APPENDIX C

Special-Status Species Report

Special-Status Species Report

North Fork American River Trail Project

Prepared for:

Placer County Department of Facility Services

August 2007

EDAW

Special-Status Species Report

North Fork American River Trail Project

Prepared for:

Placer County Department of Facility Services
11476 C Avenue
Auburn, CA 95603

Contact:

Andy Fisher
530/889-6819

Prepared by:

EDAW
2022 J Street
Sacramento, CA 95814

Contact:

Debra Bishop
916/414-5800

August 2007

EDAW

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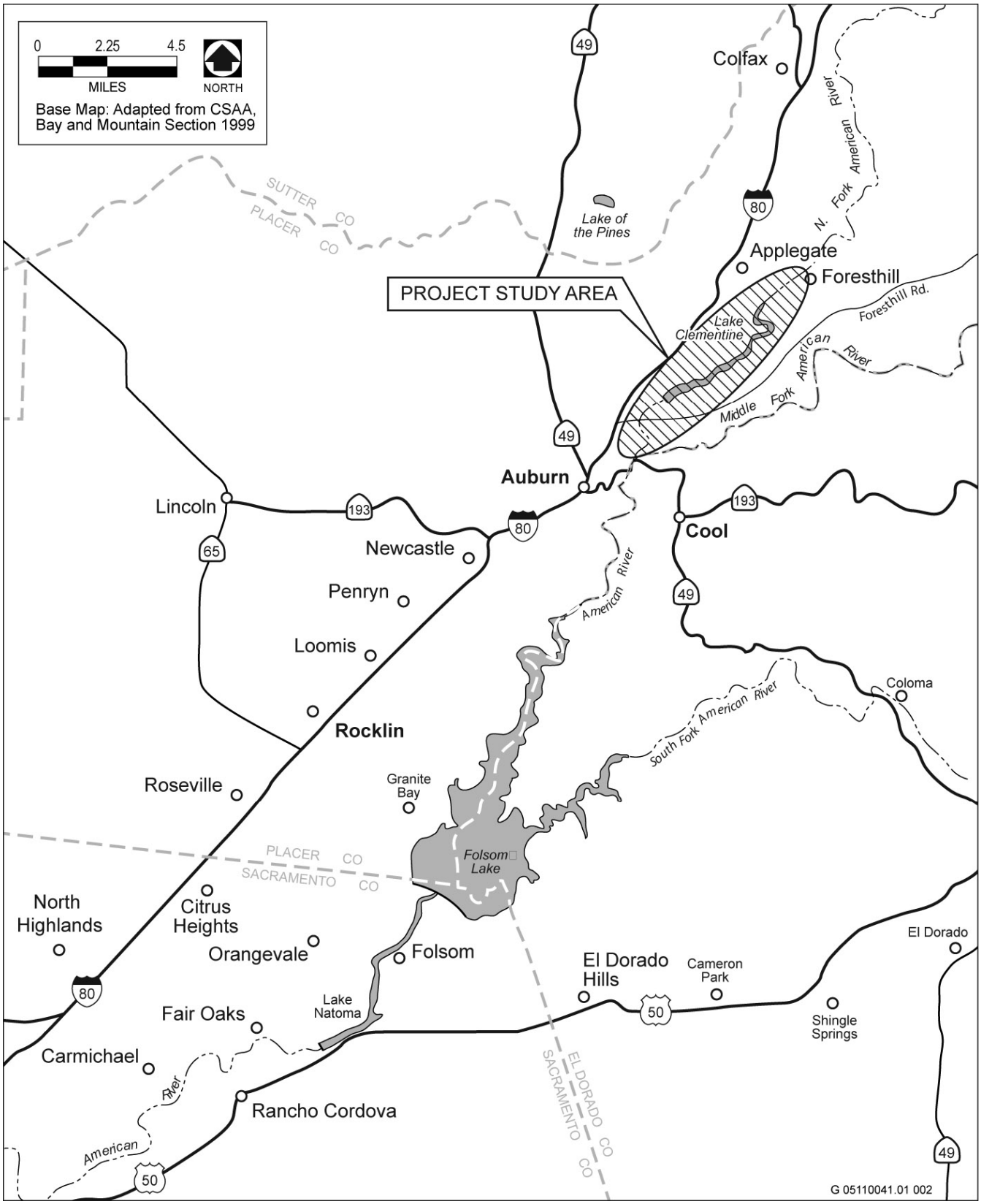
INTRODUCTION

This report describes the methods and results of focused botanical surveys for special-status plant species and the evaluation of habitat for special-status wildlife species along 14.2 miles of the proposed trail alignment for the North Fork American River Trail. The proposed multiple-use trail is located on the southern slope of the North Fork of the American River canyon in Placer County, approximately 40 miles northeast of Sacramento (Exhibit 1). The proposed trail alignment would begin at the confluence of the North and Middle Forks of the American River and end at Ponderosa Bridge, approximately 14.2 miles upstream and 5 miles west of the town of Foresthill and southeast of Weimar (Exhibit 2). In addition to the trail, staging termini would be constructed at each end of the trail to provide construction and user access.

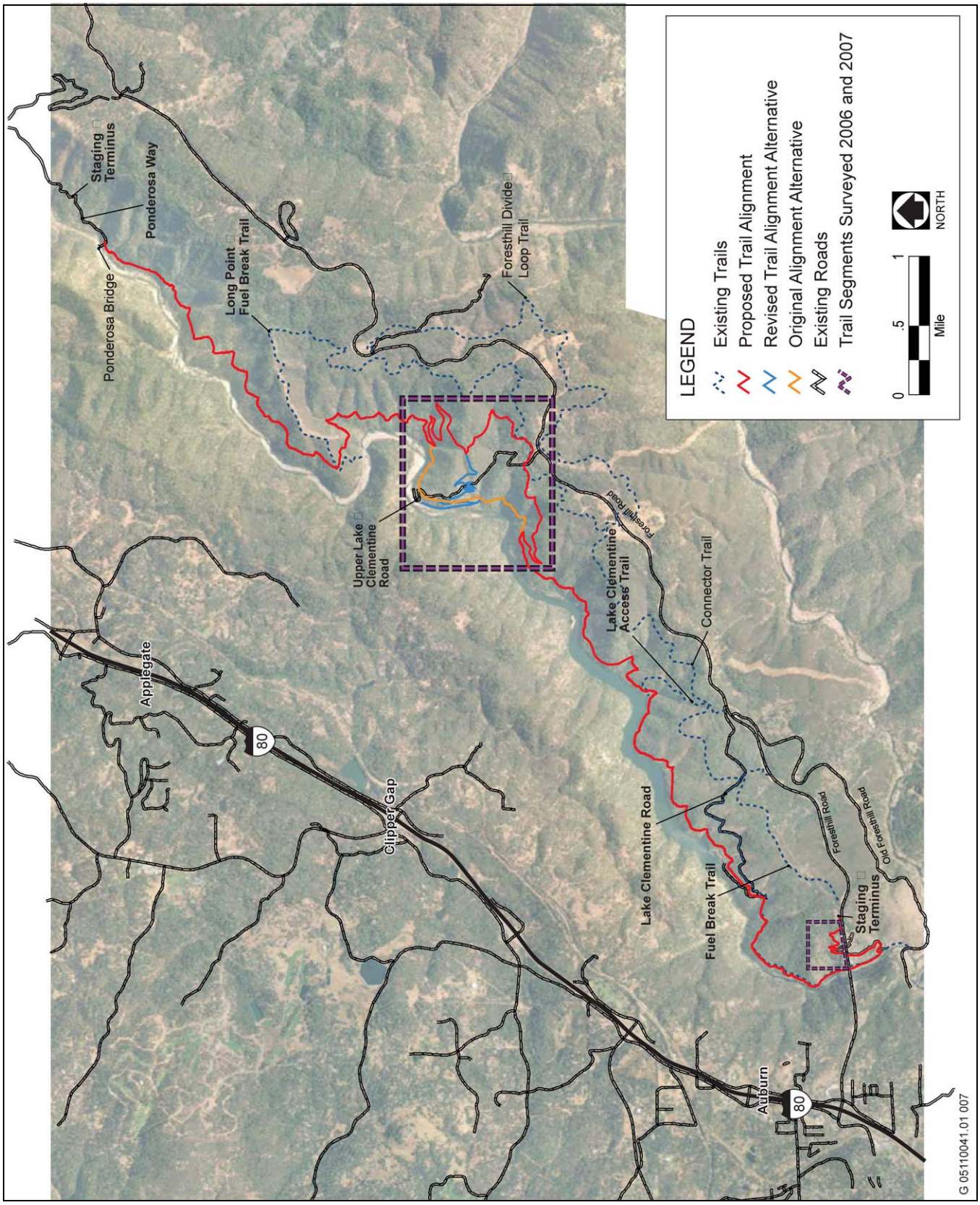
The purpose of the special-status plant surveys was to identify occurrences of special-status plants that could be disturbed as a result of constructing the multiple-use trail and associated staging termini. The purpose of the wildlife habitat evaluation was to determine which special-status wildlife species may occur in the project area based on habitat suitability and to develop appropriate mitigation to avoid or minimize potential impacts to these species. Focused surveys for special-status wildlife were not conducted.

The Original Trail Alignment Alternative was surveyed in 2004, and a previous special-status species survey report detailing the 2004 surveys was prepared in June of that year (Placer County Department of Facility Services 2004). Changes were made to the Original Trail Alignment Alternative based on a geotechnical evaluation of the trail. These changes were reflected in the Revised Trail Alignment Alternative, which was surveyed in 2006. Additional changes were made to the Revised Trail Alignment Alternative to avoid private property in the project area. The trail alignment that is evaluated in this EIR is the proposed trail alignment which incorporates all of the changes to the trail alignment to date and reflects the latest trail alignment that is being carried forward as the proposed project. The proposed trail alignment was surveyed in 2007.

In summary, one special-status plant species, Brandegee's clarkia (*Clarkia biloba* spp. *brandegeeae*), was encountered during the 2004 surveys. No occurrences of Brandegee's clarkia are present on the Revised Trail Alignment Alternative surveyed in 2006. However, an occurrence was documented in the vicinity of the Revised Trail Alignment Alternative along a roadcut bordering Upper Lake Clementine Road. Habitat for foothill yellow-legged frog (*Rana boylii*), osprey (*Pandion haliaetus*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperi*), and bald eagle (*Haliaeetus leucocephalus*) is present in the project area. No occurrences of Brandegee's clarkia were encountered along the proposed trail alignment during the 2007 survey; however, this survey was conducted during the non-blooming season and additional surveys of this alignment would need to be conducted during the blooming season. The methods and results of the surveys are discussed in detail below, and, if necessary, mitigation measures for each special-status species are provided.



Regional Setting **Exhibit 1**



Source: North Fork Associates 2003

Trail Segment Surveys in the Project Area **Exhibit 2**

RESULTS

PRE-FIELD INVESTIGATION RESULTS

Special-status plants are defined as plants that are legally protected or that are otherwise considered sensitive by federal, state or local resource conservation agencies and organizations. Special-status plant taxa are species, subspecies or varieties that fall into one or more of the following categories, regardless of their legal or protection status:

- officially listed by the state of California or the federal government as Endangered, Threatened or Rare;
- a candidate for state or federal listing as Endangered, Threatened or Rare;
- taxa that meet the criteria for listing, even if not currently included on any list, as described in Section 15380 of the California Environmental Quality Act (CEQA) Guidelines;
- taxa designated as a special-status, sensitive or declining species by other state or federal agencies or non-governmental organizations; and
- taxa considered by the CNPS to be “rare, threatened or endangered in California” (Lists 1B and 2).

The CNPS Inventory includes five lists for categorizing plant species of concern, which are summarized below. Plant inventories prepared by CNPS provide one source of substantial evidence that is used by lead agencies to determine what plants meet the definition of endangered, rare, or threatened species, as described in Section 15380 of the State CEQA Guidelines. For purposes of this document, the relevant inventories include:

- List 1A (plants presumed extinct in California);
- List 1B (plants that are rare, threatened, or endangered in California and elsewhere) and;
- List 2 (plants that are rare, threatened, or endangered in California but more common elsewhere).

All plants listed in the CNPS Inventory or Rare and Endangered Plants of California (CNPS 2005) are considered "special plants" by DFG. “Special plants” is a broad term used by DFG to refer to all of the plant taxa inventoried by CNDDB, regardless of their legal or protection status. Notation as a List 1A, 1B or 2 plant does not automatically qualify it as an endangered, rare, or threatened species within the definition of State CEQA Guidelines Section 15380. Rather, CNPS designations are considered along with other available information about the status, threats, and population condition of plant species to determine whether a species warrants evaluation as an endangered, rare, or threatened species under CEQA. Other sources include: consultation with biologists from federal, state responsible, and state trustee agencies with jurisdiction over natural resources of the project site and area; published and unpublished research; field survey records; local and regional plans adopted for the conservation of species (e.g., HCPs or NCCPs); other CEQA or NEPA documents; and other relevant information.

The CNPS lists are categorized as follows:

- List 1A - Plants presumed extinct in California;
- List 1B - Plants rare, threatened, or endangered in California and elsewhere;
- List 2 - Plants rare, threatened, or endangered in California but more common elsewhere;
- List 3 - Plants about which more information is needed (a review list)
- List 4 - Plants of limited distribution (a watch list)

A list was compiled of the three special-status plants with potential to occur in the project area. Table 1 provides information for these species, including: listing status, habitat, distribution, flowering period, and potential to occur in the project area. Special-status plant species information provided in Table 1 is taken primarily from the

SPECIAL-STATUS PLANT SURVEYS

METHODS

PRE-FIELD INVESTIGATION

Prior to conducting the surveys, a list of special-status plant species with potential to occur in the project area was compiled by performing database searches of the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2003, 2006) and the California Department of Fish and Game (DFG) California Natural Diversity Data Base (CNDDB) (CNDDB 2003, 2006). Database searches were conducted for the Greenwood, Auburn, and Colfax 7.5 minute U.S. Geological Survey (USGS) quadrangles.

Knowledge of habitat types present on the various trail alignments with potential to support special-status plant species was obtained during reconnaissance surveys conducted on January 29, and February 2, 2004, February 8, 2006, and March 13, 2007. In addition, aerial photographs of the project area were reviewed to identify all areas supporting potentially suitable habitat for special-status plant species. A survey package, including habitat descriptions for and photographs of target species, was prepared prior to the surveys. These survey packets were used to familiarize EDAW botanists with the characteristics of target plant species.

FIELD SURVEYS

The surveys were conducted along the all of the trail alignments, upslope areas, and associated staging termini by EDAW botanists Mahala Young, Ramona Butz, Tammie Beyerl, Ellen Dean, and Matt Wacker. Special-status plant surveys coincided with the blooming periods of the target species except for the 2007 surveys. The 2004 surveys were completed on May 3, 5, and 12, and June 3 and 8, and the 2006 surveys were completed on May 22, 30 and June 14, for a total of 96 person-hours. The new segment of the proposed trail alignment was surveyed in March of 2007. Trail alignments were flagged by a survey crew prior to the surveys. The survey area included the 8- to 15-foot-wide swath that would be cleared for trail construction and an additional 90 feet upslope of the proposed trail alignment. This upslope area was surveyed because vegetation and duff cleared during the trail construction would be removed from the trail route and raked upslope of the alignment up to 90 feet away.

The protocol for the special-status plant surveys followed DFG's "*Guidelines for Assessing the Effects of Proposed Projects on Rare, Threatened, and Endangered Plants and Natural Communities*" (DFG 2000). Field surveys were conducted by walking meandering transects across the proposed new trail alignment segments. Special attention was given to those areas supporting habitat with high potential to support special-status plant species, such as grassy openings, road-cuts, drainage crossings, and open woodland areas. All plants encountered during the surveys were identified to the highest taxonomic level necessary for a rare plant determination. Nomenclature used follows *The Jepson Manual: Higher Plants of California* (Hickman 1993, ed.).

The locations of special-status species were mapped by hand as either points or polygons onto aerial photographs of the study area (scale 1" = 400'). In addition, GIS coordinates were recorded for each location while in the field. These location points and polygons were later digitized onto a GIS overlay to produce a map of the distribution of special-status plants within the project area. Notes on habitat, topography, aspect, phenology, and associated species were recorded on California Native Species Field Survey Forms and the forms will be submitted to CNDDB. In addition, representative photographs were taken of special-status plants encountered.

CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California (CNPS 2006) and *The Jepson Manual Higher Plants of California* (Hickman 1993).

In addition to the special status species listed in Table 1, three other plants were identified in the CNDDB and CNPS database searches but were not included in the table. Jepson's onion (*Allium jepsonii*) and Red Hill's soaproot (*Chlorogalum grandiflorum*) occur on specialized substrates not present along the proposed trail alignment. Dubious pea (*Lathyrus sulphureus* var. *argillaceus*) is a CNPS List 3 plant that is not recognized in *The Jepson Manual Higher Plants of California* (Hickman 1993), and no occurrences of dubious pea have been documented by CNDDB.

FIELD SURVEY RESULTS

HABITAT DESCRIPTION

The proposed trail alignment is characterized by relatively steep slopes and elevations ranging from 800 to 1,200 feet. The proposed trail alignment traverses live oak woodland, foothill woodland, mixed evergreen forest, and chaparral habitats. Live oak woodland in the project area is characterized by a dense canopy of interior live oak (*Quercus wislizeni*) and/or canyon live oak (*Quercus chrysolepis*). Common shrubs in the understory include toyon (*Heteromeles arbutifolia*) and poison oak (*Toxicodendron diversilobum*). Foothill woodland in the project area is characterized by a two-tiered canopy of foothill pine (*Pinus sabiniana*) and blue oak (*Quercus douglasii*) or interior live oak. Patches of annual grassland occur in sunny woodland openings. Mixed evergreen forest is present on moist soils in the project area. Dominant trees include live oaks, madrone (*Arbutus menziesii*), Douglas fir (*Pseudotsuga menziesii*), and California bay-laurel (*Umbellularia californica*). Chaparral is present on drier south-facing slopes in the project area and is dominated by chamise (*Adenostoma fasciculatum*). Other shrub species that occur in chaparral include manzanita (*Arctostaphylos* spp.), ceanothus (*Ceanothus* spp.), poison oak, and redbud (*Cercis occidentalis*). A comprehensive plant species list of all taxa observed during the survey is included in Appendix A.

SPECIAL-STATUS PLANTS ENCOUNTERED

One special-status plant, Brandegee's clarkia (*Clarkia biloba* spp. *brandegeeae*), was documented during field surveys in 2004 and 2006 in the project area. No occurrences of Brandegee's clarkia were observed during the 2007 survey; however, this survey was conducted during the non-blooming season. California Native Species Field Survey Forms that document the occurrences of Brandegee's clarkia are provided in Appendix B to this report. The occurrence locations were mapped onto an aerial photo of the study area (Exhibit 3). Representative photographs of the special-status species encountered are provided in Appendix C. A detailed description of Brandegee's clarkia is provided below.

Brandegee's Clarkia

Brandegee's clarkia, a member of the evening primrose family, is a CNPS List 1B plant. It was previously listed as a U.S. Fish and Wildlife Service (USFWS) species of concern, however as of May 2006, the USFWS no longer maintains lists of species of concern. Brandegee's clarkia is found in the central Sierra Nevada foothills between 804 and 2,904 feet above mean sea level in chaparral and woodland habitats, often on road-cuts. It is an annual herb with rose-pink flowers that blooms from May to July. The feature that distinguishes this subspecies from the other two subspecies of *Clarkia biloba* is the length of the notch at the tip of the petal. In Brandegee's clarkia, the notch is less than 1/5 of the petal length.

Table 1
Special-Status Plants Known or With Potential to Occur in the North Fork American River Trail Project Area

Species	Status [2]			Habitat and Blooming Period	Distribution	Potential for Occurrence
	USFWS	DFG	CNPS			
Clarkia biloba ssp. *brandegeeae* Brandegee's clarkia	--	--	1B	Chaparral, cismontane woodland, often on road-cuts; 245-885 m. Blooms May - June	Butte, El Dorado, Nevada, Placer, Sierra, and Yuba counties.	Known to occur in the project area. Species was encountered during 2004 and 2006 surveys. CNDDB recorded occurrence at Clementine Road upslope of the project site.
Fritillaria eastwoodiae Butte County fritillary	--	--	3	Chaparral, cismontane woodland, lower montane coniferous forest, sometimes on serpentinite; 40-1500 m. Blooms March - May	Butte, El Dorado, Nevada, Placer, Shasta, Tehama, and Yuba counties.	Not encountered during special-status plant surveys and unlikely to occur in the project area. Most known occurrences of this species are from north of Placer County. The two recorded CNDDB occurrences from Placer County, although postulated to be located near the project site, are of uncertain identification.
Viburnum ellipticum Oval-leaved viburnum	--	--	2	Chaparral, cismontane woodland, lower montane coniferous forest; 215-1400 m. Blooms May - June	Contra Costa, El Dorado, Fresno, Glenn, Humboldt, Mendocino, Napa, Placer, Shasta, and Sonoma counties, and Oregon and Washington.	Not encountered during special-status plant surveys, although likely to occur in the project area. CNDDB recorded occurrences in the vicinity of Clementine Road upslope of the project area.

[2] Status Definitions:

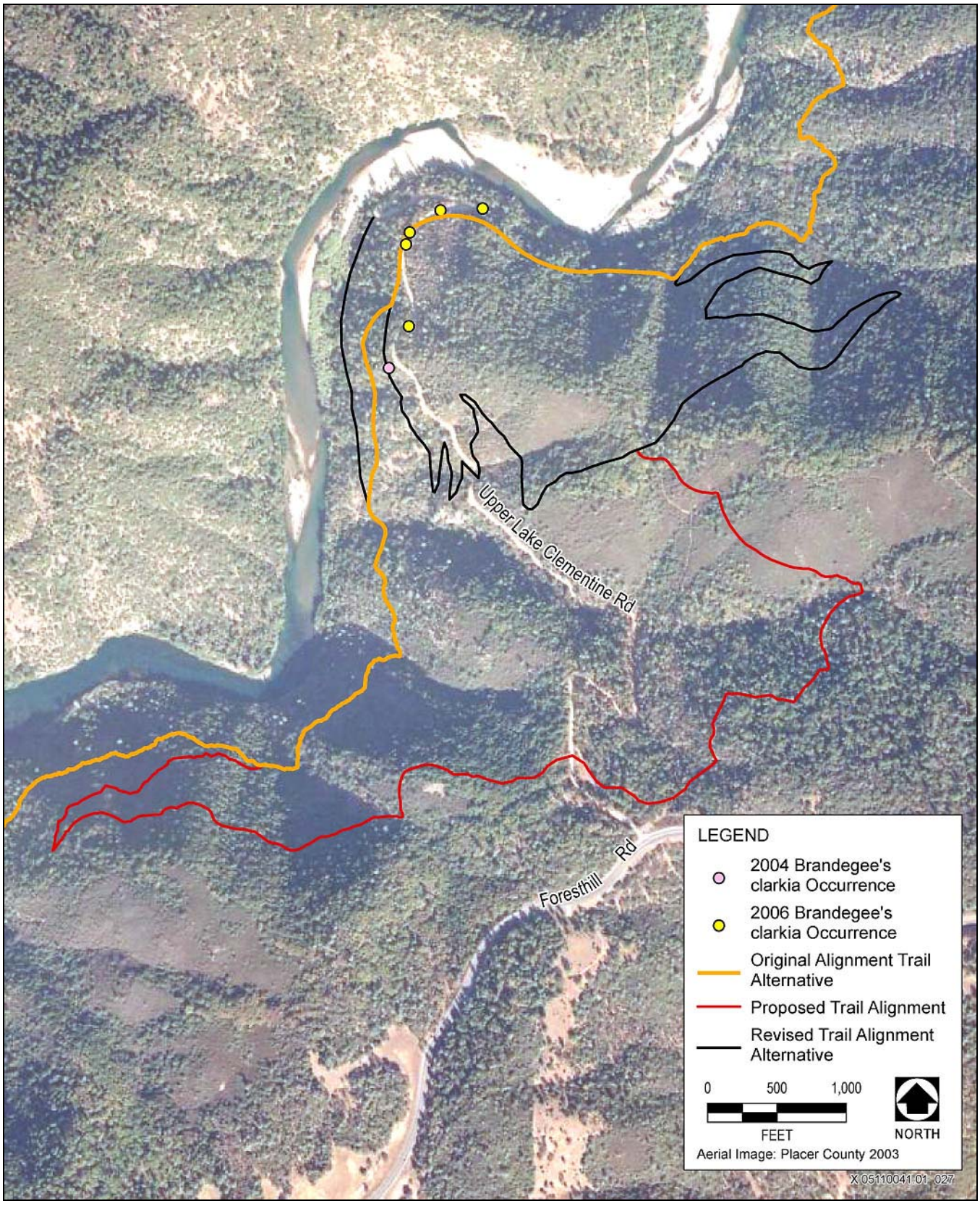
California Native Plant Society (CNPS) Categories

1B Plant species considered rare or endangered in California and elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

2 Plant species considered rare or endangered in California but more common elsewhere (protected under CEQA, but not legally protected under ESA or CESA)

3 Plant species about which more information is needed (a review list)

Sources: CNDDB 2006, CNPS 2006, Hickman 1993, University and Jepson Herbaria 2006



Source: EDAW 2006, Placer County 2005

Brandegee's Clarkia Locations **Exhibit 3**

Brandegee's clarkia was encountered during 2004 field surveys in the vicinity of Upper Lake Clementine Road along the Original Trail Alignment Alternative; however, the proposed trail alignment would not affect this area (Exhibit 3). During the 2004 surveys, Brandegee's clarkia was observed growing in a fairly open, wooded area characterized by an open overstory of interior live oak and California bay laurel and a fairly open understory of toyon, creeping snowberry (*Symphoricarpos mollis*), and herbaceous grasses and forbs. This occurrence was reported in the previous Special-Status Species Survey Report (Placer County Department of Facility Services 2004) and is documented in the CNDDB database (CNDDB 2006). Two individuals of Brandegee's clarkia were present at the 2004 location, both of which were in flower at the time of the survey (May 12, 2004). This segment of the trail was re-surveyed on May 22, 2006, and Brandegee's clarkia was not encountered at the previously identified location. A fire occurred in 2003 at the location where Brandegee's clarkia was encountered in 2004, and it is possible that the location was less-densely vegetated in 2004 than in 2006. Brandegee's clarkia is an annual plant that prefers open, sunny habitat, and it may change location from year to year.

Brandegee's clarkia was encountered in 2006 along road-cuts bordering Upper Lake Clementine Road, both upslope and downslope of the road and along the Original Trail Alignment Alternative; however, the proposed trail alignment would not affect this area (Exhibit 3). Upslope of the road, Brandegee's clarkia was growing on exposed, north-facing slopes with golden-backed fern (*Pentagramma triangularis*), one-sided bluegrass (*Poa secunda*), hedgehog dogtail grass (*Cynosurus echinatus*), field-hedge parsley (*Torilis arvensis*), and ripgut brome (*Bromus diandrus*). Downslope of the road, Brandegee's clarkia was growing in clearings in mixed evergreen forest with similar associated species. Approximately 1,000 individuals were present along these road-cuts. This occurrence of Brandegee's clarkia would not be affected by construction of the proposed trail alignment.

One other recent occurrence of Brandegee's clarkia has been documented in the project vicinity along Lower Lake Clementine Road at approximately 1,300 feet above mean sea level (CNDDB 2006). This occurrence is nearly 1,000 feet above the proposed trail alignment and would not be affected by construction of the proposed trail alignment.

DISCUSSION AND MITIGATION MEASURES

During the 2006 special-status plants surveys, no special-status plants were encountered on the Original Trail Alignment Alternative. The occurrence of Brandegee's clarkia encountered in 2004 along the Original Trail Alignment Alternative was not encountered in 2006. However, Brandegee's clarkia is present on road-cuts in the vicinity of the Revised Trail Alignment Alternative and on the Original Trail Alignment Alternative, and suitable habitat for the plant species exists along the proposed trail alignment. Therefore, the following mitigation measures shall be implemented to avoid or minimize impacts to Brandegee's clarkia.

- The new 2.3-mile segment of the proposed trail alignment shall be surveyed during the blooming season for Brandegee's clarkia prior to the start of construction.

- The locations of all known Brandegee's clarkia occurrences in the vicinity of the proposed trail alignment and shall be clearly marked by a qualified biologist for avoidance by construction crews prior to the commencement of trail construction activities.

- Construction crews shall be alerted to the presence of Brandagee's clarkia in the vicinity of the proposed trail alignment shall be shown maps of known locations and the methods used to identify populations in the field, and shall be asked to avoid these occurrences and a 25 foot buffer zone around them to the greatest extent possible.

- If complete avoidance of the populations is not feasible, the areas where occurrences would be impacted shall be minimized to the greatest extent feasible.

- In those areas where Brandagee's clarkia cannot be avoided, trail construction shall take place after the plants have completed their flowering cycles and set seed.

- A qualified biologist shall be present during trail construction in or near occurrences of Brandagee's clarkia and shall collect seeds from any occurrences of Brandagee's clarkia at those sites that will be impacted. Seeds collected shall be distributed immediately following collection in the immediate vicinity of the original site, but outside the construction footprint.

SPECIAL-STATUS WILDLIFE SPECIES

Special-status wildlife species are those species that are listed as threatened or endangered under the state and/or federal Endangered Species Act, considered candidates or proposed for listing, or identified by DFG as a species of special concern.

METHODS

The CNDDB (2006) was reviewed for special-status wildlife species that are known to occur in the vicinity of the project area. The occurrences in the Greenwood, Auburn, and Colfax USGS 7.5 minute quadrangles were reviewed. The CNDDB includes site-specific information on all reported occurrences of sensitive biological resources in California and is a "positive sighting" database. It provides a record of occurrences only as reported to the CNDDB; therefore, a lack of data for species in specific areas does not indicate absence of the species in that area. In addition, a list of special-status species obtained from the U.S. Bureau of Reclamation (Reclamation 2004) was reviewed for potential special-status species that could occur in the project area.

Ten special-status wildlife species have the potential to occur in the project vicinity, based on records in the CNDDB and regional presence of potentially suitable habitat. They are as follows: valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*), foothill yellow-legged frog (*Rana boylii*), California horned lizard (*Phrynosoma coronatum*), northwestern pond turtle (*Emys marmorata*), osprey (*Pandion haliaetus*), sharp-shinned hawk (*Accipiter striatus*), Cooper's hawk (*Accipiter cooperi*), bald eagle (*Haliaeetus leucocephalus*), California spotted owl (*Strix occidentalis occidentalis*), and Pacific fisher (*Martes pennanti pacifica*).

The project area was evaluated to determine if suitable habitat for these species is present. A one-day site reconnaissance survey was conducted on January 29, 2004, by an EDAW wildlife biologist. Aerial photographs were examined to characterize the habitats in the proposed trail alignment. A literature review was conducted and researchers at DFG were contacted for additional information regarding the potential for special-status species to occur in the area.

RESULTS

Suitable habitat for four of these species, valley elderberry longhorn beetle, California horned lizard, northwestern pond turtle, and California spotted owl, is not present; therefore, these species are not likely to occur in the project area. The Pacific fisher is also not likely to occur in the project area because of regional extirpation from the central Sierra Nevada.

Based on the habitat evaluation and agency comments, five special-status species may occur in the project area: foothill yellow-legged frog, osprey, sharp-shinned hawk, Cooper's hawk, and bald eagle.

DISCUSSION AND MITIGATION MEASURES

FOOTHILL YELLOW-LEGGED FROG

The foothill yellow-legged frog is a California species of special concern. Foothill yellow-legged frogs are characteristically found close to water in association with perennial streams and ephemeral creeks that retain perennial pools through the end of summer. In rivers, breeding areas are often associated with confluence of tributary streams that are predominately perennial (Seltenrich and Pool 2002). They require shallow, flowing streams with some cobble-sized substrate on which they deposit large masses of eggs. Egg lying normally follows the period of high-flow discharge associated with winter rainfall, usually between late March and early June. Eggs hatch in about 15 to 30 days depending on water temperature, and tadpoles metamorphose into juvenile frogs in 3 to 4 months. Several of the drainages that cross the project area may provide suitable breeding pools for foothill yellow-legged frogs.

Although most of the drainages that the proposed trail alignment would cross appear too steep and flows appear too intermittent to hold water sufficiently to support breeding populations of foothill yellow-legged frogs, a few of the drainages have terraces and small pools that may have appropriate substrate and water velocity for egg deposition and development. These drainages may hold enough water through the summer to support larval metamorphosis. Construction of the proposed trail across these drainages during the breeding season may affect foothill-yellow legged frogs by causing temporary release of sediments in the water or by physically disturbing egg masses, tadpoles, or larvae. Removing rocks from the stream bed to build the trail retaining walls or stream crossings may also physically disturb egg masses, tadpoles, and adults if they are present.

The following measures shall be implemented to protect foothill yellow-legged frogs:

- Construction of the trail across drainages and streams shall occur when the drainages are dry to the extent feasible.

- Guidelines to protect water quality and prevent erosion, as outlined in the BMPs) in the project description shall be implemented.

- If water is present during construction, disturbance to pools and slow runs with cobble-sized substrate will be minimized. In particular, rocks shall not be collected from in-water environments from late March to early September to avoid disturbing foothill yellow-legged frog egg masses and tadpoles.

SPECIAL-STATUS RAPTORS

Several raptor species that are considered California species of special concern could potentially nest in woodland trees in the project area, including osprey, sharp-shinned hawk, and Cooper's hawk. Other raptors that may nest in the project area include red-tailed hawk (*Buteo jamaicensis*) and great-horned owl (*Bubo virginianus*). California spotted owl, a California species of special concern, typically nests in dense stands of mixed conifers that have large-diameter trees and high canopy cover, but may also use midsuccessional forests and riparian areas. In the Sierra Nevada, spotted owls may nest in conifer forests at elevations of approximately 4,500–7,500 feet and riparian/hardwood forests at elevations of about 1,000–3,500 feet (Guiterrez et al. 1992). Researchers at DFG have no records for California spotted owls in the quadrangles that encompass the project area. Although there are records of spotted owls in quadrangles to the east at higher elevations where the forest is moister and cooler, spotted owls are not expected to nest in the project area because the woodland is likely too hot and dry (Gould, pers. comm., 2004).

Sitings of bald and golden eagles have been reported in the project vicinity. Eagles may use the upland areas for foraging and roosting during migration and winter. Bald eagles may also forage for fish in Lake Clementine; however, bald or golden eagles are not known to nest in the project vicinity. The bald eagle is state listed as

endangered and federally listed as threatened, but the USFWS has proposed to delist the species. Until the delisting is approved, the bald eagle is still considered to be federally listed as threatened. Bald eagles have been sighted in the project vicinity by USFWS personnel. Eagles may use the upland areas for foraging during migration and winter. Bald eagles may also forage for fish in Lake Clementine; however, bald eagles are not known to nest in the project vicinity.

Both hand and mechanical construction could result in the removal of trees greater than 6 inches diameter at breast height (dbh). Removal of trees greater than 6 inches dbh could result in loss of a raptor, which would be considered a potentially significant impact.

The following measures shall be implemented to protect special-status raptors:

- Limit removal of trees greater than 6 inches dbh to the greatest degree possible. If trees larger than 6 inches dbh must be removed, then the following mitigation measures shall be implemented:
- Tree removal shall be done in accordance with the Placer County Tree Ordinance.
- Before removal of trees during the non-breeding season, a qualified biologist shall inspect the tree for potential raptor nest, which are protected under Section 3503.5 of the California Fish and Game Code. If raptor nests are present and cannot be avoided, consult with DFG regarding appropriate measures for tree removal. If no nests are found, no further mitigation is required.
- If any construction activities, including tree removal, take place between March 1 and August 31, preconstruction surveys for active raptor nests shall be conducted prior to the beginning of construction. If any active raptor nests are identified during preconstruction surveys, then impacts to active raptor nests shall be avoided by the establishment of appropriate buffers and/or nest monitoring by a qualified wildlife biologist.
- Avoid construction within the buffer until the end of the breeding season and consult with DFG regarding alternative appropriate protection measures. The nest tree shall not be removed.
- Woody vegetation (e.g. small trees and shrubs) shall not be removed during the nesting season for raptors and migratory birds (i.e., March to August) to the extent feasible. If woody vegetation must be removed during the nesting season, the amount and extent to be removed shall be minimized to the extent feasible.

INVASIVE PLANTS

Invasive plants are species that are not native to the region, persist without human assistance, and have serious impacts on their introduced environment (Simberloff et al. 1997, Davis and Thompson 2000). The term invasive plant differs from the classification terms nonnative, exotic, or introduced plant because it is (when applied correctly) used only to describe those exotic plant species that displace native species on a large enough scale to alter habitat functions and values. The California Invasive Plant Council (CalIPC) maintains a list of species that have been designated as invasive in California. The term noxious weed is used by government agencies to apply to exotic plants that have been defined as pests by law or regulation (CDFA 2005).

Several invasive plant species have been identified in the project area including wild oat (*Avena fatua*), black mustard (*Brassica nigra*), ripgut brome (*Bromus diandrus*), Italian thistle (*Carduus pycnocephalus*), yellow starthistle (*Centaurea solstitialis*), hedgehog dogtail grass (*Cynosurus echinatus*), fennel, (*Foeniculum vulgare*), smooth cat's ear (Hypochaeris glabra), rough cat's ear (H. radicata), bristly ox tounge (*Picris echioides*), Kentucky bluegrass (*Poa pratensis*), Himalayan blackberry (*Rubus discolor*), medusahead (*Taeniatherum caput-medusae*), field-hedge parsley (*Torilis arvensis*), and rattail fescue (*Vulpia myuros*).

The following measures shall be implemented to prevent the introduction of invasive weeds:

- A target list of invasive weeds with the potential to occur and be problematic in the project area shall be developed. This may be accomplished by reviewing the California Invasive Plant Council's "CalEPPC List," or list of invasive wildland weeds (2006); the California Department of Food and Agriculture's "Encycloweedia," or list of invasive weeds (2004); and by consulting knowledgeable individuals such as the resource ecologists employed by Reclamation and the California Department of Parks and Recreation, and the County agricultural commissioner.

- The County shall ensure that any equipment used during construction is free of mud or seed-bearing material before such equipment enters the construction area.

- If populations of invasive weeds are documented in the construction area, they shall be eradicated prior to construction, preferably before they set seed. If eradication is infeasible, the population shall be clearly identified in the field by flagging and shall be avoided during construction to prevent spread.

- The County shall ensure that any fill soil, mulch, seeds, and straw materials used during construction and implementation of BMPs are weed-free. Certified weed-free material shall be used if available.

- Once the trail is constructed and open to the public, conduct periodic monitoring (at least once per year during the growing season) to ensure early detection and eradication of any invasive weed species brought in by users. Any populations detected during annual monitoring shall be treated and eradicated as soon as possible after detection, preferably before seeds set.

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APPENDIX A

Plant Species Observed During Special-Status Plant Surveys
for the North Fork American River Trail Project

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
Aceraceae	*Acer macrophyllum*	bigleaf maple
Anacardiaceae	*Rhus trilobata*	skunkbush sumac
	Toxicodendron diversilobium	poison oak
Apiaceae	*Anthriscus caucalis*	bur chervil
	Foeniculum vulgare	fennel
	Lomatium californicum	California lomatium
	Osmorhiza chilensis	mountain sweet cicely
	Sanicula bipinnatifida	purple sanicle
	Sanicula crassicaulis	Pacific sanicula
	Torilis arvensis	field-hedge parsley
Apocynaceae	*Apocynum androsaemifolium*	spreading dogbane
Aristolochiaceae	*Aristolochia californica*	California pipevine
	Asarum hartwegii	Hartweg's wild ginger
Asclepidaceae	*Asclepias cordifolia*	purple milkweed
Asteraceae	*Achillea millefolium*	yarrow
	Achyrachaena mollis	blowwives
	Agoseris grandiflora	California dandelion
	Agoseris retrorsa	Sierra dandelion
	Artemisia douglasiana	mugwort
	Baccharis douglasii	Douglas' baccharis
	Baccharis pilularis	coyote brush
	Balsamorhiza deltoidea	deltoid balsamroot
	Balsamorhiza sagittata	arrowleaf balsamroot
	Blepharipappus scaber	blepharipappus
	Brickellia californica	brickelbush
	Carduus pycnocephalus	Italian thistle
	Centaurea solstitialis	yellow star thistle
	Chamomilla suaveolens	pineapple weed
	Chondrilla juncea	skeleton weed
	Chrysothamnus nauseosus	common rabbitbrush
	Cirsium douglasii	Douglas' thistle
	Cirsium occidentale	cobwebby thistle
	Conyza canadensis	horseweed
	Erigeron foliosus	foothill daisy fleabane
	Eriophyllum lanatum	woolly sunflower
	Gnaphalium californicum	California everlasting
	Grindelia camporum	gumplant
	Hieraceum albiflorum	white hawkweed
	Hypochaeris glabra	smooth cat's ear
	Hypochaeris radicata	hairy cat's ear

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
	Lactuca serriola	prickly lettuce
	Layia pentachaeta	Sierra tidytips
	Madia elegans	common madia
	Madia exilis	small tarweed
	Madia glomerata	mountain tarweed
	Madia gracilis	slender tarweed
	Micropus californicus	q-tips
	Microseris acuminata	Needle microseris
	Picris echioides	bristly ox-tongue
	Senecio eurycephalus	broadhead ragwort
	Taraxacum officinale	common dandelion
	Wyethia angustifolia	narrowleaf mule ears
	Wyethia bolanderi	Bolander's wyethia
Betulaceae	*Corylus cornuta* var. *californica*	California hazel
Boraginaceae	*Amsinckia menziesii*	fiddleneck
	Cynoglossum grande	western houndstongue
	Mertensia ciliata	streamside bluebells
	Plagiobothrys fulvus	common popcorn flower
Brassicaceae	*Arabis* sp.	rockcress
	Brassica nigra	black mustard
	Hirschfeldia incana	small-flower mustard
	Rorippa nasturtium-aquaticum	watercress
	Thysanocarpus curvipes	common fringepod
Caprifoliaceae	*Lonicera hispidula* var. *vacillans*	California honeysuckle
	Lonicera interrupta	chaparral honeysuckle
	Symphoricarpos albus	snowberry
	Symphoricarpos mollis	creeping snowberry
Caryophyllaceae	*Petrorhagia dubia*	pink grass
	Silene californica	California Indian pink
	Silene gallica	catchfly
	Stellaria media	chickweed
Convolvulaceae	*Calystegia occidentalis*	western morning-glory
	Convolvulus arvensis	field bindweed
Cornaceae	*Cornus glabrata*	brown dogwood
Crassulaceae	*Dudleya cymosa*	canyon dudleya
Cucurbitaceae	*Marah watsonii*	manroot

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
Cyperaceae	*Carex athrostachya*	slender beak sedge
	Carex dudleyi	Dudley's sedge
	Carex subfusca	brown sedge
	Cyperus eragrostis	umbrella sedge
	Cyperus sp.	flatsedge
Datiscaceae	*Datisca glomerata*	durango root
Dryopteridaceae	*Cystopteris fragilis*	bladder fern
	Dryopteris arguta	California wood fern
	Polystichum imbricans	narrow-leaved swordfern
Ericaceae	*Arbutus menziesii*	Pacific madrone
	Arctostaphylos manzanita	manzanita
Euphorbiaceae	*Euphorbia spathulata*	warty spurge
Fabaceae	*Cercis occidentalis*	redbud
	Lathyrus odoratus	common sweet pea
	Lathyrus sp.	pea
	Lotus argophyllus var. fremontii	Fremont's birdsfoot trefoil
	Lotus corniculata	birdfoot trefoil
	Lotus purshianus	Spanish clover
	Lupinus adsurgens	Drew's silky lupine
	Lupinus albifrons	silver bush lupine
	Lupinus benthamii	spider lupine
	Lupinus bicolor	miniature lupine
	Lupinus latifolius	broad-leaved lupine
	Lupinus nanus	sky lupine
	Lupinus sp.	lupine
	Medicago polymorpha	bur clover
	Trifolium dubium	shamrock clover
	Trifolium hirtum	rose clover
	Trifolium microcephalum	Smallhead clover
	Trifolium willdenovii	tomcat clover
	Vicia hirsuta	tiny vetch
	Vicia sativa	spring vetch
	Vicia villosa	hairy vetch
Fagaceae	*Quercus chrysolepis*	Canyon live oak
	Quercus douglasii	blue oak
	Quercus durata	leather oak
	Quercus kellogii	black oak
	Quercus wislizenii var. *wislizenii*	Interior live oak

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
Geraniaceae	*Erodium cicutarium*	filaree
	Geranium dissectum	cut-leaf geranium
Grossulariaceae	*Ribes* sp.	gooseberry
Hippocastanaceae	*Aesculus californica*	California buckeye
Hydrophyllaceae	*Eriodictyon californicum*	yerba santa
	Nemophila heterophylla	canyon nemphila
	Phacelia imbricata	imbricate phacelia
Hypericaceae	*Hypericum concinnum*	goldwire
	Hypericum perforatum	Klamath weed
Iridaceae	*Iris tenuissima*	slender iris
Juncaceae	*Juncus patens*	spreading rush
	Luzula comosa	wood rush
Lamiaceae	*Monardella lanceolata*	mustang mint
	Monardella villosa	coyote mint
	Satureja douglasii	yerba buena
	Scutellaria californica	California skullcap
	Stachys ajugoides var. *rigida*	ridge hedge nettle
Lauraceae	*Umbellularia californica*	California bay laurel
Liliaceae	*Brodiaea elegans*	harvest brodiaea
	Calochortus albus	white globelily
	Chlorogalum pomeridianum	soaproot
	Dichlostemma capitatum ssp. *capitatum*	blue dicks
	Dichelostemma congestum	ookow
	Dichelostemma multiflorum	many-flowered brodiaea
	Dichelostemma volubile	twining brodiaea
	Smilacina racemosa	western false solomon's seal
	Smilax californica	greenbriar
	Triteleia ixioides	golden brodiaea
	Triteleia laxa	Ithurial's spear
Linaceae	*Linum usitatissimum*	common flax
Loasaceae	*Mentzelia crocea*	blazing star
Malvaceae	*Sidalcea hartwegii*	checkerbloom

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
Oleaceae	*Fraxinus dipetala*	foothill ash
	Fraxinus latifolia	Oregon ash
Onagraceae	*Clarkia biloba* ssp. *biloba*	two-lobed clarkia
	Clarkia biloba ssp. *brandegeeae*	Brandagee's clarkia
	Clarkia concinna ssp. *concinna*	red ribbons
	Clarkia purpurea ssp. *quadrivulnera*	fourspot
	Clarkia unguiculata	elegant clarkia
	Epilobium canum ssp. *canum*	California fuschia
Orobanchaceae	*Orobanche uniflora*	naked broomrape
Papaveraceae	*Eschscholzia caespitosa*	tufted poppy
	Eschscholzia californica	California poppy
Philadelphaceae	*Philadelphus lewisii*	mock orange
Pinaceae	*Pinus ponderosa*	Ponderosa pine
	Pinus sabiana	foothill pine
	Pseudotsuga menziesii var. *menziesii*	Douglas-fir
Plantaganaceae	*Plantago lanceolata*	narrowleaf plantain
Poaceae	*Agrostis pallens*	thingrass
	Aira caryophyllea	silver European hairgrass
	Andropogon virginicus var. *virginicus*	broomsedge
	Avena fatua	wild oats
	Brachypodium distachyon	false brome
	Briza minor	little quaking grass
	Bromus californicus	California brome
	Bromus diandrus	ripgut brome
	Bromus madritensis ssp. *rubens*	red brome
	Bromus mollis	soft chess
	Cynosurus echinatus	hedgehog dogtail
	Dactylis glomerata	orchard grass
	Elymus elymoides	squireltail
	Elymus glaucus	blue wild rye
	Elymus trachycaulus	slender wheatgrass
	Hordeum jubatum	foxtail barley
	Hordeum marinum ssp. *gussoneanum*	Mediterranean barley
	Lolium perenne	Italian ryegrass
	Melica torreyana	Torrey melic
	Poa bulbosa	bulbous bluegrass
	Poa pratensis	Kentucky bluegrass
	Poa secunda	one-sided bluegrass
	Taeniatherum caput-medusea	medusahead

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
	Vulpia microstachys	small fescue
	Vulpia myuros	rattail fescue
Polemoniaceae	*Allophyllum divaricatum*	straggling gilia
	Collomia heterophylla	variableleaf collomia
	Gilia capitata	blue head gilia
	Linanthus ciliatus	whisker brush
Polygonaceae	*Eriogonum nudum*	naked buckwheat
	Rumex pulcher	fiddle dock
Polypodiaceae	*Polypodium californicum*	California polypody
Portulacaceae	*Claytonia perfoliata*	miner's lettuce
	Claytonia rubra	springbeauty
Primulaceae	*Trientalis latifolia*	woodland star flower
Pteridaceae	*Adiantum jordanii*	California maidenhair fern
	Pellaea sp.	cliffbrake
	Pentagramma triangularis var. triangularis	goldenback fern
Ranunculaceae	*Aquilegia* sp.	columbine
	Clematis lasiantha	virgins bower
	Delphinium hesperium	foothill larkspur
	Isopyrum occidentalis	western false rue anemone
	Kumlienia hystricula	waterfall false buttercup
	Ranunculus californicus	Californica buttercup
	Ranunculus sp.	buttercup
Rhamnaceae	*Ceanothus cuneatus*	buck brush
	Ceanothus integerrimus	deer brush
	Ceanothus lemmonii	Lemmon's ceanothus
	Ceanothus leucodermis	whitethorn
	Rhamnus crocea	redberry
	Rhamnus tomentella spp. *tomentella*	hoary coffeeberry
Rosaceae	*Adenostoma fasciculatum*	chamise
	Cercocarpus betuloides	mountain mahagony
	Chamaebatia foliolosa	mountain misery
	Frageria platypetala	wild strawberry
	Heteromeles arbutifolia	toyon
	Potentilla palustris	purple marsh cinquefoil
	Rosa californica	California wild rose
	Rubus discolor	Himalayan blackberry
	Rubus leucodermis	western raspberry

Appendix A.
Plant Species Encountered During 2004, 2006, and 2007 Special-Status Plant Surveys for the North Fork American River Trail Project

Family	Scientific Name	Common Name
Rubiaceae	*Galium aparine*	bedstraw
	Galium bolanderi	Bolander's bedstraw
	Galium porrigens var. *porrigens*	climbing bedstraw
	Galium sp.	bedstraw
Salicaceae	*Populus balsamifera* ssp. *trichocarpa*	black cottonwood
	Salix exigua	sandbar willow
	Salix laevigata	red willow
	Salix lasiolepis	arroyo willow
Saxifragaceae	*Lithophragma bolanderi*	Bolander's woodland star
Scrophulariaceae	*Castilleja attenuata*	narrow-leaved owl's clover
	Castilleja foliolosa	woolly Indian paintbrush
	Castilleja sp.	Indian paintbrush
	Collinsia tinctoria	chinese houses
	Keckielia breviflora	gaping keckielia
	Mimulus aurantiacus	sticky monkeyflower
	Mimulus bifidens	bush monkeyflower
	Mimulus guttatus	common monkeyflower
Staphyleaceae	*Staphylea bolanderi*	Sierra bladdernut
Styracaceae	*Styrax redivivus*	California snowdrop bush
Valerianaceae	*Plectritis macrocera*	white plectritis
Verbenaceae	*Verbena bonariensis*	purpletop vervain
Viscaceae	*Phoradendron* sp.	mistletoe
Vitaceae	*Vitis californica*	California grape
Zygophyllaceae	*Tribulus terrestris*	puncture vine

APPENDIX B

CNDDB Data Form for Brandegee's Clarkia

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: WHDAB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work: 5 - 12 - 04

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: Clarkia biloba ssp. brandegeae

Common Name: Brandegee's clarkia

Species Found? ☒ Yes ☐ No _____ If not, why?

Total No. Individuals 2 Subsequent Visit? ☐ yes ☒ no

Is this an existing NDDB occurrence? ☒ no ☐ unk. _____ Yes, Occ. #

Collection? If yes: _____ Number _____ Museum / Herbarium

Reporter: Mahala Young / EDAW
Address: 2022 J Street
Sacramento, CA 95814
E-mail Address: youngm@edaw.com
Phone: 916/414-5800

Plant Information

Phenology: 0 % vegetative 100 % flowering 0 % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description (please attach map AND/OR fill out your choice of coordinates, below)

County: Placer Landowner / Mgr.: Bureau of Reclamation / CA State Parks
Quad Name: Greenwood Elevation: 1000'
T 13N R 9E Sec 21, NE ¼ of SE ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R __ Sec ____, ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model _____
Datum: NAD27☐ NAD83☐ WGS84☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10☐ UTM Zone 11☐ *OR* Geographic (Latitude & Longitude)☐
Coordinates: Easting/Longitude _____ Northing/Latitude _____

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*
Found growing in Quercus wislizenii / Umbellularia californica woodland on canyon slope above NF American River. Some scattered Pinus sabiana, other associates include Cynoscaurus echinatus, Madia glomerata, Symphoricarpos mollis, Luzula comosa, Trifolium wildenovii. Fairly open understory, NW aspect, on clay soils

Other rare species?

Site Information Overall site quality: ☐ Excellent ☒ Good ☐ Fair ☐ Poor

Current / surrounding land use: Recreational use

Visible disturbances:

Threats: proposed trail project

Comments:

Determination: *(check one or more, and fill in blanks)*
☒ Keyed (cite reference): Jepson Manual (Hickman 1993)
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)* Slide Print Digital
Plant / animal ☐ ☐ ☐
Habitat ☐ ☐ ☒
Diagnostic feature ☐ ☐ ☒

May we obtain duplicates at our expense? ☒ yes ☐ no

Mail to:
California Natural Diversity Database
Department of Fish and Game
1807 13th Street, Suite 202
Sacramento, CA 95814
Fax: (916) 324-0475 email: WHDAB@dfg.ca.gov

For Office Use Only
Source Code _____ Quad Code _____
Elm Code _____ Occ. No. _____
EO Index No. _____ Map Index No. _____

Date of Field Work *mm/dd/yyyy:* 05/22/2006

Reset

California Native Species Field Survey Form

Send Form

Scientific Name: *Clarkia biloba ssp. brandegeeae*

Common Name: Brandegee's clarkia

Species Found? ☑ Yes ☐ No _____ If not, why?

Total No. Individuals 300 Subsequent Visit? ☐ yes ☐ no
Is this an existing NDDB occurrence? _____ Yes, Occ. # ☑ no ☐ unk.

Collection? If yes: _____ Number Dean 3140 (DAV) Museum / Herbarium

Reporter: Ellen Dean
Address: 2022 J St., Sacramento, CA 95814

E-mail Address: deane@edaw.com
Phone: (916) 414-5800

Plant Information

Phenology: _____ % vegetative 100 % flowering _____ % fruiting

Animal Information

_____ # adults _____ # juveniles _____ # larvae _____ # egg masses _____ # unknown

☐ breeding ☐ wintering ☐ burrow site ☐ rookery ☐ nesting ☐ other

Location Description ***(please attach map AND/OR fill out your choice of coordinates, below)***

County: Placer Landowner / Mgr.: ?
Quad Name: _____ Elevation: 859-1012 ft.
T____ R ___ Sec ____ , ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ Source of Coordinates (GPS, topo. map & type): _____
T____ R ___ Sec ____ , ____ ¼ of _____ ¼, Meridian: H☐ M☐ S☐ GPS Make & Model Garmin
Datum: NAD27☐ NAD83☑ WGS84☐ Horizontal Accuracy _____ meters/feet
Coordinate System: UTM Zone 10 ☑ UTM Zone 11 ☐ *OR* Geographic (Latitude & Longitude) ☐
Coordinates: Easting/Longitude 675501 Northing/Latitude 4314784

Habitat Description *(plant communities, dominants, associates, substrates/soils, aspects/slope):*

Above the north fork of the American River, east of Foresthill Bridge. Steep southeast and southwest facing road cut along Upper Lake Clementine Rd nearing the bottom (river end) of the road. Surrounding habitat is a mixture of pine/oak woodland and chaparral, with some mixed evergreen forest in moist areas. Associated species on road cut: Pentagramma triangularis, Torilis arvensis, Cynosurus echinatus, Bromus diandrus, Poa secunda, Lotus purshianus, and Toxicodendron diversilobum.

Other rare taxa seen at THIS site on THIS date:

Site Information Overall site quality: ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Current / surrounding land use: Along well-used dirt road the provides river access.

Visible disturbances: Growing on road cut.

Threats: None I am aware of at this time.

Comments:

Determination: *(check one or more, and fill in blanks)*
☐ Keyed (cite reference): _____
☐ Compared with specimen housed at: _____
☐ Compared with photo / drawing in: _____
☐ By another person (name): _____
☐ Other: _____

Photographs: *(check one or more)*

	Slide	Print	Digital
Plant / animal	☐	☐	☐
Habitat	☐	☐	☐
Diagnostic feature	☐	☐	☐

May we obtain duplicates at our expense? ☐ yes ☐ no

FG/WHDAB/1747 Rev.10/20/03

APPENDIX C

Representative Photographs

Close-up of Brandegee's clarkia. Note shallowly lobed petals.

Habitat at location of 2004 Brandegee's clarkia occurrence.

Source: EDAW 2004

Habitat along Upper Clementine Rd at location of 2006 Brandegee's clarkia occurrence.

Source: EDAW 2004

APPENDIX D

Air Quality Modeling Spreadsheet

Short-Term Construction Emissions																		
Phase 1				ROG	NOx	PM10												
Light Duty Trk (grams/mile)				0.26	0.67	0.04												
HH Trk Diesel (grams/mile)				0.80	10.00	0.30												
Assumptions: EMFAC2002 emission factors for 2006 conditions based on an average trip speed of 30 mph, 60%/40% cold/hot start, and 75 degrees Fahrenheit.																		
Mobile Equipment																		
Equipment	Number	Hours/Day	Total Hours	ROG	NOx	PM10												
Bulldozer	1.00	7.00	7.00	3.15	22.67	1.14		8.00										
Compactor	1.00	7.00	7.00	1.82	10.03	0.54												
Backhoe	1.00	7.00	7.00	0.60	4.50	0.37												
Motor Grader	1.00	7.00	7.00	1.05	9.72	0.52												
Sweco 480 (other equip)	1.00	7.00	7.00	1.82	10.03	0.54												
Subtotal				8.44	56.95	3.11	lbs/day											
Assumptions: Emission factors from the SMAQMD Road Construction Model Version 5.1.																		
Stationary Equipment																		
Equipment	Number	Hours/Day	Total Hours	ROG	NOx	PM10												
Stationary Equipment	2.00	7.00	14.00	2.57	19.76	0.75												
Assumptions: Emission factors from the SMAQMD Air Quality Guidelines (SMAQMD 2004) based on 2 pieces of stationary equipment working 7 hrs/day.																		
	Total 1-way Trips/Day	Miles/Trip	Total Miles/Day															
Con. Employee Trips	24.00	15.00	360.00	0.21	0.53	0.03	lbs/day											
Assumptions: employee trips based on project description (12 person crew working 7 hours/day), an average trip length of 15.0 miles and EMFAC2002 emission factors for 2006 conditions based on an average trip speed of 30 mph, 60%/40% cold/hot start, and 75 degrees Fahrenheit (SMAQMD 2004).																		
	Total 1-way Trips/Day	Miles/Trip	Total Miles/Day															
Material Delivery	2.00	15.00	30.00	0.05	0.66	0.02	lbs/day											
Assumptions: Based on 2 deliveries/day for materials, an average trip length of 15.0 miles and EMFAC2002 emission factors for 2006 conditions based on an average trip speed of 30 mph, 60%/40% cold/hot start, and 75 degrees Fahrenheit (SMAQMD 1994).																		
Fugitive PM10																		
	Area (acre)																	
	0.50					30.36	lbs/day											
Assumptions: SMAQMD emission factor of 60.71lbs/acre/day (SMAQMD 1994), which includes 1 Storage Pile on 1/5 acre/10 acres and 3 pieces of heavy equipment operating 6 hrs/day/10 acres, maximum daily acreage disturbance based on square footage of staging areas (150 x 100 and 300 x 140) which total 1.3 acres to be disturbed over – one week (.3 acres/day) and the trail area of 6.3 acres to be disturbed over 80 we																		
Total (Phase 1)-unmitigated				11.28	77.90	34.25	lbs/day											
Total (Phase 1)-mitigated				-	-	-												

Road Construction Emissions Model, Version 5.1

Emission Estimates for -> North Fork Trail					Exhaust	Fugitive Dust	
Project Phases (English Units)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	PM10 (lbs/day)	
Grubbing/Land Clearing	11	72	67	4	4	0	
Grading/Excavation	11	72	59	3	3	0	
Drainage/Utilities/Sub-Grade	1	22	2	0	0	0	
Paving	1	22	2	0	0	0	
Maximum (pounds/day)	11	72	67	4	4	0	
Total (tons/construction project)	3	12	21	1	1	0	<-tons

Notes:
Project Start Year -> 2006
Project Length (months) -> 21
Total Project Area (acres) -> 15
Maximum Area Disturbed/Day (acres) -> 0
Total Soil Imported/Exported (yd^3/day)-> 466

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

Emission Estimates for -> North Fork Trail					Exhaust	Fugitive Dust	
Project Phases (Metric Units)	ROG (kgs/day)	CO (kgs/day)	NOx (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	PM10 (kgs/day)	
Grubbing/Land Clearing	5	33	30	2	2	0	
Grading/Excavation	5	33	27	1	1	0	
Drainage/Utilities/Sub-Grade	1	10	1	0	0	0	
Paving	1	10	1	0	0	0	
Maximum (kilograms/day)	5	33	30	2	2	0	
Total (megagrams/construction project)	2	11	19	1	1	0	<-megagrams

Notes:
Project Start Year -> 2006
Project Length (months) -> 21
Total Project Area (hectares) -> 6
Maximum Area Disturbed/Day (hectares) -> 0
Total Soil Imported/Exported ($meters^3$/day)-> 356

PM10 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns H and I.

APPENDIX E

Noise

North Fork American		
Projected Construction Noise Level at 50 feet	**Without Noise Control**	**With Feasible Noise Control**
grader	85	75
excavator	88	80
truck	91	75
TOTAL	93.44	82.13
NOISE DROP OFF CALCULATION		
(feet)	(dBA)	(dBA)
50	93.44	82.13
3973	55.43	44.13
10560	46.94	35.63
12500	45.48	34.17
Projected Area-Source Noise Level at 3 feet	**Without Noise Control**	
landscape maintenance	90	
TOTAL	90.00	
NOISE DROP OFF CALCULATION		
(feet)	(dBA)	
3	90.00	
10560	19.07	
U.S. EPA 1971, FTA 1995, Caltrans 1998		

APPENDIX F

Fire Prevention Manual for Auburn SRA

FIRE PREVENTION PLAN
for INDUSTRIAL , COMMERCIAL and RECREATIONAL OPERATIONS
for THE AUBURN STATE RECREATION AREA

By
Fred Lopez
Fire Captain
California Department of Forestry and Fire Protection
Nevada-Yuba-Placer Unit

A guide on behalf of the United States Bureau of Reclamation

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PURPOSE / INTRODUCTION

The United States Bureau of Reclamation (Reclamation) contracts with the California Department of Forestry and Fire Protection (CDF) for fire protection and fire prevention services within the Auburn State Recreation Area (ASRA)or Reclamation lands. It is CDF's contracted responsibility to identify fire mitigation measures of various activities within the ASRA. CDF's goal is to reduce fire starts and reduce the impacts of fire by implementing fire prevention measures on all activities, including industrial and commercial operations within the ASRA.

This plan provides the minimum fire prevention standards to conduct industrial, commercial and recreational operations on the Federal lands within the ASRA. This plan establishes a project review component, which proactively identifies fire hazards early, thus reducing the potential for wildfires.

Many of the fire prevention requirements in this document refer to sections of the Public Resources Code, which apply to private forest, brush and grass covered lands. Federal Regulations are cited and used as a guide in the development of this document as well. This document will be used by Reclamation, California State Parks (CSP), and contractors.

PROJECT REVIEW

The intent is to be proactive in reducing the potential for fire starts resulting from recreation, commercial and industrial operations in the ASRA. Fires that start as a result of these activities have a high risk of becoming large and damaging fires. Therefore, it is imperative that project proposals, within the ASRA, be reviewed by CDF during the planning process and, during project implementation. The review process allows CDF to identify fire hazards and make recommendations or establish requirements in order reduce fire risk. Recommendations or requirements will be made by CDF to the regulatory agencies, Reclamation and State Parks, for incorporation into a project proposal.

INSPECTIONS

All equipment and facilities within a project area will be subject to fire prevention inspection by CDF. Appropriate inspections will be conducted, prior to and during project implementation.

A. All equipment will be inspected to meet fire prevention standards. Prior to the introduction of a piece of equipment that has not been operated in the area, at least 24 hours notice prior to equipment operation will be provided to the California Department of Forestry and Fire Protection, Auburn headquarters to the personnel

listed in the Contact section of this document. Minimum standards must always be met.

FIRE REPORTING

All fires within the ASRA shall be reported immediately upon detection via the 911 emergency system, weather extinguished or not. All fires will be investigated and overhauled by CDF.

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION CONTACT INFORMATION

Relating to matters of fire prevention on Federal lands in the ASRA, contact the Auburn Dam Project Patrol Officer (P2323) within the Fire Prevention Bureau at Auburn CDF headquarters in Auburn or the local battalion chief (B2311) for the area at:

CDF&FP
13760 Lincoln Way
Auburn, Ca 95603
530-889-0111 ext 123 or 111 respectively.
If not able to contact the above, the receptionist at 530-889-4904 will receive the information.

GENERAL FIRE PREVENTION REQUIREMENTS

A Minimum Fire Safety Standards Related to Defensible Space.

(a) This section applies to the construction of structures and access requirements on Federal lands within the ASRA. The requirements are displayed in **Attachment 1** of this document, which address the following:
(1) Road standards for fire equipment access.
(2) Standards for signs, identifying streets, roads, and buildings.
(3) Minimum water supply reserves for emergency fire use.

B. Attachment 2 displays these requirements graphically.

(a) Maintain around and adjacent to any such building or structure additional fire protection or firebreak made by removing all brush, flammable vegetation, or combustible growth which is located from 30 feet to 100 feet from such building or structure or to the property line, whichever is nearer, as may be required by the director if he/ she finds that, because of extra hazardous

conditions, a firebreak of only 30 feet around such building or structure is not sufficient to provide reasonable fire safety. Grass and other vegetation located more than 30 feet from such building or structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion. *Each facility will be inspected by a CDF representative and recomendations will be made regarding vegetation clearences.*

(b) Remove that portion of any tree, which extends within 10 feet of the outlet of any chimney or stovepipe.

(c) Maintain any tree adjacent to or overhanging any building free of dead or dying wood.

(d) Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth.

(e) Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed of nonflammable material with openings of not more than one-half inch in size.

See Attachment 2, examples.

C. Tools Required for Welding/Cutting/Grinding.

The following is required: During any time of the year when burning permits are required in an area pursuant to this article, which is May 1st until the end of declared fire season, no person shall use or operate any motor, engine, boiler, stationary equipment, welding equipment, cutting torches, tarpots, or grinding devices from which a spark, fire, or flame may originate, which is located on or near any forest-covered land, brush-covered land, or grass-covered land, without doing both of the following:

(a) First clearing away all flammable material, including snags, from the area around such operation for a distance of 25 feet.

b) Maintain one serviceable round point shovel with an overall length of not less than forty-six (46) inches and one backpack pump water-type fire extinguisher fully equipped and ready for use at the immediate area during the operation. *A five gallon pressurized water fire extinguisher is appropriate in lieu of the backpack water pump.*

This section does not apply to portable powersaws, gold suction dredges and other portable tools powered by a gasoline-fueled internal combustion engine.

D. Vehicles and Water Storage for Suppression on Industrial Operations

(a) Each passenger vehicle, used on operations shall be equipped with one water fire extinguisher or backpack pump in the amount of three to five gallons. Each tractor used in such operation shall be equipped with one 4ABC fire extinguisher. (d) As used in this section: (1) "Vehicle" means a device by which any person or property may be propelled, moved, or drawn over any land surface, excepting a device moved by human power or used exclusively upon stationary rails or tracks. (2) "Passenger vehicle" means a vehicle which is self-propelled and which is designed for carrying not more than 10 persons including the driver, and which is used or maintained for the transportation of persons, but does not include any motortruck or truck tractor.

(b) Certain projects *may be* required to have an on site 300 gallon (minimum) portable water tank (full) with operable pump and 500 feet of 1.5 inch single jacket hose and nozzle be present. All personnel on site must be trained in the operation and mobilization of the tank and pump. This equipment will be used for the suppression of fires at the project site.

E. Gasoline Powersaw and Powertool Requirments

During any time of the year when burning permits are required in an area pursuant to this article, no person shall use or operate or cause to be operated in the area any portable saw, auger, drill, tamper, or other portable tool powered by a gasoline-fueled internal combustion engine on or near any forest-covered land, brush-covered land, or grass-covered land, within 25 feet of any flammable material, without providing and maintaining at the immediate locations of use or operation of the saw or tool, for firefighting purposes one serviceable round point shovel, with an overall length of not less than 46 inches, or one serviceable 3 – 5 gallon pressurized fire extinguisher or 5 gallon back pump. The required fire tools shall at no time be farther from the point of operation of the power saw or tool than 25 feet with unrestricted access for the operator from the point of operation.

F. Spark Arresters or Fire Prevention Measure, Requirements, Exemptions.

(a) Except as otherwise provided in this section, no person shall use, operate, or allow to be used or operated, any internal combustion engine which uses hydrocarbon fuels on any forest-covered land, brush-covered land, or grass-covered land unless the engine is equipped with a spark

arrester, as defined in subdivision (c), maintained in effective working order or the engine is constructed, equipped, and maintained for the prevention of fire.

(b) Spark arresters affixed to the exhaust system of engines or vehicles subject to this section shall not be placed or mounted in such a manner as to allow flames or heat from the exhaust system to ignite any flammable material.

(c) A spark arrester is a device constructed of nonflammable materials specifically for the purpose of removing and retaining carbon and other flammable particles over 0.0232 of an inch in size from the exhaust flow of an internal combustion engine that uses hydrocarbon fuels or which is qualified and rated by the United States Forest Service.

(d) Engines used to provide motive power for trucks, truck tractors, buses, and passenger vehicles, except motorcycles, are not subject to this section if the exhaust system is equipped with a muffler as defined in the Vehicle Code.

(e) Turbocharged engines are not subject to this section if all exhausted gases pass through the rotating turbine wheel, there is no exhaust bypass to the atmosphere, and the turbocharger is in effective mechanical condition.

G. Portable Powersaws,

No person shall use, operate, or cause to be operated on any forest-covered land, brush-covered land, or grass-covered land any handheld portable, multiposition, internal-combustion engine, which is operated on hydrocarbon fuels, unless it is constructed and equipped and maintained for the prevention of fire.

H. Explosives

All local codes pertaining to the storage of explosives, and safety plans addressing explosive storage shall be adhered to. There is a minimum vegetation clearance of 50’ from the storage unit in all direction, and depending on slope and proximity of the storage unit on the slope, up to 150’ of vegetation clearance may be required. Consult the appropriate CDF representative regarding storage site selection.

I. Power Lines

Any power pole that supports a switch, fuse, transformer, lightning arrester, line junction or dead end or corner pole must have a vegetative clearence, to

bare mineral soil, 10 feet in each direction from the outer circumference of such pole or tower. Communication lines do not apply.

Vegetative clearances for the respective distances, which are for all directions between all vegetation and all conductors, which are carrying electric current:

(a) For any line which is operating at 2,400 or more volts, but less than 72,000 volts, four feet.
(b) For any line which is operating at 72,000 or more volts, but less than 110,000 volts, six feet.
(c) For any line which is operating at 110,000 or more volts, 10 feet.

Dead trees, old decadent or rotten trees, trees weakened by decay or disease and trees or portions thereof that are leaning toward the line which may contact the line from the side or may fall on the line shall be felled, cut, or trimmed so as to remove such hazard.

These vegetative clearance distances are the minimum required and may be allowed or required to be greater. Consult CDF for support information. The Pacific Gas and Electric Company is a valuable resource to consult for power line clearance expertise and information.

Attachment 1
Access/Egress Standards

Attachment 2
Fire Safe Examples

Attachment 3
Industrial Guide