B
*Euphorbia oblongata**	oblong spurge	none
*Foeniculum vulgare**	fennel	none
Genistia monspellensus	French broom	A
Lepidium latifolium	tall whitetop	A
*Linaria genistifolia**	Dalmation toadflax	A
*Lythrum salicaria**	purple loosestrife	A
*Spartium junceum**	French broom	none
Taeniatherum caput-medusae	medudahead	A
*Tamarix chinensis**	tamarisk	B

4.0 RESULTS

4.1 Special-Status Plants

Thirteen special-status plants were documented in 2000 and 2003, including one (*Allium jepsonii* [Jepson's onion]) not previously known from El Dorado County (Table 4.1-1). In addition, an unlisted species first described in 2002 (*Pseudostellaria sierrae*, no common name) was found. Each of these occurrences is described below. Maps for all occurrences (2000 and 2003) are provided in Appendix C to this technical report. The GIS files are provided on CD by request.

Special-status plants are not uniformly distributed in the study area: a few key habitats support most occurrences. Chief among these is the gabbro chaparral near Pine Hill, in the western section of the study area. This area, traversed by UARP transmission lines, supports three FESA-listed species (*Ceanothus roderickii* [Pine Hill ceanothus], *Fremontodendron decumbens* [Pine Hill flannelbush], *Senecio layneae* [Layne's butterweed]), and one Species of Concern (*Wyethia reticulata* [El Dorado mule-ears]) that are largely restricted to its unique soil type. Also notable in the western section of the study area is a serpentine-soil outcrop in the Greenstone Country subdivision near Lotus Road, northeast of the town of Rescue. In addition to the first known occurrence of *Allium jepsonii* in El Dorado County, this area supports hundreds of mostly annual native forbs found nowhere else in the study area.

Similarly, in the southeast section of the study area rock outcrops and chaparral near UARP reservoirs and facilities support *Phacelia stebbinsii* (Stebbins' phacelia), *P. vallicola*, (mariposa phacelia), *Bolandra californica*, (Sierra bolandra), and *Calochortus clavatus* var. *avius* (Pleasant Valley mariposa lily). Meadows near Ice House Reservoir support *Drosera rotundifolia* (round-leaved sundew). Only *Taxus brevifolia* (Pacific yew) and *Viola tomentosa* (wooly violet) are found in the forested habitats most common in the study area, and these in riparian zones and granitic gravel and duff, respectively.

Table 4.1-1. Summary of special-status plant occurrences documented in 2000 and 2003.

Name	Common name	Status[1]	Number of Occurrences	General Location
Allium jepsonii	Jepson's onion	Fed: None CA: None CNPS: 1B ENF: none	1	Serpentine outcrop in Greenstone Country subdivision
Bolandra californica	Sierra bolandra	Fed: none CA: none CNPS: 4 ENF: W	1	Access road to White Rock Powerhouse
Calochortus clavatus var. *avius*	Pleasant Valley mariposa lily	Fed: SC CA: none CNPS: 1B ENF: S	4	Chaparral and *Quercus chrysolepis* forest near Junction and Camino reservoirs
Ceanothus roderickii	Pine Hill ceanothus	Fed: E CA: R CNPS: 1B ENF: none	1	Transmission line corridor near Pine Hill
Chloragalum grandiflorum	Red Hills soaproot	Fed: SC CA: none CNPS: 1B ENF: W	3	Transmission line corridor near Pine Hill and Independence Point
Drosera rotundifolia	round-leaved sundew	Fed: none CA: none CNPS: none ENF: W	2	Meadows south of Ice House Dam and adjacent Silver Creek
Fremontodendron decumbens	Pine Hill flannelbush	Fed: E CA: R CNPS: 1B ENF: none	4	Transmission line corridor near Pine Hill
Phacelia stebbinsii	Stebbin's phacelia	Fed: SC CA: none CNPS: 1B ENF: S	Numerous; 3 general localities	Chaparral and rock outcrops near Camino and Junction Reservoirs
Phacelia vallicola	mariposa phacelia	Fed: none CA: none CNPS: none ENF: W	1	Rock outcrops near Camino Reservoir
Senecio layneae	Layne's butterweed	Fed: T CA: R CNPS: 1B ENF: S	2	Transmission line corridor near Pine Hill

Table 4.1-1. Summary of special-status plant occurrences documented in 2000 and 2003.				
Name	**Common name**	**Status[1]**	**Number of Occurrences**	**General Location**
Taxus brevifolia	Pacific yew	Fed: none CA: none CNPS: none ENF: W	4	Transmission line corridor southeast of Slab Creek Reservoir; mouth of Brush Creek at Brush Creek Reservoir
Viola tomentosa	wooly violet	Fed: none CA: none CNPS: 1B ENF: W	17	Campgrounds at Union Valley and Gerle Creek Reservoirs, transmission line corridor west and southwest of Loon Lake
Wyethia reticulata	El Dorado mule-ears	Fed: SC CA: none CNPS: 1B ENF: none	2	Transmission line corridor near Pine Hill

[1]Status listings definitions are as follows:
Federal:
E = listed as endangered under the Federal Endangered Species Act (FESA).
T = listed as threatened under FESA.
SC = species of concern.
California (CA):
R = state listed rare plant.
California Native Plant Society (CNPS):
1B = plants considered to be rare, threatened, or endangered in California and elsewhere.
2 = plants considered to be rare, threatened or endangered in California, but more common elsewhere.
3 = plants about which more information is needed – a review list.
4 = plants of limited distribution – a watch list.
Eldorado National Forest (ENF):
S = sensitive plants. Plants known or suspected to occur on National Forest Service lands that are considered valid candidates for Federal threatened or endangered classification under the FESA.
W = a watch list of plants that do not meet all the criteria to be included on the Regional Forester's Sensitive List, but are of sufficient concern that they need to be considered in the planning process.

4.1.1 *Allium jepsonii* (Jepson's onion)

Allium jepsonii is a perennial herb in the Liliaceae (lily family), and a California Native Plant Society (CNPS) list 1B plant (see table 4.1-1 for listing definitions). *Allium jepsonii* occurs in cismontane woodland or lower montane coniferous forests, generally on serpentine or volcanic substrates. It is known from elevations ranging from approximately 980 to 3,800 feet and was previously reported to only occur in Butte and Tuolumne counties (CNPS 2001).

Surveys conducted in 2003 located one occurrence of over 1,000 *A. jepsonii* individuals on a serpentine outcrop in the western section of the study area, partially within the transmission line right-of-way. The outcrop is in an otherwise *Quercus douglasii* (blue oak) wooded grassland community within the Greenstone Estates subdivision, and supports an important and botanically diverse community that is unique in the study area. The occurrence is between transmission towers but within 500 feet of a tower and also within 500 feet of recent residential development. An unimproved tower access road runs within 100 feet of the occurrence. Dr. Dale McNeal, author of the treatment of *Allium* in the Jepson Manual (Hickman 1993), confirmed the identification (McNeal 2004).

Exotic annual grasses such as *Aegilops triuncilais* (barbed goatgrass) are common in the *A. jepsonii* occurrence and adjacent *Quercus douglasii* grasslands, and *Centaurea solstitialis* (yellow starthistle) infests nearby roadsides.

4.1.2 *Bolandra californica* (Sierra bolandra)

Bolandra californica is a perennial herb in the Saxifragaceae (saxifrage family), and a CNPS list 4 and ENF watch list species. *Bolandra californica* occurs in lower and upper montane coniferous forests, generally on rocks or wet crevices. It is found at elevations ranging from approximately 3,200 to 8000 feet and is known to occur in El Dorado, Amador, Alpine, Calaveras, Stanislaus, Mariposa, and Tuolumne counties (CNPS 2001).

Surveys conducted in 2000 located one occurrence of *B. californica* within the study area, growing on the cutbank created by the access road to Camino Reservoir.

4.1.3 *Calochortus clavatus* var. *avius* (Pleasant Valley mariposa lily)

Calochortus clavatus var. *avius* is a perennial herb in the Liliaceae, and a federal species of concern, CNPS list 1B and ENF sensitive taxon. *Calochortus clavatus* var. *avius* occurs in lower montane coniferous forest and chaparral, on varying substrates. It is found at elevations ranging from approximately 1,000 to 6,000 feet and is known to occur in Amador, El Dorado, and Mariposa counties (CNPS 2001).

Surveys conducted in 2000 located four occurrences of *C. clavatus* var. *avius* within the study area (KEA 2000). Two separate occurrences of fewer than 100 individuals were documented in upper montane chaparral communities along the shores of Junction Reservoir, each unaffected by the UARP but within the FERC Project Boundary. In addition, two occurrences were documented near Camino Reservoir. One of approximately 1500 individuals was documented in an undisturbed *Quercus chrysolepis* (canyon live oak) stand above the Camino Reservoir access road (but within the FERC Project Boundary). Another of approximately 60 individuals was found 65 feet downslope of Camino Reservoir access road, under UARP transmission lines. Part of the occurrence was growing on an old roadbed, but the site had not been recently disturbed.

Sparse *Bromus tectorum* was reported near one Junction Reservoir occurrence of *C. clavatus* var. *avius*. No weeds were reported in those occurrences growing near the Camino Reservoir access road, although *Aegilops triuncialis, Centaurea solstitialis, Chondrilla juncea*, and *Bromus tectorum* are all found in the vicinity.

4.1.4 *Ceanothus roderickii* (Pine Hill ceanothus)

Ceanothus roderickii is an evergreen shrub in the Rhamnaceae (buckthorn family), and a federally-listed endangered, California rare, and CNPS list 1B plant. *Ceanothus roderickii* occurs in chaparral and cismontane communities on serpentine or (more typically) gabbroic substrates. It is found at elevations ranging from approximately 850 to 2,000 feet and is endemic to El Dorado County (CNPS 2001). *Ceanothus roderickii* is one of six federally relevant taxa recently addressed in a USFWS Recovery Plan for gabbro-emdemic plants (USFWS 2002).

Surveys conducted in 2003 documented one large occurrence of *C. roderickii* within the western section of the study area, in the vicinity of Pine Hill. In this occurrence, hundreds to thousands of clumps of *C. roderickii* occur within a chaparral community traversed by the Project transmission line right-of-way. *Ceanothus roderickii* often dominates the understory in open or disturbed parts of the occurrence, but areas with dense cover of tall shrubs (e.g., *Arctostaphylos viscida* [whiteleaf manzanita]) for the most part do not support the species. Part of this occurrence is included within the USFWS-proposed Pine Hill Preserve parcel for gabbro endemics (USFWS 2002). Although UARP transmission lines also traverse part of the USFWS-proposed Penny Lane preserve parcel, no *C. roderickii* occurs in that part of the study area.

This occurrence includes largely undisturbed areas traversed by UARP transmission lines, as well as disturbed lands under transmission towers and along tower maintenance roads. Transmission line maintenance was observed within the *C. roderickii* occurrence, causing damage to individuals growing in a maintenance road and under a tower. Associated removal of *Pinus sabiana* (gray pine) trees under the transmission lines appears to have created habitat openings favored by *C. roderickii*.

Ceanothus roderickii is considered a fire-dependent species, apparently requiring fire for adequate seed germination and seedling establishment (USFWS 2002). Dense stands of very large *Arctostaphylos viscida* in and around the Pine Hill *C. roderickii* occurrence suggest few fires have occurred there in the recent past. Annual grasses are common in the Pine Hill *C. roderickii* occurrence, most commonly *Aegilops triuncialis*. It is often found in the open and disturbed areas in which *C. roderickii* appears to thrive. Development in the Pine Hill area and El Dorado County as a whole is accelerating, and is expected to influence *C. roderickii* by encouraging direct habitat loss, habitat fragmentation, and changes to fire regimes (USFWS 2002).

4.1.5 *Chlorogalum grandiflorum* (Red Hills soaproot)

Chlorogalum grandiflorum is a perennial herb in the Liliaceae (lily family), and a federal species of concern, CNPS list 1B and Eldorado Forest watch list plant. *Chlorogalum grandiflorum* occurs in chaparral, cismontane woodland, and lower montane coniferous forests on serpentine or gabbroic substrates. It is found at elevations ranging from approximately 800 to 3,300 feet and is known to occur in Amador, El Dorado, Placer and Tuolumne counties (CNPS 2001).

Surveys conducted in 2003 documented three separate occurrences of *C. grandiflorum*: one in the Pine Hill area supporting hundreds of individuals, and two smaller occurrences in the vicinity of Independence Point. Each of these forms part of a mixed chaparral community growing in the Project transmission line corridor. At all three occurrences documented in 2003, *C. grandiflorum* appeared to be disturbance-adapted, clustering in roadcuts and other bare-soil areas.

The occurrence in the Pine Hill area is directly under the UARP transmission lines, occurring under and between towers and in maintenance roads. Transmission line maintenance and vegetation clearing (using a bulldozer) was observed within this occurrence, causing damage to individuals growing in a maintenance road. At Independence Point, the two occurrences are between towers, but partially occur in the transmission line maintenance road. No *C. grandiflorum* occurs in adjacent, forested habitats, suggesting the Independence Point occurrences may be supported by transmission line clearing (tree removal) that maintains the habitat as chaparral. Both of the Independence Point occurrences are unusual in that they do not appear to be growing in gabbro or serpentine soils.

Annual grasses are common in the Pine Hill *C. grandiflorum* occurrence, most commonly *Aegilops triuncialis*. It is often found in the open and disturbed areas in which *C. grandiflorum* appears to thrive. Development in the Pine Hill area and El Dorado County as a whole is accelerating, and may influence *C. grandiflorum* by encouraging direct habitat loss, habitat fragmentation, and changes to fire regimes (USFWS 2002).

Some taxonomic questions are unresolved within *Chlorogalum*. Both *C. grandiflorum* and the common, widespread taxon *C. pomeridianum* var. *pomeridianum* are found in the study area. (When not in flower, each can be confused with *Odonostomum hartwegii* [Hartweg's doll-lily], which also occurs.) *Chlorogalum pomeridianum* var. *pomeridianum* has a very large root covered with dark brown, coarse fibers, and long, slender flower pedicels that are at least as long as the flowers, while *C. grandiflorum* has a medium-sized root covered with membranes and a few delicate fibers, and thick flower pedicels that are shorter than the flowers. However, 2003 surveys located four occurrences of a *Chlorogalum* that appears intermediate between the two: medium-sized plants with short thick flower pedicels like *C. grandiflorum*, but large, coarsely fibrous roots like *C. pomeridianum* var. *pomeridianum*. These plants were found east of Camino Reservoir and also in the vicinity of Independence Point. Examination of records from the 2000 botanical survey found that the occurrence of *C. grandiflorum* detailed there (along the access road to Camino reservoir) is also of this intermediate type. Collections of this intermediate taxon were sent to Dr. Judy Jernstedt of U.C. Davis, who reported that she had previously seen similar plants. They will require additional taxonomic work to determine their identity.

4.1.6 *Drosera rotundifolia* (round-leaved sundew)

Drosera rotundifolia is a perennial herb in the Droseraceae (sundew family), and an ENF watch list plant. *Drosera rotundifolia* typically occurs in sphagnum bogs and wetlands. It is found at elevations ranging from sea level to approximately 6,500 feet and is known to occur throughout the northwest, especially near the coast, and in the Cascade Ranges and Sierra Nevada (CNPS 2001).

Surveys conducted in 2000 and 2003 documented two occurrences of *D. rotundifolia* in the study area, both near Ice House Dam. Approximately 150 plants occur in a meadow directly south of the dam, near an associated parking area and valve house. More than 300 plants also occur approximately 500 meters downstream, in a meadow adjacent to South Fork Silver Creek. No weeds or disturbances were observed.

4.1.7 *Fremontodendron decumbens* (Pine Hill flannelbush)

Fremontodendron decumbens (Pine Hill flannelbush) (= *F. californicum* ssp. *decumbens*) is an evergreen shrub in the Sterculiaceae (cacao family), and a federally-listed endangered, California rare, and CNPS list 1B plant. *Fremontodendron decumbens* occurs in chaparral and cismontane woodland communities on rocky gabbroic or serpentine substrates at elevations ranging from approximately 1,400 to 2,500 feet. It is known to occur in El Dorado and Nevada counties (CNPS 2001), and is one of six federally relevant taxa recently addressed in a USFWS Recovery Plan (USFWS 2002).

Surveys conducted in 2003 documented four occurrences of *F. decumbens* in the study area, each in the vicinity of Pine Hill. These occurrences are clumps of few to several individuals generally clustered near roads or in clearings, including those created by transmission line towers and access roads. Transmission line maintenance was observed at one of these, causing damage to individuals growing in a clearing (the area was mechanically cleared of brush, including *F. decumbens*, which was resprouting). Elsewhere, removal of *Pinus sabiana* trees under the transmission lines appears to have created habitat openings such as those favored by *F. decumbens*. Each of these occurrences is on private lands contained within the USFWS-proposed Pine Hill Preserve parcel (USFWS 2002). Although Project transmission lines also traverse part of the USFWS-proposed Penny Lane preserve parcel, no *F. decumbens* occurs in that part of the study area.

Fremontodendron decumbens is considered a fire-dependent species, apparently requiring fire for adequate seed germination and seedling establishment (USFWS 2002). Dense stands of very large *Arctostaphylos viscida* near the *F. decumbens* occurrences suggest few fires have occurred there in the recent past. Annual grasses are common in the Pine Hill area, most commonly *Aegilops triuncialis.* It is often found in the open and disturbed areas to which *F. decumbens* appears to be restricted. Development in the Pine Hill area and El Dorado County as a whole is accelerating, and is expected to influence *F. decumbens* by encouraging direct habitat loss, habitat fragmentation, and changes to fire regimes (USFWS 2002).

4.1.8 *Phacelia stebbinsii* (Stebbins' phacelia)

Phacelia stebbinsii is an annual herb in the Hydrophyllaceae (waterleaf family), and a federal species of concern, CNPS list 1B, and ENF sensitive plant. *Phacelia stebbinsii* occurs in cismontane woodland, lower montane coniferous forests, and meadows and seeps (CNPS 2001), although in the study area it is only found on poorly vegetated rock outcrops and roadcuts. It is found at elevations ranging from 2,000 to 6,600 feet and is known to occur in El Dorado, Nevada, and Placer counties (CNPS 2001).

Surveys conducted in 2000 and 2003 documented several occurrences of *P. stebbinsii* in two general areas. Several thousand individuals occur as numerous discrete patches in the switchback roadcut created by the access road to Camino Reservoir; these were considered as two main occurrences for mapping purposes. In addition, several hundred plants occur on a south-facing rock/talus slope and the opposite north-facing slope directly below Union Valley

Dam. This occurrence is within 100 feet of various UARP access roads and facilities, but the slopes themselves are relatively undisturbed. Finally, in nearby Junction Valley Reservoir, 12 separate clusters of *P. stebbinsii* occur on the east shore, west shore, and southeastern lobe, each on rock outcrops in mixed chaparral and forest. While each is within the FERC Project Boundary, none are in proximity to UARP facilities or roads.

Bromus tectorum, Aegilops triuncialis, *Centaurea solstitialis*, and *Chondrilla juncea* (rush skeletonweed, in its highest observed occurrence in the study area) all occur in the vicinity of the Camino Reservoir occurrence of *P. stebbinsii*. Of these, only *B. tectorum* occupies the same microsites as *P. stebbinsii*, where it represents a minority of the overall sparse vegetative cover. Similarly, *B. tectorum* was observed growing sparsely at some of the Junction Reservoir occurrences of *P. stebbinsii*.

4.1.9 *Phacelia vallicola* (mariposa phaceilia)

Phacelia vallicola is an annual herb in the Hydrophyllaceae (waterleaf family), and an ENF watch list plant. *Phacelia vallicola* occurs in open, gravelly to rocky soils in chaparral, oak-pine woodlands and coniferous forests. It is found at elevations ranging from approximately 2,000 to 7,900 feet and is known to occur in the southern Cascade Range and north and central Sierra Nevada. Surveys conducted in 2000 documented a population of approximately 150 individuals growing on the roadcut created by the access road to Camino Reservoir. It was still extant in 2003, growing in two patches interspersed with *P. stebbinsii*. *Bromus tectorum, Aegilops triuncialis*, *Centaurea solstitialis*, and *Chondrilla juncea* all occur in the vicinity, though only *B. tectorum* occupied the same microsites as *P. vallicola*.

4.1.10 Pseudostellaria sierrae (no common name)

Pseudostellaria sierrae is a white-flowered rhizomatous perennial in the pink family (Caryophyllaceae). It is a recently discovered taxon, first described in 2002. Although currently unlisted, it is included here to facilitate an evaluation of its status on the ENF. *Pseudostellaria sierrae* has previously been reported from Plumas, Nevada, Placer, and Tuolumne Counties, but ours is apparently the first report of the species in El Dorado County (Rabeler & Hartman 2002) and the ENF (Taylor 2004). Its habitat is mixed oak-pine or fir forests, at approximately 4,100 – 6,500 feet in elevation (Rabeler & Hartman 2002).

Surveys conducted in 2003 documented two occurrences of *P. sierrae*, each directly under UARP transmission lines on moderately steep, partially forested slopes southwest of Junction Reservoir. Neither occurs in proximity to UARP facilities or maintenance roads, although vegetation clearing (tree removal) restricts canopy cover in one. Both occurrences appeared vigorous, and several hundred stems were observed in each. (It is unclear how many individuals this represents.) No weeds were observed.

4.1.11 *Senecio layneae* (Layne's ragwort)

Senecio layneae is a perennial herb in the Asteraceae (sunflower family), and a federally-listed threatened, California rare, CNPS list 1B and ENF sensitive plant. *Senecio layneae* occurs in

chaparral and cismontane woodland communities on rocky serpentine or gabbroic substrates. It is found at elevations ranging from approximately 650 to 3,300 feet and is known to occur in El Dorado, Tuolumne and Yuba counties (CNPS 2001), and is one of six federally relevant taxa recently addressed in a USFWS Recovery Plan (USFWS 2002).

Surveys conducted in 2003 documented two large, diffuse occurrences of *S. layneae* in the study area, each on gabbro soils in the transmission line corridor near Pine Hill. These occurrences consist of several hundred to several thousand individuals scattered in and along roads and clearings, including those created by transmission line towers and access roads. In the study area, *S. layneae* appears restricted to disturbed, poorly vegetated and/or eroded areas, including roads. *Senecio layneae* is considered a disturbance-dependent species (USFWS 2002) and appears restricted to disturbed, poorly vegetated and/or eroded sites in the study area. Both occurrences are at least partially contained within the USFWS-proposed Pine Hill Preserve and Penny Lane Preserve parcels (USFWS 2002).

Annual grasses are common in the Pine Hill area, most commonly *Aegilops triuncialis*. It is often found in the open and disturbed areas to which *S. layneae* appears to be restricted. Development in the Pine Hill area and El Dorado County as a whole is accelerating, and is expected to influence *S. layneae* by encouraging direct habitat loss and habitat fragmentation (USFWS 2002).

4.1.12 *Taxus brevifolia* (Pacific yew)

Taxus brevifolia is a shrub or small tree in the Taxaceae (yew family), and an ENF watch list species. It is found in coniferous forests at elevations ranging from sea level to approximately 5,000 feet, and in California is known from the Northwestern, Cascade Range, and Sierra Nevada floristic regions (Hickman 1993).

Surveys conducted in 2000 and 2003 documented four occurrences of *T. brevifolia* in the study area. Each occurrence supported fewer than ten individuals. One occurrence is at the mouth of Brush Creek as it drains to Brush Creek Reservoir, apparently unaffected by the Project but within the FERC Project Boundary. *Taxus brevifolia* also occurs once in the transmission line corridor approximately one mile west of Camino Reservoir, and twice near Long Canyon, southeast of Slab Creek Reservoir. The Long Canyon area occurrences are each in riparian zones that are entirely spanned by the transmission lines and apparently not influenced by the UARP; no tree removal or roads are in the area. The occurrence west of Camino Reservoir is at the edge of a riparian zone, in an area subject to over-story removal during transmission line maintenance; the single plant observed was yellowing and appeared unlikely to persist. No weeds were observed at any *Taxus brevifolia* occurrences.

4.1.13 *Viola tomentosa* (wooly violet)

Viola tomentosa is a perennial herb in the Violaceae (violet family), and a CNPS list 1B and ENF watch list plant. *Viola tomentosa* occurs in lower montane coniferous forests, subalpine coniferous forests, and upper montane coniferous forests in gravelly areas. It is found at

elevations ranging from approximately 1,400 to 6,600 feet and is found in El Dorado, Nevada, Placer, Plumas and Sierra counties (CNPS 2001).

Surveys conducted in 2000 and 2003 documented 17 occurrences of *V. tomentosa*. At Union Valley Reservoir, 12 occurrences totaling several thousands of individuals were located to the northeast of Union Valley Dam, at Wolf Creek campground, Wench Creek campground, the Peninsula Recreation Area, near Jones Fork Silver Creek, and at Camino Cove campground. Each of these are in uplands unaffected by the UARP, but within the FERC Project Boundary. At Gerle Reservoir, fewer than 100 individuals occur in the campground, again in uplands unaffected by the UARP but within the FERC Project Boundary. In and adjacent to the transmission line corridor, three occurrences were documented to the west and southwest of Loon Lake, supporting a total of several hundred individuals. Each of these is well removed from UARP transmission towers, roads, or facilities. A fourth occurrence in the transmission line corridor east of Robbs Peak Reservoir is adjacent to a UARP transmission tower and its access road; ORV use of this road had damaged numerous plants.

Recreational use is extensive at each *V. tomentosa* occurrence near Union Valley and Gerle Reservoirs; footpaths, vehicle use, and general trampling are common. In addition, timber harvest-related disturbance was observed at some of the Union Valley Reservoir occurrences. No weeds were observed.

4.1.14 *Wyethia reticulata* (El Dorado County mule ears)

Wyethia reticulata is a perennial herb in the Asteraceae, and a federal species of concern, CNPS list 1B and ENF watch list plant. *Wyethia reticulata* occurs in chaparral, cismontane woodland, and lower montane coniferous forests on clay or gabbroic substrates. It is found at elevations ranging from approximately 600 to 1,000 feet (CNPS 2001). Endemic to El Dorado County, and is one of six federally relevant taxa recently addressed in a USFWS Recovery Plan (USFWS 2002).

Surveys conducted in 2003 documented two large occurrences of *W. reticulata* in the study area (one is discontinuous), each on gabbro soils in the transmission line corridor, near Pine Hill. These occurrences consist of several hundred stems scattered in chaparral, partially forested areas, and along roads and clearings, including those created by transmission line towers and access roads. Both occurrences are at least partially contained within the USFWS-proposed Pine Hill Preserve and Penny Lane Preserve parcels (USFWS 2002).

Wyethia reticulata is considered fire-tolerant, but not fire-dependent (USFWS 2002). In the study area, it appears less disturbance-adapted than the other gabbro endemics, at times growing under dense shrub cover, and rarely in eroded or poorly vegetated areas.

Annual grasses are common in the Pine Hill area, most commonly *Aegilops triuncialis*. Development in the Pine Hill area and El Dorado County as a whole is accelerating, and is expected to influence *W. reticulata* by encouraging direct habitat loss and habitat fragmentation (USFWS 2002).

4.2 Noxious Weeds

Ten target species were documented from the study area in 2000 and 2003 (Table 4.2-1). Maps for all occurrences are provided in Appendix C to this technical report. GIS files are provided on CD by request.

Weeds are concentrated in the western section of the study area (see methods for section definitions), and are especially prevalent near development, along roadsides, in agricultural fields, and in annual grassland and oak woodland habitats. In this western area, physical disturbance is uniformly associated with dominance by *Centaurea solstitialis* (yellow starthistle) or *Taeniatherum caput-medusae* (medusahead). However, this dynamic is largely absent from the eastern, forested sections: few weeds occur in forested habitats in the study area, even where transmission line clearing has resulted in bare soil and sparsely vegetated areas. Burned lands areas along the Jones Fork-Union Valley transmission line are a notable exception, supporting strong infestations of *Bromus tectorum* and *B. diandrus*. UARP facilities were examined in 2000 and were found to support populations of *Centaurea solstitialis* (White Rock Powerhouse and access roads, Slab Creek Dam area and access roads, Camino Reservoir and Jaybird Powerhouse and access road, Union Valley Reservoir campgrounds); *Cytisus scoparius* (Scotch broom) (White Rock Powerhouse access roads, tunnel adit, and penstock); *Aegilops triuncialis* (goatgrass) (Slab Creek Reservoir access roads, Camino Reservoir access road); *Carduus pychnocephalus* (White Rock Powerhouse and access roads, Slab Creek Reservoir and access roads, Brush Creek Reservoir access road, Camino Reservoir access road) and *Chondrilla juncea* (rush skeletonweed) (Camino Reservoir access road) (KEA 2000).

Table 4.2-1. Target Noxious Weeds located during 2000 and 2003 survey efforts.

Name	Common name	Distribution in Study Area
Aegilops triuncialis	goatgrass	Uncommon to occasional in annual grasslands and along roadsides. Western and southwestern sections of the study area.
Carduus pycnocephalus	Italian thistle	Uncommon to occasional in annual grasslands. Western and southwestern sections of the study area.
Centaurea solstitialis	yellow starthistle	Common to dominant in physically disturbed areas, especially roadsides and developed areas. Western and southwestern sections of the study area.
Chondrilla juncea	rush skeletonweed	Occasional along roadsides or in developed areas. Western and southwestern sections of the study area.
Cytisus scoparius	Scotch broom	Occasional along roadsides and in transmission line corridor. Southwestern and upper western sections of the study area.
Genistia monspessulana	French broom	Occasional along roadsides and in transmission line corridor. Southwestern and upper western sections of the study area.

Table 4.2-1. Target Noxious Weeds located during 2000 and 2003 survey efforts.		
Name	**Common name**	**Distribution in Study Area**
Lythrum salicaria	purple loosestrife	One occurrence in wetland/creek. Far western section of the study area.
Bromus tectorum	cheatgrass	Occasional in annual grasslands and along roadsides; common in burned areas under transmission line. All sections of the study area.
Bromus diandrus	ripgut grass	Occasional to dominant in annual grasslands, less often on roadsides; common in burned areas under transmission line. West, southwest, southeast sections of the study area.
Taeniatherum caput-medusae	medudahead	Occasional to common in annual grasslands; dominant where physically disturbed. Western section of the study area.

4.2.1 *Aegilops triuncialis* (barbed goatgrass)

Aegilops triuncialis is an annual in the Poaceae (grass family). Widespread in California and the west, it often infests fields, grasslands, and roadsides, typically below 3,300 feet in elevation (Hickman 1993). It is most common in lower-elevation annual grasslands in the west section of the study area, where it is generally mapped with other annual grasses in fields and *Quercus douglasii* woodlands, increasing with proximity to development and/or roads. *Aegilops triuncialis* rarely infests forested areas or less-disturbed habitats. Botanical surveys in 2000 found *A. triuncialis* at Slab Creek Reservoir access roads, and Camino Reservoir access road, its easternmost occurrence in the study area.

4.2.2 *Bromus diandrus* (ripgut grass)

Bromus diandrus is an annual in the Poaceae. Widespread in California and the west, it often infests fields, grasslands, and roadsides, typically below 6,600 feet in elevation (Hickman 1993). It is commonly found in lower-elevation annual grasslands in the western section of the study area, where it is generally mapped with other annual grasses in fields and *Quercus douglasii* woodlands, often in areas well removed from roads or development. *Bromus diandrus* rarely infests forested areas or less-disturbed habitats.

In the study area, *B. diandrus* was documented as far east as the Jones Fork-Union Valley transmission line corridor. This recently burned area is poorly vegetated, and appears to offer excellent habitat for *B. diandrus*, which occurs in several patches and may be in the early invasion stages. Bare soil and sparsely vegetated areas are common elsewhere in the transmission line corridor, but *B. diandrus* rarely occurs.

4.2.3 *Bromus tectorum* (cheatgrass)

Bromus tectorum is an annual in the Poaceae. Widespread in California and the west, it often infests fields, grasslands, and roadsides, typically below 7,200 feet in elevation. It is occasionally found in lower-elevation annual grasslands in the west section of the study area, where it is generally mapped with other annual grasses in fields and *Quercus douglasii* woodlands. *Bromus tectorum* rarely infests forested areas or less-disturbed habitats.

In the study area, *B. tectorum* was documented as far east as the Jones Fork-Union Valley transmission line corridor. This recently burned area is poorly vegetated, and appears to offer excellent habitat for *B. tectorum*, which occurs throughout the area. Bare soil and sparsely vegetated areas are common elsewhere in the transmission line corridor, but *B. tectorum* rarely occurs.

4.2.4 *Carduus pychnocephalus* (Italian thistle)

Carduus pychnocephalus is an annual or biennial in the Asteraceae. Widespread in California and the west, it often infests fields, grasslands, and roadsides, typically below 3,300 feet in elevation (Bossard et al. 2000, Hickman 1993). It is occasionally found as patches in the western transmission line corridor, where it is occurs with annual grasses in fields and *Quercus douglasii* woodlands. *Carduus pychnocepalus* rarely infests forested areas or less-disturbed habitats, and was not often observed outside the western section of the study area. Botanical surveys in 2000 found *Carduus pychnocephalus* at the following UARP facilities: White Rock Powerhouse and access roads, Slab Creek Reservoir and access road, Brush Creek Reservoir access road and Camino Reservoir access road (KEA 2000).

4.2.5 *Centaurea solstitialis* (yellow starthistle)

Centaurea solstitialis is an annual in the Asteraceae. Widespread in California and the west, it often infests fields, grasslands, and roadsides, typically below 4,300 feet in elevation (Bossard et al. 2000, Hickman 1993). It is particularly dominant in physically disturbed areas, where it can approach 100 percent cover, and heavily grazed agricultural fields. *Centaurea solstitialis* was also documented in upper, rarely flooded parts of riparian areas within lower UARP reaches, especially where disturbed by foot or vehicle traffic. *Centaurea solstitialis* rarely occurs in forested areas or less-disturbed habitats, but was documented as far east as the access road to Camino Reservoir, where a large infestation exists. Botanical surveys in 2000 found *C. solstitialis* at the following UARP facilities: White Rock Powerhouse and access roads, Slab Creek Dam area and access roads, Camino Reservoir and Jaybird Powerhouse and access road, and Union Valley Reservoir campgrounds.

4.2.6 *Chondrilla juncea* (rush skeleton weed)

Chondrilla juncea is a biennial or perennial in the Asteraceae. Uncommon in much of California, it infests roadsides and disturbed areas, most often below 2,000 feet in elevation (Hickman 1993). It follows a similar pattern in the study area, where it occasionally infests roadsides and developed sites in the western and southwestern sections of the study area.

Chondrilla juncea was also documented in upper, rarely flooded parts of riparian areas within lower UARP Reaches, but only where disturbed by foot or vehicle traffic. Botanical surveys in 2000 found *Chondrilla juncea* at the access road to Camino Reservoir, its easternmost occurrence in the study area.

4.2.7 *Cytisus scoparius* (Scotch broom)

Cytisus scoparius is a shrub in the Fabaceae (pea family). Uncommon in much of California, it infests roadsides and disturbed areas as well as forests, riverbanks, and grasslands, usually at less than 3,300 feet in elevation (Bossard et al. 2000, Hickman 1993). It follows a similar pattern in the study area, where it occasionally infests roadsides, UARP facilities (especially under towers and penstocks), and adjacent forests. *Cytisus scoparius* was also documented in upper, rarely flooded parts of riparian areas within lower UARP reaches, especially where disturbed by foot or vehicle traffic. It only occurs in the southwest and upper parts of the western sections of the study area. Botanical surveys in 2000 found *C. scoparius* at White Rock Powerhouse, tunnel adit, penstock, and associated access roads.

4.2.8 Genista monspessulana (French broom)

Genista monspessulana is a shrub in the Fabaceae (pea family). Similar in appearance to *Cytisus scoparius*, *G. monspessulana* has similar habitat preferences: roadsides and disturbed areas as well as forests, riverbanks, and grasslands (Bossard et al. 2000, Hickman 1993). In the study area, it occasionally infests roadsides, transmission line clearings and access roads, and adjacent forests, often co-occurring with *C. scoparius*. It occurs in the southwest and upper parts of the western sections of the study area.

4.2.9 *Lythrum salicaria* (purple loosestrife)

Lythrum salicaria is a perennial in the Lythraceae (loosestrife family). A wetland obligate, it infests streams, ditches, wetlands, and irrigation canals, typically below 3,300 feet in elevation (Bossard et al. 2000, Hickman 1993). 2003 surveys documented one occurrence of *L. salicaria*, growing in a creek in the transmission line corridor near Folsom Junction. It was not found outside the western section of the study area.

4.2.10 Taeniatherum caput-medusae (medusahead)

Taeniatherum caput-medusae is an annual in the Poaceae. Widespread in northern and central California, it often infests fields, grasslands, and roadsides (Bossard et al. 2000, Hickman 1993). It is commonly found in lower-elevation annual grasslands in the western section of the study area, where it is often mapped with other annual grasses in fields and *Quercus douglasii* woodlands, increasing with proximity to development and/or roads. It is particularly dominant in disturbed areas, where it can approach 100 percent cover in places. *Taeniatherum caput-medusae* rarely infests forested areas or less-disturbed habitats, and was not found outside the western section of the study area.

5.0 LITERATURE CITED

Bossard, C. C., J. M. Randall, and M. C. Hoshovsky (eds.). 2000. Invasive plants of California's wildlands. University of California Press, Berkeley, California.

CNPS (California Native Plant Society). 2001. Inventory of rare and endangered plants of California, 6th edition. California Native Plant Society Special Publication #1, Sacramento, California.

Hickman, J. C. (ed.). 1993. The Jepson manual: higher plants of California, 3rd edition. University of California Press, Berkeley, California.

KEA Environmental, Inc. 2000. Botanical resources inventory, Upper American River Project. Unpublished document prepared for Sacramento Municipal Utility District, Sacramento, California.

McNeal, D. 2004. Personal communication, 22 January. University of the Pacific Department of Biological Sciences, Stockton, California.

Rabeler, R. K., and R. L. Hartman. 2002. *Pseudostellaria sierrae* (Caryophyllaceae), a New Species from California. Novon 12:1, 82 – 86.

Taylor, M. 2003. Personal communication, 1 May. Eldorado National Forest, California.

USFWS (United States Fish and Wildlife Service). 2002. Recovery plan for gabbro soil plants of the central Sierra Nevada foothills. USFWS Region 1, Portland, Oregon.

APPENDIX A

SPECIAL-STATUS PLANTS WITH POTENTIAL TO OCCUR IN UARP SPECIAL-STATUS PLANTS STUDY AREA 1

Special-status plants with potential to occur in UARP special-status plants study area[1]

Scientific Name[2]	Common Name	Family	Fed	ENF	CA	CNPS	Habitat Requirements	Flowering Range
Allium sanbornii var. *congdonii*	Congdon's onion	Lilaceae	none	W	none	4	Chaparral, oak woodland; on serpentine or volcanic substrates	April-July
Allium sanbornii var. *sanbornii*	Sanborn's onion	Lilaceae	none	W	none	4	Alpine boulder fields, typcially granitic	May-September
Arctostaphylos nissenana	Nissenan manzanita	Ericaceae	SC	S	none	1B	Chaparral, closed cone forest, shale soils, 1450-3600 feet	February-March
Astragalus whitneyi var. *lenophyllus*	Whitney's milkvetch	Fabaceae	none	W	none	none	Easterly summits of the Sierra Nevada; Open rocky places above 7,000 feet	July-August
Atriplex joaquiniana	San Joaquin spearscale	Chenopodiaceae	none	none	none	1B	Valley and foothill grassland (alkaline), meadows, seeps, and playas; 0-1000 feet	April-October
Balsamorhiza macrolepis var. *macrolepis*	big-scale balsamroot	Asteraceae	none	none	none	1B	Chaparral, cismontane woodland, valley and foothill grassland; sometimes serpentine; 300-4600 feet	March-June
Bolandra californica	Sierra bolandera	Saxifragaceae	none	W	none	4	Red fir to yellow pine forest; wet crevices and rocks	June-July
Botrychium ascendens	Upswept moonwort	Ophioglossaceae	SC	S	none	2	Grassy fields, coniferous woods near streams; near Fallen Leaf Lake in ENF	July-August
Botrychium crenulatum	Scalloped moonwort	Ophioglossaceae	SC	S	none	1B	Bogs, fens, meadows and marshes, Lower coniferous forest	June-July
Botrychium lunaria	Moonwart	Ophioglossaceae	none	S	none	2	Meadows, subalpine and upper coniferous forest	August
Botrychium montanum	Western goblin	Ophioglossaceae	none	S	none	2	Meadows in lower mixed conifer forest	July-August
Calochortus clavatus* var. *avius	Pleasant Valley mariposa lily	Lilaceae	SC	S	none	1B	South-facing rocky openings; mixed conifer and ponderosa pine; Union Valley Reservoir and south	June-July
Calystegia stebbinsii	Stebbins' morning-glory	Convolvulaceae	E	none	E	1B	Chaparral, cismontane woodland; 600-2400'	April-July

Special-status plants with potential to occur in UARP special-status plants study area[1]

Scientific Name[2]	Common Name	Family	Fed	ENF	CA	CNPS	Habitat Requirements	Flowering Range
Carex limosa	shore sedge	Cyperaceae	none	none	none	2	Wet areas, marshes, swamps, fens, lake margins	June-August
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	E	none	rare	1B	Chaparral, cismontane woodland/ serpintine or gabbroic; 850-2070 feet	May-June
Chaenactis douglasii var. *alpina*	Alpine dusty maidens	Asteraceae	none	none	none	2	Alpine boulder fields, typcially granitic	August
Chlorogalum grandiflorum	Red Hills soaproot	Lilaceae	SC	W	none	1B	Chaparral, oak woodland; serpentine or gabbroic soils	May-June
Clarkia biloba ssp. *brandegeae*	Brandegee's clarkia	Onagraceae	SC	none	none	1B	Chaparral, cismontane woodland; often on roadcuts; 970-2900 feet	May-July
Cypripedium montanum	Mountain lady's slipper	Orchidaceae	none	S	none	4	Moist forested hillslopes with Rhododendron, Cornus stolonifera; not known from ENF	May-July
Draba asterophora var. *asterophora*	Tahoe draba	Brassicaceae	none	S	none	1B	Subalpine forest and alpine boulder fields	July-August
Draba asterophora var. *macrocarpa*	Cup Lake draba	Brassicaceae	SC	S	none	1B	Rocky subalpine forest	July
Drosera rotundifolia	Round-leaved sundew	Droseraceae	none	W	none	none	Bogs and fens	July-August
Epilobium howellii	Subalpine fireweed	Onagraceae	none	S	none	1B	Wet meadows, marshes; Sierran crest; no populations confirmed in ENF	July-August
Eriogonum tripodium	Tripod buckwheat	Polygonaceae	none	S	none	4	Chaparral, oak woodland; on serpentine	May-July
Eriogonum umbellatum var. *torreyanum*	Donner Pass buckwheat	Polygonaceae	none	none	none	1B	Meadows and seeps, upper montane coniferous forest/ volcanic, rocky; 6000'-8600'	July-September
Fremontodendron decumbens	Pine Hill flannelbush	Sterculiaceae	E	none	rare	1B	Chaparral, cismontane woodland / serpine or gabbroic soils; 1400-2500 feet	April-July

Special-status plants with potential to occur in UARP special-status plants study area[1]

Scientific Name[2]	Common Name	Family	Fed	ENF	CA	CNPS	Habitat Requirements	Flowering Range
Fritillaria eastwoodiae	Butte County fritillary	Lilaceae	none		none	3	Chaparral, cismontane woodland, lower montane coniferous forest / sometimes serpentine; 160-4900 feet	March-May
Galium californicum ssp. *sierrae*	El Dorado bedstraw	Rubiaceae	E		rare	1B	Chaparral, cismontane woodland, lower montane coniferous forest / gabbroic; 330-1920 feet	May-June
Glyceria grandis	American manna grass	Poaceae	none	none	none	2	Bogs, fens, meadows, marshes, seeps (streambanks and lake margins); 50- 6500 feet	June-August
Gratiola heterosepala	Bogg's Lake hedge-hyssop	Scrophulariaceae	none	none	E	1B	Marshes, swamps, and lake margins; vernal pools / clay; 32- 7800 feet	April-August
Helianthemum suffrutescens	Bisbee Peak rush-rose	Cistaceae		none	none	3	Chaparral (serpentine, gabbroic, Ione soils); 100-2760 feet	April-June
Horkelia parryii	Parry's horkelia	Rosaceae	SC	S	none	1B	Chaparral, oak woodland;Acid soils of the Ione formation	April-June
Jepsonia heterandra	foothil jepsonia	Saxifragaceae	none	none	none	4	Cismontane woodland, lower montane coniferous forest / rocky, metamorphic; 160- 1640'	August-December
Lewisia kelloggii	Kellog's lewisia	Portulacaceae	none	W	none	none	Granite and slate outcrops, 6000+ feet	July-August
Lewisia longipetala	Long-petaled lewisia	Portulacaceae	SC	S	none	1B	Subalpine forest and alpine boulder fields	July-August
Lewisia serrata	Saw-toothed lewisia	Portulacaceae	SC	S	none	1B	North-facing rock faces near streams or seeps, lower montane coniferous forest	May-June
Lilium humboltii	Humbolt lilly	Lilaceae	none	W	none	4	Openings in chaparral, lower conifer forest	June-July
Lomatium stebbinsii	Stebbins' lomatium	Apiaceae	SC	S	none	1B	Gravelly, volcanic clay "balds" in chaparral, lower conifer forest; not known from ENF	March-April

Special-status plants with potential to occur in UARP special-status plants study area[1]

Scientific Name[2]	Common Name	Family	Fed	ENF	CA	CNPS	Habitat Requirements	Flowering Range
Navarretia prolifera ssp. *lutea*	Yellow bur navarretia	Polemoniaceae	SC	S	none	4	Openings of volcanic soil outcrops, lower coniferous forest; all populations south of Jaybird Powerhouse	May-July
Ophioglossum pusillum	northern adder's tongue	Ophioglossaceae	none	none	none	2	Marshes, swamps, and lake margins	July
Phacelia stebbinsii	Stebbin's phacelia	Hydrophyllaceae	SC	S	none	1B	Metamorphic rocks and rubble often near streams, lower montane coniferous forest	June
Phacelia vallicola	Mariposa phacelia	Hydrophyllaceae	none	W	none	none	Volcanic outcrops, dry sites	May-June
Piperia leptopetala	Narrow-petaled reinorchid	Orchidaceae	none	W	none	none	Dry sites in mixed conifer forest, chaparral	May-September
Potamogeton epihydrus ssp. *nuttallii*	Nuttall's pondweed	Potamogetonaceae	none	none	none	2	quiet water of marshes and swamps	July- Aug
Scutellaria galericulata	marsh skullcap	Lamiaceae	none	none	none	2	Lower montane coniferous forest, meadows, seeps, marshes	June-September
Senecio layneae	Layne's ragwort	Asteraceae	T	S	Rare	1B	Oak woodland, chaparral; serpentine or gabbroic soils	April-July
Taxus brevifolia	Pacific yew	Taxaceae	none	W	none	none	Streambanks, ravines, lower coniferous forest mostly below 3,000 feet	May-September
Viburnum ellipticum	oval-leaved viburnum	Caprifoliaceae	none	none	none	2	Chapparral, cismontane woodland, lower montane coniferous forest; 690-4500'	May-June
Viola tomentosa	Wooly violet	Violaceae	none	W	none	1B	Gravelly openings in yellow pine forest above 5,000 feet	May-August
Wyethia reticulata	El Dorado county mule ears	Asteraceae	SC	none	none	1B	Chaparral, cismontane woodland, lower montane coniferous forest / clay or gabbroic; 960-1600 feet	May-July

[1]Does not include *Allium jepsonii* , which was not known from El Dorado or surrounding counties prior to 2003 surveys

[1]Names in bold were observed during 2000 or 2003 botanical surveys

APPENDIX B

VASCULAR PLANTS OBSERVED DURING UARP BOTANICAL SURVEYS, 2000 AND 2003

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Abies concolor	White fir	Pinaceae		Native
Abies magnifica var. *magnifica*	Red fir	Pinaceae		Native
Acer glabrum	Mountain maple	Aceraceae		Native
Acer macrophyllum	Bigleaf maple	Aceraceae		Native
Achillea millefolium	Yarrow	Asteraceae		Native
Achnatherum lemmonii	Lemmon's needlegrass	Poaceae		Native
Achnatherum nelsonii	Nelson's needlegrass	Poaceae		Native
Achnatherum occidentalis	Western needlegrass	Poaceae		Native
Achnatherum stillmanii	Stillman's needlegrass	Poaceae		Native
Achnatherum thurberiana	Thurber's needlegrass	Poaceae		Native
Aconitum columbianum	Monkshood	Ranunculaceae		Native
Actaea rubra	Baneberrry	Ranunculaceae		Native
Adenocaulon bicolor	Trail plant	Asteraceae		Native
Adenostoma fasciculata	Chamise	Rosaceae		Native
Adiantum jordanii	California maiden-hair	Pteridaceae		Native
Aegilops triuncialis	Barbed goatgrass	Poaceae		Exotic
Aesculus californica	California buckeye	Hippocastanaceae		Native
Agastache urticifolia	Horsemint	Lamiaceae		Native
Ageratina occidentalis	Ageratina	Asteraceae		Native
Agoseris grandiflora	Agoseris	Asteraceae		Native
Agoseris heterophylla	Woodland agoseris	Asteraceae		Native
Agoseris retrorsa	Spear-leaved agoseris	Asteraceae		Native
Agrostis exarata	Spike bentgrass	Poaceae		Native
Agrostis idahoensis	Idaho bentgrass	Poaceae		Native
Agrostis oregonensis	Oregon bentgrass	Poaceae		Native
Agrostis scabra	Rough bentgrass	Poaceae		Native
Agrostis gigantea	Redtop	Poaceae		Exotic
Agrostis stolonifera	Spreading bentgrass	Poaceae		Exotic
Agrostis variabilis	Variable bentgrass	Poaceae		Native
Ailanthus altissima	Tree of Heaven	Simaroubaceae		Native
Aira caryophyllea	Silver European hairgrass	Poaceae		Exotic
Allium amplectens	Paper onion	Liliaceae		Native
Allium campanulatum	Sierra onion	Liliaceae		Native
Allium jepsonii	Jepson's onion	Liliaceae	CNPS 1B	Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Allium obtusum var. *conspicuum*	Red Sierra onion	Liliaceae		Native
Allium validum	Swamp onioin	Liliaceae		Native
Allophyllum divaricatum	Pink false gilia	Polemoniaceae		Native
Allophyllum integrifolium	Entire-leaved allophyllum	Polemoniaceae		Native
Alnus incana ssp. *tenufolia*	Mountain alder	Betulaceae		Native
Alnus rhombifolia	White alder	Betulaceae		Native
Amelanchier alnifolia	Serviceberry	Rosaceae		Native
Amelanchier cf. *utahensis*	Utah serviceberry	Rosaceae		Native
Amsinckia sp.	Fiddleneck	Boraginaceae		Native
Anagallis arvensis	Scarlet pimpernel	Primulaceae		Exotic
Anaphalis margaritacea	Pearly everlasting	Asteraceae		Native
Angelica breweri	Brewer's angelica	Apiaceae		Native
Antennaria cf. *argentea*	Pussy-toes	Asteraceae		Native
Antennaria rosea ssp. *confinis*	Rosy everlasting	Asteraceae		Native
Antennaria rosea var. *rosea*	Rosy everlasting	Asteraceae		Native
Anthemis cotula	Mayweed	Asteraceae		Native
Anthemis tinctoria	Golden marguerite	Asteraceae		Native
Anthoxanthum odoratum	Vernal grass	Poaceae		Exotic
Anthriscus caucalis	Bur-chervil	Apiaceae		Exotic
Antirrhinum leptaleum	Snapdragon	Scrophulariaceae		Native
Antirrhinum vexillo-calyculatum ssp. *intermedium*	Snapdragon	Scrophulariaceae		Native
Aphanes occidentalis	Western dewcup	Rosaceae		Native
Apocynum androsaemifolium	Bitter dogbane	Apocynaceae		Native
Apocynum cannabinum	Indian hemp	Apocynaceae		Native
Aquilegia formosa	Crimson columbine	Ranunculaceae		Native
Arabis glabra	Tower mustard	Brassicaceae		Native
Arabis platysperma	Pioneer rock cress	Brassicaceae		Native
Arabis rectissima var. *rectissima*	Recter's rock cress	Brassicaceae		Native
Arabis sp.	Rock cress	Brassicaceae		Native
Aralia californica	Elk clover	Apiaceae		Native
Arbutus menziesii	Madrone	Ericaceae		Native
Arceuthobium abietum	Fir dwarf mistletoe	Viscaceae		Native
Arceuthobium americanum	Lodgepole-pine dwarf mistletoe	Viscaceae		Native
Arceuthobium campylopodium	Western dwarf mistletoe	Viscaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Arceuthobium occidentale	Foothill-pine dwarf mistletoe	Viscaceae		Native
Arctostaphylos cf. *mewukka*	Indian manzanita	Ericaceae		Native
Arctostaphylos nevadensis	Pinemat manzanita	Ericaceae		Native
Arctostaphylos patula	Greenleaf manzanita	Ericaceae		Native
Arctostaphylos viscida	Whiteleaf manzanita	Ericaceae		Native
Arenaria kingii var. *glabrescens*	King's sandwort	Caryophyllaceae		Native
Arnica amplexicaulis	Streambank arnica	Asteraceae		Native
Arnica cordifolia	Heart-leaved arnica	Asteraceae		Native
Arnica parryi ssp. sonnei	Nodding arnica	Asteraceae		Native
Arrhenatherum elatius	Tall oatgrass	Poaceae		Exotic
Artemisia douglasiana	Mugwort	Asteraceae		Native
Asarum hartwegii	Hartweg's wild-ginger	Aristolochiaceae		Native
Asarum lemmonii	Lemmon's wild-ginger	Aristolochiaceae		Native
Asclepias cordifolia	Purple milkweed	Asclepiadaceae		Native
Aspidotis densa	Indian's dream	Pteridaceae		Native
Aster alpigenus var. *andersonii*	Alpine aster	Asteraceae		Native
Aster breweri	Brewer's aster	Asteraceae		Native
Aster campestris	Field aster	Asteraceae		Native
Aster frondosus	Marsh aster	Asteraceae		Native
Aster integrifolius	Entire-leaved aster	Asteraceae		Native
Aster oregonense	Oregon white aster	Asteraceae		Native
Aster sp.	Aster	Asteraceae		Native
Astragalus gambelianus	Gamble milk-vetch	Fabaceae		Native
Athyrium filix-femina	Lady fern	Dryopteridaceae		Native
Avena barbata	Slender wild oats	Poaceae		Exotic
Avena fatua	Oats	Poaceae		Exotic
Baccharis pilularis	Coyote bush	Asteraceae		Native
Barbarea orthoceras	American winter cress	Brassicaceae		Native
Botrychium multifidum	Leather grape-fern	Ophioglossaceae		Native
Boykinia major	Mountan boykinia	Saxifragaceae		Native
Boykinia occidentalis	Brook foam	Saxifragaceae		Native
Brachypodium distachyon	Brachypodium	Poaceae		Exotic
Brickellia californica	California brickellbush	Asteraceae		Native
Briza minor	Small quaking grass	Poaceae		Exotic

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Brodiaea elegans	Elegant brodiaea	Liliaceae		Native
Brodiaea sp.	Brodiaea	Liliaceae		Native
Bromus arenarius	Brome	Poaceae		Exotic
Bromus carinatus	California brome	Poaceae		Native
Bromus diandrus	Rip-gut brome	Poaceae		Exotic
Bromus hordeaceus	Soft chess	Poaceae		Exotic
Bromus laevipes	Brome	Poaceae		Native
Bromus madritensis ssp. *rubens*	Red brome	Poaceae		Exotic
Bromus orcuttianus	Orcutt's brome	Poaceae		Native
Bromus secalinus	Chess	Poaceae		Exotic
Bromus tectorum	Cheatgrass	Poaceae		Exotic
Calamagrostis canadensis	Bluejoint	Poaceae		Native
Calandrinia ciliata	Red maids	Portulacaceae		Native
Callitriche verna	Water-starwort	Callitrichaceae		Native
Calocedrus decurrens	Incense cedar	Cupressaceae		Native
Calochortus albus	Fairy lantern, Globe lily	Liliaceae		Native
Calochortus caeruleus	Beaver-tail grass	Liliaceae		Native
Calochortus cf. *supurbus*	Superb marisposa lily	Liliaceae		Native
Calochortus clavatus ssp. *avius*	Pleasant Valley mariposa lily	Liliaceae	Fed: SOC; CNPS: 1B; ENF: S	Native
Calochortus leichtlinii	Leichtlin's mariposa lily	Liliaceae		Native
Calochortus luteus	Yellow mariposa lily	Liliaceae		Native
Calochortus minimus	Lesser star-tulip	Liliaceae		Native
Calochortus monophyllus	Yellow star-tulip	Liliaceae		Native
Calycadenia fremontii	Fremont's calycadenia	Asteraceae		Native
Calycadenia multiglandulosa	Sticky rosinweed	Asteraceae		Native
Calycadenia truncata	Rosin weed	Asteraceae		Native
Calyptridium umbellatum	Pussy-paws	Portulacaceae		Native
Calystegia malacophylla ssp. *malacophylla*	Sierra morning-glory	Convolvulaceae		Native
Calystegia occidentalis	Western morning-glory	Convolvulaceae		Native
Cammassia quamash ssp. *quamash*	Common camas	Liliaceae		Native
Campanula prenanthoides	California harebell	Campanulaceae		Native
Capsella bursa-pastoris	Shepherd's purse	Brassicaceae		Exotic
Cardamine californica	California milkmaids	Brassicaceae		Native
Cardamine oligosperma	Bitter cress	Brassicaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Cardamine sp.	Cardamine	Brassicaceae		Native
Carduus pynchnocephalus	Italian thistle	Asteraceae		Exotic
Carex aquatilis	Water sedge	Cyperaceae		Native
Carex athrostachya	Slenderbeaked sedge	Cyperaceae		Native
Carex cf. *heteroneura*	Black sedge	Cyperaceae		Native
Carex cf. *pachystachya*	Chamisso sedge, thick-headed sedge	Cyperaceae		Native
Carex densa	Dense sedge	Cyperaceae		Native
Carex deweyana ssp. *leptopoda*	Shortscale sedge	Cyperaceae		Native
Carex echinata ssp. *echinata*	Spiny star sedge	Cyperaceae		Native
Carex feta	Greensheath sedge	Cyperaceae		Native
Carex filifolia var. *erostrata*	Thread-leaved sedge	Cyperaceae		Native
Carex fracta	Fragile-sheathed sedge	Cyperaceae		Native
Carex jonesii	Jones sedge	Cyperaceae		Native
Carex lemmonii	Lemmon's sedge	Cyperaceae		Native
Carex lenticularis var. *lenticularis*	Lens sedge	Cyperaceae		Native
Carex leporinella	Sierra-hare sedge	Cyperaceae		Native
Carex multicaulis	Many-stemmed sedge	Cyperaceae		Native
Carex nebrascensis	Nebraska sedge	Cyperaceae		Native
Carex praegracilis	Blackcreeper sedge	Cyperaceae		Native
Carex rossii	Ross sedge	Cyperaceae		Native
Carex serratodens	Bifid sedge	Cyperaceae		Native
Carex specifica	Specific sedge	Cyperaceae		Native
Carex subfusca	Brown sedge	Cyperaceae		Native
Carex utriculata	Beaked sedge	Cyperaceae		Native
Carex vesicaria var. *vesicaria*	Blister sedge, inflated sedge	Cyperaceae		Native
Carex whitneyi	Whitney's sedge	Cyperaceae		Native
Castilleja applegatei	Applegate's paintbrush	Scrophulariaceae		Native
Castilleja attenuata	Paintbrush	Scrophulariaceae		Native
Castilleja foliolosa	Felt paintbrush	Scrophulariaceae		Native
Castilleja lineariloba	Linear-lobed paintbrush	Scrophulariaceae		Native
Castilleja miniata	Gian red paintbrush	Scrophulariaceae		Native
Castilleja nana	Alpine paintbrush	Scrophulariaceae		Native
Castilleja pruinosa	Gray paintbrush	Scrophulariaceae		Native
Ceanothus cordulatus	Snow bush	Rhamnaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Ceanothus cuneatus	Buck brush	Rhamnaceae		Native
Ceanothus diversifolius	Pine mat	Rhamnaceae		Native
Ceanothus integerrimus	Deer brush	Rhamnaceae		Native
Ceanothus parvifolius	Littleleaf ceanothus	Rhamnaceae		Native
Ceanothus prostratus	Swaw carpet, mahala mats	Rhamnaceae		Native
Ceanothus roderickii	Pine Hill ceanothus	Rhamnaceae	Fed: E, CA: R, CNPS: 1B	Native
Ceanothus thyrsiflorus	Blue blossom	Rhamnaceae		Native
Centaurea solstitialis	Yellow star-thistle	Asteraceae		Exotic
Centaurium venustum	Canchalagua	Gentianaceae		Native
Cerastium fontanum ssp. *vulgare*	Common mouse-ear chickweed	Caryophyllaceae		Exotic
Cerastium viscosum	Sticky mouse-ear	Caryophyllaceae		Exotic
Cercis occidentalis	Redbud	Fabaceae		Native
Chaenactis douglasii var. *douglasii*	Dusty maiden	Asteraceae		Native
Chaenactis glabriuscula var. *glabriuscula*	Chaenactis	Asteraceae		Native
Chamaebaita foliolosa	Mountain misery	Rosaceae		Native
Chamaescyce serpyllifolia	Thyme-leaved spurge	Euphorbiaceae		Native
Chamomilla suaveolens	Pineapple weed	Asteraceae		Exotic
Cheilanthes gracillima	Lace fern	Pteridaceae		Native
Chenopodium botrys	Jerusalem oak	Chenopodiaceae		Exotic
Chimaphila menziesii	Pipsissiwa	Ericaceae		Native
Chimaphila umbellatum	Western Prince's pine	Ericaceae		Native
Chlorogalum grandiflorum	Red Hill soaproot	Liliaceae	Fed: SOC; CNPS: 1B; ENF: W	Native
Chlorogalum pomeridianum var. *pomeridianum*	Soaproot	Liliaceae		Native
Chondrilla juncea	Skeleton weed	Asteraceae		Exotic
Chorizanthe membranacea	Clustered spineflower	Polygonaceae		Native
Chorizanthe polygonoides var. *polygonoides*	Chorizanthe	Polygonaceae		Native
Chrysanthemum leucanthemum	Ox-eye daisy	Asteraceae		Exotic
Chrysolepis sempervirens	Bush chinquapin	Fagaceae		Native
Cicendia quadrangularis	Cicendia	Gentianaceae		Native
Circaea alpina	Enchanter's nightshade	Onagraceae		Native
Cirsium andersonii	Anderson's thistle	Asteraceae		Native
Cirsium occidentale var. *californicum*	California thistle	Asteraceae		Native
Cirsium vulgare	Bull thistle	Asteraceae		Exotic
Clarkia biloba ssp. *biloba*	Bilobed clarkia	Onagraceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Clarkia gracilis ssp. gracilis	Slender clarkia	Onagraceae		Native
Clarkia heterandra	Clarkia	Onagraceae		Native
Clarkia purpurea ssp. *quadrivulnera*	Winecup clarkia	Onagraceae		Native
Clarkia rhomboidea	Rhomboid clarkia	Onagraceae		Native
Clarkia sp.	Clarkia	Onagraceae		Native
Clarkia williamsii	William's clarkia	Onagraceae		Native
Claytonia exigua	Claytonia	Portulacaceae		Native
Claytonia perfoliata	Miner's lettuce	Portulacaceae		Native
Claytonia sibirica	Candy flower	Portulacaceae		Native
Clematis lasiantha	Pipestems	Ranunculaceae		Native
Clematis ligusticifolia	Virgin's bower, yerba de chiva	Ranunculaceae		Native
Clintonia uniflora	Clintonia	Liliaceae		Native
Collinsia heterophylla	Chinese houses	Scrophulariaceae		Native
Collinsia sparsiflora	Spinsters blue-eyed Mary	Scrophulariaceae		Native
Collinsia torreyi var. *torreyi*	Collinsia	Scrophulariaceae		Native
Collomia grandiflora	Grand collomia	Polemoniaceae		Native
Collomia heterophylla	Collomia	Polemoniaceae		Native
Convolvulus arvensis	Bind weed	Convolvulaceae		Exotic
Conyza canadensis	Horse weed	Asteraceae		Exotic
Corallorhiza maculata	Spotted coralroot	Orchidaceae		Native
Cordylanthus tenuis	Bird's-beak	Scrophulariaceae		Native
Cornus nuttallii	Mountain dogwood	Cornaceae		Native
Cornus sericea	American dogwood	Cornaceae		Native
Cornus sessilus	Blackfruit dogwood	Cornaceae		Native
Corylus cornuta var. *californica*	Hazelnut	Betulaceae		Native
Crassula connata	Crassula	Crassulaceae		Native
Cryptantha affinis	Cryptantha	Boraginaceae		Native
Cryptantha echinella	Cryptantha	Boraginaceae		Native
Cryptantha intermedia	Common cryptantha	Boraginaceae		Native
Cryptantha sp.	Cryptantha	Boraginaceae		Native
Cryptogramma acrostichoides	American parsley fern	Pteridaceae		Native
Cryptantha simulans	Cryptantha	Boraginaceae		Native
Cymopterus terebinthinus var. *californicus*	Cymopterus	Apiaceae		Native
Cynoglossum occidentalis	Gramd hound's- tongue	Boraginaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Cynosurus echinatus	Dogtail grass	Poaceae		Exotic
Cyperus bipartitus	Shining flatsedge	Cyperaceae		Native
Cyperus eragrostis	Umbrella sedge	Cyperaceae		Native
Cyperus esculentus	Chufa flatsedge	Cyperaceae		Exotic
Cystopteris fragilis	Brittle fern	Dryopteridaceae		Native
Cytisus scoparius	Scotch broom	Fabaceae		Exotic
Dactylis glomerata	Orchard grass	Poaceae		Exotic
Danthonia californica var .*americana*	California oatgrass	Poaceae		Native
Danthonia intermedia	Intermediate oatgrass	Poaceae		Native
Danthonia unispicata	One-spike oatgrass	Poaceae		Native
Darmera peltata	Indian rhubarb, umbrella plant	Saxifragaceae		Native
Datisca glomerata	Durango root	Datiscaceae		Native
Daucus pusillus	Rattlesnake-weed	Apiaceae		Native
Delphineum variegatum var. *variegatum*	Royal larkspur	Ranunculaceae		Native
Delphinium sp.	Larkspur	Ranunculaceae		Native
Dendromecon ridgida	Bush poppy	Papaveraceae		Native
Deschampsia caespitosa	Tufted hairgrass	Poaceae		Native
Deschampsia danthonioides	Annual hairgrass	Poaceae		Native
Deschampsia elongata	Slender hairgrass	Poaceae		Native
Dianthus armeria ssp. *armeria*	Grass pink	Caryophyllaceae		Exotic
Dicentra formosa	Bleeding heart	Papaveraceae		Native
Dichelostemma capitatum	Blue dicks	Liliaceae		Native
Dichelostemma multiflorum	Wild hyacinth	Liliaceae		Native
Dichelostemma volubile	Twining brodiaea	Liliaceae		Native
Disporum hookeri	Hooker's fairybell	Liliaceae		Native
Draperia systyla	Draperia	Hydrophyllaceae		Native
Drosera rotundifolia	Round-leaved sundew	Droseraceae	ENF: W	Native
Dryopteris arguta	Wood fern	Dryopteridaceae		Native
Dryopteris sp.	Wood fern	Dryopteridaceae		Native
Dudleya cymosa	Hen and chickens	Crassulaceae		Native
Eleocharis acicularis var. acicularis	Needle spikerush	Cyperaceae		Native
Eleocharis acicularis var. bella	Spikerush	Cyperaceae		Native
Eleocharis macrostachya	Common spikerush	Cyperaceae		Native
Elymus elymoides	Squirreltail	Poaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Elymus glaucus	Blue wildrye	Poaceae		Native
Elymus lanceolatus ssp. *lanceolatus*	Wildrye	Poaceae		Native
Elymus multisetus	Big squirreltail	Poaceae		Native
Elymus trachycaulus	Slender wheatgrass	Poaceae		Native
Elymus trachycaulus ssp. *subsecundus*	Slender wheatgrass	Poaceae		Native
Elytrigia repens	Quackgrass	Poaceae		
Epilobium angustifolium ssp. *circumvagum*	Fire-weed	Onagraceae		Native
Epilobium brachycarpum	Panicled willowherb	Onagraceae		Native
Epilobium canum	California fuschia	Onagraceae		Native
Epilobium ciliatum	Common willowherb	Onagraceae		Native
Epilobium densiflorum	Dense flower willowherb	Onagraceae		Native
Epilobium foliosum	Manyflower willowherb	Onagraceae		Native
Epilobium glaberrimum ssp. *glaberrimum*	Willowherb	Onagraceae		Native
Epilobium minutum	Minute willowherb	Onagraceae		Native
Epilobium sp. - small white flrs	Willowherb	Onagraceae		Native
Equisetum arvense	Common horsetail	Equisetaceae		Native
Equisetum hymenale	Common scouring rush	Equisetaceae		Native
Ericameria sp.	Goldenbush	Asteraceae		Native
Erigeron breweri	Fleabane daisy	Asteraceae		Native
Erigeron foliosus	Leafy daisy	Asteraceae		Native
Erigeron lassenianus	Fleabane daisy	Asteraceae		Native
Erigeron peregrinus var. *callianthemus*	Fleabane daisy	Asteraceae		Native
Erigeron petrophilus	Rock daisy	Asteraceae		Native
Erigeron philadelphicus	Philadelphia daisy	Asteraceae		Native
Erigeron sp.	Erigeron	Asteraceae		Native
Eriodictyon californicum	Yerba santa	Hydrophyllaceae		Native
Eriogonum incanum	Frosty eriogonum	Hydrophyllaceae		Native
Eriogonum luteolum var. *luteolum*	Greene buckwheat	Polygonaceae		Native
Eriogonum nudum	Naked eriogonoum	Polygonaceae		Native
Eriogonum nudum var. *deductum*	Eriogonum	Polygonaceae		Native
Eriogonum prattenianum var. *prattenianum*	Buckwheat	Polygonaceae		Native
Eriogonum ursinum	Bear Valley eriogonum	Polygonaceae		Native
Eriogonum wrightii var. *subscaposum*	Wright buckwheat	Polygonaceae		Native
Eriophyllum lanatum	Woolly-yarrow	Asteraceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Eriophyllum lanatum var. *integrifolium*	Oregon sunshine	Asteraceae		Native
Erodium botrys	Long-beaked storksbill	Geraniaceae		Exotic
Erodium cicutarium	Redstem filaree	Geraniaceae		Exotic
Erysimum capitatum ssp. *capitatum*	Douglas's wallflower	Brassicaceae		Native
Eschscholzia californica	California poppy	Papaveraceae		Native
Eschscholzia minutiflora	Pygmy poppy	Papaveraceae		Native
Euphorbia crenulata	Chinese caps	Euphorbiaceae		Native
Festuca arundinacea	Tall fescue	Poaceae		Exotic
Festuca californica	California fescue	Poaceae		Native
Festuca idahoensis	Idaho fescue	Poaceae		Native
Festuca occidentalis	Western fescue	Poaceae		Native
Festuca pratense	Meadow fescue	Poaceae		Exotic
Filago californica	California fluffweed	Asteraceae		Native
Filago gallica	Fluffweed	Asteraceae		Native
Fragaria vesca	Wood strawberry	Rosaceae		Native
Fragaria virginiana	Mountain strawberry	Rosaceae		Native
Fraxinus dipetala	California ash	Oleaceae		Native
Fremontodendron decumbens	Pine Hill flannelbush	Sterculiaceae	Fed: E; CA: R; CNPS: 1B	Native
Fritillaria atropurpurea	Spotted mountain bells	Liliaceae		Native
Fritillaria sp.	Fritillary	Liliaceae		Native
Galium aparine	Goose grass	Rubiaceae		Native
Galium bolanderi	Bolander's bedstraw	Rubiaceae		Native
Galium divaricatum	Lamarck's bedstraw	Rubiaceae		Native
Galium parisiense	Wall bedstraw	Rubiaceae		Exotic
Galium porrigens var. *porrigens*	Climbing bedstraw	Rubiaceae		Native
Galium sparsifolium	Sequoia bedstraw	Rubiaceae		Native
Galium trifidum	Bedstraw	Rubiaceae		Native
Galium triflorum	Sweet-scented bedstraw	Rubiaceae		Native
Garrya fremontii	Fremont's silk tassel	Garryaceae		Native
Gastridium ventricosum	Nit grass	Poaceae		Exotic
Gaultheria ovatifolia	Gaultheria	Ericaceae		Native
Gayophytum diffusum ssp. *parviflorum*	Gayophytum	Onagraceae		Native
Genista monspessulana	French broom	Fabaceae		Exotic
Geranium dissectum	Cut-leaved geranium	Geraniaceae		Exotic

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Geranium molle	Dove's-foot geranium	Geraniaceae		Exotic
Geranium richardsonii	Richardson's geranium	Geraniaceae		Native
Geum macrophyllum	Bigleaf avens	Rosaceae		Native
Gilia capitata	Blue-headed gilia	Polemoniaceae		Native
Gilia leptaelea	Gilia	Polemoniaceae		Native
Gilia tricolor spp. *diffusa*	Bird's-eye gilia	Polemoniaceae		Native
Githopsis diffusa	Bluecup	Campanulaceae		Native
Githopsis pulchella ssp. *pulchella*	Bluecup	Campanulaceae		Native
Githopsis specularioides	Bluecup	Campanulaceae		Native
Glyceria elata	Fowl mannagrass	Poaceae		Native
Glyceria striata	Mannagrass	Poaceae		Native
Gnaphalium californicum	California everlasting	Asteraceae		Native
Gnaphalium canescens	White everlasting	Asteraceae		Native
Gnaphalium palustre	Lowland cudweed	Asteraceae		Native
Gnaphalium sp.	Cudweed	Asteraceae		Native
Gnaphalium stramineum	Cotton-batting-plant	Asteraceae		Native
Goodyera oblongifolia	Rattlesnake plantain	Orchidaceae		Native
Gratiola ebracteata	Hedge-hyssop	Scrophulariaceae		Native
Grindelia hirsutula var. *davyi*	Gumplant	Asteraceae		Native
Hedyponis cretica	Hedyponis	Asteraceae		Exotic
Helenium bigelovii	Biglow sneezeweed	Asteraceae		Native
Helianthella californica	California helianthella	Asteraceae		Native
Helianthemum suffructescens	Bisbee Peak rush-rose	Cistaceae	CNPS: list 3	Native
Hemizonia fitchii	Fitch's tarplant	Asteraceae		Native
Heracleum lanatum	Cow parsnip	Apiaceae		Native
Herniaria hirsuta ssp. *hirsuta*	Herniaria	Caryophyllaceae		Exotic
Hesperevax sp.	Hesperevax	Asteraceae		Native
Heterocodon rariflorum	Heterocodon	Campanulaceae		Native
Heteromeles arbutifolia	Toyon	Rosaceae		Native
Heuchera micrantha	Crevice heuchera	Saxifragaceae		Native
Heuchera rubescens	Jack o' the rocks	Saxifragaceae		Native
Hieracium albiflorum	White hawkweed	Asteraceae		Native
Hieracium sp.	Hawkweed	Asteraceae		Native
Hirschfeldia incana	Hirschfeldia	Brassicaceae		Exotic

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Holcus lanatus	Velvet grass	Poaceae		Exotic
Holodiscus microphyllus var. *microphyllus*	Rock spirea	Rosaceae		Native
Hordeum brachyantherum	Meadow barley	Poaceae		Native
Hordeum marinum ssp. *gussoneanum*	Mediterranean barley	Poaceae		Native
Horkelia fusca	Dusky horkelia	Rosaceae		Native
Horkelia tridentata ssp. *tridentata*	Three-toothed horkelia	Rosaceae		Native
Hydrophyllum occidentale	California waterleaf	Hydrophyllaceae		Native
Hypericum anagalloides	Tinkers penny	Hypericaceae		Native
Hypericum concinnum	Gold wire	Hypericaceae		Native
Hypericum formosum var. *scouleri*	Scouler's St. John's wort	Hypericaceae		Native
Hypericum perforatum	Klamath weed	Hypericaceae		Exotic
Hypochaeris glabra	Smooth cat's-ear	Asteraceae		Exotic
Hypochaeris radicata	Rough cat's-ear	Asteraceae		Exotic
Iris hartwegii	Hartweg's iris	Iridaceae		Native
Iris macrosiphon	Bowl-tubed iris	Iridaceae		Native
Isoetes orcuttii	Quillwort	Isoetaceae		Native
Ipomopsis aggregata	Scarlet gilia	Polemoniaceae		Native
Ivesia santolinoides	Mouse-tail ivesia	Rosaceae		Native
Juncus acuminatus	Taper tip rush	Juncaceae		Native
Juncus balticus	Baltic rush	Juncaceae		Native
Juncus bufonius var. *bufonius*	Toad rush	Juncaceae		Exotic
Juncus capitatus	Capitate rush	Juncaceae		Native
Juncus chlorocephalus	Rush	Juncaceae		Native
Juncus effusus	Soft rush	Juncaceae		Native
Juncus ensifolius	Three-stem rush	Juncaceae		Native
Juncus macrandrus	Long-anther rush	Juncaceae		Native
Juncus nevadensis	Sierra rush	Juncaceae		Native
Juncus occidentalis	Western rush	Juncaceae		Native
Juncus oxymeris	Pointed rush	Juncaceae		Native
Juncus parryi	Parry's rush	Juncaceae		Native
Juncus tenuis	Slender rush	Juncaceae		Native
Juncus xiphioides	Iris-leaf rush	Juncaceae		Native
Juniperus communis	Common juniper	Cupressaceae		Native
Juniperus occidentalis var. *australis*	Western juniper	Cupressaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Keckiella breviflora	Gaping penstemon	Scrophulariaceae		Native
Keckiella lemmonii	Lemmon penstemon	Scrophulariaceae		Native
Kelloggia galioides	Kelloggia	Rubiaceae		Native
Lactuca serriola	Prickly lettuce	Asteraceae		Exotic
Lactuca virosa	Wild lettuce	Asteraceae		Exotic
Lasthenia californica	California goldfields	Asteraceae		Native
Lathyrus jepsonii var. *californicus*	Jepson's pea	Fabaceae		Native
Lathyrus lanszwertii var. *aridus*	Nevada pea	Fabaceae		Native
Lathyrus latifolius	Perennial sweet pea	Fabaceae		Exotic
Lathyrus odoratus	Sweet pea	Fabaceae		Exotic
Lathyrus sulphureus	Snub pea	Fabaceae		Native
Lepechinia calycina	Pitcher sage	Lamiaceae		Native
Lepidium nitidum	Shining peppergrass	Brassicaceae		Native
Lessingia sp.	Lessingia	Asteraceae		Native
Leucanthemum vulgare	Ox-eye daisy	Asteraceae		Exotic
Leucothoe davisiae	Sierra laurel	Ericaceae		Native
Lewisia rediviva	Bitter root	Portulacaceae		Native
Ligusticum californica	California lovage	Apiaceae		Native
Ligusticum grayi	Gray's lovage	Apiaceae		Native
Lilium parvum	Alpine lily	Liliaceae		Native
Lilium washingtonianum	Washington lily	Liliaceae		Native
Limnanthes sp.	Meadowforam	Limnanthaceae		Native
Limosella aquatica	Northern mudwort	Scrophulariaceae		Native
Linanthus bicolor	Bicolor linanthus	Polemoniaceae		Native
Linanthus ciliatus	Whisker-brush	Polemoniaceae		Native
Linanthus montanus	Mustang-clover	Polemoniaceae		Native
Lindernia dubia	False pimpernel	Scrophulariaceae		Native
Linum bienne	Flax	Linaceae		Exotic
Linum usitatissimum	Common flax	Linaceae		Exotic
Listera convallarioides	Broad-lipped twayblade	Orchidaceae		Native
Lithocarpus densiflorus	Tanbark oak	Fagaceae		Native
Lithophragma bolanderi	Sierra star	Saxifragaceae		Native
Lithophragma affine	Woodland star	Saxifragaceae		Native
Lolium multiflorum	Annual ryegrass	Poaceae		Exotic

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Lolium perenne	Perennial ryegrass	Poaceae		Native
Lolium temulentum	Ryegrass	Poaceae		Exotic
Lomatium nevadense	Nevada lomatium	Apiaceae		Native
Lomatium utriculatum	Foothill lomatium	Apiaceae		Native
Lonicera caurina	Mountain fly honeysuckle	Caprifoliaceae		Native
Lonicera conjugialis	Double honeysuckle	Caprifoliaceae		Native
Lonicera hispidula var. *vacillans*	Honeysuckle	Caprifoliaceae		Native
Lonicera interrupta	Chaparral honeysuckle	Caprifoliaceae		Native
Lonicera involucrata var. *involucrata*	Twinberry	Caprifoliaceae		Native
Lotus argophyllus ssp. *argophyllus*	Silver lotus	Fabaceae		Exotic
Lotus corniculatus	Bird's-foot trefoil	Fabaceae		Exotic
Lotus crassifolius	Broad-leaved lotus	Fabaceae		Native
Lotus denticulatus	Lotus	Fabaceae		Native
Lotus humistratus	Short-pod lotus	Fabaceae		Native
Lotus incanus	Woolly lotus	Fabaceae		Native
Lotus nevadensis var. *nevadensis*	Sierra Nevad lotus	Fabaceae		Native
Lotus oblongifolius var. *oblongifolius*	Narrow-leaved lotus	Fabaceae		Native
Lotus purshianus	Spanish-clover	Fabaceae		Native
Lotus scoparius var. *scoparius*	California broom	Fabaceae		Native
Lupinus albifrons var. *albifrons*	Silver lupine	Fabaceae		Exotic
Lupinus benthamii	Spider lupine	Fabaceae		Exotic
Lupinus bicolor	Miniature lupine	Fabaceae		Native
Lupinus fulcratus	California green-stipuled lupine	Fabaceae		Native
Lupinus grayi	Gray lupine	Fabaceae		Native
Lupinus latifolius var. *columbianus*	Broad-leaved lupine	Fabaceae		Native
Lupinus lepidus var. *lobbii*	Dwarf lupine	Fabaceae		Native
Lupinus lepidus var. *sellulus*	Torrey's lupine	Fabaceae		Native
Lupinus microcarpus	Chick lupine	Fabaceae		Native
Lupinus nanus	Douglas's lupine	Fabaceae		Native
Lupinus polyphyllus var. *burkei*	Blue-pod lupine	Fabaceae		Native
Lupinus striversii	Harlequin lupine	Fabaceae		Native
Luzula comosa	Wood rush	Juncaceae		Native
Luzula parviflora	Small-flowered wood rush	Juncaceae		Native
Madia bolanderi	Bolander's madia	Asteraceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Madia elegans	Common madia	Asteraceae		Native
Madia exigua	Pygmy madia	Asteraceae		Native
Madia gracilis	Slender tarweed	Asteraceae		Native
Madia minima	Hemizonella	Asteraceae		Native
Maianthemum racemosa	Feathery false lily-of-the-valley	Liliaceae		Native
Maianthemum stellata	Starry false lily-of-the-valley	Liliaceae		Native
Marah watsonii	Man-root	Cucurbitaceae		Native
Medicago lupulina	Burclover	Fabaceae		Native
Medicago sativa	Alfalfa	Fabaceae		Native
Melica aristata	Awned melic	Poaceae		Native
Melica californica	California melic	Poaceae		Native
Melica cf. *smithii*	Melic	Poaceae		Native
Melica geyerii	Geyer oniongrass	Poaceae		Native
Melica harfordii	Harford oniongrass	Poaceae		Native
Melica stricta	Nodding melic	Poaceae		Native
Melica subulata	Alaska oniongrass	Poaceae		Native
Melica torreyana	Torrey melic	Poaceae		Native
Melilotus alba	White sweet clover	Fabaceae		Native
Mentzelia albicaulis	While blazing star	Loasaceae		Native
Mentzelia dispersa	Nevada stickleaf	Loasaceae		Native
Micropus californicus var. *californicus*	California cottonweed	Asteraceae		Native
Microseris lacinata	Cutleaf microseris	Asteraceae		Native
Microseris nutans	Nodding microseris	Asteraceae		Native
Mimulus aurantiacus	Sticky monkeyflower	Scrophulariaceae		Native
Mimulus bicolor	Yellow and white monkeyfloser	Scrophulariaceae		Native
Mimulus breweri	Brewer's monkeyflower	Scrophulariaceae		Native
Mimulus cardinalis	Scarlet monnkeyflower	Scrophulariaceae		Native
Mimulus guttatus	Common large monkeyflower	Scrophulariaceae		Native
Mimulus lewisii	Lewis' monkeyflower	Scrophulariaceae		Native
Mimulus mephiticus	Skunky monkeyflower	Scrophulariaceae		Native
Mimulus moschatus	Musk monkeyflower	Scrophulariaceae		Native
Mimulus primuloides ssp. *primuloides*	Primrose monkeyflower	Scrophulariaceae		Native
Mimulus torreyi	Torrey monkeyflower	Scrophulariaceae		Native
Minuartia californica	California sandwort	Caryophyllaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Minuartia douglasii	Douglas's sandwort	Caryophyllaceae		Native
Mitella breweri	Bishop's-cap mitrewort	Saxifragaceae		Native
Moehringia macrophylla	Large-leaved sandwort	Caryophyllaceae		Native
Monardella lanceolata	Mustang mint	Lamiaceae		Native
Monardella odoratissma ssp. *pallida*	Mountain monardella	Lamiaceae		Native
Monardella sheltonii	Shelton's monardella	Lamiaceae		Native
Monardella sp.	Monardella	Lamiaceae		Native
Montia fontana	Water chickweed	Primulaceae		Native
Montia parviflora	Small-leaved montia	Primulaceae		Native
Muhlenbergia filiformis	Pull-up muhly	Poaceae		Native
Myrica hartwegii	Sierra bay	Myricaceae	ENF: W	Native
Myriophyllum sp.	Water-milfoil	Haloragaceae		?
Nama demissum	Purple mat	Hydrophyllaceae		Native
Navarretia divaricata ssp. *divaricata*	Mountain navarretia	Polemoniaceae		Native
Navarretia filicaulis	Navarretia	Polemoniaceae		Native
Navarretia intertexta var. *intertexta*	Needle-leaved navarretia	Polemoniaceae		Native
Navarretia pubescens	Downy navarrettia	Polemoniaceae		Native
Nemophila maculata	Fivespot	Hydrophyllaceae		Native
Nemophila menziesii var. i*ntegrifolia*	Baby-blue-eyes	Hydrophyllaceae		Native
Nemophila parviflora var. *austinae*	Small-flowered nemophilla	Hydrophyllaceae		Native
Nemophila parviflora var. *quercifolia*	Small-flowered nemophilla	Hydrophyllaceae		Native
Nemphila menziesii var. *menziesii*	Baby-blue-eyes	Hydrophyllaceae		Native
Nuphar luteum ssp. *polysepalum*	Yellow pond lily	Nymphaeaceae		Native
Odontostomum hartwegii	Hartweg's odontostomum	Liliaceae		Native
Orobanche fasciculata	Clustered broomrape	Orobanchaceae		Native
Orthilia secunda	One-sided wintergreen	Ericaceae		Native
Osmorhiza brachypoda	California sweet-cicely	Apiaceae		Native
Osmorhiza chilensis	Mountain sweet-cicely	Apiaceae		Native
Oxypolis occidentalis	Cow-bane	Apiaceae		Native
Panicum acuminatum var. *acuminatum*	Panicgrass	Poaceae		Exotic
Parvisedum pumilum	Dwarf cliff sedum	Crassulaceae		Native
Pedicularis semibarbata	Dwarf lousewort	Scrophulariaceae		Native
Pellaea andromedifolia	Coffee fern	Pteridaceae		Native
Pellaea bridgesii	Bridge's cliff-brake	Pteridaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Pellaea mucronata var. *californica*	California bird's-foot fern	Pteridaceae		Native
Pellaea mucronata var. *mucronata*	Bird's-foot fern	Pteridaceae		Native
Penstemon azureus	Azure penstemon	Scrophulariaceae		Native
Penstemon deustus	Hot-rock penstemon	Scrophulariaceae		Native
Penstemon laetus	Gay penstemon	Scrophulariaceae		Native
Penstemon newberryi var. *newberryi*	Mountain pride	Scrophulariaceae		Native
Penstemon roezlii	Beardstongue	Scrophulariaceae		Native
Penstemon sp.	Penstemon	Scrophulariaceae		Native
Pentagramma triangularis	Goldack fern	Pteridaceae		Native
Perideridia cf. *kelloggii*	Kellogg's yampa	Apiaceae		Native
Perideridia lemmonii	Lemmon's yampa	Apiaceae		Native
Perideridia parishii ssp. l*atifolia*	Parish's yampa	Apiaceae		Native
Perideridia sp.	Yampa	Apiaceae		Native
Petrohagia dubia	Petrohagia	Caryophyllaceae		Exotic
Phacelia cicutaria	Phacelia	Hydrophyllaceae		Native
Phacelia hastata	Silverleaf phacelia	Hydrophyllaceae		Native
Phacelia heterophylla ssp. *virgata*	Virgate phacelia	Hydrophyllaceae		Native
Phacelia hydrophylloides	Waterleaf phacelia	Hydrophyllaceae		Native
Phacelia imbricata ssp. *imbricata*	Imbricate phacelia	Hydrophyllaceae		Native
Phacelia mutabilis	Changeable phacelia	Hydrophyllaceae		Native
Phacelia paludicola	Phacelia	Hydrophyllaceae		Native
Phacelia purpusii	Purpus' phacelia	Hydrophyllaceae		Native
Phacelia quickii	Quick's phacelia	Hydrophyllaceae		Native
Phacelia racemosa	Racemose phacelia	Hydrophyllaceae		Native
Phacelia ramosissima	Branching phacelia	Hydrophyllaceae		Native
Phacelia stebbinsii	Stebbin's phacelia	Hydrophyllaceae	Fed: SC; CNPS: 1B; ENF: S	Native
Phacelia vallicola	Mariposa phacelia	Hydrophyllaceae	ENF: W	Native
Phalacroseris bolanderi	Bolander's dandelion	Hydrophyllaceae		Native
Phalaris aquatica	Harding grass	Poaceae		Exotic
Philadelphus lewisii	Mockorange	Philadelphaceae		Native
Phleum pratense	Timothy grass	Poaceae		Exotic
Phlox diffusa	Spreading phlox	Polemoniaceae		Native
Phlox gracilis	Slender phlox	Polemoniaceae		Native
Phlox speciosa ssp. *occidentalis*	Western showy phlox	Polemoniaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Phyllodoce breweri	Mountain-heather	Ericaceae		Native
Physocarpus capitatus	Ninebark	Rosaceae		Native
Pinus contorta var. *murrayana*	Lodgepole pine	Pinaceae		Native
Pinus flexilis	Limber pine	Pinaceae		Native
Pinus jeffreyi	Jeffrey pine	Pinaceae		Native
Pinus lambertiana	Sugar pine	Pinaceae		Native
Pinus monticola	Western white pine	Pinaceae		Native
Pinus ponderosa	Pondersoa pine, yellow pine	Pinaceae		Native
Pinus sabiniana	Gray or foothill pine	Pinaceae		Native
Piperia cf. *elongata*	Rein orchid	Orchidaceae		Native
Piperia sp.	Piperia	Orchidaceae		Native
Piperia transversa	Transverse rein orchid	Orchidaceae		Native
Piperia unalascensis	Alaska rein orchid	Orchidaceae		Native
Plagiobothrys nothofulvus	Common popcorn flower	Boraginaceae		Native
Plantago erecta	Plantain	Plantaginaceae		Native
Plantago lanceolata	English plantain	Plantaginaceae		Exotic
Plantago major	Common plantain	Plantaginaceae		Exotic
Platanthera leucostachys	Sierra bog orchid	Orchidaceae		Native
Platanthera sparsiflora	Sparsely-flowered bog orchid	Orchidaceae		Native
Platystemon californicus	Cream cups	Papaveraceae		Native
Plectritis ciliosa ssp. *ciliosa*	Long-spurred plectritis	Valerianaceae		Native
Plectritis macrocera	Rotund plectritis	Valerianaceae		Native
Pleuricospora fimbriolata	Fringed pine sap	Ericaceae		Native
Poa annua	Annual bluegrass	Poaceae		Exotic
Poa bolanderi	Bolander's bluegrass	Poaceae		Native
Poa bulbosa	Bulbose bluegrass	Poaceae		Exotic
Poa compressa	Canada bluegrass	Poaceae		Native
Poa palustris	Fowl bluegrass	Poaceae		Native
Poa pratensis	Kentucky bluegrass	Poaceae		Native
Poa secunda	One-sided bluegrass	Poaceae		Native
Pogogyne zizphoroides	Sacramento pogogyne	Lamiaceae		Native
Polygala cornuta	Milkwort	Polygalaceae		Native
Polygala cornuta var. *cornuta*	Milkwort	Polygalaceae		Native
Polygonum bistortoides	Snakeweed	Polygonaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Polygonum douglasii ssp. *johnstonii*	Douglas' knotweed	Polygonaceae		Native
Polygonum minimum	Leafy dwarf knotweed	Polygonaceae		Native
Polygonum parryi	Parry's knotweed	Polygonaceae		Native
Polygonum phytolaccifolium	Alpine knotweed	Polygonaceae		Native
Polygonum polygaloides ssp. *kelloggii*	Kellogg's knotweed	Polygonaceae		Native
Polygonum sp.	Knotweed	Polygonaceae		Native
Polygpogon maritimus	Mediterranean beard grass	Poaceae		Exotic
Polypodium glycyrrhiza	Licorise fern	Polypodiaceae		Native
Polypogon interruptus	Beard grass	Poaceae		Exotic
Polypogon monspeliensis	Rabbits foot-grass	Poaceae		Exotic
Polystichum californicum	California sword fern	Dryopteridaceae		Native
Polystichum imbricans	Sword fern	Dryopteridaceae		Native
Populus balsamifera var. *trichocarpa*	Black cottonwood	Salicaceae		Native
Populus fremontii	Fremont's cottonwood	Salicaceae		Native
Populus tremuloides	Aspen	Salicaceae		Native
Potamogeton natans	Pondweed	Potamogetonaceae		Native
Potentilla glandulosa	Sticky cinquefoil	Rosaceae		Native
Potentilla gracilis	Slender cinquefoil	Rosaceae		Native
Potentilla grayi	Gray's cinquefiol	Rosaceae		Native
Prunella vulgaris var. l*anceolata*	Self-heal	Lamiaceae		Native
Prunus emarginata	Bitter cherry	Rosaceae		Native
Prunus subcordata	Sierra plum	Rosaceae		Native
Prunus virginiana var. *demissa*	Western choke cherry	Rosaceae		Native
Pseudotsuga menziesii	Douglas fir	Pinaceae		Native
Psilocarphus tenellus var. t*enellus*	Slender woolly-heads	Asteraceae		Native
Pteridium aquilinum var. *pubescens*	Bracken fern	Pteridaceae		Native
Pterospora andromedea	Pinedrops	Ericaceae		Native
Pterostegia drymarioides	Pterostegia	Polygonaceae		Native
Puccinellia nuttaliana	Nuttall's alkali grass	Poaceae		Native
Pyrola picta	White-veined wintergreen	Pyrolaceae		Native
Quercus berberidifolia	Scrub oak	Fagaceae		Native
Quercus chrysolepsis	Canyon oak	Fagaceae		Native
Quercus kelloggii	Black oak	Fagaceae		Native
Quercus vaccinifolia	Huckleberry oak	Fagaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Quercus wislizenii	Interior live oak	Fagaceae		Native
Ranunculus alisimifolius var. *alismellus*	Water plantain buttercup	Ranunculaceae		Native
Ranunculus aquatilis	Water buttercup	Ranunculaceae		Native
Ranunculus californicus	California buttercup	Ranunculaceae		Native
Ranunculus flammulina	Creeping buttercup	Ranunculaceae		Native
Ranunculus hebecarpus	Downy buttercup	Ranunculaceae		Native
Ranunculus occidentalis	Western buttercup	Ranunculaceae		Native
Ranunculus repens	Creeping buttercup	Ranunculaceae		Exotic
Raphanus sativus	Wild radish	Brassicaceae		Exotic
Rhamnus ilicifolius	Hollyleaf coffeeberry	Rhamnaceae		Native
Rhamnus purshiana	Cascara	Rhamnaceae		Native
Rhamnus rubra	Sierra coffeeberry	Rhamnaceae		Native
Rhamnus tomentella	Chaparral coffeeberry	Rhamnaceae		Native
Rhododendron occidentale	Western azalea	Ericaceae		Native
Ribes cf. *lobbii*	Gummy gooseberry	Grossulariaceae		Native
Ribes nevadense	Sierra currant	Grossulariaceae		Native
Ribes roezlii	Sierra gooseberry	Grossulariaceae		Native
Ribes sanguineum	Red flowering currant	Grossulariaceae		Native
Ribes viscosissimum	Sticky currant	Grossulariaceae		Native
Rorippa curvisiliqua	Yellow cress	Brassicaceae		Native
Rorippa nasturtium-aquaticum	Water-cress	Brassicaceae		Native
Rosa bridgesii	Rose	Rosaceae		Native
Rosa gymnocarpa	Wood rose	Rosaceae		Native
Rosa woodsii	Interior rose	Rosaceae		Native
Rubus discolor	Himalayan blackberry	Rosaceae		Exotic
Rubus glaucifolius	Glaucus-leaved blackberry	Rosaceae		Native
Rubus laciniatus	Cutleaf blackberry	Rosaceae		Exotic
Rubus leucodermis	Western raspberry	Rosaceae		Native
Rubus parviflorus	Thimbleberry	Rosaceae		Native
Rubus ursinus	California blackberry	Rosaceae		Native
Rudbeckia occidentalis var. *occidentalis*	Western cone-flower	Asteraceae		Native
Rumex acetosella	Sheep sorrel	Polygonaceae		Exotic
Rumex crispus	Curly dock	Polygonaceae		Exotic
Rumex salicifolius	Willow dock	Polygonaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Sagina saginoides	Pearlwort	Caryophyllaceae		Native
Salix exigua	Narrowleaf willow	Salicaceae		Native
Salix geyeriana	Geyer's willow	Salicaceae		Native
Salix laevigata	Red willow	Salicaceae		Native
Salix lasiolepis	Arrow willow	Salicaceae		Native
Salix lemmonii	Lemmon's willow	Salicaceae		Native
Salix lucida ssp. *lasiandra*	Shining willow	Salicaceae		Native
Salix scouleriana	Scouler willow	Salicaceae		Native
Salsola tragus	Russian thistle	Chenopodiaceae		Native
Salvia sonomensis	Sonoma sage	Lamiaceae		Native
Sambucus mexicana	Blue elderberry	Caprifoliaceae		Native
Sanicula bipinnata	Poison sanicle	Apiaceae		Native
Sanicula bipinnatifida	Purple sanicle	Apiaceae		Native
Sanicula crassicaulis	Pacific snakeroot	Apiaceae		Native
Sanicula graveolens	Sierra sanicle	Apiaceae		Native
Sanicula tuberosa	Tuberous sanicle	Apiaceae		Native
Sarcodes sanguinea	Snow plant	Ericaceae		Native
Saxifraga aprica	Sierra saxifrage	Saxifragaceae		Native
Saxifraga californica	California saxifrage	Saxifragaceae		Native
Saxifraga mertensiana	Wood saxifrage	Saxifragaceae		Native
Saxifraga oregana	Bog saxifrage	Saxifragaceae		Native
Scandix pecten-veneris	Shepherd's needle	Apiaceae		Exotic
Scirpus clementis	Clement's bulrush	Cyperaceae		Native
Scirpus congdonii	Congdon's bulrush	Cyperaceae		Native
Scirpus microcarpus	Small-fruited bulrush	Cyperaceae		Native
Scleranthus annus ssp. *annus*	Knawel	Caryophyllaceae		Exotic
Scrophularia desertorum	Figwort	Scrophulariaceae		Native
Scutellaria anthirrinoides	Snapdragon skullcap	Lamiaceae		Native
Scutellaria californica	California skullcap	Lamiaceae		Native
Scutellaria sp.	Skullcap	Lamiaceae		Native
Sedum obtusatum ssp. *obtusatum*	Sierra stonecrop	Crassulaceae		Native
Sedum spathulifolium	Pacific stonecrop	Crassulaceae		Native
Sedum stenopetalum	Star-fruited stonecrop	Crassulaceae		Native
Selaginella sp.	Spike moss	Selaginellaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Selaginella wallacei	Alpine selaginella	Selaginellaceae		Native
Senecio aronicoides	California butterweed	Asteraceae		Native
Senecio canus	Woolly butterweed	Asteraceae		Native
Senecio clarkianus	Butterweed	Asteraceae		Native
Senecio integerrimus var. *exaltatus*	Tower butterweed	Asteraceae		Native
Senecio layneae	Layne's ragwort	Asteraceae	Fed: T; CA: R; CNPS: 1B; ENF:S	Native
Senecio triangularis	Arrowhead butterweed	Asteraceae		Native
Senecio vulgaris	Common groundsel	Asteraceae		Exotic
Sequoia giganteum	Giant sequoia	Taxodiaceae		Native
Sidalcea glaucescens	Glaucous sidalcea	Malvaceae		Native
Sidalcea hartwegii	Hartweg's sidalcea	Malvaceae		Native
Sidalcea malvaeflora	Checker mallow	Malvaceae		Native
Sidalcea reptans	Creeping checker	Malvaceae		Native
Silene californica	California Indian pink	Caryophyllaceae		Native
Silene douglasii	Douglas' campion	Caryophyllaceae		Native
Silene gallica	Common catchfly	Caryophyllaceae		Exotic
Silene lemmonii	Lemmon's campion	Caryophyllaceae		Native
Silybum marianum	Milk thistle	Asteraceae		Exotic
Sisymbrium altissimum	Tumbling mustard	Brassicaceae		Exotic
Sisymbrium officinale	Hedge mustard	Brassicaceae		Exotic
Sisyrinchium bellum	Blue-eyed grass	Iridaceae		Native
Sisyrinchium elmeri	Elmer's yellow-eyed grass	Iridaceae		Native
Sisyrinchium idahoense var. *idahoense*	Idaho blue-eyed grass	Iridaceae		Native
Sium suave	Water-parsnip	Apiaceae		Native
Smilacina racemosa	Racemose false Solomon's-seal	Liliaceae		Native
Smilacina stellata	Panicled false Solomon's-seal	Liliaceae		Native
Solanum xanti	Nightshade	Solanaceae		Native
Solidago canadensis ssp. *elongata*	Meadow goldenrod	Asteraceae		Native
Solidago sp.	Goldenrod	Asteraceae		Native
Soliva sessilis	Common soliva	Asteraceae		Exotic
Sonchus asper	Prickly sow thistle	Asteraceae		Exotic
Sonchus oleraceus	Common sow thistle	Asteraceae		Exotic
Sorbus californica	California mountain-ash	Rosaceae		Native
Sorbus sp.	Mountain-ash	Rosaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Sparganium angustifolium	Bur-reed	Typhaceae		Native
Spergularia rubra	Purple sand-spurrey	Caryophyllaceae		Native
Spiraea densiflora	Mountain spirea	Rosaceae		Native
Spiranthes porrifolia	Western lady's-tresses	Orchidaceae		Native
Stachys ajugoides	Hedge nettle	Lamiaceae		Native
Stephanomeria lactucina	Large-flowered stephanomeria	Asteraceae		Native
Streptanthus polygaloides	Milkwort jewel-flower	Brassicaceae		Native
Streptanthus tortuosus var. *tortuosus*	Mountain jewel-flower	Brassicaceae		Native
Streptopus amplexifolius var. *americanus*	Twisted stalk	Liliaceae		Native
Swertia radiata	Giant frasera	Gentianaceae		Native
Symphoricarpos albus var. *laevigatus*	Common snowberry	Caprifoliaceae		Native
Symphoricarpos mollis	Creeping snowberry	Caprifoliaceae		Native
Taeniatherum caput-medusae	Medusa head grass	Poaceae		Exotic
Taraxacum officinale	Dandelion	Asteraceae		Exotic
Tauschia hartwegii	Hartweg's tauchia	Apiaceae		Native
Taxus brevifolia	Pacific yew	Taxaceae	ENF: W	Native
Tellima grandiflora	Fringe-cups	Saxifragaceae		Native
Thalictrum fendleri var. *fenderli*	Fendler's meadow-rue	Ranunculaceae		Native
Thysanocarpus curvipes	Fringe-pod	Brassicaceae		Native
Tolmeia menziesii	Piggy-back-plant	Saxifragaceae		Native
Torilis arvensis	Hedge parsley	Apiaceae		Exotic
Torreya californica	California nutmeg	Taxaceae		Native
Torreyochloa pallida var. *pauciflora*	California alkali grass	Poaceae		Native
Toxicodendron diversilobum	Poison oak	Anacardiaceae		Native
Tragopogon dubius	Yellow salsify	Asteraceae		Exotic
Tragopogon porrifolia	Salsify	Asteraceae		Exotic
Trichostema cf. *lanceolatum*	Blue-curls	Lamiaceae		Native
Trientalis latifolia	Star-flower	Primulaceae		Native
Trifolium albopurpureum	Rancheria clover	Fabaceae		Native
Trifolium cf. *longipes* ?	Long-stalked clover	Fabaceae		Native
Trifolium ciliolatum	Tree clover	Fabaceae		Native
Trifolium dubium	Shamrock	Fabaceae		Exotic
Trifolium glomeratum	Clover	Fabaceae		Exotic
Trifolium hirtum	Rose clover	Fabaceae		Exotic

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Trifolium incarnatum	Crimson clover	Fabaceae		Exotic
Trifolium microcephalum	Maiden clover	Fabaceae		Native
Trifolium obtusiflorum	Creek clover	Fabaceae		Native
Trifolium pratense	Red clover	Fabaceae		Exotic
Trifolium repens	White lawn clover	Fabaceae		Exotic
Trifolium subterraneum	Subterranean clover	Fabaceae		Exotic
Trifolium variegatum	White-topped clover	Fabaceae		Native
Trifolium wildenovii	Tomcat clover	Fabaceae		Native
Trifolium wormskjoldii	Cow clover	Fabaceae		Native
Triphysaria eriantha	Yellow Johnnytuck	Scrophulariaceae		Native
Trisetum canescens	Nodding trisetum	Poaceae		Native
Trisetum spicatum	Spike trisetum	Poaceae		Native
Triteleia hyacinthina	White brodiaea	Liliaceae		Native
Triteleia ixioides ssp. *anilina*	Golden brodiaea	Liliaceae		Native
Triteleia ixioides ssp. *scabra*	Golden brodiaea	Liliaceae		Native
Triteleia laxa	Ithuriel's spear	Liliaceae		Native
Triteleia montana	Mountian triteleia	Liliaceae		Native
Tsuga mertensiana	Hemlock	Pinaceae		Native
Typha domingensis	Southern cattail	Typhaceae		Native
Typha sp.	Cattail	Typhaceae		Native
Umbellularia californica	California bay laurel	Lauraceae		Native
Uropappus lindlyii	Silverpuffs	Asteraceae		Native
Vaccinium parvifolium	Red huckleberry	Ericaceae		Native
Vaccinium scoparium	Littleleaf huckleberry	Ericaceae		Native
Vaccinium uliginosum	Western blueberry	Ericaceae		Native
Veratrum californicum var. *californicum*	Corn-lily	Liliaceae		Native
Verbascum blattaria	Moth mullein	Scrophulariaceae		Exotic
Verbascum thaspsus	Common mullein	Scrophulariaceae		Exotic
Verbena bonariensis	Clusterflower verbena	Verbenaceae		Exotic
Veronica americana	Brooklime	Scrophulariaceae		Native
Veronica anagallis-aquatica	Water speedwell	Scrophulariaceae		Native
Veronica scutellata	Marsh speedwell	Scrophulariaceae		Native
Veronica serpyllifolia ssp. *humifusa*	Thyme-leaved speedwell	Scrophulariaceae		Native
Veronica sp.	Veronica	Scrophulariaceae		Native

Vascular plants observed during UARP botanical surveys, 2000 and 2003

Name	Common Name	Family	Special Status	Origin
Vicia hirsuta	Vetch	Fabaceae		Exotic
Vicia sativa	Spring vetch	Fabaceae		Exotic
Vicia sativa ssp. *nigra*	Narrowleaf vetch	Fabaceae		Exotic
Vicia sp.	Vetch	Fabaceae		Native
Vicia villosa ssp. *varia*	Winter vetch	Fabaceae		Exotic
Viola adunca	Western dog violet	Violaceae		Native
Viola glabella	Smooth yellow violet	Violaceae		Native
Viola lobata var. *lobata*	Pine violet	Violaceae		Native
Viola macloskeyi	Macloskey's violet	Violaceae		Native
Viola purpurea ssp. *purpurea*	Mountian violet	Violaceae		Native
Viola sheltonii	Shelton's violet	Violaceae		Native
Viola tomentosa	Woolly violet	Violaceae	x	Native
Vitis californica	California grape	Vitaceae		Native
Vulpia microstachys	Vulpia	Poaceae		Exotic
Vulpia myuros	Foxtail fescue	Poaceae		Exotic
Whitneya dealbata	Whitneya	Asteraceae		Native
Woodwardia fimbriata	Chain fern	Blechnaceae		Native
Wyethia angustifolia	Narrowleaf mule ears	Asteraceae		Native
Wyethia glabra	Green mule ears	Asteraceae		Native
Wyethia helenioides	Gray mule ears	Asteraceae		Native
Wyethia mollis	Mountain mule ears	Asteraceae		Native
Wyethia reticulata	El Dorado County mule ears	Asteraceae	Fed: SC; CNPS: 1B	Native
Zigadenus venenosus var. *venenosus*	Death camas	Liliaceae		Native

APPENDIX C

NOXIOUS WEEDS AND SPECIAL STATUS PLANTS (NE, SE, SW, WW)