CHAPTER 7
Wildlife and Botanical Resources

CHAPTER 7
WILDLIFE AND BOTANICAL RESOURCES

This chapter addresses the potential impacts of the proposed project on natural habitats (vegetation or plant communities) and plant and wildlife species. The assessment of biological resources is based on information compiled through field reconnaissance, previous documentation, and relevant reference materials. The Project Area was surveyed by PCR biologists on August 3, 4, 5, and 6, 2009 and July 14, 2010, to document plant communities, assess the potential for the Project Area to support sensitive species, and to conduct a sensitive plant survey. The Project Area includes riparian and meadow habitat from Lake Mary to the confluence of Mammoth Creek and Hot Creek, including the lake margins of Lake Mary, Lake Mamie and Twin Lakes, Mammoth Creek, and the Bodle Ditch area.

The study began with a review of relevant literature on the biological resources of the Project Area and the surrounding vicinity. Initially, the California Natural Diversity Database (CNDDB), a CDFG sensitive resources account database, was reviewed for all pertinent information regarding the locations of known observations of sensitive species and habitats in the vicinity of the Project Area. Federal register listings, protocols, and species data provided by the USFWS and CDFG were reviewed in conjunction with anticipated federally and state listed species potentially occurring within the vicinity. Information pertaining to sensitive species provided by the Inyo National Forest (INF) was also reviewed. In addition, several regional flora and fauna field guides were utilized to assist in the identification of species and suitable habitats (e.g., Weden 2005 and Laws 2007). In addition, previous documentation relevant to the Project Area was reviewed to include the following:

- October 2006, 2007, and 2008 Mammoth Creek Fish Community Surveys, prepared by Thomas R. Payne & Associates, dated December 28, 2006, December 24, 2007, and January 16, 2009.
- Mammoth Creek 1997, 2000, 2001, 2002, 2003, and 2004 Fish Community Survey, prepared by KDH, dated March 1998, June 2001, June 2002, July 16, 2003, September 2004, and April 2006.
- Mammoth Creek 1999 Fish Community Survey, prepared by Horseshoe Canyon Biological Consultants, dated December 1999.
- Mammoth Creek 1995 and 1996 Fish Community Surveys, prepared by Sierra Nevada Aquatic Research Laboratory, dated 1995 and January 1997.
- Mammoth Creek 1993 and 1994 Fish Community Surveys, prepared by Beak Consultants Incorporated, dated November 1993 and November 1994.
- Mammoth Creek Fish Community Survey, prepared by Beak Consultants Incorporated, dated November 1992.
- Final Environmental Assessment for Lake Mary Road Bicycle Paths and Off-Street Bicycle Paths, dated March 26, 2001; co-lead agencies: Town of Mammoth Lakes and USDA Forest Service, Inyo National Forest.
- Evaluation of Minimum Flows Required to Maintain Existing Riparian Vegetation Along Bodle Ditch, prepared by Snow Survey Associates, dated September 5, 2006.
- A Flora of Valentine Eastern Sierra Reserve, Part I, Valentine Camp, prepared by Ann M. Howald, dated 2000.

Plant communities within the Project Area were mapped with the aid of a 1″=250′ scale aerial photograph. Plant community boundaries were delineated directly onto the aerial photograph while in the field. Plant communities were then digitized using GIS technology to calculate acreage. Plant community names and hierarchical structure follows the CDFG *List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base* (CDFG 2003). Plant community descriptions were based on PCR findings and descriptions contained in Sawyer and Keeler-Wolfe's *A Manual of California Vegetation* (1995), and Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986). Scientific names are employed upon initial mention of each species; common names are employed thereafter.

All plant species observed during surveys were either identified in the field or collected and later identified using taxonomic keys. Plant taxonomy follows Hickman (1993). Common plant names were taken from Hickman (1993) and Howald (1983). Because common names vary significantly between references, scientific names are included upon initial mention of each species; common names consistent throughout the report are employed thereafter. All plant species observed are included in **Appendix F - Plant and Wildlife Species Compendium**.

All wildlife species observed during the field surveys by sight, call, tracks, nests, scat (fecal droppings), remains, or other sign were recorded. Binoculars and regional field guides were utilized for the identification of wildlife, as necessary. All wildlife species observed within the Project Area, as well as diagnostic signs, were recorded in field notes. In addition to species actually detected, expected use of the Project Area by other wildlife was derived from the analysis of habitats within the Project Area combined with known habitat preferences of regionally-occurring wildlife species.

Wildlife taxonomy follows Stebbins (2003) for amphibians and reptiles, the American Ornithologists' Union (1998) for birds, and Jameson and Peeters (1988) for mammals. Scientific names are used during the first mention of a species; common names only are used in the remainder of the text. A list of all wildlife species detected within the Project Area is included in Appendix F.

7.1 ENVIRONMENTAL SETTING

7.1.1 PLANT COMMUNITIES

The Project Area supports 29 individual or mixed plant communities, as shown in **Table 7-1**, and **Figures 7-1.1 – 7-1.16**. Plant community classifications follow Holland (1986). The reader should note that the following descriptions summarize the characteristics and constituent species of plant communities as stand-alone elements. In cases where two or three of these communities are mixed, the vegetation shares characteristics and constituent species from each of the component parts.

Table 7-1. Plant Communities Within the Project Area

Plant Community	Acres
Aspen Forest	34.5
Aspen Forest/Jeffrey Pine Forest	9.6
Aspen Forest/Sierran Mixed Conifer Forest	1.4
Aspen Woodland	6.6
Aspen Woodland/Jeffrey Pine Forest	1.5
Aspen Woodland/Mixed Willow Riparian Scrub	6.1
Aspen Woodland/Mixed Willow Riparian Scrub/Sierran Mixed Conifer Forest	0.3
Aspen Woodland/Montane Meadow	0.7
Aspen Woodland/Montane Riparian Scrub	6.4
Aspen Woodland/Montane Riparian Scrub/Sierran Mixed Conifer Forest	8.4
Aspen Woodland/Mountain Alder Scrub	1.2
Aspen Woodland/Mountain Alder Scrub/Sierran Mixed Conifer Forest	9.3
Aspen Woodland/Sierran Mixed Conifer Forest	8.6
Great Basin Sagebrush Scrub/Montane Meadow	0.6
Great Basin Sagebrush Scrub/Narrow-Leaf Willow Scrub	1.0
Lodgepole Pine Forest/Montane Meadow/Mixed Willow Riparian Scrub	0.2
Lodgepole Pine Forest/Montane Riparian Scrub	21.9
Lodgepole Pine Forest/Mountain Alder Scrub	0.8
Mixed Willow Riparian Scrub	41.2
Mixed Willow Riparian Scrub/Montane Meadow	8.3
Mixed Willow Riparian Scrub/ Sierran Mixed Conifer Forest	2.7
Montane Freshwater Marsh	2.4
Montane Meadow	30.7
Montane Meadow/Sierran Mixed Conifer Forest	0.3
Montane Riparian Scrub	36.7
Montane Riparian Scrub/Sierran Mixed Conifer Forest	5.8
Mountain Alder Scrub	6.4
Mountain Alder Scrub/Sierran Mixed Conifer Forest	3.7
Pasture land – (Restricted access)	523.7
Pasture land – Actively Grazed (Restricted access)	13.8
Pond	1.4
TOTAL	**796.2**

Source: PCR Services Corporation 2009.

Figure 7-1.1. Plant Communities

Figure 7-1.2. Plant Communities

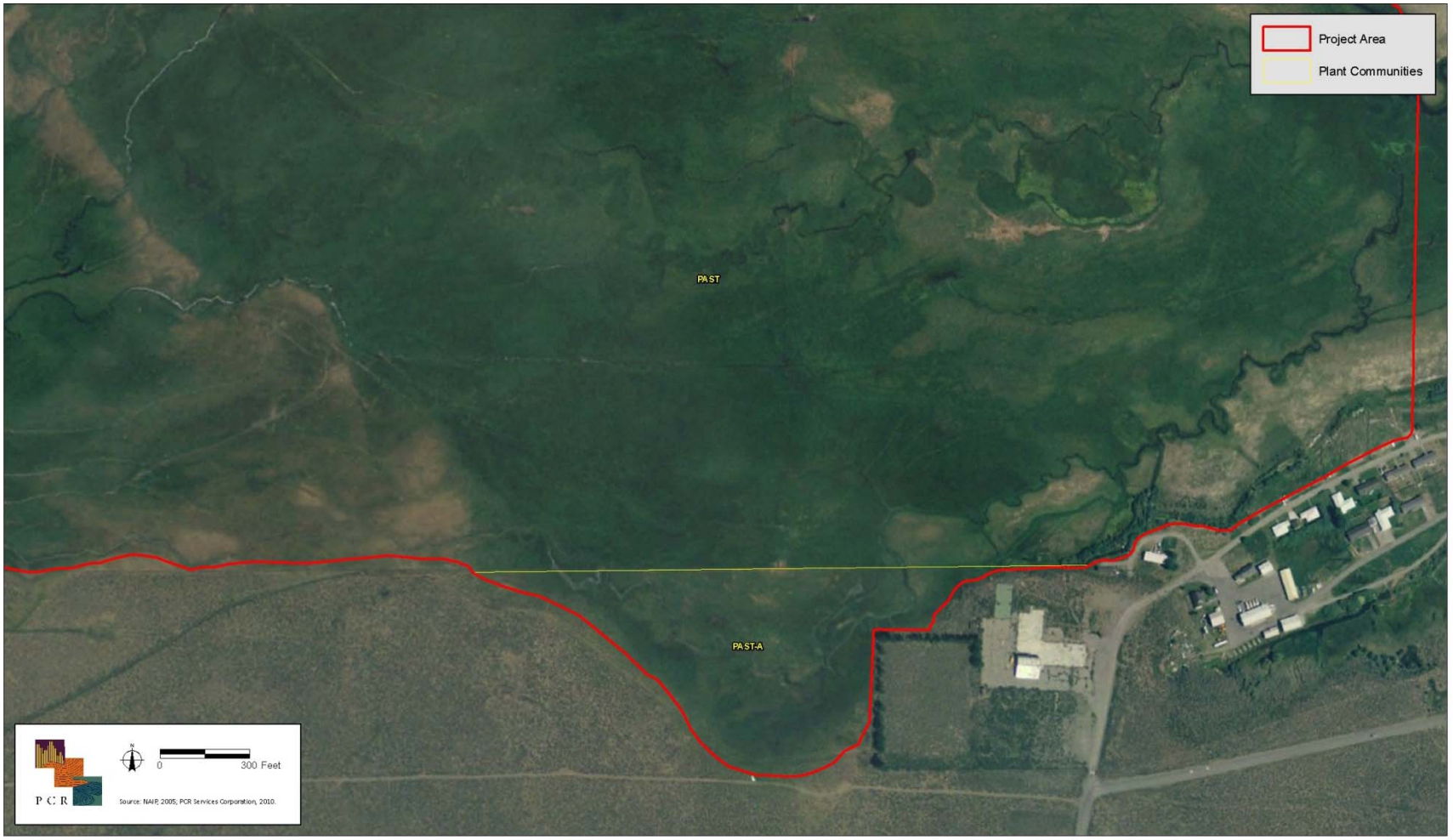

Figure 7-1.3. Plant Communities

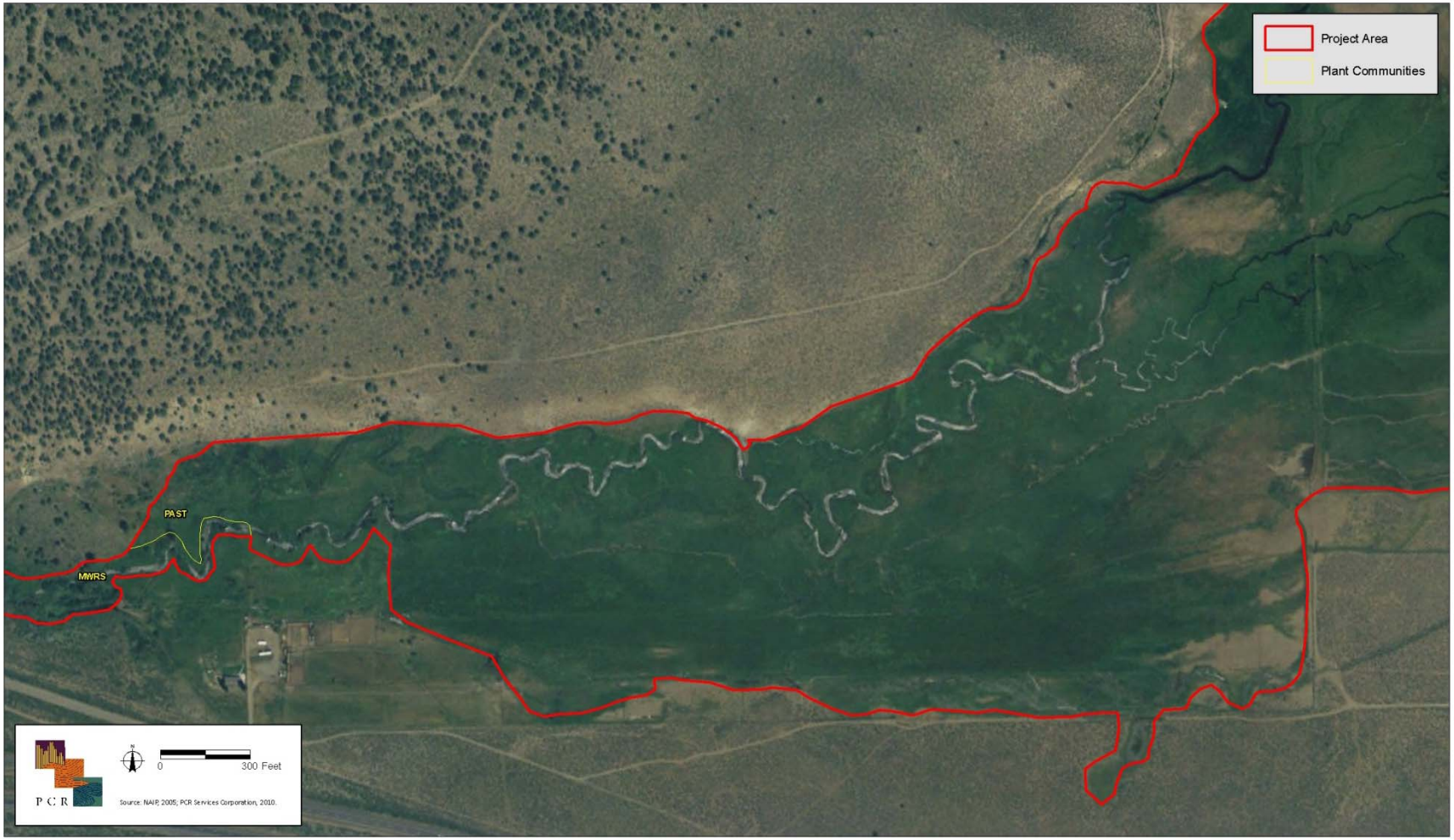

Figure 7-1.4. Plant Communities

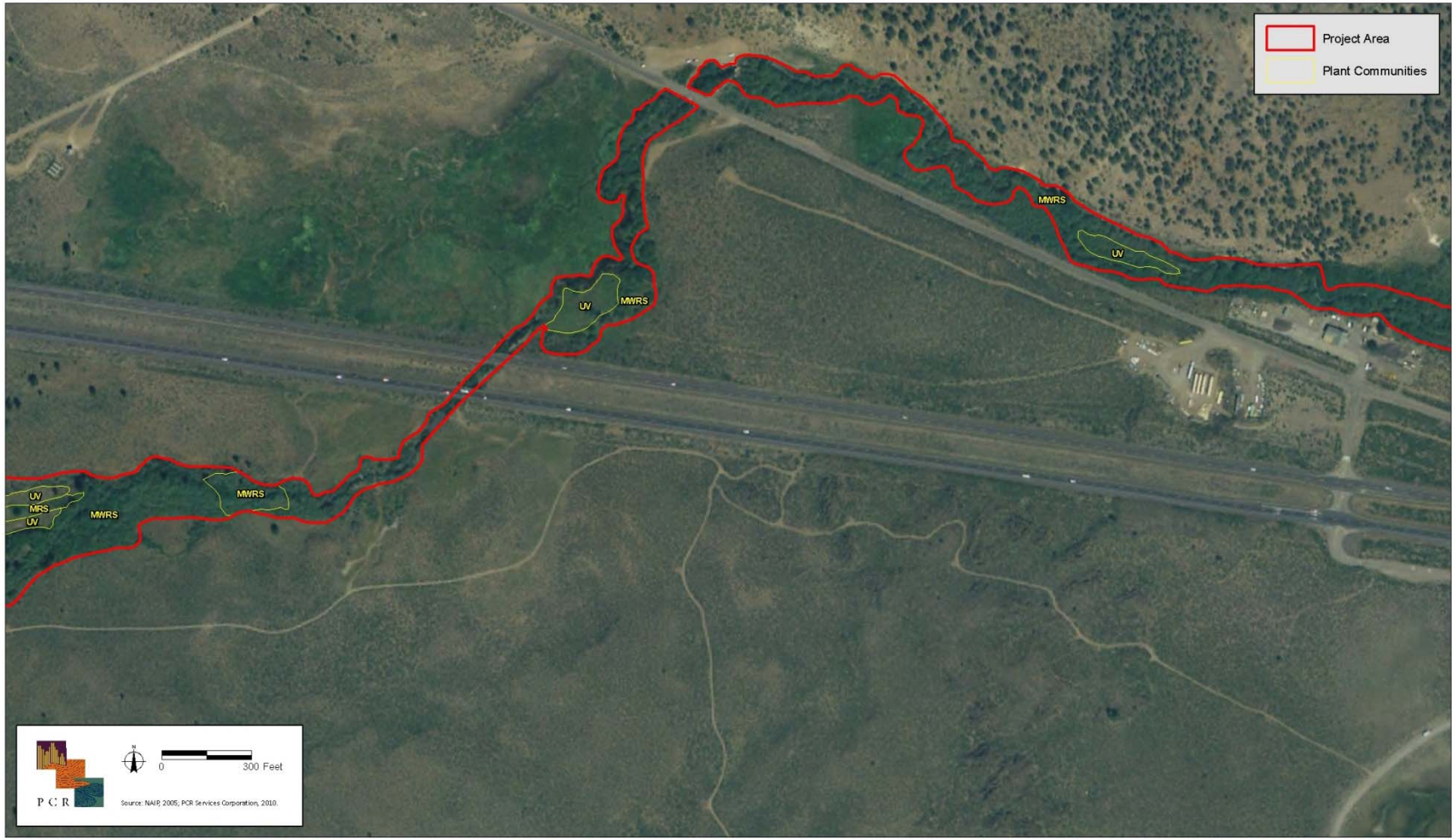

Figure 7-1.5. Plant Communities

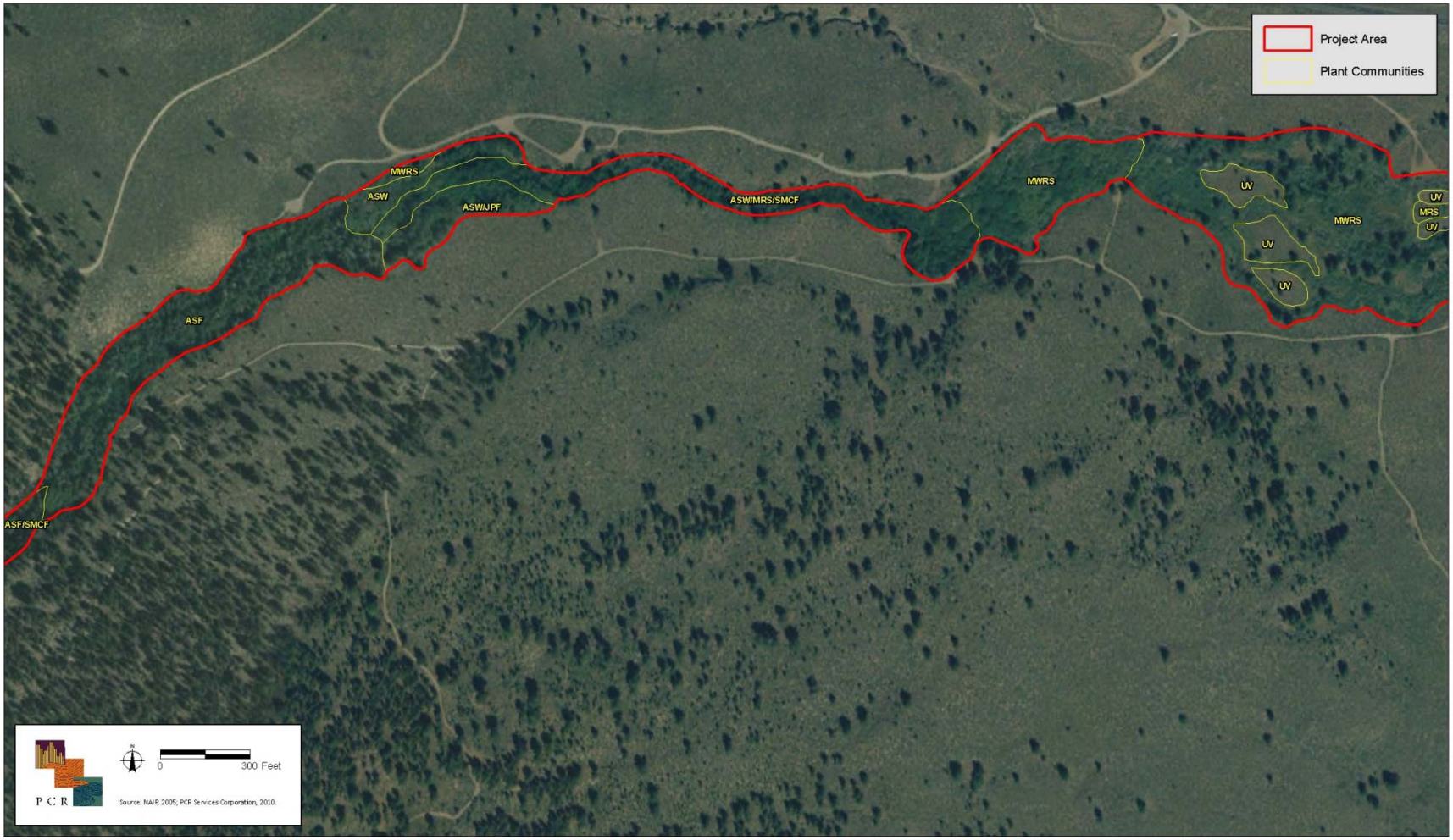

Figure 7-1.6. Plant Communities

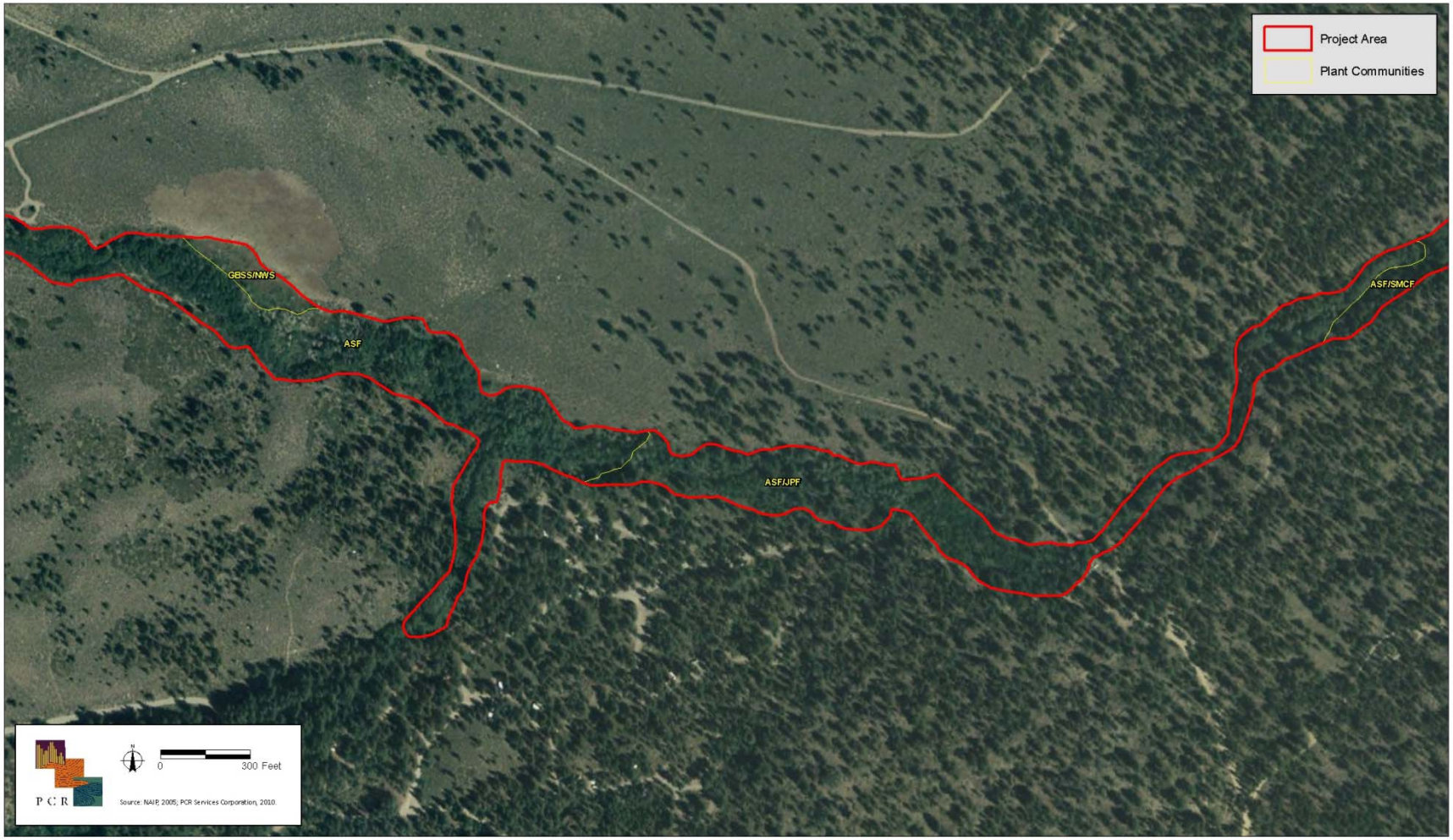

Figure 7-1.7. Plant Communities

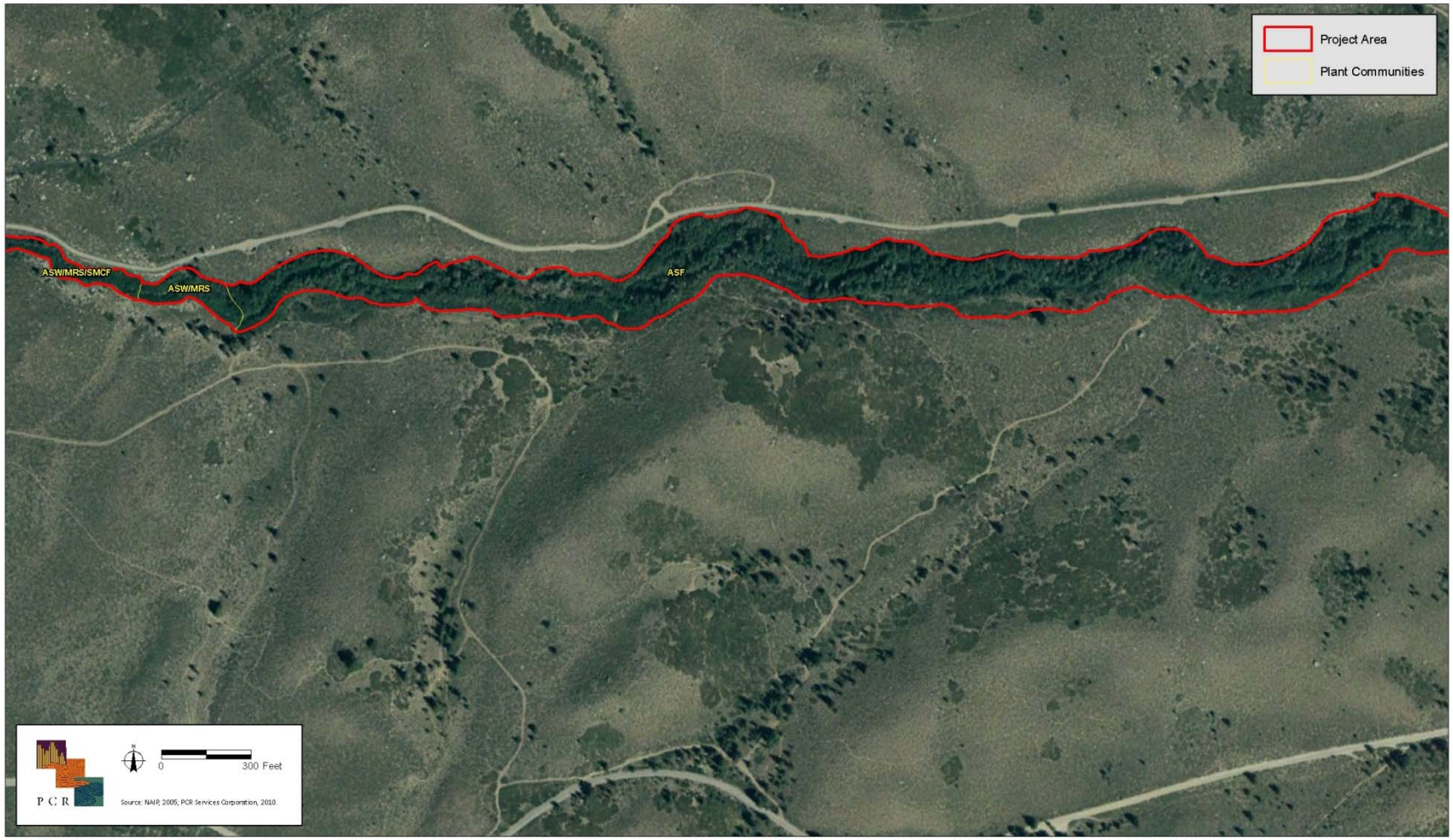

Figure 7-1.8. Plant Communities

Figure 7-1.9. Plant Communities

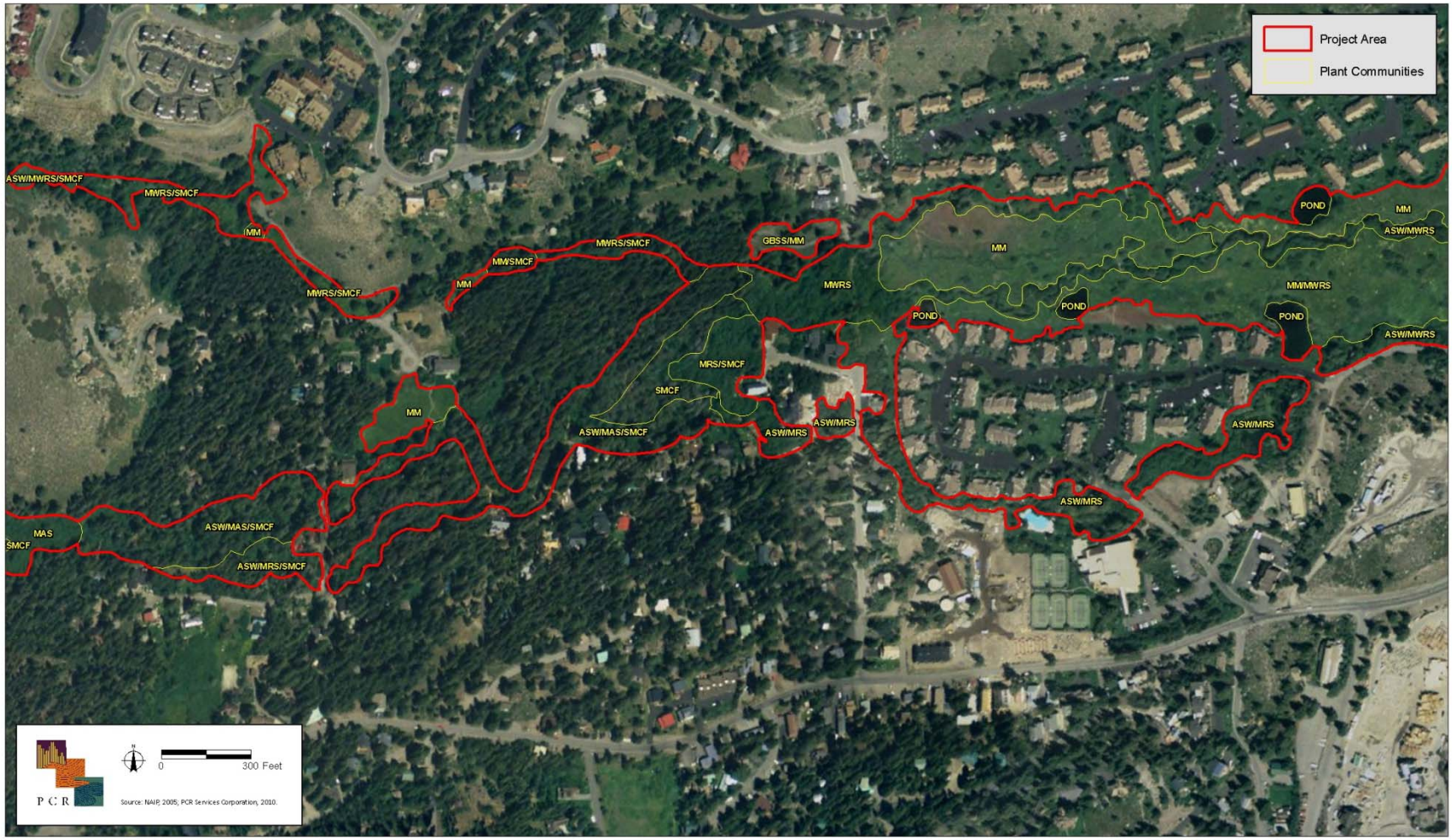

Figure 7-1.10. Plant Communities

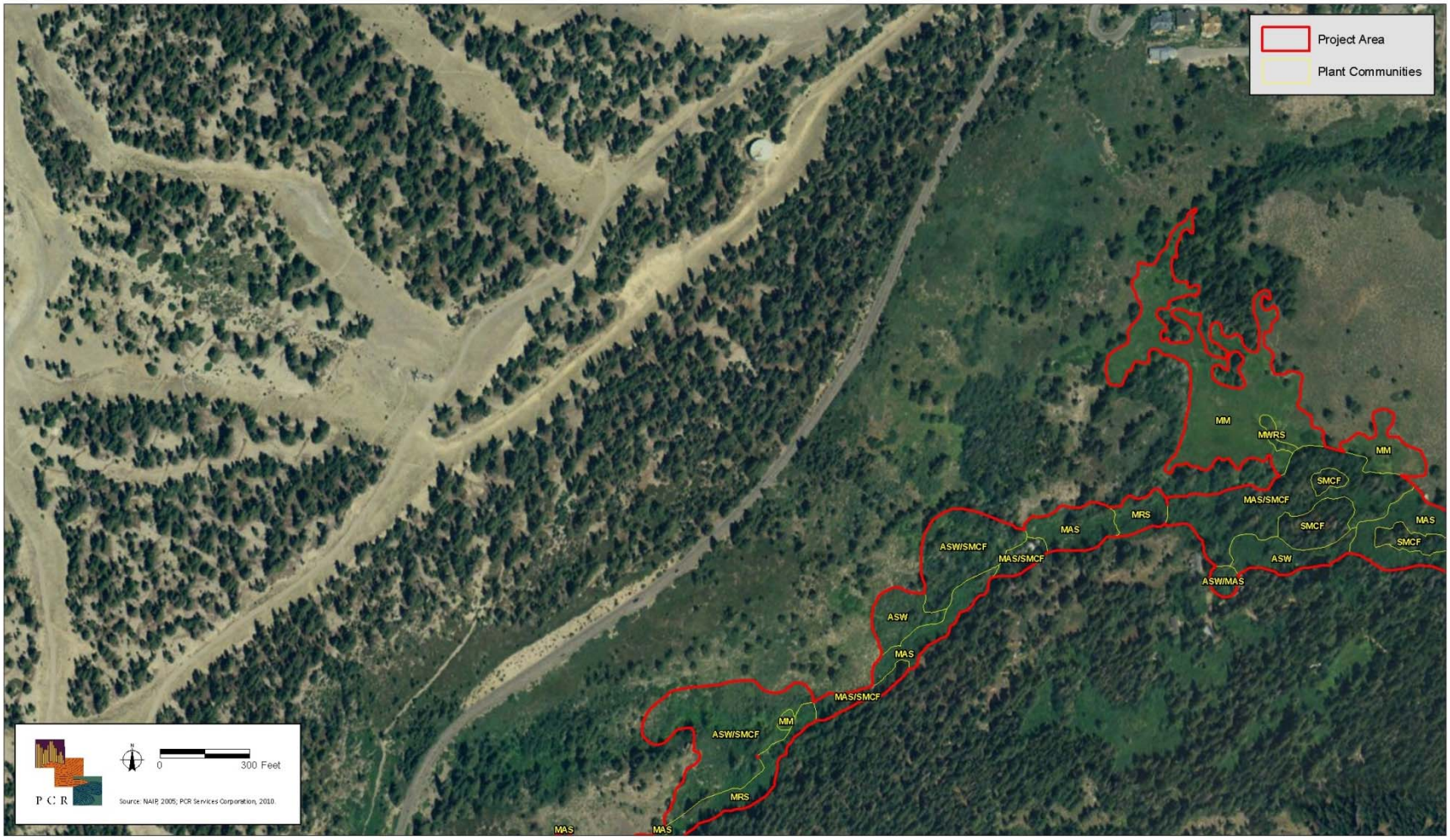

Figure 7-1.11. Plant Communities

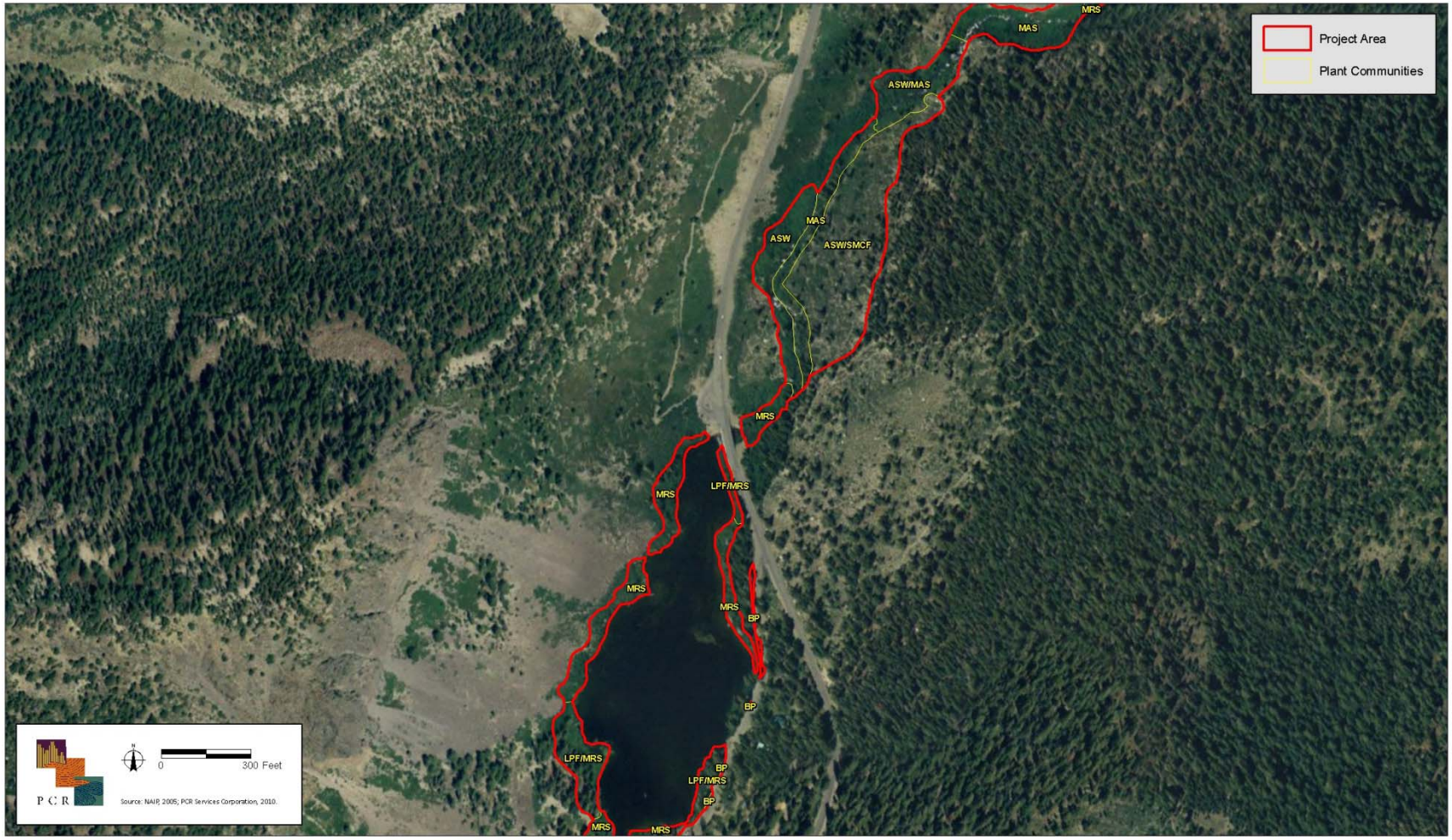

Figure 7-1.12. Plant Communities

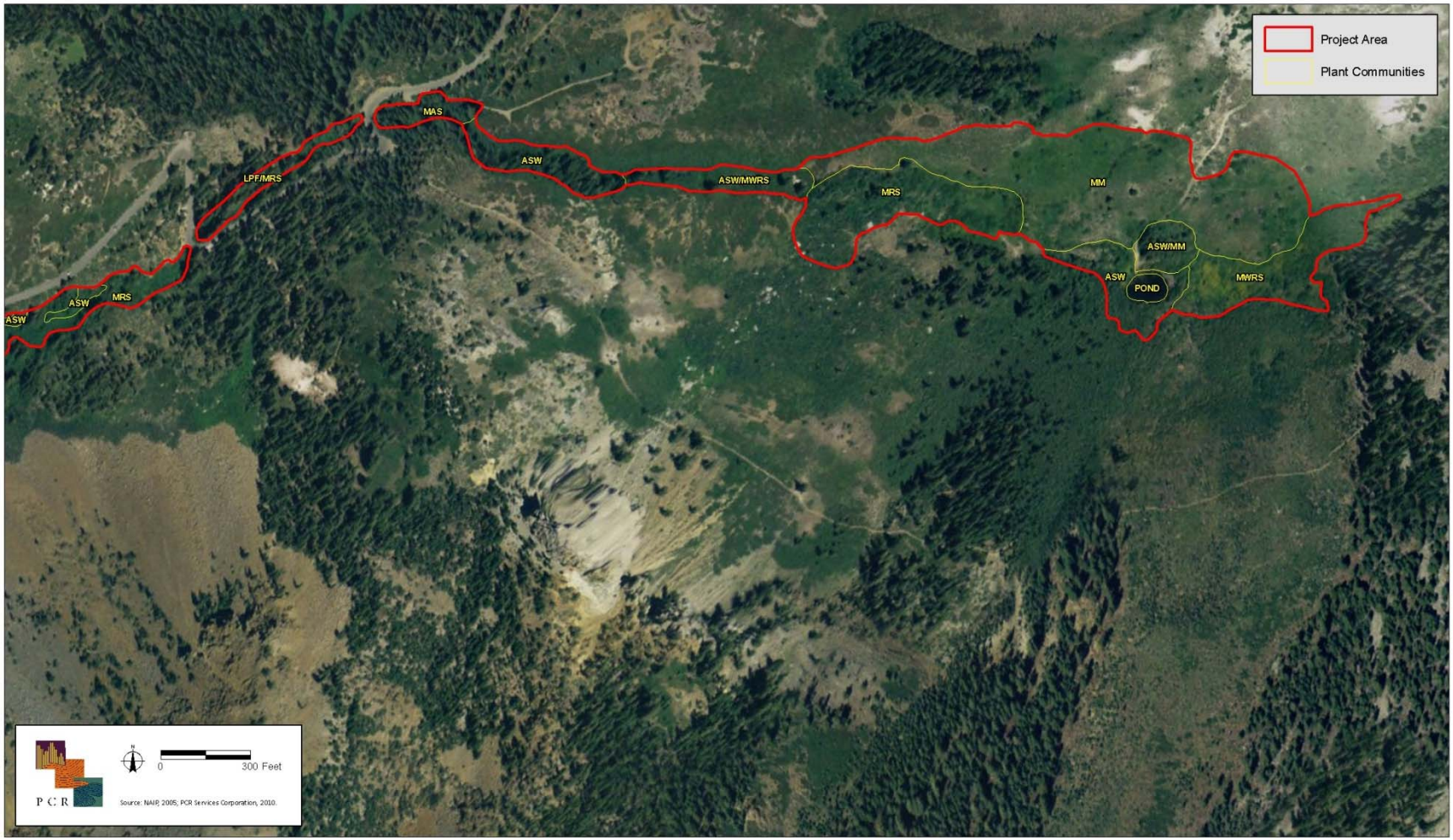

Figure 7-1.13. Plant Communities

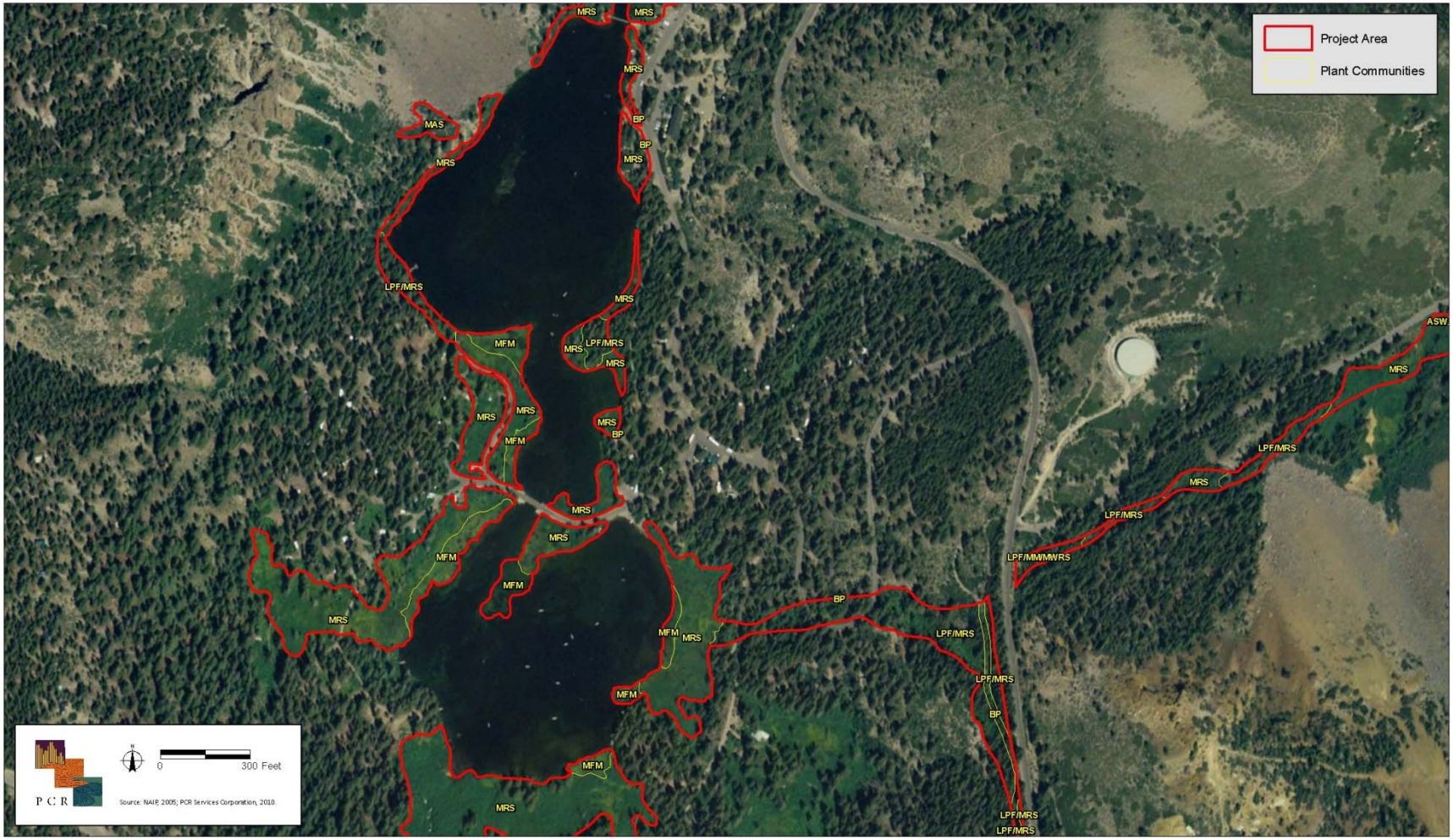

Figure 7-1.14. Plant Communities

Figure 7-1.15. Plant Communities

Figure 7-1.16. Plant Communities

7.1.1.1 ASPEN FOREST

Aspen forest consists of dense groves of quaking aspen (*Populus tremuloides*) as the sole or dominant tree in the tree canopy. Trees grow to 20 meters in height. The understory in this community typically is sparse, but includes a variety of small shrubs and herbaceous perennials. Scrubby quaking aspen thickets may occur at the edges in areas of relatively dry soil or at high altitudes. Additional species observed in this community include mountain snowberry (*Symphoricarpus rotundifolius*), interior rose (*Rosa woodsii* var. *ultramontana*), mountain alder (*Alnus incana*), ranger's buttons (*Sphenosciadium capitellatum*), common yarrow (*Achillea millefolium*), wax currant (*Ribes cereum*), Sierra onion (*Allium campanulatum*), meadow goldenrod (*Solidago canadensis* ssp. *elongata*), and narrow-leaved willow (*Salix exigua*). This community occupies 34.5 acres within the eastern portion of the Project Area.

7.1.1.2 ASPEN WOODLAND

Aspen woodland consists of quaking aspen as the sole or dominant tree in the tree canopy. In contrast to aspen forests, trees in aspen woodland tend to be less than 35 meters in height with an intermittent or open canopy. This plant community occurs on seasonally and permanently saturated soils and along streamsides or springs. Additional species observed included willow (*Salix* spp.), lodgepole pine (*Pinus contorta* ssp. *murrayana*), white fir, mountain alder, common yarrow, ranger's buttons, mountain snowberry, stickey cinquefoil (*Potentilla glandulosa*), mountain meadow rue (*Thalictrum fendleri*), and scarlet gilia (*Ipomopsis aggregata*). This community occupies 6.6 acres within the central portion of the Project Area.

7.1.1.3 GREAT BASIN SAGEBRUSH SCRUB

Great Basin sagebrush scrub consists of mostly soft-woody shrubs usually with bare ground underneath and between shrubs. Great Basin sagebrush (*Artemisia tridentata*) is the dominant species, and growth occurs mostly in late spring and early summer. This plant community is dormant during the winter and occurs on a wide variety of soils and terrain, from rocky, well-drained slopes to fine-textured, valley soils with a high water table. Characteristic species include Great Basin sagebrush, four-wing saltbush (*Atriplex canescens*), rubber rabbitbrush (*Chrysothamnus nauseosus*), Idahoe fescue (*Festuca idahoensis*), antelope bitterbrush (*Purshia tridentata*), and elymus (*Elymus cinereus*). This community occurs in limited areas of mixed communities with montane meadow (0.6 acre) and narrow-leaf willow scrub (1.0 acre) in the central and eastern portions of the Project Area.

7.1.1.4 JEFFREY PINE FOREST

Jeffrey pine forest is characterized as a tall, open forest dominated by Jeffrey pine (*Pinus jefferyi*) with sparse understories of either montane chaparral or sagebrush scrub. This community occurs on dry, cold sites, especially on well-drained slopes, ridges, or cold air accumulation basins. Characteristic species include Jeffrey pine (dominant), Great Basin sagebrush, antelope bitterbrush, huckleberry oak (*Quercus vaccinifolia*), and snowberry. This community occurs in mixed communities with aspen forest (9.6 acres) and aspen woodland (1.5 acres) in the eastern portion of the Project Area.

7.1.1.5 LODGEPOLE PINE FOREST

Lodgepole pine forest is characterized by dense forest of slender trees up to 40 meters tall dominated by lodgepole pine. More open stands also occur within drier sites where trees reach 20 meters tall. Dense stands of lodgepole pines typically have a sparse understory with small shrubs and perennial herbs occurring within the forest openings. Lodgepole pine forest typically occurs at elevations with cool, dry summers and long winters with abundant snowfall. This community tolerates a variety of soil conditions and moisture levels; however, it most commonly occurs on rocky, well-drained soils. Characteristic species include lodgepole pine (dominant), quaking aspen, cinquefoil (*Potentilla* sp.), heather (*Phyllodoce* spp.), and wintergreen (*Pyrola* spp.) This community occurs in mixed communities within the study area, including montane meadow/mixed willow riparian scrub (0.2 acre), montane riparian scrub (21.9 acres) and mountain alder scrub (0.8 acre) in the Project Area.

7.1.1.6 MIXED WILLOW RIPARIAN SCRUB

Mixed willow riparian scrub consists of a relatively open to dense shrubby streamside thicket consisting of a mixture of willow species as the dominant species in the shrub canopy. Species observed in this community on-site included arctic willow (*Salix arctica*), narrow-leaved willow (*Salix exigua*), Lemmon's willow (*Salix lemmonii*), shining willow (*Salix lucida* ssp. *lasiandra*), yellow willow (*Salix lutea*), and tea-leaved willow (*Salix planifolia*), corn lily (*Veratrum californicum*), fireweed (*Epilobium angustifolium*), spike mallow (*Sidalcea oregano* ssp. *spicata*), western blue flag (*Iris missouriensis*), common monkeyflower (*Mimulus guttatus*), mountain snowberry, meadow goldenrod (*Solidago canadensis* ssp. *elongata*), common yarrow, and horse-mint (*Agastache urticifolia*). Mixed willow riparian scrub comprises 41.2 acres in the central and eastern portion of the Project Area. Mixed willow riparian scrub also occurs in association with aspen woodland (6.1 acres), aspen woodland/Sierran mixed conifer forest (0.3 acre), montane meadow (8.3 acres), Sierran mixed conifer forest (2.7 acres), and lodgepole pine forest/montane meadow (0.2 acre) within the Project Area.

7.1.1.7 MONTANE FRESHWATER MARSH

Montane freshwater marsh is dominated by perennial emergent monocots up to five meters in height. This community is found in permanently flooded montane areas with deep, peaty soils. Species observed within this community on-site included sedge, rush (*Juncus* spp.) and mare's-tail (*Hippuris vulgaris*). This plant community occurs over approximately 2.4 acres along the banks of Lake Mary and Twin Lakes in the southwestern portion of the Project Area.

7.1.1.8 MONTANE MEADOW

Montane meadow vegetation is characterized by a dense growth of sedges and other perennials herbs. The main growth period for this plant community is from late spring through summer with a dormancy period in the winter. This community occurs on fine-textured, somewhat permanently moist or wet soils. Montane meadows are often a successional stage in the filling of lakebeds with soil and often are characterized by young trees encroaching from the margins.

Plant species observed within this community in the Project Area included epilobium (*Epilobium ciliatum*), smoothstem willow-herb (*Epilobium glaberrimum*), fireweed, corn lily, wandering daisy (*Erigeron peregrinus* var. *hirsultus*), sedge, Kelly's tiger lily (*Lilium kelleyanum*), leopard lily (*Lilium pardalinum*), yampah (*Perideridia parishii* ssp. *latifolia*), arrow-leaf butterweed (*Senecio triangularis*), meadow goldenrod, western blue flag, Sierra rein orchid (*Platanthera*

leucostachys), monkshood (*Aconitum columbianum*), swamp onion (*Allium validum*), meadow paintbrush (*Castilleja miniata* ssp. *miniata*), Brewer's mitrewort (*Mitella breweri*), cow parsnip (*Heracleum lanatum*), stickey cinquefoil, mountain meadow rue, rush, horsetail (*Equisetum* sp.) common monkeyflower, slender cinquefoil (*Potentilla gracilis*), common yarrow, elephant's head (*Pedicularis groenlandica*), spike mallow, dented silk-moss (*Plagiothecium denticulatum*), common green bryum moss (*Bryum pseudotriquetrum*), ribbed bog moss (*Aulacomnium palustre*), and water speedwell (*Veronica anagallis-aquatica*). This plant community occurs in the central portion of the Project Area and occupies approximately 30.7 acres. Montane meadow vegetation was also observed in various locations along Mammoth Creek as an understory within mixed communities with aspen woodland (0.7 acre), Great Basin sagebrush scrub (0.6 acre), lodgepole pine forest/mixed willow riparian scrub (0.2 acre), mixed willow riparian scrub (8.3 acres), and Sierran mixed conifer (0.3 acre).

7.1.1.9 MONTANE RIPARIAN SCRUB

Montane riparian scrub is characterized by open to dense, broadleafed winter-deciduous shrubby riparian thickets usually dominated by any of several willow, alder (*Alnus* spp.), or dogwood (*Cornus* spp.) species. This community occurs in relatively fine-textured alluvium along fairly low-gradient reaches of snowmelt-fed steams. Montane riparian scrub may occur as a thin scrubby corridor throughout montane, subalpine, and/or alpine meadows. Plant species observed within this community on-site included mountain alder, tea-leaved willow, Lemmon's willow, arctic willow, yellow willow, shining willow, aspen, and dogwood. A narrow band of montane meadow vegetation was oftentimes present on the periphery of the montane riparian scrub. This plant community occupies approximately 36.7 acres and occurs throughout the Project Area. It is also found in mixed communities with Sierran mixed conifer forest (0.3 acre), lodgepole pine forest (21.9 acres), aspen woodland (6.4 acres), and aspen woodland/Sierran mixed conifer forest (8.4 acres) within the Project Area.

7.1.1.10 MOUNTAIN ALDER SCRUB

Mountain alder scrub consists of mountain alder (*Alnus incana* ssp. *tenuifolia*) as the sole or dominant large shrub or small tree in the canopy. The small trees or large shrubs have a continuous or intermittent canopy. Species observed within this community on-site included mountain alder (dominant species), willow, arrow-leaf butterweed, and California melic (*Melica imperfecta*). As a stand-alone element, this community comprises 6.4 acres within the Project Area. It also occurs in mixed communities with aspen woodland (1.2 acres), aspen woodland/Sierran mixed conifer forest (9.3 acres), lodgepole pine forest (0.8 acre), and Sierran mixed conifer forest (3.7 acres)

7.1.1.11 NARROW-LEAF WILLOW SCRUB

Narrow-leaf willow scrub consists of narrow-leaf willow as the sole or dominant shrub in the shrub canopy. Shrubs tend to be less than seven meters in height with a continuous canopy. This plant community occurs on seasonally flooded or saturated habitats, within floodplains, and along rivers and streams. Additional plant species that may occur in this community include Fremont cottonwood (*Populus fremontii*), white alder (*Alnus rhombifolia*) and willow (*Salix* spp.). This community occurs only within mixed communities in the Project Area where it is found with Great Basin sagebrush scrub covering approximately 1.0 acre.

7.1.1.12 SIERRAN MIXED CONIFER FOREST

Sierran mixed conifer forest consists of an open to dense forest of coniferous evergreens up to 75 meters in height. Dominant species within the Project Area include lodgepole pine, white fir, western white pine (*Pinus monticola*), and Jeffrey pine. The understory typically consists of scattered broadleaved mesophytic shrubs and small trees. Species characteristic of this community may also include currant (*Ribes* spp.), manzanita (*Arctostaphylos* sp.), chinquapin (*Chrysolepis sempervirens*) and California lilac (*Ceanothus* spp.). Sierran mixed conifer forest is represented in several mixed communities in the Project Area where it occurs with aspen forest (1.4 acres), aspen woodland/mixed willow riparian scrub (0.3 acre), aspen woodland/montane riparian scrub (8.4 acres), aspen woodland/mountain alder scrub (9.3 acres), aspen woodland (8.6 acres), mixed willow riparian scrub (2.7 acres), montane meadow (0.3 acre), montane riparian scrub (5.8 acres), and mountain alder scrub (3.7 acres).

7.1.1.13 OTHER

PASTURE

A pasture was present at the confluence of Hot Creek and Mammoth Creek, a portion of which was being actively grazed. Access was restricted in this area since it is a private property surrounded by barbed wire fence; therefore, a detailed compendium was not compiled in this area. Plant species observed in this area included common yarrow, poa (*Poa* sp.), rubber rabbitbrush, bluegrass (*Poa* sp.), water cress (*Rorripa nasturtium-acuaticum*), senecio (*Senecio hydrophilus*), and rush (*Juncus balticus*). This area comprises 537.5 acres within the eastern portion of the Project Area. Approximately 13.8 of the 537.5 acres of pasture within the Project Area was being actively grazed at the time of the site visit.

POND

A few ponds were present within the Project Area, and these predominantly occurred in urbanized areas in the west-central portion of the Project Area. Ponds comprise approximately 1.4 acres in the central portion of the Project Area.

7.1.2 WILDLIFE

The plant communities discussed above provide wildlife habitat. Following are discussions of wildlife populations within the Project Area, segregated by taxonomic group. Representative examples of each taxonomic group either observed or expected within the Project Area are provided. Wildlife species actually observed, as well as those expected to occur, within the Project Area are indicated in Appendix F.

7.1.2.1 INVERTEBRATES

Focused surveys for common invertebrate species were not conducted; however, the Project Area would be expected to support populations of a diverse assortment of invertebrates due to the number of diverse plant communities on-site.

7.1.2.2 FISH

Focused surveys for fish species were not conducted by PCR, but have been conducted for areas within the Project Area since 1992 excluding 1998 (Hood et al. 1992, 1993, 1994; Jenkins and Dawson 1996, 1997; 1998, 2001, 2002, 2003, 2004 2006; Jenkins 1999; Salamunovich 2006, 2007,

2009). The following species have been detected within the Project Area during these surveys: brown trout (*Salmo trutta*), rainbow trout (*Oncorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), Owens sucker (*Catostomus fumeiventris*), and tui chub (*Gila bicolor*). Owens sucker is a CSS. The tui chub was confirmed to be a hybrid between the Owens tui chub (*Gila bicolor snyderi*), a federally and State listed endangered species and the Lahontan tui chub (*G. b. obesa*) (S. Parmenter, CDFG pers. comm. 2008). Further details on the occurrences of fish in the Project Area are provided in Chapter 6, Fisheries and Aquatic Resources.

7.1.2.3 AMPHIBIANS

Terrestrial amphibian species may or may not require standing water for reproduction. Terrestrial species avoid desiccation by burrowing underground; within crevices in trees, rocks, and logs; and under stones and surface litter during the day and dry seasons. Due to their secretive nature, terrestrial amphibians are rarely observed, but may be quite abundant if conditions are favorable. Aquatic amphibians are dependent on standing or flowing water for reproduction. Such habitats include fresh water marshes and open water (reservoirs, permanent and temporary pools and ponds, and perennial streams). Many aquatic amphibians will utilize vernal pools as breeding sites. These pools are temporary in duration and form following winter and spring rains.

Mammoth Creek, portions of the Bodle Ditch, Lake Mary, Lake Mamie, and the Twin Lakes contain water perennially. The Yosemite toad was observed in a meadow west of Lake Mary during focused surveys conducted by David Martin of Canorus Ltd. in 2009 (Martin 2009). The Project Area has the potential to support a few amphibian species including Sierran treefrog (*Pseudarcis sierra*) and western toad (*Bufo boreas*). Of note, the Sierran treefrog is a USFS Management Indicator Species (MIS) associated with wet meadow and freshwater emergent wetland habitats for the Sierra Nevada Forests (USFS2008a). However, during Martin's 2009 surveys throughout the Mammoth Lakes Basin, this species was found or detected only around Lake Mary and Twin Lakes. None were found or detected along Mammoth Creek or in Mammoth Meadows (Martin, D. pers. comm. January 25, 2010). Martin also noted that the staff at the Valentine Reserve have seen "one or two in some 20 years". Therefore, significant populations of the Sierran treefrog are not expected within the Project Area.

7.1.2.4 REPTILES

Reptiles, as a group, occupy a much broader spectrum of habitats than amphibians. Reptilian diversity and abundance typically varies with habitat type and character. Some species prefer only one or two natural communities; however, most will forage in a variety of communities. A number of reptile species prefer open habitats that allow free movement and high visibility. Most species occurring in open habitats rely on the presence of small mammal burrows for cover and escape from predators and extreme weather.

One reptile species, mountain garter snake (*Thamnophis elegans*) was observed within the Project Area. Several species have the potential to occur on-site. These include rubber boa (*Charina bottae*), Sierra alligator lizard (*Elgaria coerulea*), Sierra fence lizard (*Sceloperus occidentalis*), and sagebrush lizard (*Sceloperus graciosus*).

7.1.2.5 BIRDS

The riparian and forest habitats within the Project Area provide foraging and cover habitat for year-round and seasonal residents. Bird species detected during the site visit included turkey

vulture (*Cathartes aura*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), hairy woodpecker (*Picoides villosus*), olive-sided flycatcher (*Contopus cooperi*), western wood-pewee (*Contopus sordidulus*), cliff swallow (*Petrochelidon pyrrhonota*), violet-green swallow (*Tachycineta thalassina*), black-billed magpie (*Pica hudsonia*), American robin (*Turdus migratorius*), black-headed grosbeak (*Pheucticus melanocephalus*), western tanager (*Piranga ludoviciana*), dark-eyed junco (*Junco hyemalis*), fox sparrow (*Passerella iliaca*), green-tailed towhee (*Pipilo chlorurus*), red-winged blackbird (*Agelaius phoeniceus*), brown-headed cowbird (*Molothrus ater*), common grackle (*Quiscalus quiscula*), pine siskin (*Carduelis pinus*), Stellar's jay (*Cyanocitta stelleri*), Brewer's blackbird (*Euphagus cyanocephalus*), Clark's nutcracker (*Nucifraga columbiana*), mountain chickadee (*Poecila gambeli*), and American crow (*Corvus brachyrhynchos*).

Several additional species have the potential to occur on-site. These include (but are not limited to) American kestrel (*Falco sparverius*), mountain quail (*Oreortyx pictus*), great horned owl (*Bubo virginianus*), belted kingfisher (*Ceryle alcyon*), brown creeper (*Certhia americana*), mountain bluebird (*Sialia currucoides*), orange-crowned warbler (*Vermivora celata*), yellow-rumped warbler (*Dendrioca coronate*), yellow warbler (*Dendroica petechia*), and Wilson's warbler (*Wilsonia pusilla*). As noted previously, yellow warbler may occur on-site. This is a MIS associated with montane riparian and valley foothill riparian habitats for the Sierra Nevada Forests (USFS 2008a).

7.1.2.6 MAMMALS

Most mammals are either nocturnal, reclusive, or both, and are more often detected by their sign, denning sites, etc., or through live-trapping (rodents). Mammals observed within the Project Area by sight, scat, tracks, or other means, include the mule deer (*Odocoileus hemionus*), snowshoe hare (*Lepus americanus*), Botta's pocket gopher (*Thomomys bottae*), western gray squirrel (*Scirius griseus*), California ground squirrel (*Spermophilus beecheyi*), golden-mantled ground squirrel (*Spermophilus beecheyi*), chipmunk (*Tamias* sp.), and black bear (*Ursus americanus*).

Several additional species have the potential to occur on-site. These include (but are not limited to) broad-footed mole (*Scapanus latimanus*), big brown bat (*Eptesicus fuscus*), northern flying squirrel (*Glaucomys sabrinus*), lodgepole chipmunk (*Tamias speciosus*), deer mouse (*Peromyscus maniculatus*), coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), long-tailed weasel (*Mustela frenata*), American marten (*Martes americana*), mountain lion (*Felis concolor*), bobcat (*Lynx rufus*), and raccoon (*Procyon lotor*). As noted previously, mule deer was detected within the Project Area and American marten may occur on-site. Mule deer is a MIS associated with montane hardwood and montane hardwood-conifer habitats for the Sierra Nevada Forests, and American marten is a MIS associated with ponderosa pine, Sierran mixed conifer, white fir, and red fir habitats (USFS 2008a).

7.1.3 WILDLIFE MOVEMENT

Wildlife corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, will not likely persist over time in fragmented or isolated habitat areas because such conditions preclude the infusion of new individuals and genetic information into isolated populations (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). Each type of movement may also be represented at a variety of scales from non-migratory movement of amphibians, reptiles, and some birds, on a "local" level to many square mile home ranges of large mammals moving at a "regional" level.

Local scale wildlife movement likely occurs within the Project Area as well as its surrounding vicinity. The Project Area contains habitat that supports a variety of common species of invertebrates, amphibians, reptiles, birds, and mammals. The home range and average dispersal distance of many of these species may be entirely contained within the Project Area and immediate vicinity. Numerous populations of insects, amphibians, reptiles, small mammals, and a few bird species may find all of their resource requirements within the Project Area and its immediate vicinity. Riparian areas and other natural landscape features located in and around the Project Area can serve as natural guides for wildlife along travel routes (Hilty et al. 2006). Local movement by small and medium-sized mammals such as California ground squirrel, Botta's pocket gopher, deer mouse, long-tailed weasel, American marten, and gray fox may occur within the Project Area. Occasionally, individuals expanding their home range or dispersing from their natal range will attempt to disperse from the Project Area.

It is also possible for migratory individuals to utilize the Project Area for cover and water resources. The Round Valley and Casa Diablo Mule Deer Herds are known to use areas in the vicinity of the Project Area for portions of their migrations from winter ranges in the lowlands to summer ranges within the higher elevations of the Sierra Nevada. Predators, such as the mountain lion have also been known to make migrations that directly correlate temporally and spatially with those of mule deer in the region (Pierce et. al. 1999).

7.1.3.1 MULE DEER

Although not considered a sensitive wildlife species, mule deer are considered an important harvest species by the CDFG. The Town of Mammoth Lakes is located within the Eastern Sierra Nevada Deer Assessment Unit. Deer populations within the Town of Mammoth Lakes consist of Rocky Mountain mule deer from the Round Valley and Casa Diablo herds. Some deer from both herds use the Doe Ridge area throughout the summer. These herds are migratory. Deer herd management plans were prepared by the CDFG in the mid 1980's for both herds. Management objectives include enhancing important winter, holding, migratory, and fawning habitats. Migratory movements occur over a six to ten week period. Deer begin their spring migration in April or May after occupying holding areas to feed and regain strength lost over the winter. When the snow recedes and forage is available at their higher elevation summer ranges (usually mid-June), they migrate to these areas.

The Round Valley herd encompasses approximately 2,000 square miles and includes the west slope of the Sierra Nevada to the San Joaquin Ridge. The Mammoth Pass herd segment of the Round Valley herd uses a route that heads westerly below Mammoth Rock, passes through the Mammoth Lakes Basin, and then crosses over Mammoth Pass into the Middle Fork of the San Joaquin River Drainage (PCR 2005). The Project Area is located within the Mammoth Lakes Basin.

The Casa Diablo herd's winter range includes the lower elevations near Benton, California to the north end of Owen's Valley. Some deer from this herd migrate across Doe Ridge towards their summer range on the higher elevations of the eastern Sierra Nevada (between June Lake

and Lee Vining). The Mammoth Lakes Basin, which is located south-southeast of the Project Area, is utilized as a migratory corridor and holding area by the Round Valley Herd. The Casa Diablo Herd utilizes an area approximately 8 to 9 miles to the northwest of the Project Area and 6 to 7 miles north of the town of Mammoth Lakes (Jones and Stokes 1999).

Approximately 75% of the Round Valley Herd leaves their wintering grounds in the Round Valley, which is located approximately 20 miles southeast of the Project Area, to migrate in a northerly direction along the toe of the Eastern Sierra to the Mammoth Lakes Basin (Taylor 1996). The herd utilizes the Mammoth Lakes Basin as a holding area for approximately eight weeks while they forage and wait for winter snows to recede from the mountain passes. Following the snowmelt, some deer leave the approximately 11,300-acre holding area to traverse over the Mammoth Crest via McGee, Hopkins, Solitude, Mammoth, and San Joaquin passes to their preferred summering grounds in the Sierra Nevada between the Sierra Nevada's western slope and the San Joaquin Ridge (Town of Mammoth Lakes 2005). Those deer that do not continue their migration beyond the Mammoth Lakes Basin remain there until the herd makes its way back to the Round Valley in the fall months (Town of Mammoth Lakes 2005).

The Town of Mammoth Lakes 2005 General Plan Update identifies three distinct migration corridors for the Round Valley Herd, which occur within the vicinity of the Project Area:

1. The Solitude Pass/Duck Lake herd segment leaves the holding area and migrates to summer ranges through the Solitude Pass located in the Sherwin Range, and Duck Pass located approximately three miles south of the holding area.
2. The Mammoth Pass herd segment of the Round Valley Herd migrates along a route that heads westerly below Mammoth Rock, passes through the Mammoth Lakes Basin, and then crosses over Mammoth Pass into the Middle Fork of the San Joaquin River Drainage.
3. The San Joaquin herd segment migrates across the Sierra crest over San Joaquin Ridge between Minaret Summit and Deadman Pass from the western portion of the holding area.

A fairly consistent timeline of movement is generally observed for the Round Valley Herd's annual migration. Interannual temporal variability does occur, however, with respect to migrations. Variability in migration timing is generally dependent on environmental factors that affect food and habitat requirements (French et al. 1989). The Round Valley Herd begins to appear in the Mammoth Lakes Basin during the spring. Migrants typically occupy the basin from April through June. Around mid-June most deer that are going to continue their journey to summering grounds in the higher elevations of the Sierra have left the Mammoth Lakes Basin. Not all deer continue on to the higher elevations. Some choose to spend their summers in and around the holding area (Carey et al. 2004). The Round Valley Herd will begin to return to its wintering grounds in the fall months as temperatures drop and snow begins to accumulate.

The Mammoth Lakes Basin holding area represents the point where migration associated areas are most closely located to the Project Area. Deer from the Round Valley Herd generally occupy an area south of U.S. Highway 395, and between Tobacco Flats to the east and Mammoth and Sherwin Creeks to the west. This area is known as the Sherwin Holding Area. The westernmost portion of the Sherwin holding area nearly abuts the Project Area in the Twin Lakes region, which is located near the Project Area's southeast corner. The close proximity of these two areas presents a high likelihood for members of the Round Valley Herd to occur

within the Project Area during the spring through fall months. Within the Project Area, they are most likely to be found near the southeast corner around the Mammoth Creek/Twin Lakes region.

7.1.3.2 MOUNTAIN LION

Mountain lions were once the broadest ranging terrestrial mammals in the western hemisphere (Logan and Sweanor 2001), ranging from British Columbia to southern Chile and Argentina, and from coast to coast in North America (NatureServe 2006). As time has passed, land use changes, extermination campaigns, and hunting pressure have diminished the geographic range of the mountain lion to rocky, mountainous, and relatively unpopulated areas (Currier 1983; Logan and Sweanor 2001).

A wide range of habitats, including swamps, riparian woodlands, and open space with ample brush and/or woodland cover, are utilized by mountain lions throughout their range. This highly adaptable species is found in North America between sea level and approximately 11,500 ft above MSL (NatureServe 2006).

Mule deer make up the bulk of the mountain lion's diet throughout North America. Some experts have observed mule deer constituting over 90% of a mountain lion's diet (Logan and Sweanor 2001). This rate has been known to vary between seasons (Currier 1983). Small to medium sized mammals, birds, and reptiles are also opportunistically consumed by mountain lions (Pierce et al. 2000).

Home range figures are highly variable throughout the mountain lion's range with males typically utilizing larger home ranges than females. Pierce et al. (1999) documented home ranges between 425 km^2 and 817 km^2 (164 $miles^2$ and 315 $miles^2$) for mountain lions in the Round Valley area of California. Mountain lions are generally solitary in nature, but home ranges have been known to overlap (Sweanor, Logan, and Hornocker 2000).

Pierce et al. (1999) observed an interesting connection between mountain lion home range size and behavior of their prey. Mountain lions from the Round Valley that primarily preyed on migratory mule deer had home ranges that rarely changed over time. Contrastingly, mountain lions that primarily preyed on non-migratory mule deer tended to make seasonal migrations that corresponded to mule deer movements, both spatially and temporally. Home ranges for mountain lions that were contiguous throughout the year were larger than those with distinct summer and winter ranges.

The Round Valley mountain lion population exhibited two different modes of migration. Some lions tended to move rather slowly along the deer herd's migratory route, but did not show signs of having a discontinuous home range. Other lions moved more rapidly and had distinct summer and winter ranges that mirrored those of the Round Valley Herd.

Mountain lions that followed the migration of the Round Valley Herd to the Sherwin Holding Area have a high potential to occur within the Project Area. Logan and Sweanor (2001) documented transient behavior in numerous mountain lion populations. They also describe the possibility of mountain lions making the change from transient behavior to territorial multiple times throughout its life. Transient behavior, as described by Logan and Sweanor, usually occurs because of one or a combination of four potential conditions: (1) population isolation; (2) an extremely low, patchy, or migratory food base; (3) an extremely diffuse mountain lion population; and (4) inability to compete. If transient lions make their way into the Sherwin Holding Area it is possible that they could wander into the Project Area in search of food, mates, or establishment of a new home range.

7.1.4 JURISDICTIONAL WATERS AND WETLANDS

In California, certain drainage features and the associated riparian resources fall under the regulatory jurisdiction of the ACOE, RWQCB, and CDFG. For the purpose of this assessment, however, the project does not involve the discharge or dredge of fill material; therefore, the ACOE does not regulate any waters or wetlands within the Project Area (Chung, pers. comm. 2009). In addition, since the project does not involve a discharge to waters of the State, a water quality certification is not required from the RWQCB. The District is consulting with CDFG regarding its regulatory jurisdiction, if any, for Bodle Ditch.

7.1.5 SENSITIVE BIOLOGICAL RESOURCES

Special status, or sensitive, biological resources include declining habitats as well as species that have been afforded special recognition by federal, State, or local conservation agencies and organizations as endangered, threatened, rare, or otherwise sensitive, principally due to the species' declining or limited range, usually resulting from habitat loss. Watch lists of such resources are maintained by the CDFG, the USFWS, and groups such as the CNPS.

7.1.5.1 SENSITIVE RESOURCE CLASSIFICATION

FEDERAL PROTECTION AND CLASSIFICATIONS

A federally endangered species is a species of invertebrate, plant, or wildlife formally listed by the USFWS under the ESA as facing extinction throughout all or a significant portion of its geographic range. A federally threatened species is one formally listed by the USFWS as likely to become endangered within the foreseeable future throughout all or a significant portion of its range. "Take" of a federally endangered or threatened species or, in some cases, its habitat is prohibited by federal law without a special permit. The term "take," under the ESA, means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Harm is defined by the USFWS to encompass "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."

A federal species of concern is an informal term that refers to a species that the USFWS believes might be declining and in need of concentrated conservation actions to prevent decline. These species receive no legal protection, and the use of the term does not mean that they will eventually be proposed for listing. The federal species of concern status has not been maintained on a statewide basis, so this designation has been removed from CDFG's "Special Animals" list. Some USFWS field offices (e.g., Sacramento) continue to maintain lists of federal species of concern.

The NFMA of 1976 and its implementing regulations require the USFS to ensure a diversity of animal and plant communities and maintain viable populations of existing native species as part of their multiple use mandate. The USFS sensitive species program is a proactive approach to conserving species, to ensure the continued existence of viable, well-distributed populations, and to maintain biodiversity of National Forest Service lands.

The USFS defines sensitive species as those animal and plant species identified by a regional forester for which population viability is a concern. This may be a result of significant current or predicted downward trends in habitat that would reduce a species' existing distribution or significant current or predicted downward trends in density or population numbers (CDFG

2009a). The USFS, Regional Forester's, Pacific Southwest Region, has published a list of sensitive animal and plant species that is organized according to the forest in which the species occurs.

STATE OF CALIFORNIA PROTECTION AND CLASSIFICATIONS

The State of California considers an endangered species one whose prospects of survival and reproduction are in immediate jeopardy; a threatened species is one present in such small numbers throughout its range that it is considered likely to become an endangered species in the near future in the absence of special protection or management; and a rare species is one present in such small numbers throughout its range that it may become endangered if its present environment worsens. The designation "rare species" applies only to California native plants. State threatened and endangered species include both plants and wildlife but do not include invertebrates and are legally protected against "take" as this term is defined in the CESA (California Fish & Game Code, Section 2050 et seq.).

Species of special concern is an informal designation used by the CDFG for some declining wildlife species that are not officially listed as endangered, threatened, or rare. This designation does not provide legal protection, but signifies that these species are recognized as vulnerable by CDFG.

Species that are California fully protected include those protected by special legislation for various reasons, such as the white-tailed kite (*Elanus leucurus*).

CALIFORNIA NATIVE PLANT SOCIETY

The CNPS is a private plant conservation organization dedicated to the monitoring and protection of sensitive species in California. CNPS has compiled an inventory comprised of the information focusing on geographic distribution and qualitative characterization of rare, threatened, or endangered plant species of California (CNPS 2001). The list serves as the candidate list for listing as threatened and endangered by CDFG. The CNPS has developed five categories of rarity:

- List 1A: Presumed extinct in California;
- List 1B: Rare or Endangered in California and elsewhere;
- List 2: Rare or Endangered in California, more common elsewhere;
- List 3: Plants for which we need more information – Review list; and
- List 4: Plants of limited distribution – Watch list.

The CNPS recently updated their Lists to include Threat Codes. These codes are shown as a decimal and number code after the List number.

1: Seriously endangered in California (over 80% of occurrences threatened/high degree and immediacy of threat);

2: Fairly endangered in California (20-80% occurrences threatened); or

3: Not very endangered in California (<20% of occurrences threatened or no current threats known).

Sensitive species that occur or potentially could occur within the Project Area are based on one or more of the following: (1) the direct observation of the species within the Project Area during one of the biological surveys; (2) a record reported in the CNDDB; and (3) the Project Area is within known distribution of a species and contains appropriate habitat.

The following sections indicate the habitats, as well as plant and animal species, present or potentially present on the site that have been afforded special recognition. Sources used to determine the potential occurrence of special status resources in the vicinity of the site include USFWS (2009), USFS, INF (2006 and 2008b), CNPS (CNPS 2009), CNDDB (CNDDB 2009a), and CDFG 2009a, 2009b, 2009c and 2009d).

7.1.5.2 SPECIAL-STATUS WILDLIFE SPECIES WITHIN THE PROJECT AREA

Sensitive wildlife species include those species listed as endangered or threatened under the federal ESA or CESA, candidates for listing by USFWS or CDFG, and SSC to the CDFG. In addition, species considered sensitive by the USFS (INF) have also been included and analyzed in this document to provide a comprehensive list of species.

A number of sensitive wildlife species were reported in the CNDDB as occurring in the vicinity of the Project Area. These species are included in **Table 7-2**, which provides a summary of the sensitive wildlife species occurring or potentially occurring within the Project Area based upon their known geographic ranges, distributions, and preferred habitats. The majority of these species are not expected to occur on-site due to a lack of suitable habitat.

In addition, several wildlife species listed as sensitive by the USFS (INF) may occur within the general bioregional location of the Project Area. Sensitive wildlife species for the INF are also included in Table 7-2.

Focused surveys for fish species have been conducted for areas within the Project Area since 1992 excluding 1998 (Beak Consultants Inc. 1992, 1993, 1994; Sierra Nevada Aquatic Research Laboratory 1995, 1997; KDH 1998, 2001, 2002, 2003, 2004 2006; Horshoe Canyon Biological Consultants 1999; Thomas R. Payne & Associates 2006, 2007, 2009). The following sensitive fish species have been detected within the Project Area during these annual surveys: Owens sucker (*Catostomus fumeiventris*), and tui chub (*Gila bicolor*). Owens sucker is a CSS. The tui chub was confirmed to be a hybrid between the Owens tui chub (*Gila bicolor snyderi*), a federally and state listed endangered species and the Lahontan tui chub (*G. b. obesa*) (personal communication between the District and Steve Parmenter, CDFG, December 8, 2008). Fish species are further discussed in Chapter 6 – Fisheries and Aquatic Resources, of this document.

Sensitive wildlife species that are listed as occurring within the Valentine Reserve and utilize riparian habitats are also listed in Table 7-2 as potentially occurring within the Project Area (Valentine Camp 2009).

No sensitive wildlife species were observed within the Project Area during the site visit conducted by PCR in August 2009. No focused surveys for sensitive wildlife species were conducted by PCR biologists during the 2009 site visit. A discussion of the sensitive wildlife species potentially present within the Project Area is presented in Table 7-2.

Table 7-2. Sensitive Wildlife Species

Invertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-Site
Gastropoda	**Snails and Slugs**						
Hydrobiidae:	Aquatic Snails:						
Pyrgulopsis owensensis	Owens Valley springsnail	None	None	FS: Sensitive	Freshwater.	Crowley Lake	NE
Pyrgulopsis wongi	Wong's springsnail	None	None	FS: Sensitive	Freshwater.	Crowley Lake	NE

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Fishes							
Salmonidae	Trout and Salmon						
Oncorhynchus clarkii henshawi	Lahontan cutthroat trout	FT	None	None	Requires gravel riffles in streams for spawning; cannot tolerate the presence of other salmonids, Historically in all accessible cold waters of the Lahonton Basin in a wide variety of water temperatures and conditions.	Lahontan Basin, CA and NV.	NE
Comments: This species was not observed during fish surveys conducted for the Mammoth Community Water District from 1992 through 2008 (no surveys conducted in 1998) (Beak Consultants Inc. 1992, 1993, 1994; Sierra Nevada Aquatic Research Laboratory 1995, 1997; KDH 1998, 2001, 2002, 2003, 2004							

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
2006; Horshoe Canyon Biological Consultants 1999; Thomas R. Payne & Associates 2006, 2007, 2009).							
Oncorhynchus clarkii seleniris	Paiute cutthroat troat	FT	None	None	Cool, well-oxygnated waters. Cannot tolerate the presence of other salmonids, requires clean gravel for spawning.	Eastern Sierra Nevada and northwestern coastal California.	NE
Comments: This species was not observed during fish surveys conducted for the Mammoth Community Water District from 1992 through 2008 (no surveys conducted in 1998) (Beak Consultants Inc. 1992, 1993, 1994; Sierra Nevada Aquatic Research Laboratory 1995, 1997; KDH 1998, 2001, 2002, 2003, 2004 2006; Horshoe Canyon Biological Consultants 1999; Thomas R. Payne & Associates 2006, 2007, 2009).							
Oncorhynchus mykiss aguabonita	Volcano Creek golden trout	None	SSC	FS: Sensitive	Shallow, slow moving streams. Pools, runs, and riffles within the following habitat types: undercut banks, willows, bare banks, collapsed banks, open channel, aquatic vegetation, sedge, boulders, or rootwads.	Kern Plateau, southern Sierra Nevada.	NE
Cyprinidae	Minnows and Carp						
Gila bicolor snyderi	Owens tui chub	FE	SE	None	Needs clear, clean water, adequate cover, and aquatic vegetation. Endemic to the Owens River Basin in a variety of habitats.	Owens River Basin, California.	OBS (hybrid)
Comments: Five tui chub were observed at an electrofishing study site in the vicinity of the confluence of Mammoth Creek and Hot Creek in October 2008); however, the tui chub that now inhabit the lower portion of Mammoth Creek appear to be hybrids of the Owens tui chub and the Lahontan tui chub (*G. b. obese*) that may have been introduced in the 1960's as baitfish. Tui chub were also recorded in the lower Mammoth Creek area from 1992 through 2007 (Thomas R. Payne & Associates 2009).							

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Rhinichthys osculus ssp. *2*	Owens speckled dace	None	SSC	None	Small streams and springs in Owens Valley; occupies a variety of habitats. Rarely found in water greater than 29^{o} C.	Owens Valley, California.	NE
Comments: This species was not observed during fish surveys conducted for the Mammoth Community Water District from 1992 through 2008 (no surveys conducted in 1998) (Beak Consultants Inc. 1992, 1993, 1994; Sierra Nevada Aquatic Research Laboratory 1995, 1997; KDH 1998, 2001, 2002, 2003, 2004 2006; Horshoe Canyon Biological Consultants 1999; Thomas R. Payne & Associates 2006, 2007, 2009). The CNDDB has a recorded occurrence of this species approximately 300 ft from the Project Area in a feeder stream of Hot Creek at the Hot Creek Rearing Station; however, they disappeared from Hot Creek shortly after the springs were developed for hatchery purposes (CNDDB 2009).							
Catostomidae	Suckers						
Catostomus fumeiventris	Owens sucker	None	SSC	None	Silty to rocky pools and creek runs. Most abundant in sections of the lower Owens River and tributaries with long runs and few riffles, over substrates of mostly fine material. Adults can thrive in reservoirs, but need gravelly riffles in tributary streams for spawning.	Sierra Nevadas and coastal south-central California; Owens River drainage.	OBS
Comments: Eleven Owens suckers were observed at an electrofishing study site in the vicinity of the confluence of Mammoth Creek and Hot Creek in October 2008. This species was also recorded in the lower Mammoth Creek area every year from 1992 through 2007 (no surveys conducted in 1998). In the early 1990's this species was recorded in high abundance which may have been due to higher water temperatures and lower stream flows (Thomas R. Payne & Associates 2009).							

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Amphibians							
Plethodontidae	Lungless Salamanders						
Batrachoseps campi	Inyo Mountains salamander	None	SSC	FS: Sensitive	Found in isolated springs and stream areas chiefly below the pinon-juniper belt. Found along watercourses vegetation with willow and wild rose. Found under stones and in crevices in damp places near water. Surrounding slopes are arid and vegetated with sagebrush, buckwheat, rabbitbrush, and cactus.	Inyo Mountains.	NE
Batrachoseps robustus	Kern Plateau salamander	None	None	FS: Sensitive	Frequents habitats mainly of Jeffrey pine and red fir in the northern and eastern humid parts of its range and lodgepole, pinyon pine, rabbitbrush, sagebrush, black oak and canyon oak in drier parts of its range. Found under rocks, bark fragments, logs, and within and under wet logs, especially in spring and seep areas near outflow streams.	Southeast Sierra Nevada on Kern Plateau, Olancha Peak to Nine Mile Canyon on the eastern slope of the Sierra Nevadas, and the Scodie Mountains, Kern County, CA.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Hydromantes platycephalus	Mt. Lyell salamander	None	SSC		Granite exposures of the Sierra Nevada. Found in rock fissures, seepages from streams or melting snow, shade or low growing plants. Inhabit rocks near cliffs, cave openings, melting snowbanks, and the spray zone of waterfalls.	Sierra Nevada from Sierra Buttes, Sierra County to Franklin Pass area, Tulare County, Twin Lakes, Silliman Gap, Sequoia National Park, and Mt. Williamson, California.	P
Comments: This species was not observed during surveys for the Yosemite toad conducted by Dave Martin (Martin, pers. comm.. 2010); nor, does suitable habitat exist for this species outside of the immediate Twin Falls area.							
Bufonidae	True Toads						
Bufo canorus	Yosemite toad	FC	SSC	FS: Sensitive	Occurs in the vicinity of wet meadows in the central high Sierra Nevadas. Primarily occurs in montane wet meadows; also in seasonal ponds associated with lodgepole pine and subalpine coniferous forests. Breeds in shallow edges of snowmelt pools and ponds or along edges of lakes or slow-moving streams.	Central high Sierra Nevadas, CA.	OBS
Comments: Yosemite toad was reported in *The Vegetation and Flora of Mammoth Mountain* as observed in 1983 somewhere within the Mammoth Mountain Ski Area. In addition, the CNDDB has a recorded occurrence of this species at Lake Mary in 1976; twelve specimens were observed. This species was observed in a meadow west of Lake Mary, which has been a known population since the 1970s by Dave Martin, Canorus Ltd. In 2009. Please refer to Mammoth Lakes Basin Yosemite Toad (*Bufo canorus*) Survey for further details (Martin 2009).							

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Ranidae	True Frogs						
Rana muscosa	Mountain yellow-legged frog (Sierra Nevada population)	FC	SSC	FS: Sensitive	Inhabits mid to upper-elevation perennial streams, often in locations with bedrock pools. Always encountered within a few feet of water.	Sierra Nevada and southern California mountains.	NE
Comments: The Project Area supports trout which precludes this species from occurring. Hidden Lake in Mammoth Meadows (part of the Bodle Ditch area) has a large and deep enough pool to marginally support this species; however fish can access the lake from Bodle Ditch, the lake margins are heavily vegetation, and the lake is at the bottom of an avalanche zone thereby making this low quality habitat for the species (Martin, pers. comm. 2010).							
Rana pipens	Northern leopard frog	None	SSC	FS: Sensitive	Found in a variety of habitats including grasslands, brushland, woodland, and forest, ranging high into the mountains. Frequents springs, slow moving streams, slowly flowing streams, marshes, bogs, ponds, canals, and reservoirs, usually permanent water with grass, cattails, or other aquatic vegetation. May forage far from water in damp meadows.	North and central U.S., Canada, in California near the Oregon border.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Reptiles							
Anguidae	Alligator Lizards						
Elgaris panamintina	Panamint alligator lizard	None	SSC	FS: Sensitive	Ranges from creosote bush scrub desert and Joshua tree zone into the lower edge of the pinyon juniper belt. Found beneath thickets of willow and wild grape near water or in drier habitats	Desert mountains of Inyo and Mono Counties.	NE
Birds							
Accipitridae	Hawks, Kites, Harriers, and Eagles						
Accipiter gentilis	Northern goshawk	None	SSC	FS: Sensitive	Nests within mature or old-growth coniferous forests. Usually nests on north slopes, near water. Typical nest trees include red fir, lodgepole pine, Jeffrey pine, and aspens.	Through U.S. and Canada.	P, F, B
Comments: This species is listed on the compendium for Valentine Camp (Valentine Camp 2009). The riparian corridor of Valentine Camp is within the Project Area.							
Aquila chrysaetos	golden eagle	None	SSC, SFP	None	Mountains, deserts, and open country; prefer to forage over grasslands, deserts, savannahs and early successional stages of forest and shrub habitats.	Throughout U.S. and Canada.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Haliaeetus leucocephalus	bald eagle	FD	SE, SFP	FS: Sensitive	Found near water.	Throughout U.S. and Canada	P, F
Comments: Bald eagles are known to occur in the Twin Lakes area according to the *Biological Evaluation for the Mammoth Mountain Ski Area Base VII Expansion Project*, dated March 1998. Bald eagles may forage over the Project Area, but typically perch and nest in coniferous forests.							
Falconidae	Falcons						
Falco peregrinus anatum	American peregrine falcon	FD	SE, SFP	None	Open country, cliffs (mountains to coasts).	Very uncommon breeding resident along coast and Sierra Nevada and uncommon migrant along coat and W. Sierra Nevada. Winters inland in central valley.	NE
Phasianidae	Grouse and Ptarmigan						
Centrocerus urophasianus	greater sage-grouse	None	SSC	FS: Sensitive	Dry sagebrush plains.	Northwestern United States; Sierra Nevada.	NE
Cuculidae	Cuckoos and Relatives						
Coccyzus americanus occidentalis	western yellow-billed cuckoo	FC	SE	FS: Sensitive	Riparian forest nester, along the broad, lower flood-bottoms of larger river systems. Nests in riparian jungles of willow, often mixed with cottonwoods with lower story of blackberry, nettles, or wild grape.	Western United States.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Parulidae	Wood Warblers						
Dendroica petechia	yellow warbler	None	SSC	None	Low trees and woodland edges, especially willows in wet areas.	U.S. and Canada.	P
Comments: This species is listed on the compendium for Valentine Camp (Valentine Camp 2009). The riparian corridor of Valentine Camp is within the Project Area.							
Strigidae	Owls						
Strix nebulosa	great gray owl	None	SE	FS: Sensitive	Nests in mixed conifer or red fir forests in or on the edge of meadows; requires large diameter snags in a forest with high canopy closure which provides a cool sub-canopy microclimate.	Sierra Nevadas, CA; Alaska, Canada, and northern United States.	P, F
Comments: This species may forage in meadows within the Project Area but is not expected to next within the Project Area. The CNDDB has a recorded occurrence of the great gray owl in 1975 in Valentine Camp; the riparian corridor of Valentine Camp is within the Project Area. One owl was observed, and records indicate this was most likely a breeding area.							
Strix occidentalis occidentalis	California spotted owl	None	SSC	FS: SensitiveE	Typically in dense, multi-layered evergreen forest that includes a diversity of tree species including large trees. Most often on lower, north-facing slopes of canyons, usually within 0.3 km of water.	Western United States.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Tyrannidae	Tyrant Flycatchers						
Empidonax traillii	willow flycatcher	None	SE	FS: Sensitive	Low brushy vegetation in wet areas, especially riparian willow thickets.	Throughout the United States.	P
Mammals							
Soricidae	Shrews						
Sorex lyelli	Mount Lyell shrew	None	SSC	None	High elevation riparian areas in the southern Sierra Nevada. Requires moist soil, lives in grass or under willows; uses logs, stumps, etc. for cover.	In the vicinity of Mount Lyell near Yosemite National Park, Sierra Nevada.	P
Comments: The CNDDB has a recorded occurrence of Mount Lyell shrew in 1914 at Old Mammoth. Two female specimens were collected.							
Vespertilionidae	Mouse-eared Bats						
Antrozous pallidus	pallid bat	None	SSC	FS: Sensitive	Nests in dry, rocky habitats/caves, crevices in rocks, arid habitats including deserts, chaparral, and scrublands.	Common in low elevations throughout California except for the high Sierra Nevada from Shasta to Kern Co. and the northwestern corner of the State of CA.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Corynorhinus (Plecotus) townsendii townsendii	Townsend's western big-eared bat	None	SSC	FS: Sensitive	Found in all but sub-alpine and alpine habitats. Commonly occurs in mesic habitats characterized by coniferous and deciduous forests, but occupies a broad range of habitats. Maternity and hibernation colonies typically are in caves and mine tunnels.	Throughout CA.	P
Lasiurus blossevillii	Western red bat	None	None	FS: Sensitive	Prefers riparian habitat; Sonoran and transitional life zones in California. Young are born and perch among tree foliage.	Southern British Columbia in Canada, through much of the western United States, through Mexico and Central America, to Argentina and Chile in South America.	NE
Comments: Although suitable habitat is present within the Project Area, this species does not occur in the vicinity (Perloff, pers. comm.. 2009).							
Leporidae	Rabbits and Hares						
Lepus townsendii	western white-tailed jackrabbit	None	SSC	None	Sagebrush scrub, subalpine conifer forests and juniper woodlands, alpine dwarf shrub and perennial grassland. Prefers open areas with scattered shrubs and exposed flat-topped hills with open stands of trees and a brushy or herbaceous understory.	Eastern Sierra Nevadas, northeastern California.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Aplodontidae	Mountain Beavers						
Aplodontia rufa californica	Sierra Nevada mountain beaver	None	SSC	None	Mountain streams with dense, deciduous riparian vegetation.	Northwestern California and southern California mountains.	P
Comments: Sierra Nevada mountain beaver was reported in *The Vegetation and Flora of Mammoth Mountain* as observed within the boundary of the Mammoth Mountain Ski Area. *Aplodontia rufa* is listed on the compendium for Valentine Camp (Valentine Camp 2009). The riparian corridor of Valentine Camp is within the Project Area.							
Mustelidae	Weasels, Martins, and Allies						
Gulo gulo	California wolverine	None	ST	FS: Sensitive	Found mainly in subalpine forest and alpine fellfields within alpine meadows, lodgepole forests, and red fir forests. Dens in caves, rock crevices, under fallen trees or tree roots, and in thickets. Needs water source – can travel long distances.	Sierra Nevadas and northwestern California.	NE
Martes americana	American marten	None	None	FS: Sensitive	Dense coniferous forest and lowland forest. May use rocky alpine areas. May occupy holes in dead or live trees or stumps, abandoned squirrel nests, rock piles, or burrows.	Sierra Nevadas, Klamath Ranges and north Coast Ranges.	P
Comments: American martens inhabit coniferous forests; however, may occasionally be found within the Project Area. This species is known to occur within the area: an American marten was reported in *The Vegetation and Flora of Mammoth Mountain* as observed within the Mammoth Mountain Ski Area (Kucera 2004)., and the CNDDB has a recorded occurrence of the American marten in 2002 within the vicinity of the Mammoth Mountain Ski Area main lodge. In addition, this species is listed on the compendium for Valentine Camp (Valentine Camp 2009). The riparian corridor of Valentine Camp is within the Project Area.							

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Martes pennanti pacifica	Pacific fisher	FC	SSC	FS: Sensitive	Intermediate to large-tree stages of coniferous forests and deciduous riparian areas with high percent canopy closure. Use cavities, snags, logs, and rocky areas for cover and dens sites; need large areas of mature, dense forest.	Sierra Nevadas, Klamath Ranges and north Coast Ranges	NE
Comments: The CNDDB has a recorded occurrence of the Pacific fisher in the 1970s approximately 3.5 miles northwest of the Town of Mammoth Lakes in the vicinity of the Mammoth Lodge; however, survey work in the last 20 years has not detected this species in the area and it is not expected to occur (Perloff, pers. comm.. 2009).							
Taxidea taxus	American badger	None	SSC	None	Drier, open stands of most shrub, forest, and herbaceous habitats, with friable soils; needs sufficient food, friable soils, and open, uncultivated ground; preys on burrowing rodents.	Western two-thirds of the United States; Canada; and Mexico.	NE
Canidae	Foxes, Wolves, & Coyotes						
Vulpes vulpes necator	Sierra Nevada red fox	None	ST	FS: Sensitive	Found in a variety of habitats from wet meadows to forested areas; use dense vegetation and rocky areas for cover and den sites. Prefers forests interspersed with meadows or alpine fell-fields.	From Cascades to Sierra Nevada.	P
Comments: This species has a very low potential to occur within the Project Area; however, suitable habitat (meadows) are present (Perloff, pers. comm.. 2009).							

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

Table 7-2. Sensitive Wildlife Species (continued)

Vertebrates							
Scientific Name	Common Name	Federal	State	Other	Preferred Habitat	Distribution	Occurrence On-site
Bovidae	Sheep and Relatives						
Ovis canadensis californiania	Sierra bighorn sheep	FE	SE, SFP	None	Rocky, steep slopes and canyons with adjacent open areas; forages in meadows and brushlands.	High elevations of southern Sierra Nevada to Owens Valley.	NE

Key to Species Listing status Codes

FE	*Federally Listed as Endangered*	SE	*State Listed as Endangered*
FT	*Federally Listed as Threatened*	ST	*State Listed as Threatened*
FPE	*Federally Proposed as Endangered*	SCE	*State Candidate for Endangered*
FPT	*Federally Proposed as Threatened*	SCT	*State Candidate for Threatened*
FPD	*Federally Proposed for Delisting*	SFP	*State Fully Protected*
FC	*Federal Candidate Species*	SSC	*California Special Concern Species*

Source: PCR Services Corporation 2009

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there is a potential for this species to occur on-site. F = species has the potential to forage within the study area. B = species has the potential to breed within the study area.

7.1.5.3 SPECIAL-STATUS WILDLIFE SPECIES POTENTIALLY OCCURRING IN THE PROJECT AREA BUT REMOVED FROM CONSIDERATION DUE TO LACK OF SUITABLE HABITAT OR OTHER REASONS

A shown in Table 7-2, the following USFS (INF) sensitive species or species known to occur in the vicinity according to the CNDDB are not expected to occur within the Project Area due to: (1) a lack of suitable habitat on-site; and/or (2) (for USFS sensitive species) a limited distribution that does not include the Project Area:

- Owens Valley springsnail
- Wong's springsnail
- Lahontan cutthroat trout
- Paiute cutthroat trout
- Volcano Creek golden trout
- Owens speckled dace
- Inyo Mountains salamander
- Kern Plateau salamander
- Mountain yellow-legged frog
- Northern leopard frog
- Panamint alligator lizard
- Golden eagle
- American peregrine falcon
- Greater sage-grouse
- Western yellow-billed cuckoo
- California spotted owl
- Pallid bat
- Western red bat
- Western white-tailed jackrabbit
- California wolverine
- American badger
- Pacific fisher
- Sierra bighorn sheep

7.1.5.4 SPECIAL-STATUS PLANT COMMUNITIES AND PLANT SPECIES WITHIN THE PROJECT AREA

The Project Area supports several plant communities considered sensitive by the CDFG's CNDDB due to their scarcity and/or because they support state and/or federal listed endangered, threatened, or rare vascular plants and animals. These communities are considered highest-inventory priority communities by the CDFG, indicating that they are declining in acreage throughout their range due to land use changes. These communities are described previously and include aspen forest, aspen woodland, mountain alder scrub, narrow-leaf willow scrub, and any mixed community comprised in part by one of these plant communities.

Sensitive plants include those listed, or candidates for listing, by the USFWS and CDFG, and species considered sensitive by the CNPS (particularly Lists 1A, 1B, and 2). Several sensitive plant species were reported in the CNDDB from the vicinity, and several were determined to be potentially present through the literature review. A discussion of each sensitive plant species observed, as well as those potentially present within the Project Area, is presented in **Table 7-3**.

Plant species listed as sensitive by the USFS (INF) may occur within the general bioregional location of the Project Area; however, several of these species are not expected to occur within the Project Area due to a lack of suitable habitat and/or restricted elevation range or distribution. All USFS (INF) plant species are also included in Table 7-3.

A precursory sensitive plant survey was conducted on August 3, 4, 5, and 6, 2009 by PCR biologists concurrent with the vegetation mapping and general wildlife surveys. No sensitive plants were located; however, this survey did not cover the blooming periods of all potential sensitive plant species and access was restricted to much of the portion of the Project Area east of U. S. Highway 395. In addition, due to the small stature of many of the potential sensitive plant species and inherent difficult of viewing all of the Project Area at close range, those species that were not observed during the August 2009 site visit still have a low potential to occur on-site. Focused sensitive plant surveys are recommended in the spring 2010 during July and August.

The USFS recorded approximately 375 subalpine fireweed (*Epilobium howellii*) near the Mammoth Community Water District facility above the Mammoth Lakes Pack Station on July 21, 2009 (see **Figure 7-2**) (Nelson, pers. comm. 2009).

According to the following resources, sensitive plants were not found during botanical surveys for the Lake Mary Bike Trail. Sensitive plants are not known to occur within the Valentine Reserve.

- Town of Mammoth Lakes and USDA Forest Services, Inyo National Forest (co-lead agencies). 2001. Final Environmental Assessment for Lake Mary Road Bicycle Paths and Off-Street Bicycle Paths. March 26, 2001.
- Personal Communication on August 4, 2009 with Daniel Dawson, Reserve Director, Valentine Eastern Sierra Reserve.

Table 7-3. Sensitive Plant Species

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Bryophytes									
Bruchiaceae	Moss Family								
Bruchia bolanderi	Bolander's bruchia	N/A	None	None	2.2	FS: Sensitive	Lower montane coniferous forest, meadows and seeps, upper montane coniferous forest on damp soil. Elevations from 1,700 to 2,800 m.	Fresno, Mariposa, Nevada, Plumas, Tehama, Tulare, Tuolumne Cos., CA; NV, OR, UT.	P
Helodium blandowii	Blandow's bog-moss	N/A	None	None	2.3	FS: Sensitive	Meadows and seeps, subalpine coniferous forest on damp soil. Elevations from 1,862 to 2,700 m.	Fresno, Mono, Siskiyou Cos., CA; NV, OR, UT, WA.	P
Meesia triquetra	three-ranked hump-moss	N/A	None	None	4.2	FS: Sensitive	Bogs and fens, meadows and seeps, subalpine coniferous forest, upper montane coniferous forest. Elevations from 1,300 to 2,953 m.	Alpine, Butte, El Dorado, Fresno, Humboldt, Lassen, Madera, Mariposa, Nevada, Placer, Plumas, Riverside, Shasta, Sierra, Siskiyou, Tehama, Tulare Cos., CA; NV, OR.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100 percent of the property at close range, (2) the population fluctuation of the species from year to year, (3) the small stature of the species, (4) some areas of the project area were restricted during the site visit, and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Meesia uliginosa	broad-nerved hump-moss	N/A	None	None	2.2	FS: Sensitive	Bogs and fens, meadows and seeps, subalpine coniferous forest, upper montane coniferous forest on damp soil. Elevations from 1,300 to 2,804 m.	El Dorado, Fresno, Madera, Nevada, Plumas, Riverside, Sierra, Siskiyou, Tehama, Tulare Cos., CA; NV, OR.	NE
Peltigeraceae	Lichen Family								
Hydrotheria venosa	hydrotheria lichen	N/A	None	None	None	FS: Sensitive	Grows on rocks in woodland streams at high elevations.	Mountainous regions of U.S.	NE

Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Gymnosperms									
Ophioglossaceae	Adder's Tongue Family								
Botrychium ascendens	upswept moonwort	Jul.-Aug.	None	None	2.3	FS: Sensitive	Lower montane coniferous forest on mesic soil. Elevations from 1,500 to 1,830 m.	Known in California only from two occurrences: near Jonesville on the Butte and Tehama County border, and south of Fallen Leaf	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
								Lake, El Dorado County. Butte, El Dorado, Tehama Cos., CA; ID, NV, OR, WA, and WY.	
Botrychium crenulatum	Scalloped moonwort	Jun.-Jul.	None	None	2.2	FS: Sensitive	Bogs and fens, lower montane coniferous forest, meadows and seeps, marshes and swamps. Elevations from 1,500 to 3,280 m.	Butte, Colusa, Los Angeles, Mono, San Bernardino, Tehama, and Tulare Cos., CA; AZ, ID, NV, OR, UT, WA, and WY.	P
Botrychium lineare	slender moonwort	Unknown	FC	None	1B.3	FS: Sensitive	Upper montane coniferous forest. Elevation 2,600 m.	Known in California only from one small occurrence near Piute Pass. Inyo Co.	NE
Botrychium lunaria	common moonwort	Aug.	None	None	2.3	FS: Sensitive	Meadows and seeps, subalpine coniferous forest, and upper montane coniferous forest. Elevations from 2,280 to 3,400 m.	Mono, Modoc, Nevada, Sierra, Tulare, and Tuolumne Cos., CA; AZ, ID, NM, NV, OR, UT, and WA.	P
Botrychium minganense	mingan moonwort	Jul.-Aug.	None	None	2.2	FS: Sensitive	Lower montane coniferous forest on mesic soils. Elevations from 1,500 to 1830 m.	Butte, Fresno, and Tehama Cos., CA; AZ, ID, NV, OR, UT, and WA.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Angiosperms (Dicotyledons)									
Amaranthaceae	Amaranth Family								
Micromonolepis pusilla	dwarf monolepis	May-Aug.	None	None	2.3	None	Great Basin scrub in openings on alkaline soils. Elevations from 1,500 to 2,400 m.	Lassen, Mono, Modoc, and Riverside Cos. CA; CO, ID, NV, OR, UT, and WY.	NE
Asteraceae	Sunflower Family								
Crepis runcinata ssp. *hallii*	Hall's meadow hawksbeard	May-Jul	None	None	2.1	None	Mojavean desert scrub; pinyon and juniper woodland in mesic, alkaline areas. Elevations from 1,250 to 1,978 m.	Inyo, Lassen, and Mono Cos., CA; NV.	NE
Ericameria gilmanii	Gilman's goldenbush	Aug.-Sept.	None	None	1B.3	FS: Sensitive	Subalpine coniferous forest, and upper montane coniferous forest on carbonate or granitic, rocky soil. Elevations from 2,100 to 3,400 m.	Inyo and Kern Cos., CA. Inyo, White, and desert mountains.	NE
Erigeron aequifolius	Hall's fleabane	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Broadleaved upland forest, lower montane coniferous forest, pinyon and juniper woodland, and upper montane coniferous forest on rocky, granitic soil. Elevations from 1,500 to 2,440 m.	Fresno, Kern, and Tulare Cos., CA. Southern high Sierra Nevada floristic province.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Erigeron multiceps	Kern River daisy	Jun.-Sept.	None	None	1B.2	FS: Sensitive	Meadows and seeps, upper coniferous forest. Elevations from 1,500 to 2,500 m.	Fresno and Tulare Cos., CA.	NE
Erigeron uncialis var. *uncialis*	lone fleabane	Jun.-Jul.	None	None	1B.2	FS: Sensitive	Great Basin scrub, subalpine coniferous forest on carbonate soils. Elevations from 2,100 to 2,900 m.	Inyo, San Bernardino, Cos., CA; NV; White, Inyo, and desert mountains.	NE
Hulsea brevifolia	short-leaved hulsea	May-Aug.	None	None	1B.2	FS: Sensitive	Upper montane coniferous forest on granitic or volcanic (pumice) soil of forest openings and road cuts. Elevations from 1,500 to 3,200m.	Fresno, Madera, Mariposa, Tulare, Tuolumne Cos., CA.	NE
Hulsea vestita ssp. *pygmaeae*	Pygmy hulsea	Jun–Oct.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock fields, subalpine coniferous forest on granitic, gravelly soil. Elevations from 2,835 to 3,900 m.	San Bernardino and Tulare Cos., CA.	NE
Machaeranthera canescens var. ziegleri	Ziegler's aster	July-Oct.	None	None	1B.2	None	Lower and upper montane coniferous forest. Elevations from 1,400 to 2,470 m.	Riverside County, CA.	NE
Senecio pattersonensis	Mono ragwort	Jul.-Aug.	None	None	1B.3.	FS: Sensitive	Alpine boulder and rock fields. Elevations from 2,900 to 3,720 m.	Mono and Nevada Cos., CA.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Sphaeromeria potentilloides var. *nitrophila*	alkali tansy-sage	Jun.-Jul.	None	None	2.2	None	Meadows, seeps, and playas; usually on alkaline soil. Elevations from 2100-2400m.	Mono County, CA; ID and NV.	P
Boraginaceae	Borage Family								
Cryptantha incana	Tulare cryptantha	Jun.-Aug.	None	None	1B.3	FS: Sensitive	Lower montane coniferous forest, gravelly or rocky soils. Elevations from 1,430 to 2,150 m.	Inyo and Tulare Cos., CA.	NE
Cryptantha roosiorum	bristlecone cryptantha	Jun.-Jul.	None	SR	1B.2	FS: Sensitive	Subalpine coniferous forest on rocky carbonate soils. Elevations from 2,440 to 3,230 m.	Inyo County, CA. White and Inyo Mountains.	NE
Brassicaceae	Mustard Family								
Arabis bodiensis	Bodie Hills rock cress	Jun.-Aug.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, Great Basin scrub, pinyon and juniper woodland. Elevations from 2,195 to 3,530 m.	Fresno, Inyo, Mono, and Tulare Cos., CA; NV. Great Basin floristic province, White and Inyo Mountains.	NE
Arabis cobrensis	masonic rock cress	Jun.-Jul.	None	None	2.3	None	Great Basin scrub and pinyon and juniper woodland. Elevations from 1,375 to 3,105 m.	Mono and Modoc Cos., CA; NV and OR	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Arabis pinzlae	Pinzl's rock cress	Jul.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, subalpine coniferous forest on scree or sandy soils. Elevations 3,000 to 3,350 m.	Mono Co., CA; NV. Great Basin floristic province, White and Inyo Mountains.	NE
Arabis shockleyi	Shockley's rock cress	May-Jun.	None	None	2.2	FS: Sensitive	Pinyon and juniper woodland on carbonate or quartzite, rock or gravelly soils. Elevations from 875 to 2,310 m.	Inyo, Mono, and San Bernardino Cos., CA; NV.	NE
Arabis tiehmii	Tiehm's rock cress	Jul-Aug	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field; elevations from 2,970 to 3,590 m.	Known in CA from approx. 10 occurrences near Tioga Crest. Known from two occurrences in NV.	NE
Caulostramina jaegeri	Jaeger's caulostramina	May-Jul.	None	None	1B.2	FS: Sensitive	Great Basin scrub, pinyon and juniper woodland, subalpine coniferous forest on carbonate, rocky soils. Elevations from 2,135 to 2,800 m.	Inyo County CA.	NE
Draba asterophora var. *asterophora*	Lake Tahoe draba	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, subalpine coniferous forest. Elevations from 2,500 to 3,505 m.	Alpine, El Dorado, Mono, Tuolumne Cos., CA; NV.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Draba breweri var. *cana*	hoary draba	Jul.	None	None	2.3	None	Alpine boulder and rock field, meadows, subalpine coniferous forest. Elevations from 3,000 to 3,505 m.	In California, known only from two occurrences near Lake Genevieve and Wheeler Peak.	NE
Draba incrassata	Sweetwater Mountains draba	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field; endemic to the rhyolite substrates of the Sweetwater Mountains on loose, steep, talus slopes. Elevations from 2,500 to 3,500 m.	Mono County, CA. Sweetwater Mountains.	NE
Draba lonchocarpa var. *lonchocarpa*	spear-fruited draba	Jun.-Jul.	None	None	2.3	None	Alpine boulder and rock fields on limestone scree. Elevations from 3,000 to 3,295 m.	Inyo and Mono Cos., CA; ID, NV, OR, UT, WA, and WY.	NE
Draba monoensis	White Mountains draba	Aug.	None	None	1B.2	FS: Sensitive	Alpine boulder and rock field, meadows and seeps. Elevations from 3,000 to 3,960 m.	Known only from the White Mountains in Mono Co., CA.	NE
Draba praealta	subalpine draba	Jul.-Aug.	None	None	2.3	None	Meadow and seeps on mesic soils. Elevations from 2,500 to 3,415 m.	Fresno, Inyo, Mono, and Tuolumne Cos., CA; NV, OR, WA, and WY.	P
Draba sharsmithii	Mt. Whitney draba	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, subalpine coniferous forest. Elevations from 3,355 to 3,960 m.	Fresno, Inyo, and Tulare Cos., CA. Southern high Sierra Nevada floristic province.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Polyctenium williamsiae	William's combleaf	Mar.-Jul.	None	None	1B.2	FS: Sensitive	Marshes and swamps (alkali), playas, vernal pools. Elevations from 1,350 to 2,700 m.	Lassen and Mono Cos., CA; NV, OR.	NE
Streptanthus gracilis	alpine jewel-flower	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Subalpine coniferous forest, upper montane coniferous forest on granitic, rocky soils. Elevations from 2,800 to 3,500 m.	Fresno, Inyo, and Tulare Cos., CA.	NE
Streptanthus oliganthus	Masonic Mountain jewelflower	Jun.-Jul.	None	None	1B.2	FS: Sensitive	Pinyon and juniper woodland on volcanic or granitic, rocky soils. Elevations from 1,980 to 3,050 m.	Inyo and Mono Cos., CA; NV. White and Inyo Mountains.	NE
Chenopodiaceae	Goosefoot Family								
Atriplex pusilla	smooth saltbush	Jun.-Sep.	None	None	2	None	Great Basin scrub, meadows and seeps in alkali areas. Elevations from 1300 to 2000 m.	Lassen, Mono, and Siskiyou Cos. CA; ID, NV, and OR.	P
Crassulaceae	Stonecrop Family								
Sedum pinetorum	Pine City sedum	Jul.	None	None	3	None	Habitat not known. Elevation 2,650 m.	Known only from type collection from deserted Pine City above Mammoth.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Fabaceae	Pea Family								
Astragalus cimae var. *sufflatus*	inflated milk-vetch	Apr.-Jun.	None	None	1B.3	FS: Sensitive	Great Basin scrub, pinyon and juniper woodland on carbonate, rocky soils. Elevations from 1,500 to 2,075 m.	Inyo Co., CA.	NE
Astragalus johannis-howellii	Long Valley milk-vetch	Jun.-Aug.	None	SR	1B.2	FS: Sensitive	Great Basin scrub on sandy loam soils. Elevation from 2,040 to 2,530 m.	Mono Co., CA; NV. Occurs northeast of Whitmore Hot Springs in the vicinity of Hot Creek gorge.	NE
Astragalus lemmonii	Lemmon's milk-vetch	May-Aug.	None	None	1B.2	FS: Sensitive	Great Basin scrub, meadows and seeps, marshes and swamps within lake shores. Elevations from 1,280 to 2,200m.	Lassen, Mono, Modoc, Plumas, and Sierra Cos., CA; NV, OR. Occurs at Hot Creek Fish Hatchery.	P
Comments: The CNDDB has a reported occurrence of *Astraglus lemmonii* approximately 0.4 mile from the Project Area just east of the Hot Creek Fish Hatchery. Approximately 61 plants were observed in 2005 by K. Nelson of the USFS. The plants were observed in an alkali meadow with loamy soil. Additional species observed included saltgrass (*Distichlis spicata*), rubber rabbitbrush, Great Basin sagebrush, as well as other species. This area of the Project Area could not be accessed during PCR's site visit in August 2009.									

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Astragalus lentiginosus var. *kernensis*	Kern milk-vetch	Jun.-Jul.	None	None	1B.2	FS: Sensitive	Meadows and seeps, subalpine coniferous forest on sandy soil. Elevations from 2,350 m. to 2,750 m.	Inyo and Tulare Cos., CA; NV. Southern high Sierra Nevada Floristic Province.	P
Astragalus monoensis	Mono milk-vetch	Jun.-Aug.	None	SR	1B.2	FS: Sensitive	Great Basin scrub and upper montane coniferous forest on pumice flats with sparse vegetative cover; Elevations from 2,110 to 3,355 m.	Mono County	NE
Astragalus ravenii	Raven's milk-vetch	Jul.-Sept.	None	None	1B.2	FS: Sensitive	Alpine boulder and rock field, upper montane coniferous forest on pumice flats with sparse vegetative cover. Elevations from 2,110 to 3,355 m.	Fresno, Inyo, and Mono Cos., CA. Great Basin floristic province.	NE
Astragalus whitneyi var. *lenophyllus*	woolly-leaved milk-vetch	Jul.-Aug.	None	None	4.3	None	Alpine boulder and rock field, subalpine coniferous forest on rocky soils. Elevations from 2,135 to 3,050 m.	Alpine, Butte, Nevada, Placer, Plumas, and Sierra Cos., CA.	NE
Lupinus duranii	Mono Lake lupine	May-Aug.	None	None	1B.2	FS: Sensitive	Great Basin scrub, subalpine coniferous forest, and upper montane coniferous forest on pumice sand flats and coarse barren soils of volcanic origin. Elevations from 2,000 to 3,000 m.	Mono County, CA.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Lupinus gracilentus	slender lupine	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Subalpine coniferous forest. Elevations from 2,500 to 3,500 m.	Inyo, Mariposa, and Tuolomne Cos., CA.	NE
Lupinus lepidus var. *culbertsonii*	Hockett Meadows lupine	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Meadow and seeps, upper montane coniferous forest on mesic, rocky soil. Elevations from 2,440 to 3,000 m.	Fresno, Mono, and Tulare Cos., CA. Occurs in Convict Lakes Basin.	P
Lupinus padre-crowleyi	Father Crowley's lupine	Jul.-Aug.	None	SR	1B.2	FS: Sensitive	Great Basin scrub, riparian scrub, upper montane coniferous forest on decomposed granite. Elevations from 2,500 to 4,000 m.	Inyo, Mono, and Tulare Cos., CA. Southern high Sierra Nevada floristic province. Inyo and White Mountains.	P
Trifolium dedeckerae	DeDecker's clover	May-Jul.	None	None	1B.3	FS: Sensitive	Lower montane coniferous forest, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest on granitic, rocky soils. Elevations from 2,100 to 3,500 m.	Inyo, Kern, Mono, and Tulare Cos. CA.	NE
Hydrophyllaceae	Waterleaf Family								
Phacelia inyoensis	Inyo phacelia	Apr.-Aug.	None	None	1B.2	FS: Sensitive	Meadows and seeps. Elevations from 915 to 3,200 m.	Inyo and Mono Cos. CA.	P

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Phacelia monoensis	Mono County phacelia	May-Jul.	None	None	1B.1	FS: Sensitive	Great basin scrub, pinyon and juniper woodland on clay soils, often along roadsides. Elevations from 1,900 to 2,900 m.	Mono Co., CA; NV	NE
Phacelia mustelina	Death Valley round-leaved phacelia	May-Jul.	None	None	1B.3	FS: Sensitive	Mojavean desert scrub, pinyon and juniper woodland on carbonate or volcanic, gravelly or rocky soils. Elevations from 730 to 2,620 m.	Inyo and San Bernardino Cos., CA; NV.	NE
Phacelia novenmillensis	Nine-Mile Canyon phacelia	May-Jun.	None	None	1B.2	FS: Sensitive	Broadleaved upland forest, cismontane woodland, pinyon and juniper woodland, upper montane coniferous forest on sandy or gravelly soil. Elevations from 1,645 to 2,640 m.	Inyo, Kern, and Tulare Cos., CA. Southern high Sierra Nevada and Mojave floristic provinces.	NE
Lamiaceae	Mint Family								
Monardella beneolens	sweet-smelling monardella	Jul.-Sept.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, subalpine coniferous forest, upper montane coniferous forest on granitic soil. Elevations from 2,500 to 3,500 m.	Inyo, Kern, and Tulare Cos. Southern high Sierra Nevada floristic province.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Nyctaginaceae	Four O'Clock Family								
Abronia alpina	Ramshaw Meadows abronia	Jul.-Aug.	FC	None	1B.1	FS: Sensitive	Meadow and seeps on granitic, gravelly margins. Elevations from 2,400 to 2,700 m.	Known from only two extant occurrences at Ramshaw Meadows and Temleton Meadows. Tulare County, CA.	NE
Abronia nana ssp. *covillei*	Coville's dwarf abronia	May-Aug.	None	None	4.2	FS: Sensitive	Great Basin scrub, Joshua tree woodland, pinyon and juniper woodland, subalpine coniferous forest, upper montane coniferous forest on sandy, carbonate soils. Elevations from 1,600 to 3,100 m.	Inyo, Mono, and San Bernardino Cos., CA; NV. Desert Mountains.	NE
Onagraceae	Primrose Family								
Epilobium howellii	subalpine fireweed	Jul.-Aug.	None	None	4.3	FS: Sensitive	Meadow and seeps, subalpine coniferous forest on mesic soil, mossy seeps. Elevations from 1,970 to 2,700 m.	Fresno, Mono, and Sierra Cos., CA.	OBS
Comments: The USFS reported an occurrence of approximately 375 plants within and in the vicinity of the Project Area on July 21, 2009. See Figure 7-2, Location of Sensitive Plants (Nelson, per. comm.. 2009). The CNDDB has a reported occurrence of *Epilobium howellii* in the vicinity of Twin Lakes.									

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Polemoniaceae	Phlox Family								
Polemonium chartaceum	Mason's sky pilot	Jun.-Aug.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, subalpine coniferous forest on rocky, serpentine, granitic, or volcanic soil. Elevations from 1,800 to 4,200 m.	Mono, Siskiyou, and Trinity Cos., CA; NV; Inyo and White Mountains.	NE
Polygonaceae	Buckwheat Family								
Dedeckera eurekensis	July gold	Jun.-Aug.	None	SR	1B.3	FS: Sensitive	Mojavean desert scrub on carbonate soil. Elevations from 1,220 to 2,200 m.	Inyo and Mono Cos., CA. White, Inyo, and desert mountains.	NE
Eriogonum wrightii var. olanchense	Olancha Peak buckwheat	Jul.-Sept.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field, subalpine coniferous forest on gravelly or rocky soils. Elevations from 3,260 to 3,535 m.	Known from only two occurrences on Olancha Peak, Tulare County, CA.	NE
Rosaceae	Rose Family								
Horkelia hispidula	White Mountains horkelia	Jun.-Aug.	None	None	1B.3	FS: Sensitive	Alpine dwarf scrub, Great Basin scrub, subalpine coniferous forest. Elevations from 3,000 to 3,400 m.	Inyo and Mono Cos., CA. Inyo and White Mountains.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Ivesia kingii var. *kingie*	alkali ivesia	May-Aug.	None	None	2.2	None	Great Basin scrub, meadows and seeps, and playas in mesic, alkaline areas. Occurs with Distichlis, Sporobolus, Juncus, etc. Elevations from 1,200 to 2,130 m.	Inyo and Mono Cos., CA; NV and UT	P
Petrophyton caespitosum	marble rockmat	Aug.-Sept.	None	None	1B.3	FS: Sensitive	Lower montane coniferous forest, upper montane coniferous forest on carbonate or granitic, rocky soils. Elevations from 1,200 to 2,300 m.	Fresno, Inyo, and Tulare Cos., CA.	NE
Potentilla morefieldii	Morefield's cinquefoil	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Alpine boulder and rock field on carbonate soils. Elevations from 3,265 to 4,000 m.	Inyo and Mono Cos., CA.	NE
Salicaceae	Willow Family								
Salix brachycarpa ssp. *brachycarpa*	short-fruited willow	Jun.-Jul.	None	None	2.3	None	Alpine dwarf scrub, meadows and seeps, and subalpine coniferous forest; edges of lakes and in wet meadows on limestone, marble, and metamorphic substrates . Elevations from 3,150 to 3,500 m.	Mono Co. CA; ID, NM, OR, and WA.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Salix nivalis	snow willow	Jul.-Aug.	None	None	2.3	None	Alpine dwarf scrub. Elevations from 3,100 to 3,500 m.	Inyo, Mono, and Tuolumne Cos., CA	NE
Scrophulariaceae	Figwort Family								
Cordylanthus eremicus ssp. *kernensis*	Kern Plateau bird's-beak	Jul.-Sept.	None	None	1B.3	FS: Sensitive	Great Basin scrub, Joshua tree woodland, pinyon and juniper woodland, upper montane coniferous forest. Elevations from 1,675 to 3,000 m.	Inyo, Kern, and Tulare Cos., CA.	NE
Pedicularis crenulata	scalloped-leaved lousewort	Jun.-Jul.	None	None	2.2	None	Meadows and seeps; near streams in wet meadows.	Mono County, CA; NV and WY.	P
Penstemon newberryi var. *sonomensis*	Sonoma beardtongue	Apr.-Aug.	None	None	1B.3	None	Chaparral on rocky soils. Elevations from 700 to 1,370 m.	Lake, Napa, and Sonoma Counties, CA.	NE
Violaceae	Violet Family								
Viola pinetorum ssp. *grisea*	grey-leaved violet	Apr.-Jul.	None	None	1B.3	FS: Sensitive	Meadows and seeps, subalpine coniferous forest, upper montane coniferous forest. Elevations from 1,500 to 3,400 m.	Fresno, Kern, San Bernardino, and Tulare Cos. Southern high Sierra Nevada floristic province.	NE

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Angiosperms (Monocotyledons)									
Cyperaceae	Sedge Family								
Carex scirpoidea ssp. *pseudoscirpoidea*	western single-spiked sedge	Jul.-Sep.	None	None	2.2	None	Alpine boulder and rock fields, meadows and seeps, and subalpine coniferous forest on rocky, mesic, often carbonate soil. Elevations from 3,200 to 3,700 m.	Alpine, Inyo, and Mono Cos., CA; ID, NM, NV, OR, UT, WA, and WY.	NE
Carex tiogana	Tioga sedge	Jul.-Aug.	None	None	1B.3	FS: Sensitive	Meadows and seeps in mesic soils, lake margins. Elevations from 3,100 to 3,300 m.	Mono County, CA.	NE
Kobresia bellardii	seep kobresia	Aug.	None	None	2.3	None	Alpine boulder and rock field, meadows, subalpine coniferous forest in mesic soils; can occur on limestone substrate. Elevations from 2,955 to 3,230 m.	Mono Co., CA; OR, and ID.	NE
Trichophorum pumilum	little bulrush	Aug.	None	None	2.2	None	Bogs and fens; marshes and swamps; riparian scrub/riverbanks on carbontate soils.	Mono County, CA. Known in CA only from 3 occurrences near the Convict Creek and Cottonwood Creek drainages.	P

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Juncaginaceae	Arrow-Grass Family								
Triglochin palustris	marsh arrow-grass	Jul.-Aug.	None	None	2.3	None	Meadow and seeps, marshes and swamps, subalpine coniferous forest. Elevations from 2285 to 3700 m.	Inyo, Mono, Tulare, and Tuolumne Cos., CA; ID, NM, NV, UT, and WA.	P
Lilaceae	Lily Family								
Calochortus excavatus	Inyo County star-tulip	Apr.-Jul.	None	None	1B.1	FS: Sensitive	Chenopod scrub, meadows and seeps on alkaline, mesic soils. Elevations from 1,150 to 2,000 m.	Inyo and Mono Cos. CA.	P
Fritillaria pinetorum	Pine fritillary	May-Jul.	None	None	4.3	None	Chaparral, pinyon and juniper woodland, and lower, upper, and subalpine coniferous forest on grantic or metamorphic soils. Elevations from 1,800 to 3,300 m.	Alpine, Fresno, Kern, Los Angeles, Mono, San Bernardino, Tulare, and Venture Cos., CA	NE
Parnassiaceae	Grass-of-Parnassus Family								
Parnassia parviflora	small-flowered grass-of-Parnassus	Aug.-Sep.	None	None	2.2	None	Meadows and seeps. Elevations from 2000 to 2800 m.	Inyo and Mono Cos., CA; ID, NV, and WY	P

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Non –Vascular Plants									
Scientific Name	Common Name	Flowering Period	Federal	State	CNPS List	Other	Preferred Habitat	Distribution	Occurrence On-site
Poaceae	Grass Family								
Elymus scribneri	Scribner's wheat grass	Jul.-Aug.	None	None	2.3	None	Alpine boulder and rock field on rocky slopes. Elevations from 2,900 to 4,200 m.	Mono Co., CA and NV.	NE
Potamogetonaceae	Pondweed Family								
Potamogeton filiformis	slender-leaved pondweed	May-Jul.	None	None	2.2	None	Marshes and swamps. Shallow, clear water of lakes and drainage channels. Elevations from 300 to 2,150 m.	Alameda, Butte, Contra Costa, El Dorado, Lassen, Merced, Mono, Modoc, Mariposa, Placer, Santa Clara, Shasta, Sierra, San Mateo, Solano, and Sonoma Cos. CA, AZ, NV, OR, and WA	P
Potamogeton robbinsii	Robbins's pondweed	Jul.-Aug.	None	None	2.3	None	Marshes and swamps, deep water lakes. Elevations from 1,520 to 3,500m.	Alpine, Inyo, Mono, Lassen, Madera, Nevada, Sierra, Siskiyou, and Tuolumne Cos., CA; ID, OR, UT, and WA.	P

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

Table 7-3. Sensitive Plant Species (continued)

Key to Species Listing Status Codes:

FE	Federally Listed as Endangered	*FC*	Federal Candidate Species	*SCT*	State Candidate for Threatened
FT	Federally Listed as Threatened	*SE*	State Listed as Endangered	*SFP*	State Fully Protected
FPE	Federally Proposed as Endangered	*ST*	State Listed as Threatened	*SR*	State Rare
FPT	Federally Proposed as Threatened	*SCE*	State Candidate for Endangered	*SSC*	California Special Concern Species
FPD	Federally Proposed for Delisting	*FS: Sensitive*	Inyo National Forest Sensitive Species		

California Native Plant Society (CNPS):

List 1A: Presumed extinct in California.

List 1B: Rare, threatened, or endangered throughout their range.

List 2: Rare, threatened, or endangered in California, but more common in other states.

List 3: Plant species for which additional information is needed before rarity can be determined.

List 4: Species of limited distribution in California (i.e., naturally rare in the wild), but whose existence does not appear to be susceptible to threat.

CNPS Threat Codes:

1: Seriously endangered in California *(over 80% of occurrences threatened/high degree and immediacy of threat)*

2: Fairly endangered in California (*20-80% occurrences threatened)*

3: *Not very endangered in California (<20% of occurrences threatened or no current threats known)*

Source: PCR Services Corporation 2009

OBS = observed; NE = species not expected to occur on-site due to the lack of suitable habitat or the study area's location outside of the species' range; P = there remains at least a low potential for this species to occur on-site due to: (1) the inherent difficulty in observing 100% of the property at close range; (2) the population fluctuation of the species from year to year; (3) the small stature of the species; (4) some areas of the project area were restricted during the site visit; and/or (5) a focused survey should be conducted during the species blooming period.

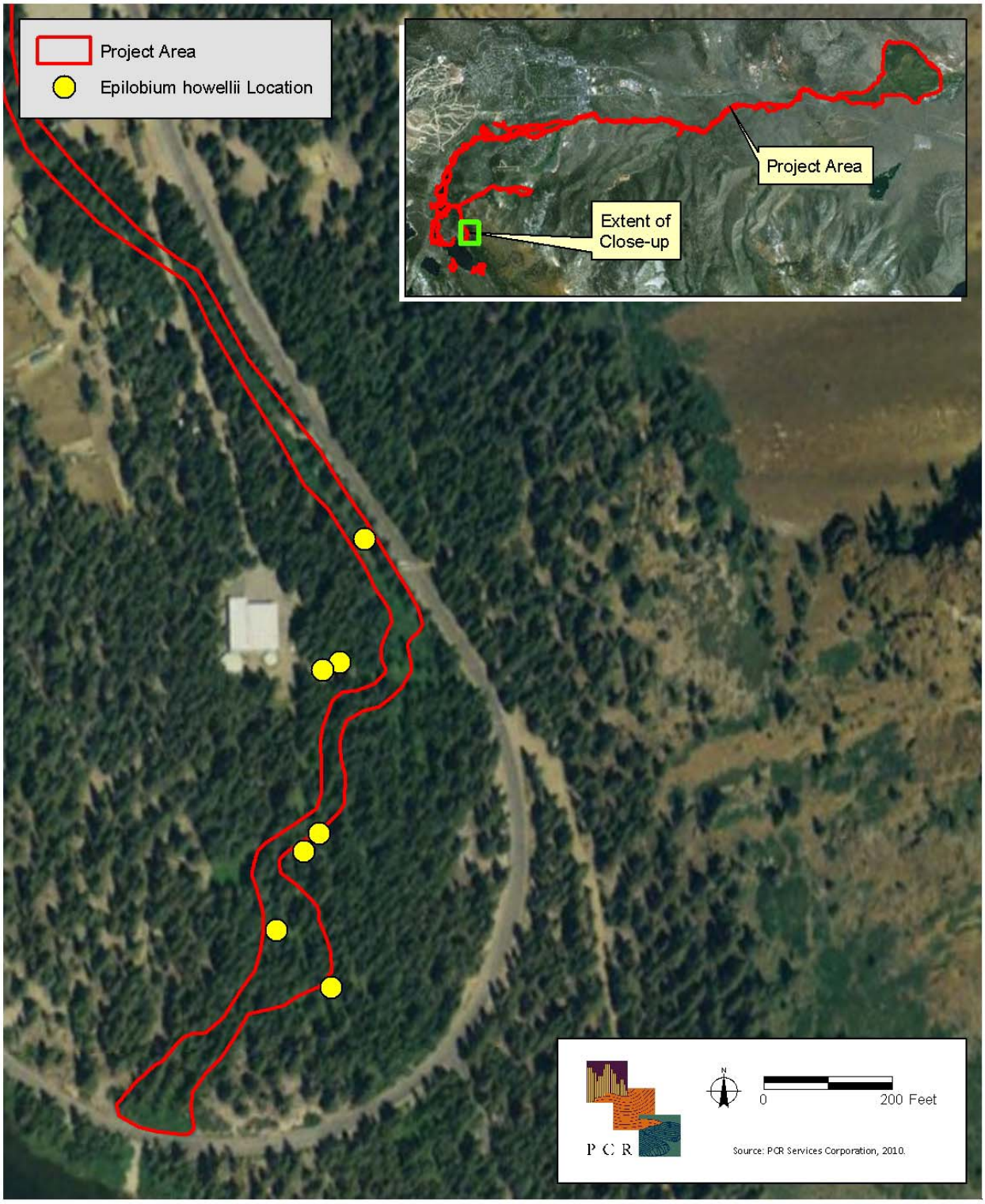

Figure 7-2. Location of Sensitive Plants

7.1.5.5 *Special-Status Species Potentially Occurring in the Project Area But Removed From Consideration Due to Lack of Suitable Habitat or Other Reasons*

The following USFS (INF) sensitive species or species known to occur in the vicinity according to the CNDDB are not expected to occur within the Project Area due to: (1) a lack of suitable habitat on-site; or (2) (for USFS sensitive species) a limited distribution that does not include the Project Area:

- Three-ranked hump-moss
- Broad-nerved hump-moss
- Hydrotheria lichen
- Upswept moonwort
- Slender moonwort
- Mingan moonwort
- Dwarf monolepis
- Hall's meadow hawksbeard
- Gilman's goldenbush
- Hall's fleabane
- Kern River daisy
- Lone fleabane
- Short-leaved hulsea
- Pygmy hulsea
- Ziegler's aster
- Mono ragwort
- Tulare cryptantha
- Bristlecone cryptantha
- Bodie Hills rock cress
- Masonic rock cress
- Pinzl's rock cress
- Shockley's rock cress
- Tiehm's rock cress
- Jaeger's caulostramina
- Lake Tahoe draba
- Hoary draba
- Sweetwater Mountains draba
- Spear-fruited draba
- White Mountains draba
- Mt. Whitney draba
- William's combleaf
- Alpine jewel-flower
- Masonic Mountain jewel-flower
- Pine City sedum
- Inflated milk-vetch
- Long Valley milk-vetch
- Mono milk-vetch
- Raven's milk-vetch
- Woolly-leaved milk-vetch
- Mono Lake lupine
- Slender lupine
- DeDecker's clover
- Mono County phacelia
- Death Valley round-leaved phacelia
- Nine-Mile Canyon phacelia
- Sweet-smelling monardella
- Ramshaw meadows abronia
- Coville's dwarf abronia
- Mason's sky pilot
- July gold
- Olancha peak buckwheat
- White Mountains horkelia
- Marble rockmat
- Morefield's cinquefoil
- Short-fruited willow
- Snow willow
- Kern Plateau bird's-beak
- Sonoma beardtongue
- Grey-leaved violet
- Western single-spiked sedge
- Tioga sedge
- Seep kobresia
- Pine fritillary
- Scribner's wheat grass

7.1.5.6 CRITICAL HABITAT

A small portion of the Project Area (near the confluence of Mammoth Creek and Hot Creek) falls within the critical habitat boundaries as designated by the USFWS for the Owens tui chub (*Gila bicolor snyderi*) (USFWS 1985). The critical habitat boundaries for this species in the vicinity of the Project Area are shown in **Figure 7-3**. This critical habitat receives discharge from springs and runoff as described in Chapter 4 – Hydrology.

The Project Area is not within designated critical habitat for any listed plant species.

7.2 REGULATORY SETTING

As part of the Proposed Project Alternative's review and approval there are a number of performance criteria and standard conditions that must be met relative to biological resources. These include compliance with all of the terms, provisions, and requirements of applicable laws that relate to federal, state, and local regulating agencies for impacts to sensitive plant and wildlife species, wetlands, riparian habitats, and stream courses. The following provides a discussion of the applicable regulatory framework.

7.2.1 STATE OF CALIFORNIA FISH AND GAME CODE, SECTION 1602

Section 1602 of the California Fish and Game Code requires any entity (e.g., person, state or local government agency, or public utility) who proposes a project that will substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake, to notify CDFG of the Proposed Project Alternative. The Proposed Project Alternative does not involve any of these activities.

7.2.2 FEDERAL ENDANGERED SPECIES ACT, SECTION 10 AND SECTION 7

Take of a threatened or endangered species is prohibited under federal law without a special permit. Section 10(a)(1)(B) of the ESA allows for take of a threatened or endangered species incidental to development activities once a HCP has been prepared to the satisfaction of the USFWS. For federal projects (including those involving federal funding), Section 7 of the ESA allows for consultation between the affected agency and the USFWS to determine what measures may be necessary to compensate for the incidental take of a listed species. A "federal" project is any project that is proposed by a federal agency or is at least partially funded or authorized by a federal agency. If the listed species or federally designated "critical habitat" for that species occurs in a portion of the project subject to federal jurisdiction or activity (such as "Waters of the United States"), then consultation under Section 7 of the Act is usually permissible and may be required.

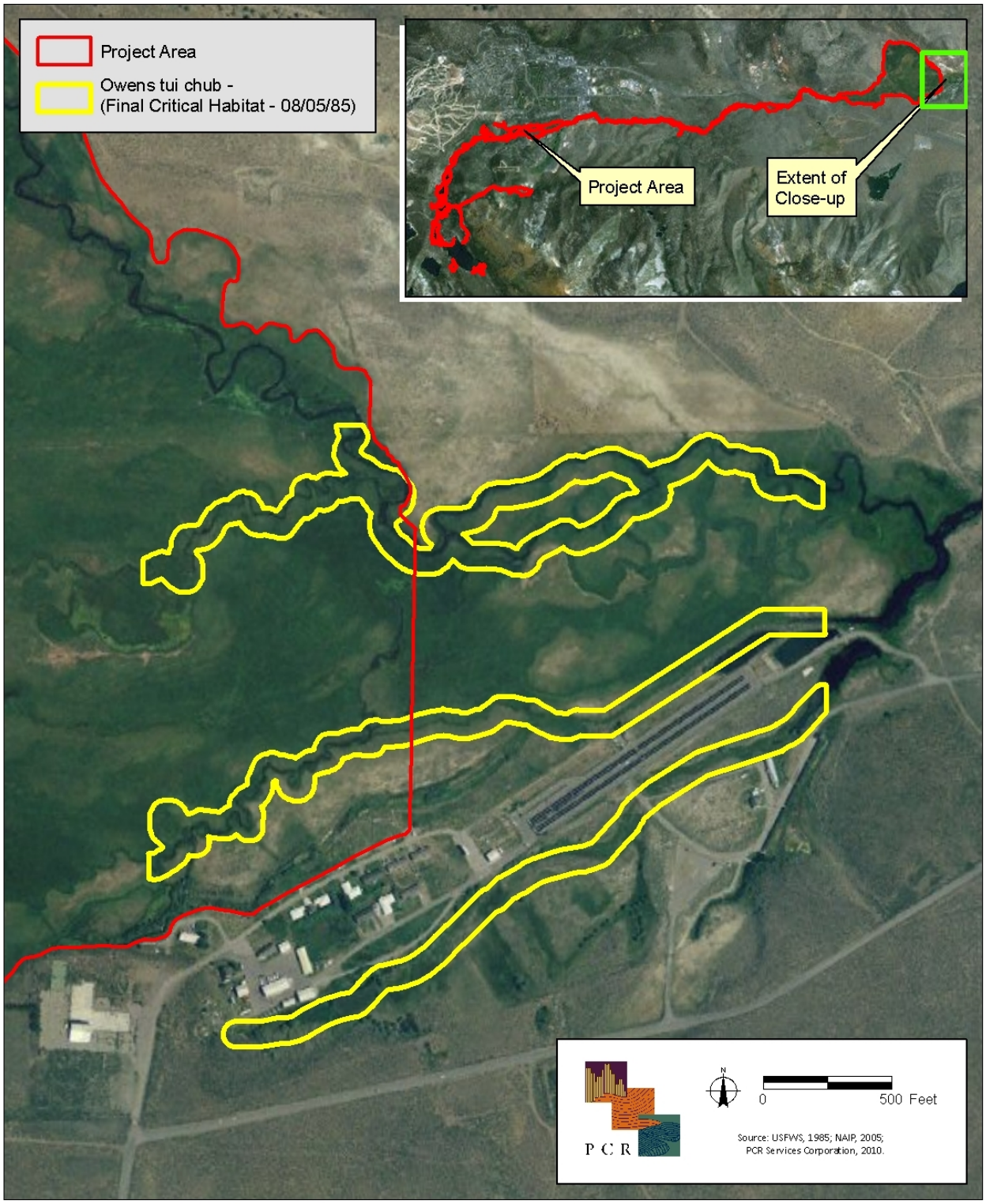

Figure 7-3. Critical Habitat for the Owens Tui Chub

7.2.3 THE TOWN OF MAMMOTH LAKES GENERAL PLAN (2007)

The Town of Mammoth Lakes General Plan Resource Management and Conservation Element establishes and emphasizes its goal to promote sound stewardship of natural resources including wildlife, habitat, fisheries, water, and vegetation resources of significant biological, ecological, aesthetic, and recreational value. The habitat, wildlife and vegetation conservation policies incorporated in the General Plan to support this goal are outlined below.

- R.1.A Policy: Be stewards of important wildlife and biological habitats within the Town's municipal boundary.
- R.1.B Policy: Development shall be stewards of Special Status plant and animal species and natural communities and habitats.
- R.1.C Policy: Prior to Development, projects shall identify and mitigate potential impacts to site-specific sensitive habitats, including special status plant, animal species and mature trees.
- R.1.D Policy: Be stewards of primary wildlife habitats through public and/or private management programs. For example, construction of active and passive recreation and development areas away from the habitat.
- R.1.E Policy: Support fishery management activities.
- R.1.F Policy: Support education, interpretive programs and facilities offered by the Department of Fish and Game, Mono County Fisheries Commission, and other appropriate entities.
- R.1.G Policy: Support efforts to regulate in-stream flows and lake levels to maintain fishery and other wildlife habitat.
- R.1.H Policy: Work with MCWD to ensure that groundwater is not over-drafted and does not cause negative environmental impacts to resources such as surface water, springs and native vegetation.
- R.1.I Policy: Encourage the management of forest resources in and adjacent to the town to ensure forest health, minimize insect and pathogen outbreaks and reduce fuel loading.
- R.1.J Policy: Live safely with Wildlife within our community.

7.2.4 THE MONO COUNTY GENERAL PLAN

One of the goals of the Mono County General Plan is to "maintain an abundance and variety of vegetation, aquatic and wildlife types in Mono County for recreational use, natural diversity, scenic value, and economic benefits" (Mono County 1993). This goal is accomplished through a number of policies including the following:

- Future development shall mitigate impacts to biological resources to a level of less than significant or avoid potential significant impacts.
- Threatened and endangered plants and wildlife and their habitats shall be protected and restored.
- Native plants, sensitive plants, and plants "of exceptional scientific, ecological, or scenic value" shall be protected and restored.

- Construction activities shall be prohibited in sensitive habitats prior to environmental review.
- Soil conservation practices shall be utilized during construction.
- The acquisition of valuable wildlife habitat by land conservation organizations or federal or State land management agencies shall be encouraged.
- OHV use shall be restricted in valuable habitats.
- Water quality for fishery habitat shall be maintained by enforcing the policies of the Conservation/Open Space Element of the Mono County General Plan
- Efforts shall be made to regulate in-stream flows and lake levels for the purposes of maintaining fisheries and other riparian-dependent biological resources.
- Efforts shall be made to manage fisheries "in accordance with their biological capabilities."
- Non-consumptive use of existing fisheries shall be promoted.
- Efforts to support the reintroduction of trout in appropriate locations shall be made.
- CDFG fish stocking efforts shall be supplemented with a "county-supported stocking program."

7.2.5 UPPER OWENS RIVER WATERSHED MANAGEMENT PLAN

In March, 2007, through funding provided by a grant from the State Water Resources Control Board, Mono County and The Mono County Collaborative Planning Team completed the Upper Owens River Watershed Management Plan. Goals of the Upper Owens River Watershed Management Plan include maintaining and improving the aquatic habitat of Hot Creek and Mammoth Creek, maintaining existing wetlands, and maintaining and improving riparian habitat. Potential actions to facilitate these goals include the following:

- Guide development away from wetland margins and do not develop wetland areas
- Explore opportunities for land trades with areas of lesser quality habitat
- Suggest conservation easements on wetland parcels
- Remove and improve roads in riparian areas,
- Remove nonessential stream crossings, and remove development from riparian zones
- Restore degraded riparian areas

7.2.6 USDA FOREST SERVICE

7.2.6.1 USDA FOREST SERVICE SENSITIVE SPECIES

The NFMA of 1976 and its implementing regulations require the Forest Service to ensure a diversity of animal and plant communities and maintain viable populations of existing native species as part of their multiple use mandate. The USFS sensitive species program is a proactive approach to conserving species to ensure the continued existence of viable, well-distributed populations, and to maintain biodiversity of National Forest Service lands (USFS 2004). In

addition, the Secretary of Agriculture's policy on fish and wildlife (Department Regulation 9500-4) directs the USFS to avoid actions "which may cause a species to become threatened or endangered."

The USFS defines sensitive species as those animal and plant species identified by a regional forester for which population viability is a concern. This may be a result of significant current or predicted downward trends in habitat that would reduce a species' existing distribution or significant current or predicted downward trends in density or population numbers (CNDDB 2009e).

The USFS, INF maintains a list of sensitive wildlife and plant species. This list consists of rare plants and animals which are given special management consideration to ensure their continued viability on the national forests (Murphy, pers. comm. 2009; INF 2006).

7.2.6.2 INYO NATIONAL FOREST LAND AND RESOURCE MANAGEMENT PLAN

The INF LRMP establishes the management, direction, and long-range goals for the INF (USFS 1988). Management goals for the INF include (but are not limited to) the following:

- Protect and improve riparian area-dependent resources while allowing for management of other compatible uses.
- Protect or improve the habitats of threatened or endangered species in cooperation with state and other federal agencies.
- Protect sensitive plants to ensure they will not become threatened or endangered.
- Manage wildlife habitat to provide species diversity, ensure that viable populations of existing native wildlife is maintained, and that the habitats of management emphasis species are maintained or improved.
- Manage timber resources to provide a sustained yield of commercial sawtimber, public fuelwood, and wood products while maintaining other resource values.

Forest-wide Standards and Guidelines provide specific guidelines for the management of each resource to ensure its enhancement and protection. These include (but are not limited to) the following:

RIPARIAN AREAS

- Protect streams, streambanks, lakes, wetlands, and shorelines, and the plants and wildlife dependant on these areas.
- Prevent adverse riparian area changes in water temperature, sedimentation, chemistry, and water flow.
- Rehabilitate and/or fence riparian areas that consistently show resource damage.
- Allow new developments and surface disturbance in riparian areas only after on-site evaluations have determined that resources are not adversely affected, or mitigation of any adverse impacts is identified and incorporated into the project design.

SENSITIVE PLANTS

- Allow no new disturbance of identified sensitive plant habitat without direction from Interim Management Guidelines, Species Management Guides, or an environmental analysis.

- Complete inventories of Project Areas and areas of disturbance if there is potential habitat or known population locations identified.

WILDLIFE – THREATENED, ENDANGERED, AND SENSITIVE WILDLIFE SPECIES

- Cooperate with the USFWS and the CDFG in the management of threatened and endangered species.
- Submit proposals for actions that might affect the continued existence of a threatened or endangered species to the USFWS for formal consultation.

WILDLIFE – MANAGEMENT INDICATOR SPECIES

Management Indicator Species (MIS) are wildlife species identified in the SNF MIS Amendment ROD signed December 14, 2007. The list of MIS was developed under the 1982 National Forest System LRMP Rule and amended by the 2007 SNF MIS Amendment ROD. Forest Service resource managers are directed to analyze the effects of Proposed Project Alternatives on the habitat of each MIS affected by such projects and monitor populations and/or habitat trends of each MIS.

The following habitat or ecosystem components and corresponding SNF's MIS are included under the 2007 SNF MIS Amendment ROD.

- Riverine and lacustrine: aquatic macroinvertebrates
- Shrubland (west-slope chaparral types): fox sparrow (*Passerella iliaca*)
- Sagebrush: greater sage-grouse (*Centrocercus urophasianus*)
- Oak-associated hardwood and hardwood/conifer: mule deer (*Odocoileus hemionus*)
- Riparian: yellow warbler (*Dendroica petechia*)
- Wet meadow: Pacific tree frog (*Pseudacris regilla*)
- Early and mid seral coniferous forest: mountain quail (*Oreortyx pictus*)
- Late seral open canopy coniferous forest: sooty (blue) grouse (*Dendragapus obscurus*)
- Late seral closed canopy coniferous forest: California spotted owl (*Strix occidentalis occidentalis*), American marten (*Martes americana*), and northern flying squirrel (*Glaucomys sabrinus*)
- Snags in green forest: hairy woodpecker (*Picoides villosus*)
- Snags in burned forest: black-backed woodpecker (*Picoides arcticus*)

7.3 ENVIRONMENTAL CONSEQUENCES

Project-related impacts to biological resources take two forms, direct and indirect. Direct impacts are considered to be those that involve the loss, physical modification or disturbance of natural habitats (i.e., vegetation or plant communities), which in turn, directly affect plant and wildlife species dependent on that habitat. Direct impacts also include the destruction of individual plants or wildlife, which is typically the case in species of low mobility (i.e., plants, amphibians, reptiles, and small mammals) during construction activities. The collective loss of individuals in these manners may also directly affect regional population numbers of a species

or result in the physical isolation of populations thereby reducing genetic diversity and, hence, population stability.

Indirect impacts are considered to be those that involve the effects of increases in ambient levels of sensory stimuli (e.g., noise, light), unnatural predators (e.g., domestic cats and other non-native animals), and competitors (e.g., exotic plants, non-native animals), as well as decreases in elements that are critical to sustaining habitats, such as surface and ground water. Indirect impacts may be associated with the construction and/or eventual habitation/operation of a project; therefore, these impacts may be both short-term and long-term in their duration.

The biological values of resources within, adjacent to, and outside the area potentially affected by the Proposed Project and other Alternatives were determined by consideration of several factors. These included the overall size of habitats potentially affected, the current level of disturbance of the habitats on the site, the site's surrounding environment and regional context, the on-site biological diversity and abundance, the presence of sensitive and special-status plant and wildlife species, the site's importance to regional populations of these species, and the degree to which on-site habitats are limited or restricted in distribution on a regional basis and, therefore, are considered sensitive in themselves. Whereas this assessment is comprehensive, the focus is on sensitive plant communities/habitats, resources that play an important role in the regional biological systems, and special-status species.

7.3.1 IMPACT ASSESSMENT METHODS

7.3.1.1 ASSESSMENT OF MAMMOTH CREEK

Two approaches were employed to determine how the different fishery bypass flow requirements for Mammoth Creek flows may affect associated riparian habitats and wildlife. Using current conditions as the "baseline", potential impacts were determined with an assessment of creek stability that included the Mammoth Creek corridor as well as adjacent montane meadow areas. To determine the stability of Mammoth Creek and determine if any impacts are occurring and will continue to occur to vegetation and wildlife along Mammoth Creek due to implementation of the Proposed Project Alternative, methods set forth in *A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas* were utilized (BLM 1998). This is the latest user guide to assessing proper functioning condition (PFC) that is being utilized by the USFS, Inyo National Forest (Ellsworth pers. comm.. 2010).

In addition, changes in the riparian corridor under the Proposed Project Alternative and alternative bypass flow regimes were assessed using a flow model equation (Taylor 1982) adapted with a qualitative analysis of geomorphology to account for discrepancies in the model (Konfolf et al. 1987). In this manner, this assessment allowed for the determination of the long-term effects of the Proposed Project Alternative and other alternative fishery bypass flow requirements on Mammoth Creek.

PROPER FUNCTIONING CONDITION

Proper Functioning Condition (PFC) is a qualitative method for determining the health of riparian and wetland areas. To obtain a complete picture of riparian or wetland area health, data should to be collected for physical status (provided through the PFC method) and biological habitat quality. This method utilizes a standard checklist for determining if various hydrology, vegetation, and erosion/deposition parameters are functioning and the ability for a riparian-wetland area to hold together during a high-flow event pursuant to standards pre-

established for PFC. Based on the condition of each of these parameters, a determination is made as to whether the riparian system is in PFC as a whole. Hydrology, vegetation, and erosion/deposition together determine whether a riparian system is in PFC since when "adequate vegetation, landform, or large woody debris are present to dissipate energy associated with high flows, then a number of physical changes begin to occur, such as reduced erosion" (BLM 1998). If a riparian or wetland area is not in PFC, it is described as one of the following: (1) functional-at risk: "riparian-wetland areas that are in functional condition, but an existing soil, water, or vegetation attribute makes them susceptible to degradation"; (2) nonfunctional: "riparian-wetland areas that clearly are not providing adequate vegetation, landform, or large woody debris to dissipate stream energy associated with high flows"; or (3) unknown: "riparian-wetland areas that managers lack sufficient information to make any form of determination" (BLM 1998).

The PFC method does not provide information as to the "biology" of the botanical and wildlife resources. The PFC coupled with quantitative inventory or monitoring protocols that provide data regarding the biology of the botanical and wildlife resources can provide a complete picture of riparian-wetland area health. For purposes of this assessment, long-term quantitative monitoring of the botanical and wildlife resources was not conducted, so the determination of creek stability was based solely on the vegetation metrics of the PFC methodology. That is, the soil and hydrology metrics of the PFC method, although important for a full assessment, were not applied; however, reviewing the results of the vegetation metrics provides some insight into channel stability provided by vegetative cover and, hence, long-term habitat viability.

Should the existing fishery bypass flow requirements have resulted in a decrease in riparian vegetation due to water loss, this could potentially lead to a reduction in vegetation, landform, or large woody debris which can no longer function to dissipate the energy associated with high flows. Moreover, if there is a declining PFC, conditions will only get worse. If present, this baseline instability and the potential for it to worsen should be evident after application of the PFC qualitative method.

CHANGES IN RIPARIAN CORRIDOR WIDTH FOR THE PROPOSED PROJECT AND ALTERNATIVES

Taylor (1982) provided a review of the ecological effects of diverting all or part of the natural flow of streams in the arid Eastern Sierra Nevada. As a result, mean annual streamflow and width of the riparian strip were found to be highly correlated. Allowing for elevation, stream gradient and incision differences between streams, Taylor developed a model for streams with mean annual flow rates of less than 75 cfs (based on multiple regression analysis) which can predict 68% of the variance in riparian strip width. According to Taylor, the model indicates that a significant degree of impact on riparian habitat should be expected if 25%or more of the mean annual flow of a stream is diverted. Further, Taylor states that estimates of timeframes for riparian systems to reach equilibrium after changes in diversion (or altered flow regimes such as the fishery bypass requirement alternatives being analyzed here) can vary greatly depending on the intensity of the diversion; that is, more water diverted produces a quicker ecosystem response.

It is noted that this analysis is only applicable to streams with flow rates between approximately 0.1 and 1.0 cubic meter per second [cms, roughly equal to 9 cfs], which is consistent with Mammoth Creek for most of the year. The different variables were shown to correlate within the riparian corridor width as follows:

- Larger streams support a wider and more diverse strip of riparian vegetation because (1) higher instream flowrates support higher water movement rates; (2) higher instream flowrates support increased lateral movement of water away from the stream channel; and (3) increased water amounts support higher productivity in arid environments.
- Steeper streams tend to have narrower riparian corridor widths, all other factors being equal.
- Elevation is moderately correlated with riparian corridor width because (1) precipitation tends to be higher to the north (where the base elevation of the mountains tends to be higher) because of a reduced rain shadow effect; (2) streams increase in flow below its headwaters as tributaries and subsurface flows contribute water and decrease in flow as they leave the mountains; and (3) plant evapotranspiration decreases with an increase in altitude.

Using non-autocorrelated variables and multiple, polynomial/linear regression analysis, the following flow model equation was obtained to determine riparian strip width: expected riparian strip width in meters = (4.95 X mean flowrate) – (0.034 X mean flowrate^2) – (0.057 X stream gradient (meters)) + (0.62 X incision index (meters)) – (0.02 X elevations (meters)). The incision index is calculated as ½ the average distance between 80-foot contours paralleling the stream.

For purposes of this analysis, Mammoth Creek is divided into five reaches based on unique channel morphology, riparian vegetation, stream gradient, and substrate size and composition of each reach. These reaches are consistent with numerous fish studies conducted in Mammoth Creek over the years. A detailed description of these reaches can be found in Section 7.1.3.1, Aquatic Habitat of this document.

7.3.1.2 LAKE MARY

The montane riparian scrub found along portions of the Lake Mary shoreline is dominated by willows, alders and dogwoods. These species are fairly deep-rooted and can obtain water to sustain themselves from groundwater that is several to many feet underground. The changes in the required Lake Mary fill date from June 1st to June 30th is not expected to significantly alter the condition and distribution of montane riparian scrub at the edge of and near the Lake Mary shoreline. As with many non-emergent riparian plant species, the montane riparian scrub vegetation can and does endure dry periods between the wet season, as well as variations in soil moisture and groundwater levels from year to year. The hydrology evaluation in Chapter 4 evaluates Lake Mary hydrology in terms of the inter-annual frequency and seasonal timing of the "lake full" date, as well as the timing and duration of the 3-ft drawdown limit prior to September 15th. Based on the lake hydrology changes for all project alternatives compared to the Existing Condition, and utilizing the impact indicators described in Section 7.3.2, the changes in lake hydrology would not result in significant impacts to the wildlife and botanical resources along the lake's perimeter. Therefore this resource component is not addressed further under the individual alternatives discussions under Section 7.3.3.

7.3.1.3 BODLE DITCH

The Bodle Ditch was constructed in the late 1880s to supply water to the historical Pine City, Mill City and Mineral Park mining camps (Snow Survey Associates 2006). The associated and often poorly developed riparian corridor that exists immediately along the ditch is currently supplied with water from a variety of sources including: (1) water diverted from Lake Mary

into the head of the ditch from approximately May 1st through November 1st of each year, the amount and timing of which is dependent on lake levels and water year types (Dry, Normal, Wet); (2) seasonal rainfall and snowmelt runoff into the upper portion of the ditch (west of Lake Mary Road); and (3) inflow from natural precipitation and natural springs located just east of Lake Mary Road along the base of Red Mountain. The maximum diversion rate from Lake Mary into Bodle Ditch is 1.5 cfs, due to the gravity flow condition and pipe capacity. Based on data collected at the old LADWP weir located approximately one-half mile downstream from the point of diversion at Lake Mary, the ditch flow has consistently been 1.0 cfs or less, and the average monthly diversion was 0.9 cfs, 1.0 cfs, and 0.8 cfs for June, July, and August, respectively.

In its assessment, Snow Survey Associates cited flotsam and sediment above the Bodle Ditch channel as clear evidence that snowmelt runoff occurs in Bodle Ditch before Lake Mary water is diverted. Field observations the spring of 2009 and 2010 confirmed significant flows in the upper ditch for one to two months before diversions from Lake Mary were initiated, estimated at 1.0 to 3.0 cfs.

On July 21 and 22, 2009, diversions to the Bodle Ditch from Lake Mary were shut off to estimate the flow contribution from the natural springs east of Lake Mary Road into Bodle Ditch. These spring flows were approximately 1.0 to 1.5 cfs. Due primarily to the lack of additional flow data, and uncontrolled diversions from Bodle Ditch to local drainages into Twin Lakes and the Mill City Tract area, it is not possible to accurately assess Bodle Ditch hydrology by reach and by relative contribution from each source (natural springs, runoff, Lake Mary diversions). Therefore, a qualitative assessment of impacts to Bodle Ditch as a result of removing diversions from Lake Mary from May 1st to November 1st was conducted.

7.3.2 IMPACT INDICATORS AND SIGNIFICANCE CRITERIA FOR WILDLIFE AND BOTANICAL RESOURCES

Impacts to biological resources were determined if there were found to be decreases in riparian corridor width, riparian vegetation surrounding Lake Mary, and/or riparian vegetation in adjacent meadows based on the Proposed Project Alternative and the other project alternatives. Decreases in riparian vegetation may result in impacts to common and sensitive wildlife and plant species and their habitats, jurisdictional wetlands or waters, and wildlife movement corridors.

Based on Appendix G and Section 15065(a) of the CEQA Guidelines, a project may have a significant impact on biological resources if it would:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the CDFG or USFWS.
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance.
- Substantially degrade the quality of the environment, substantially reduce the habitat of a fish and wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of an endangered, rare or threatened species.

The biological resources within the Project Area were evaluated on the basis of the above criteria in determining whether or not the Proposed Project Alternative will cause one or more significant impacts. The evaluation of whether an impact to biological resources would be significant considered the resource and how that resource fits into a regional or ecological context.

The definition of "significant," as applied for this assessment, considered both the local and regional status of each resource. Significant impacts are those that would diminish or result in the loss of an important biological resource, or those that would conflict with local, State, or Federal resource conservation plans, goals, or regulations. Impacts are sometimes locally important but not significant because, although they would result in an adverse alteration of existing local conditions, they would not substantially diminish or result in the permanent loss of an important resource on a population-wide or region-wide basis.

7.3.3 ANALYSIS OF ALTERNATIVE COMPARISONS

7.3.3.1 PROPOSED PROJECT AND ALTERNATIVES

For a detailed description of the Proposed Project and Alternatives, the reader is referred to Chapter 2 – Proposed Project and Alternatives. The aspects of the Proposed Project Alternative that are applicable to assessing potential impacts to wildlife and botanical resources include the following: (1) maintaining a fishery bypass flow regime established in 1997 for Mammoth Creek measured at the OMR Gage; (2) adding the year-round fishery bypass flow requirement of 4 cfs (mean daily flows) at the OLD395 Gage; (3) filling Lake Mary by June 30th instead of June 1st of every year; and (4) ceasing diversions from Lake Mary into Bodle Ditch (flows are currently released from May 1st to November 1st of every year).

None of the project alternatives require construction of new facilities or modification of the District's existing water distribution system. In addition, except for the filling of Lake Mary which is previously addressed, none of the alternatives would result in substantial changes to the condition of Lake Mary, Lake Mamie, or Twin Lakes. Any impacts on wildlife, wildlife habitats, and botanical resources would be limited to the effects of two primary components: those potentially resulting from the fishery bypass flow requirements in Mammoth Creek and the point of measurement, either due to changes in flow levels or changes in the seasonal pattern of flow and, those potentially resulting from the cessation of water diversions from Lake Mary into Bodle Ditch.

The hydrological effects of the fishery bypass flow requirements associated with the Proposed Project Alternative and other alternatives are evaluated and discussed in Chapter 4 – Hydrology. In the case of the Proposed Project Alternative and the other alternatives, the potential changes in flows in Mammoth Creek do not significantly differ from those under the

Existing Condition. Therefore, potential impacts under either the Proposed Project Alternative or any of the alternatives were determined to be less than significant.

7.3.3.2 RIPARIAN AND WETLAND MONITORING AND ADAPTIVE MANAGEMENT PROGRAM

As discussed above, riparian and wetland vegetation, including a number of obligate and facultative hydrophytic plant species, have established themselves along the banks of Bodle Ditch and surrounding areas since it was constructed in the late 1880s to supply water to mining camps that existed in the area. The riparian and wetland vegetation along the ditch is supported by rain, snowmelt runoff, input from several natural seeps and springs along its length, natural accretion, and by the direct diversion of water from Lake Mary into the ditch between May 1 and November 1, although the specific amount and timing of water released is dependent on the availability of water in Lake Mary. It is not known what percentage of water flow in the ditch annually comes from "natural" sources and what percentage comes from Lake Mary. In addition, determining the amounts, by source, of water flowing into Bodle Ditch, and its relationship to the health of hydrophytic plant species, would require several years of data and installation of additional gauges, where the data ultimately collected could be difficult to interpret given seasonal variations and other factors. While it is suspected that the riparian vegetation and habitat found along Bodle Ditch is supported primarily by inputs other than the diversions from Lake Mary, the potential for impacts associated with the Proposed Project Alternative's cessation of direct diversion from Lake Mary into Bodle Ditch cannot be accurately determined based on available information. Due to this uncertainty, a Riparian and Wetland Monitoring and Adaptive Management Program (RWMAMP) is proposed as part of the Proposed Project Alternative.

The RWMAMP is designed with a performance standard to respond to any significant loss of riparian and wetland vegetation and habitats along Bodle Ditch due to the proposed cessation of direct diversions from Lake Mary into Bodle Ditch. The District, as lead agency for the Proposed Project Alternative, will be the entity responsible for ensuring the RWMAMP is implemented and annual reports are prepared. In addition, the need for responsive measures and how they will be carried out will be documented. As trustee agencies, the CDFG, USFS and other agencies, as appropriate, will be provided copies of the annual reports and related documentation concerning responsive measures for their review and comment.

APPROACH

The methodology for monitoring is a variation of methods presented in Monitoring the Vegetation Resources in Riparian Areas (Winward 2000). This General Technical Report prepared by the U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, provides information on the use and application of three sampling methods to inventory and monitor the vegetation resources in riparian areas. These methods are: (1) the vegetation cross-section method that evaluates the health of vegetation across a riparian corridor; (2) the greenline method that provides a measurement of the streamside vegetation; and, (3) the woody species regeneration that measures the density and age class structure of shrub and tree species that may be in the sampling area. It should be noted that modifications made to the Winward methodology and incorporated into the RWMAMP are intended to reduce observer variability as discussed in Coles-Ritchie et al. (2004).

ASSESSMENT OF VEGETATION HEALTH

The vegetation cross-section method will consist of at least five permanently marked (subject to USFS approval) line-point transects aligned perpendicular to the Bodle Ditch drainage at three monitoring stations established along Bodle Ditch. The transects will be placed in such a way to best represent the riparian community being monitored and, to the extent practicable, will be long enough to span the observed riparian corridor. Species composition and cover will be obtained by collecting data on species present every 0.5 meter (approximately 20 inches). Cover data will be determined by dividing the number of points where vegetation cover is observed by the total number of points on the transect. Composition data will be determined by dividing the number of points where a particular plant species is observed by the total number of points where vegetation cover is observed on the transect. Photographs will also be taken in the direction of the transect from the start and end points.

MEASUREMENT OF STREAMSIDE VEGETATION

The greenline method will be used to provide an indication of the immediate streamside vegetation composition and its ability to buffer the hydrologic forces of moving water. The greenline itself will be identified by the edge of vegetation along the ditch banks. As such, the greenline method is designed to account for a continuous line of vegetation on each side of a stream (excepting road and trail crossings) even when this line of vegetation occurs several feet above or away from the stream's edge (usually the ordinary high water mark). The greenline transect will begin at the crossing of the most upstream cross-section transect, on the right side (looking downstream) of Bodle Ditch. Using the step transect method, the monitor will proceed downstream a minimum of 100 meters (approximately 328 ft and considered to be the minimum distance needed to encompass the potential variation within a riparian complex), cross the ditch, and walk upstream on the opposite side of the ditch until opposite the starting point. Data on riparian and wetland plant species (obligate and facultative hydrophytes) canopy and understory will be collected every four steps (approximately 8 ft). Percent cover and species composition will be calculated as described above for the cross-section method.

MEASUREMENT OF WOODY SPECIES REGENERATION

Woody species regeneration will be measured by using the same transects used for greenline measurements. At each data collection step for the greenline method, the observer will use a 1-meter stick to collect data on woody vegetation within a circle having a radius of one meter from the toe-point of the step. All woody plants rooted within the circle will be tallied based on age-class categories (sprout, young, mature, decadent and dead, as defined by Winward (2000). Data will be analyzed for age class distribution and species composition as described above.

MONITORING STATIONS AND MONITORING REGIME

To best elucidate the relationship between diversions from Lake Mary to the maintenance, health and vigor of riparian vegetation along Bodle Ditch, as well as the role of rain, snowmelt runoff, input from several natural seeps and springs along its length, and natural accretion in supporting riparian vegetation along Bodle Ditch, three monitoring stations will be established: (1) just below the point of current discharge from Lake Mary; (2) just downstream of the LADWP weir; and, (3) just downstream of the spring at the base of Red Mountain. These three stations represent a woody riparian community, a lodgepole pine dominated riparian community, and a woody riparian community, respectively. The measurement of baseline, or

starting conditions, following the methods outlined above, will be conducted in mid- to late July (corresponding to the middle of the growing season) in the beginning year of the RWMAMP. Monitoring at these stations, following the methods outlined above, will take place in mid to late July during each following year of monitoring. Monitoring will be conducted annually for the first three years in order to discern the potential, but unanticipated loss of riparian vegetation along Bodle Ditch, and implement responsive measures if necessary, as set forth below. Following year three of monitoring, if no loss of riparian communities is detected due to the cessation of diversions from Lake Mary, monitoring will take place at year six following the cessation of diversions. If, at the end of the entire 6-year monitoring program no significant loss of riparian communities is detected, the monitoring program will be terminated.

ASSESSMENT OF MONITORING DATA

The effects of ceasing diversions from Lake Mary into Bodle Ditch, if any, will be assessed through examination of the various data collected during monitoring and the identification of trends regarding the stability of the riparian communities being monitored. First, the percent cover of obligate and facultative hydrophytes obtained through application of the vegetation cross-section method will be analyzed. Should the percent cover of these plant species exhibit a decreasing trend and/or decrease on a cumulative basis by more than 20% of their baseline values at any time during the monitoring program, responsive measures will be implemented as presented below. Second, should the percent cover along the greenline exhibit a decreasing trend and/or decrease on a cumulative basis by more than 20% of their baseline values at any time during the monitoring program, responsive measures will be implemented as set out below. Third, should the woody recruitment data exhibit a decreasing trend in young (>3 years old) or mature riparian woody plants and/or decrease on a cumulative basis by more than 20% of their baseline values, again, adaptive management measures will be implemented as set out below. Assessment of all three data sets will be used to determine the need and type of adaptive management measures to be implemented. It should also be noted, however, that in its analysis, the District will assess any losses stipulated above against the amount of snow- melt runoff and rainfall in that year. That is, during dry years, the health and vigor of hydrophytic plants may decrease independent of diversions from Lake Mary. Conversely, hydrophytes may flourish during wet years. In both cases, consideration will be made for climatic conditions when examining community and population trends.

ADAPTIVE MANAGEMENT MEASURES

The adaptive management strategy for identified degradation and/or loss of riparian and wetland communities shall include creation, restoration and/or enhancement of riparian and/or wetland habitat. The adaptive management shall be accomplished in one or more of the following ways: (a) creation, restoration and/or enhancement of habitat within the Mammoth Creek riparian zone; (b) creation, restoration and/or enhancement outside the Mammoth Creek riparian zone, but within the Mammoth Creek watershed; and (c) payment of in lieu fees to an existing riparian mitigation/conservation bank and/or existing Inyo National Forest habitat management and/or enhancement program. The selection of a site or program to which adaptive management measures will be applied should set a priority for locations where the highest benefit to habitat can be realized while also enhancing the quality of public views and the enjoyment of trail experiences by the public. The payment of in lieu fees, if such a program exists, shall fulfill these requirements, in part or in full. For adaptive management entailing habitat creation, restoration and/or enhancement, a Habitat Management and Monitoring Plan shall be prepared for review and approval by MCWD and trustee agencies, as appropriate (for

example, CDFG). The plan shall stipulate success criteria for the habitat being created, restored and/or enhanced and shall be monitored by a qualified restoration ecologist for five years or until such time as the success criteria are met, but no sooner than one year following cessation of all inputs (e.g., soil amendments, irrigation, etc.) to the creation, restoration and/or enhancement project. The success criteria will address requirements for no significant net loss of riparian and/or wetland habitat and will focus on habitat replacement to the extent practicable and satisfactory to the participating trustee resource agencies.

REPORTING PROCEDURES

Annual reports and data records will be submitted by the monitor to the District at the end of each year of monitoring. Following the submittal and depending on the need for adaptive management responses or remedial action, the District may elect to consult with trustee agencies, such as CDFG.

7.3.3.3 ENVIRONMENTAL IMPACTS OF THE PROPOSED PROJECT ALTERNATIVE COMPARED TO THE EXISTING CONDITION

Impact Consideration 7.3.3.3-1. Potential to Change Mammoth Creek Proper Functioning Condition

Utilizing the standard checklist for A User Guide to Assessing Proper Functioning Condition and the Supporting Science for Lotic Areas (BLM 1998), observations were made regarding the vegetation for four of the five reaches of Mammoth Creek, referred to as Reaches A, B, C, D and E. Reach E which is at the easternmost end of the Project Area is predominantly privately leased ranch land; therefore, access was restricted and an assessment of that reach could not be made. Here, again, it is noted that the approach was confined to vegetation only, and soil and hydrology parameters were not applied. The observations for Reaches A, B, C, and D are shown in **Table 7-4** and a description of how the conclusions were made based on available data is described in the following text.

Table 7-4. PFC Standard Checklist

Vegetation	Yes, No, or N/A
There is a diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery)	Yes – Reaches A, C, and D; No – Reach B
There is a diverse composition of riparian-wetland vegetation (for maintenance recovery)	Yes – Reaches A, B, C, and D
Species present indicate maintenance of riparian-wetland soil moisture characteristics	Yes – Reaches A, B, C, and D
Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high-streamflow events	Yes – Reaches A, B, C, and D
Riparian-wetland plants exhibit high vigor	Yes – Reaches A, B, C, and D
Adequate riparian-wetland vegetation cover is present to protect banks and dissipate energy during high flows	Yes – Reaches A, B, C, and D
Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery)	Yes – Reaches A, B, C, and D
Source: BLM 1998; PCR Services Corporation 2010.	

Certain vegetation attributes and processes need to be functioning for a riparian-wetland area to function property. Deterioration of riparian-wetland habitat may occur with the: (1) "elimination of or reduction in bank-forming vegetation"; (2) "encroachment of upland vegetation onto floodplains and levees"; and (3) "increase in the extent of eroded banks and stream bars at the expense of vegetated communities on levees and floodplains" (BLM 1998).

There is a diverse age-class distribution of riparian-wetland vegetation (recruitment for maintenance/recovery):

For riparian-wetland areas that require woody vegetation to be in PFC, a "yes" answer would be given if seedlings and saplings are present on the reach. For areas requiring herbaceous vegetation to be in PFC, a "yes" answer would be given if a dense matting of the plants was present.

Within Reaches A, C, and D, saplings as well as dense herbaceous wetland plants were observed. Sapling species observed included willow (saplings observed in Mammoth Creek in the vicinity of Lake Mary) and quaking aspen (observed throughout the areas mapped as aspen forest). Numerous herbaceous species were also observed along the creek channel throughout Reaches A, C, and D. Only Reach B did not exhibit a diverse age-class distribution. However, overall existing or baseline project conditions under this criterion represent a PFC.

There is a diverse composition of riparian-wetland vegetation (for maintenance recovery):

For riparian-wetland areas that have two or more riparian-wetland species present, a "yes" answer would be given in this category.

Within the Reaches A, B, C, and D, two or more riparian-wetland species were present along the majority of the reach. These are further detailed in Section 7.1.2, Plant Communities and **Error! Reference source not found.**. Accordingly, baseline project conditions represent a PFC.

Species present indicate maintenance of riparian-wetland soil moisture characteristics:

This category assesses whether the soil moisture level is being maintained or recovering towards its potential extent. Riparian-wetland vegetation is divided into categories depending upon how much moisture they require. These categories include obligate wetland (OBL-almost always occur in wetlands), facultative wetland (FACW-usually occur in wetlands), facultative (FAC-equally likely to occur in wetlands/non-wetlands, obligate upland (OBL-almost always occur in non-wetlands), and non-indicator (NI-no indicator status has been assigned) (Reed 1988). A "yes" answer would be given when obligate wetland or facultative wetland species are present on a perennial reach. A "no" answer would be given if FACU or UPL plants dominated the reach.

Species present (and dominant) within the Project Area include (but are not limited to) the following, the majority of which are OBL or FACW:

- Reach A: Montane riparian scrub vegetation is dominant including: mountain alder (NI), tea-leaved willow (OBL), Lemmon's willow (OBL), arctic willow (FACW), yellow willow (OBL), shining willow (NI), quaking aspen (FAC+), and dogwood (FACW).
- Reach B: Montane riparian scrub, mixed willow riparian scrub, and montane meadow vegetation is dominant including: mountain alder, tea-leaved willow, Lemmon's willow, arctic willow, yellow willow, shining willow, aspen, dogwood, smoothstem willow-herb (OBL), fireweed (FAC), and corn lily (OBL).

- Reach C: Aspen forest vegetation is dominant including quaking aspen and mountain alder.
- Reach D: Aspen forest and mixed willow riparian scrub is dominant including quaking aspen, tea-leaved willow, Lemmon's willow, arctic willow, yellow willow, shining willow.

Therefore, baseline conditions for Reaches A, B, C, and D meet this criterion for PFC.

Streambank vegetation is comprised of those plants or plant communities that have root masses capable of withstanding high-streamflow events:

This category documents whether the streambanks are vegetated with plants or community types that allow for recovery and maintenance of the riparian-wetland area. The majority of plant species that are OBL and FACW do have root masses capable of surviving high flow events whereas most FACU and UPL plants species do not. A "yes" answer would be given in this category if tree/shrub species such as willow, alder, aspen, birch, cottonwood, or herbaceous species such as sedges, rushes, bulrush, and some wetland grasses are dominant in plant communities along a stream banks.

The dominant species in Reach A, B, C, and D include willow, quaking aspen, and mountain alder; therefore, a PFC is considered to be present for streambank vegetation.

Riparian-wetland plants exhibit high vigor:

This category documents if riparian-wetland plants are robust and healthy or unhealthy and stressed. If riparian-wetland plants degrade and leave the area, the area is prone to degradation. A "yes" answer in this category would be given if the riparian tree/shrub species are well-rounded, robust, and have green leaves during the growing season. An abundance of herbaceous plants also would warrant a "yes" answer in this category.

Reaches A, B, C, and D all showed signs of riparian-wetland species health and vigor with the presence of an abundance of herbaceous plants and well-rounded shrub/tree species with green leaves during the growing season **Figure 7-4** shows healthy riparian-wetland vegetation meeting this PFC criterion in Reaches A, B, C, and D.

Adequate riparian-wetland vegetation cover is present to protect banks and dissipate energy during high flows:

This category documents the presence or absence of adequate amounts of riparian-wetland vegetation to dissipate stream energy during high flow events. Depending upon the type of stream channel, different amounts of cover may be required. Wide, flat valley bottom channels may require 90% cover while other stream types may require 70% cover for a "yes" answer in this category. A "no" answer would be warranted if a reach is dominated by upland plants or if a streambed is 50% riparian-wetland plants and 50% upland plants.

The average percent cover of riparian-wetland plants along Reaches A, B, C, and D varies from approximately 80 to 100% cover which appears to be adequate for Mammoth Creek, particularly when combined with the predominance of riparian species present which have root masses capable of withstanding high streamflow events. Therefore, this criterion for PFC is considered to be met.

Photograph 1: View of mountain alder scrub along Mammoth Creek near the western boundary of the Valentine Reserve.

Photograph 2: View of mountain alders and willows along Mammoth Creek at the Sherwin Street crossing (looking west).

Photograph 3: View of an aspen woodland along Mammoth Creek east of Old Mammoth Road.

Photograph 4: View of mixed riparian scrub and Sierran mixed conifer forest along Mammoth Creek just east of Old Mammoth Road.

Figure 7-4. Photographs of Riparian-Wetland Plants Along Mammoth Creek

Plant communities are an adequate source of coarse and/or large woody material (for maintenance/recovery):

If coarse and/or large woody materials are required to capture bedload, aid in floodplain development, and dissipate energy from high flow events, a "yes" answer would be given if a reach contains an adequate number of mature trees large enough to modify hydrology. However, many rangeland and meadow habitat areas do not require woody material to maintain the stability of the channel.

Reaches A, C, and D (and a portion of Reach B) all contain a large number of riparian shrubs/trees with many areas also vegetated with wetland plants on the periphery of the riparian channel. Given that the baseline conditions assessed are the result of streamflows after fishery bypass flow requirements beginning in 1997, and the channel in these reaches appears to be stable, it is assumed that the plant communities are sufficient for maintenance and recovery in these reaches. The central portion of Reach B contains some areas of meadow habitat that do not contain a large amount of woody material directly adjacent to the stream channel. It is assumed that large woody material in this area is not needed since water is flowing through an established channel with overflow and likely a high water table feeding the large meadow areas in the central portion of Reach B.

In conclusion, baseline conditions in Mammoth Creek do not exhibit signs of instability and stress as the result of current fishery bypass flow requirements that began in 1997. As mentioned earlier, potential changes in Mammoth Creek flows under the Proposed Project Alternative and the other alternatives do not differ significantly from the Existing Condition.

Impact Determination 7.3.3.3-1 – Less Than Significant

Mitigation Measure 7.3.3.3-1 – None Required

Impact Consideration 7.3.3.3-2. Potential to Change Riparian Corridor Width Along Mammoth Creek

As described above in Section 7.3.1.2, Methodologies Used, potential long-term effects of the proposed and alternative fishery bypass flow requirements were assessed using a model that correlates stream flow with riparian corridor width. **Error! Reference source not found.**, summarizes the findings of the modeling for the Proposed Project Alternative and other alternatives for comparative purposes.

Table 7-5. Average Riparian Zone Widths of Mammoth Creek at Equilibrium (in feet)

Reach	No Project Alternative	Proposed Project Alternative	Bypass Flow Requirements Alternative No. 2	Permit 17332 Bypass Flow Requirements Alternative No. 3
A	261	261	276	261
B	1188	1188	1195	1188
C	638	638	645	638
D	1226	1226	1233	1226
E	1201	1201	1208	1201
Source: PCR Services Corporation 2010				

Based on modeling after Taylor (1982), neither the Proposed Project Alternative nor any of the alternatives is expected to have reduced riparian corridor widths at equilibrium as compared to the No Project Alternative, or the Existing Condition. In the case of Bypass Flow Requirements Alternative No. 2, riparian strip widths increase slightly (from approximately .5% to 2.0%) for all reaches due the increase in fishery bypass flow requirements this alternative would entail. This increase, however, is not considered to be a significant benefit for wildlife and botanical resources because the potential increase in habitat carrying capacity for plant and wildlife species is not substantial.

Impacts to Bodle Ditch that may result from ceasing the seasonal diversion of water from Lake Mary into this ditch cannot be modeled in the same fashion due to a lack of flow data. Bodle Ditch currently receives water from the Lake Mary point of diversion in its upper reach; snowmelt and rain runoff throughout; and, natural seeps and springs. Therefore, impacts to the riparian corridor and associated resources along Bodle Ditch from the Proposed Project Alternative (and other alternatives) can only be qualitatively assessed based on observations of the Existing Condition made in the field.

Impact Determination 7.3.3.3-2 – Less Than Significant

Mitigation Measure 7.3.3.3-2 – None Required

Impact Consideration 7.3.3.3-3. Potential Loss of Riparian Vegetation and Wildlife Habitat Along Bodle Ditch

Based on field observations, the riparian vegetation and habitat found along Bodle Ditch appears to be supported primarily by natural water flows rather than seasonal diversions from Lake Mary. In the uppermost reach of the ditch, three culverts under Lake Mary Road collect and discharge rain and snow melt runoff from mountain slopes to the east. In addition, because the ditch begins at an elevation lower than Lake Mary, it is likely that subsurface seepage may be relatively high and available to riparian vegetation in the area located between Lake Mary and the Mammoth Pack Station area. Further downstream, Bodle Ditch receives discharge from several seeps and springs, most notably the spring complex at the base of Red Mountain where a dense and well developed stand of willows is found. As a result of these inputs it is common for riparian and wetland vegetation to be growing in abundance at elevations above the ditch itself along its lower reach which is an indication that diversions received from Lake Mary are not essential to maintaining such vegetation and habitat resources.

Based on available information, it cannot be determined if ceasing diversions into Bodle Ditch from Lake Mary may have an effect on the abundance and vigor of riparian and wetland species, particularly obligate and facultative wetland species, found along its length and, in particular, the uppermost reach just below the existing point of diversion from Lake Mary. However, the importance of snow melt runoff and spring inputs is likely substantial and a significant reduction in population numbers of such species is not expected. Lacking more detailed quantitative hydrologic data, the potential for a reduction in numbers of riparian and wetland species cannot be ruled out. For this reason, the Proposed Project Alternative incorporates a Riparian and Wetland Monitoring and Adaptive Management Program (RWMAMP) designed to respond to indications of loss of riparian and wetland vegetation and habitats along Bodle Ditch.

Impact Determination 7.3.3.3-3 – Less Than Significant

Mitigation Measure 7.3.3.3-3 – None Required

Impact Consideration 7.3.3.3-4. Potential Loss of Common Plant Species

As described above, implementation of the Proposed Project Alternative may affect common riparian and wetland plant species within the Bodle Ditch portion of the Project Area. Common plant species present within the Project Area occur in large numbers throughout the region and impacts to them do not meet the significance thresholds defined in this document. Therefore, impacts to common plant species are considered to be less than significant. In addition, the riparian/wetland vegetation monitoring and adaptive management program of the Proposed Project Alternative would avoid any significant loss of vegetation.

Impact Determination 7.3.3.3-4 - Less Than Significant

Mitigation Measure 7.3.3.3-4 – None Required

Impact Consideration 7.3.3.3-5. Potential Loss of Common Wildlife Species

The primary potential, but unlikely, impacts of the Proposed Project Alternative on wildlife resources are the loss of riparian and wetland habitats and the loss and displacement of wildlife, resulting in less diverse and less abundant local faunal populations. Adverse impacts to wildlife are generally associated with the degree of habitat loss and fragmentation from the standpoint of physical character, quality, diversity, and abundance of vegetation. These potential impacts would be associated with the loss of riparian and wetland vegetation. However, as described above. The Proposed Project Alternative incorporates a riparian/wetland vegetation monitoring and adaptive management program that would avoid a significant loss of such vegetation and habitat resources.

Impact Determination 7.3.3.3-5 – Less Than Significant

Mitigation Measure 7.3.3.3-5 – None Required

Impact Consideration 7.3.3.3-6. Potential Interruption of Wildlife Movement

Project implementation is not expected to result in disturbances to local wildlife movement in the Bodle Ditch area. The Bodle Ditch portion of the Project Area is not considered to be of regional importance to wildlife movement because it does not represent critical open space within an otherwise mostly developed area. It represents one possible travel route within a relatively wide linkage area with available alternative travel routes. In this context, impacts to "regional" movement would be considered incremental; however, they are not anticipated to be significant because alternative travel routes exist.

Impact Determination 7.3.3.3-6 – Less Than Significant

Mitigation Measure 7.3.3.3-6 – None Required

Impact Consideration 7.3.3.3-7. Potential Adverse Effects on Sensitive Biological Resources

The majority of the sensitive wildlife species mentioned in Table 7-2 of this document may occur within the region but are not expected to occur within the Project Area due to the lack of suitable habitat. As such, no impacts are expected to occur to these species.

Two sensitive wildlife species were observed within the Project Area: Owens tui chub (hybrid) and Owens sucker. Potential impacts to these fish species are discussed in Chapter 6 – Fisheries and Aquatic Resources.

Several sensitive species (detailed by taxonomic group below) have a potential to occur within the Project Area, as previously mentioned in Table 7-2. Of note, however, the functions and values of the riparian and wet meadow habitat associated with Bodle Ditch are low compared to Mammoth Creek, the Lakes Basin and other natural drainages features in the area and surrounding region.

Two sensitive amphibian species occur in the Project Area. Yosemite toad was observed within the Project Area within a meadow west of Lake Mary which is a known population from the 1970s (Martin 2009). The Mount Lyell salamander has a potential to occur within the Project Area, but was not seen, nor was suitable habitat found during the survey for Yosemite toads. Any potential loss of some vegetation along Bodle Ditch as habitat for these species is not considered to be significant due to the poorly developed functions and values of habitat found there. Moreover, the Yosemite toad was not found nor is expected to occur in Bodle Ditch. The small meadow near the MCWD treatment plant lacks a vernal pool for spawning. Mammoth Meadows at the end of Bodle Ditch also lack a vernal pool for spawning, lacks barriers to migration of the western toad, and has unsuitable water quality due to local geology. A meadow vegetated with willows and vernal pools exists along Bodle Ditch near the Mammoth City Historic Site; however, the pools which are fed by mine drainage (temperature of five to seven degrees Celsius) are too cold to support the spawning and/or development of the Yosemite toad (Martin pers. comm. 2010).

Sensitive bird species with a potential to occur within the Project Area include northern goshawk, bald eagle, yellow warbler, great gray owl, and willow flycatcher. Yellow warbler and willow flycatcher utilize large stands of willow woodland or willow forest which are not present within the Bodle Ditch. In the Project Area, willow flycatchers are only expected to occur in the large willow stands in the vicinity of the U. S. Highway 395 (Perloff, pers. comm. 2009). Bald eagles are not expected to nest or forage within the Bodle Ditch portion of the Project Area (they are known to occur near Twin Lakes). This species utilizes lakes for foraging. The northern goshawk and great gray owl may occur in the periphery of the Project Area and great gray owls may forage in meadow areas; however, the potential incremental loss of some riparian and meadow habitat in the Bodle Ditch area is not expected to threaten regional populations of these species. Since project implementation would not threaten the regional populations of any potential sensitive wildlife species, the potential loss of some habitat represents an incremental and less than significant impact to these species.

Sensitive mammal species with a potential to occur within the Project Area include Mount Lyell shrew, Townsend's western big-eared bat, Sierra Nevada mountain beaver, American marten, and Sierra Nevada red fox. With the exception of the Sierra Nevada red fox, these species are species of concern that are treated as "rare" for purposes of CEQA. Only in the event of relatively large losses of habitat and the depletion of regional and subregional populations would there be a potentially significant impact. Due to the limited riparian and wet meadow habitats associated with Bodle Ditch and the relatively low functions and values it possesses for wildlife, any habitat loss and its effect on these species is not expected to threaten the regional population numbers; therefore, a potential reduction of their habitat represents a less than significant impact to regional populations of these species. In addition, the monitoring and adaptive management element of the Proposed Project Alternative will avoid any net loss of such habitats.

Sierra Nevada red fox is State-listed as threatened and a USFS sensitive wildlife species for the Inyo National Forest. This species has a very low potential to occur within the Project Area; however, suitable habitat (meadows) is present (Perloff, pers. comm. 2009). Because this species

has a very low potential to occur within the Project Area and occurs in a variety of habitat other than meadows, the potential reduction of meadow vegetation is not expected to threaten the long-term prospects for its recovery. Project implementation is not expected to affect the species and its recovery from threatened status.

Many of the sensitive plant species listed in Table 7-3 of this document may occur within the region but are not expected to occur within the Project Area due to the lack of suitable habitat or the Project Area's location outside of the species' range. As such, no impacts are expected to occur to these species.

One sensitive species, subalpine fireweed, was observed onsite, in the area between the point of diversion from Lake Mary and the District's water treatment plant, including an estimated 375 individual plants. This species is a CNPS List 4.3 species and a USFS sensitive plant species for the Inyo National Forest. CNPS List 3 species (plants for which we need more information) and List 4 species (plants of limited distribution – watch list) are not considered to be CEQA issues due to there not being threatened or endangered. The CNNDB has numerous recorded occurrences of subalpine fireweed throughout California including the following:

- 1,000 to 2,000 plants were observed in 2005 approximately 0.8 mile east of Minaret Falls (Mammoth Mountain quad). The plants were observed in a developed recreation area; however, the site appears to have had no use as of 2005.
- 714 plants were observed in 2005 approximately 200 meters south of the Pacific Crest trail crossing of the Lyell Fork of the Tuolumne River, Tuolumne Meadows (Vogelsang Peak quad). The plants were observed near a trail and may be subject to human and livestock trampling.
- Approximately 1,000,000 plants (the population was too large to accurately count) were observed in 2006 one mile southeast of Maiden Valley and one mile north of Bonta Saddle (Sattley quad). No potential threats were listed.
- 1000 plants were observed in 2007 north of Toms Valley and south of the County line (Webber Peak quad). This is an area that is harvested for timber.
- Hundreds of plants were observed in 2006 along Bull Creek near Cabin Meadow northwest of Patterson Mountain (Patterson Mountain quad). Heavy grazing could impact the population.
- Approximately 930 plants were observed in 2006 on both sides of FS Rd. 11S010 near its junction with FS Rd. 11S084 west of Patterson Mountain (Patterson Mountain quad). Over-grazing could threaten the population.
- 2,000 plants were observed in 2005 along FS Rd. 08S069 and 08S099 on both sides of Highway 168 in the vicinity of Grouse Creek south of Huntington Lake (Huntington Lake quad). Potential threats were listed as road maintenance and tree hazard removal.
- 1,000 plants observed in 2005 on the north side of FS Rd. 08S042 just south of its intersection with Coon Creek, northeast of Boneyard Meadow (Huntington Lake quad). Possible threats include OHV use.
- More than 1,000 plants were observed on both sides of FS Rd. 07S034, approximately 0.6 mile south of Gordon Meadow and north of Whiskey Ridge (Shuteye Peak quad). Cattle grazing could impact the population.

Other sensitive species not detected on-site but still retaining a low potential to occur within the Project Area include Bolander's bruchia, Blandow's bog-moss, scalloped moonwort, common moonwort, alkali tansy-sage (not expected in Bodle Ditch), subalpine draba, smooth saltbush (not expected in Bodle Ditch), Lemmon's milk-vetch (not expected in Bodle Ditch), Kern milk-vetch, Hockett Meadows lupine, Father Crowley's lupine, Inyo phacelia, alkali ivesia (not expected in Bodle Ditch), scalloped-leaved lousewort, little bulrush, marsh arrow-grass, Inyo County star-tulip (not expected in Bodle Ditch), small-flowered grass-of-Parnassus, slender-leaved pondweed, and Robbins' pondweed (not expected in Bodle Ditch). These species are all either CNPS List 1B (rare or endangered in California and elsewhere) or List 2 (rare or endangered in California, more common elsewhere) and are considered "rare" by trustee agencies under CEQA.

The species listed in the preceding paragraph (except alkali tansy-sage, smooth saltbush, Lemmon's milk-vetch, alkali ivesia, and Inyo County star tulip which occur in alkali areas not present within Bodle Ditch) have a potential to occur within Bodle Ditch. A sensitive plant survey was conducted by PCR in August 2009 which covered the blooming period of all potential sensitive plant species in Bodle Ditch except scalloped moonwort (blooming period of June to July), Kern milk-vetch (blooming period of June to July), scalloped-leaved lousewort (blooming period of June to July), and slender-leaved pondweed (May to July). Sensitive plant surveys are recommended for the Bodle Ditch area in July of next year to determine the status of these species in the Bodle Ditch riparian and wet meadow habitats. If present in substantial numbers, their loss would be considered a potentially significant impact.

Impact Determination 7.3.3.3-7 – Less Than Significant

Mitigation Measure 7.3.3.3-7 – None Required

7.3.3.4 Environmental Impacts of Bypass Flow Requirements Alternative No. 2 Compared to the Existing Condition

The impacts of the Bypass Flow Requirements Alternative No. 2 compared to the Existing Condition would be the same as those of the Proposed Project Alternative, except that fishery bypass flow requirements for the months of September through February would be somewhat higher. These dissimilarities in fishery bypass flow requirements would not cause any differences in the impacts on wildlife and botanical resources between the two project alternatives. Therefore, the analysis of the Proposed Project Alternative would apply to this alternative. As with the Proposed Project Alternative, impacts with respect to wildlife and botanical resources would be less than significant.

7.3.3.5 Analysis of the Permit 17332 Bypass Flow Requirements Alternative Compared to the Existing Condition

The impacts of the Bypass Flow Requirements Alternative compared to the Existing Condition would be the same as those of the Proposed Project Alternative, except that fishery bypass flow requirements for the months of September through February would be somewhat higher. These dissimilarities in fishery bypass flow requirements would not cause any differences in the impacts on wildlife and botanical resources between the two project alternatives. Therefore, the analysis of the Proposed Project Alternative would apply to this alternative. As with the Proposed Project Alternative, impacts with respect to wildlife and botanical resources would be less than significant.

7.3.3.6 ENVIRONMENTAL IMPACTS OF THE NO PROJECT ALTERNATIVE COMPARED TO THE EXISTING CONDITION

NO PROJECT ALTERNATIVE (EXISTING AND FUTURE LEVEL OF DEMAND) COMPARED TO THE EXISTING CONDITION

The impacts of the No Project Alternative to wildlife and botanical resources, under both existing and future levels of demand, compared to the Existing Condition, would be substantially similar to those of the Proposed Project Alternative. Any dissimilarities in fishery bypass flow requirements would not cause any differences in the impacts on wildlife and botanical resources between the two project alternatives. In addition, under the No Project Alternative, diversions from Lake Mary into Bodle Ditch would occur consistent with the requirements in the current WOCs. Accordingly, no significant impacts would occur to the Bodle Ditch corridor. Therefore, the No Project Alternative's impacts to wildlife and botanical resources along Mammoth Creek and Bodle Ditch would be less than significant.

7.4 MITIGATION MEASURES

No potentially significant adverse impacts would occur to wildlife and botanical resources under any of the alternatives. Therefore, no mitigation measures are required.

7.5 POTENTIALLY SIGNIFICANT UNAVOIDABLE IMPACTS

No potentially significant unavoidable adverse impacts would occur to wildlife and botanical resources under any of the alternatives.

7.6 CUMULATIVE IMPACTS

7.6.1 QUALITATIVE AND QUANTITATIVE ASSESSMENT OF POTENTIAL CUMULATIVE IMPACTS

Pursuant to CEQA, a cumulative analysis is required to determine whether the incremental effects of the Proposed Project Alternative would be expected to be "cumulatively considerable" when considered in combination with the effects of past projects, other current projects, and reasonably foreseeable future projects (PRC Section 21083, subdivision (b)(2)).[1] For analytical purposes of this Draft EIR, the projects that are considered well-defined and "reasonably foreseeable" are described in Chapter 3 – Overview of Analytical Approach (also see Chapter 3 for a full description of the cumulative impact assessment methods). Only projects that could affect wildlife and botanical resources are considered in this section. For this reason, only a limited number of projects that have the potential to cumulatively impact wildlife and botanical resources, particularly riparian resources, in the Project Area are specifically considered

[1] The "*Guide to the California Environmental Quality Act*" (Remy et al. 1999) states that "*…although a project may cause an "individually limited" or "individually minor" incremental impact that, by itself, is not significant, the increment may be "cumulatively considerable", and thus significant, when viewed against the backdrop of past, present, and probably future projects.*" (CEQA Guidelines, Section 15064, subd. (i)(l), 15065, subd. (c), 15355, subd. (b)).

qualitatively in the cumulative impacts analysis. The manner in which the projects listed below could contribute to potentially significant cumulative impacts to wildlife and botanical resources is related to the manner in which they potentially affect flows in Mammoth and Hot creeks, as well as Bodle Ditch. These considerations for the following projects were discussed in Chapter 4 and are not repeated here.

- 2005 District Urban Water Management Plan
- 2007 Town of Mammoth Lakes General Plan Update
- MCWD 2008 Municipal Service Review And Sphere of Influence Recommendation
- USFS Applications for Storage at Mamie and Twin Lakes
- Suggested Declaration of Mammoth Creek as a Fully Appropriated Stream System

Water demands associated with maximum buildout projections extending to 2025 identified in the above-mentioned documents have been incorporated into the quantitative component of the fisheries and aquatic resources cumulative impact analyses provided in Chapter 6. Model output for the comparison of the Proposed Project Alternative Future Level of Demand relative to the Existing Condition is presented in Appendix D-6. Potential cumulative impacts to riparian wildlife and botanical resources can be identified and characterized using the same quantitative methods, impact indicators and significance criteria as those identified for the direct impact analyses discussed in Chapter 6 – Fisheries and Aquatic Resources.

Cumulative Impact Consideration 7.6.1-1. Potential to Change Mammoth Creek Flows Resulting in a Reduced Ability to Sustain Riparian Vegetation and Wildlife Habitat

Based on: (1) the analysis of the magnitude, frequency, duration, timing and rate of change of hydrologic conditions at the OMR and OLD395 gages; (2) the flow variability at the OMR and OLD395 gages, and (3) the frequency and duration of channel maintenance and flushing flows, potential impacts to riparian vegetation and wildlife habitat associated with flows in Mammoth Creek are less than significant under the Proposed Project Alternative Future Level of Demand relative to the Existing Condition.

Cumulative Impact Determination 7.6.1-1 – Less than Significant

Mitigation Measure 7.6.1-1 – None Required

Cumulative Impact Consideration 7.6.1-2. Potential Loss of Riparian Wildlife and Botanical Resources Along Bodle Ditch

Bodle Ditch is a man-created ditch that was constructed in the late 1870s, and it does not support significant well developed riparian and wet meadow habitats and it possesses relatively low functions and values for wildlife**.** Moreover, a RWMAMP program has been incorporated into the Proposed Project to provide adaptive management of riparian wildlife and botanical resources in the event an unanticipated loss of such resources occurs due to the cessation of diversions from Lake Mary into Bodle Ditch. Therefore, no significant loss of such resources is expected.

Cumulative Impact Determination 7.6.1-2 – Less Than Significant

Mitigation Measure 7.6.1-2 - None Required

No potentially cumulatively significant adverse impacts to wildlife and botanical resources would occur. Thus, the Proposed Project Alternative does not have an incremental effect that is "cumulatively considerable".