



Natural Environment Study

Lee Vining Rockfall Safety Project

Located north of the town of Lee Vining

06-MNO-395-52.3/53.7

EA 09-33500

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STATE OF CALIFORNIA
Department of Transportation

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Summary

Project Purpose, Need, and Description: The California Department of Transportation (Caltrans) proposes to minimize the rockfall from the existing cut slopes between post mile (PM) 52.3 and 53.7 on US Highway 395 near Lee Vining in Mono County, California. Rockfall in this area has resulted in traffic accidents in the past and continues to pose a risk to the travelling public and maintenance personnel.

The purpose of the Lee Vining Rockfall Safety Project is to minimize the rockfall from the existing cut slopes, improve safety, and reduce maintenance personnel's exposure. Six discrete cut slopes (Numbered 1 through 6 from south to north) have been identified within the project limits, all on the west (up-slope) side of US 395. These slopes will be treated with a variety of methods to stabilize them, reduce rockfall, and prevent any falling rock from rolling out onto the highway. These methods include cutting back the steepness of the slopes, removing loose surface rock, revegetating the slopes to stabilize loose soil, and installing two different methods of double-twisted wire mesh (DTWM): a drapery system and an anchored cable mesh system.

There are two slightly different treatment options proposed, as well as a 'No Build' alternative that would not address the purpose and need of the project. The work is expected to take 80 to 100 days to accomplish. Rock and soil removed during excavation will be hauled to an approved, contractor-designated site. Depending on the treatment option selected, approximately 5 or 6 acres of right-of-way will need to be acquired from the US Forest Service.

Habitat Effects: The vegetation types within the project area are primarily pinyon pine forest, big sage brush, and scattered clumps of riparian willow/deciduous vegetation on the east side of US 395. Treatment Option 1 would temporarily impact 2.2 acres and Option 2 would temporarily impact 2.825 acres of pinyon pine forest. Both options would also temporarily impact 0.412 acres of the big sage brush habitat type. The areas of slopes #4, 5, and 6 covered by anchored cable mesh and the DTWM drapery would constitute a direct impact to 2.26 acres of steep, rocky slopes. Stabilizing these slopes would facilitate revegetation over time. The 0.49 acres of slopes # 1, 2, and 3 undergoing slope reduction and revegetation would also recover habitat suitability over time, and thus all impacts would be considered temporary. The pinyon pine forest and big sage brush vegetation do not provide habitat for listed species in the project area.

Temporary disturbance impacts due to noise, vibration, exhaust, dust, and movement of personnel and equipment could affect species occurring within three clumps of riparian willow/deciduous tree vegetation that are located directly across US 395 from slopes #3, 4 and 6. While these habitats are not expected to be degraded by the proposed construction, special status species occurring within those areas may experience some level of disturbance due to construction-related activities. The work

on these slopes is expected to take from one to two weeks to accomplish, so this disturbance will be of short duration.

Special Status Species Effects: Three special-status species of wildlife have the potential to undergo disturbance-related impacts from this project: the willow flycatcher (*Empidonax traillii*), the long-eared owl (*Asio otus*), and the yellow warbler (*Dendroica petechia brewsteri*). All three species inhabit the riparian willow habitat adjacent to the east side of US 395, across from three slope treatment areas, and thus may be exposed to short-duration disturbance impacts described in the previous paragraph. The yellow warbler and long-eared owl may nest in the willow habitat, but the willow flycatcher is only expected to forage there as these willow clumps lack the required characteristics for nesting.

A total of 16 special-status plant species have a potential to occur in the project area. None are federally or state listed. Of these, 7 species have a very low probability of occurrence due to marginal habitat, and 9 are possible due to the habitat suitability in the project area. While none of these species were located during botanical surveys in 2011, pre-construction surveys of the project impact area will be performed to detect and protect these species.

Permits Required: No permits are required for this project due to the lack of impacts to special-status habitat, no impacts to listed species, and the lack of jurisdictional waters/wetlands within the project area.

Minimization Measures: To minimize potential disturbance impacts, pre-construction surveys will be performed and biological monitors will be present during construction to ensure that nesting or foraging special-special status species are not disturbed by project activities. Temporary or seasonal construction restrictions can be implemented as needed to protect nesting special-status species. Pre-construction botanical surveys will also be performed to locate and protect potential special-status plants. The specific minimization measures are as follows:

1. Restrict construction activities until after the breeding season when it is unlikely that special-status birds will be in the area. This measure would also allow other nesting birds time to fledge young, thus complying with the Migratory Bird Treaty Act (MBTA). A seasonal work restriction between March 1 and August 15, or preconstruction bird surveys of the project site, should be adequate to protect nesting birds.
2. Perform preconstruction surveys prior to construction activities on a weekly basis. This would allow construction to start earlier than with measure 1, however, should nesting birds be identified, construction disturbances within that area may be delayed until subsequent surveys indicated that nesting birds were no longer present.
3. Biological monitoring of the willow stands would provide for the detection of nesting birds and determine if individuals are being negatively impacted by

construction-related disturbance. Construction may be halted on a temporary basis until the nesting birds are no longer in the area.

4. No construction personnel or equipment will be allowed to enter the willow habitat during the course of the project.
5. Pre-construction botanical surveys of the project impact areas will be performed.

Mitigation Measures Since no special-status habitats, or habitat for special-status species will be impacted by the project, no compensatory mitigation is proposed.

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List of Abbreviated Terms

asl	Above sea level
BMP	Best Management Practices
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
cm	centimeter(s)
CNDDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CWHR	California Wildlife-Habitat Relationships
dbh	Diameter at breast height (~4 ft)
DTWM	Double-twisted wire mesh
ESL	Environmental Study Limit
FHWA	Federal Highway Administration
ft	foot/feet
FWS	Fish and Wildlife Service
FY	Fiscal Year
m	meter(s)
mi	mile(s)
mm	millimeter(s)
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PDT	Project Development Team
PM	post mile
PSR	Project Study Report
RWQCB	Regional Water Quality Control Board
SHOPP	State Highway Operation and Protection Program
TNW	Traditional Navigable Water
USACE	United States Army Corps of Engineers
USFS	United States Forest Service
WIFL	willow flycatcher

Chapter 1. Introduction

This project proposes to reduce rockfall resulting from existing cut slopes on the west side of U.S.395 along the southwest side of Mono Lake, just north of the community of Lee Vining.

The State of California, Department of Transportation, is proposing to construct a solution that would reduce rockfall along U.S. Highway 395 (U.S. 395). The proposed project begins at PM 52.3, south and ends at PM 53.7. The primary purpose of the project is to improve safety for the traveling public by reducing the quantity of rockfall that would be expected to reach the road. This report includes one formal “build” alternative but analyses 2 design options with an overall cost between \$3,184,000 and \$5,316,000 (Fiscal Year (FY) 2012). This project will require new right of way from adjacent public lands; however, there will be no right of way costs. The project is proposed to be funded in the 2014 State Highway Operation and Protection Program (SHOPP) Collision Severity Reduction Program and is scheduled to begin construction in FY 2014/2015.

1.1. Project History

This project was previously part of the Mono Lake Shoulder Widening project, the primary components of which included shoulder widening, horizontal curve correction, vertical curve correction, construction of paved pullouts, replacement of guardrail, and mitigation of rockfall. Rockfall issues on Highway 395 along the Mono Lake corridor had been previously identified in a memorandum dated October 7, 1997, *Subject: Review of Cut Slopes and Preliminary Rockfall Recommendations*.

Initially the Mono Lake Shoulder Widening project received support from the Local Transportation Commission. As plans for the project were being formulated opposition developed. The concerns dealt primarily with the potential visual impacts of fill slopes, the construction of retaining walls, rockfall mitigation features, impacts on migratory birds, introduction of non-native botanical species, and the potential impact of fill slopes encroaching on future shoreline habitat.

Throughout the planning and development of the Mono Lake Shoulder Widening project extensive input was received from the community, local agencies, and

environmental organizations. A public participation plan was developed for the project that included public meetings and a public hearing. Ultimately, however, consensus was not reached and further efforts to continue planning and designing of the project were abandoned. On June 25, 2007 a Project Study Report (PSR) was approved that allowed the Rockfall Safety project to be programmed for support as an amendment in the 2008 SHOPP.

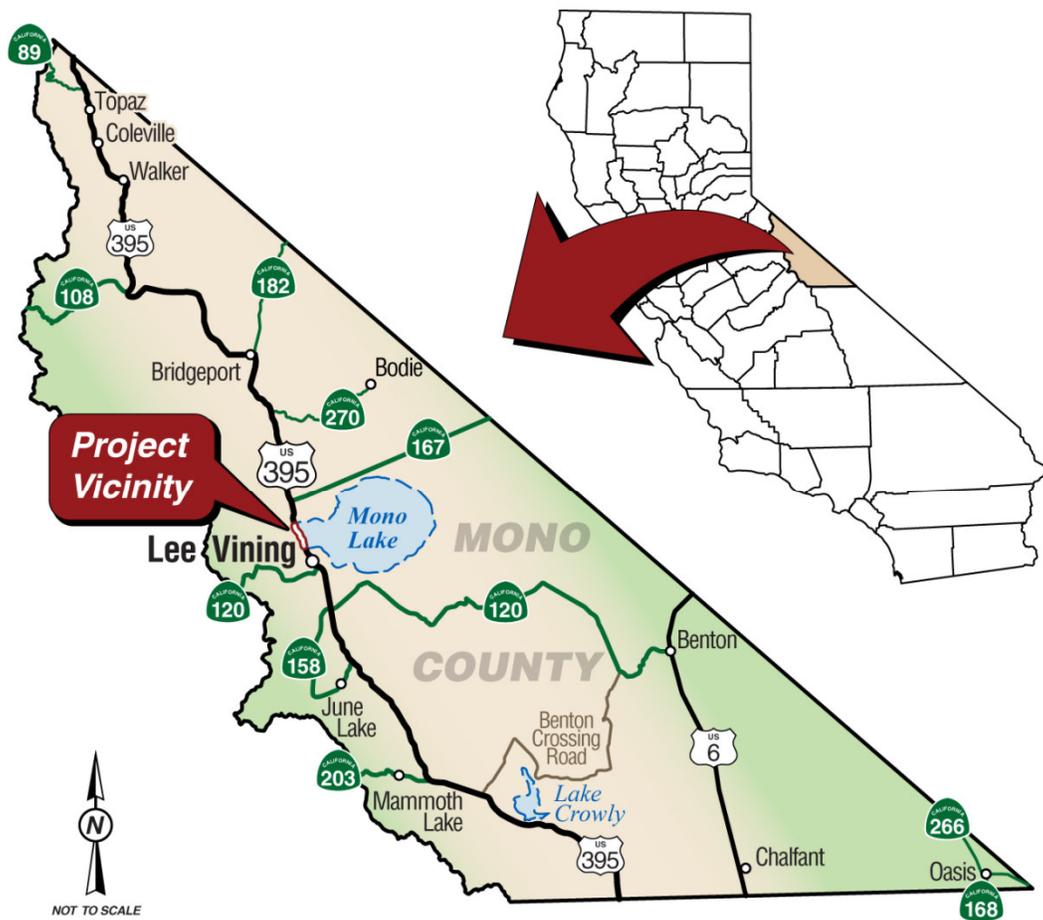
1.2. Project Description

The California Department of Transportation (Caltrans) proposes to minimize the rockfall from the existing cut slopes between post mile (PM) 52.3 and 53.7 on US Highway 395 near Lee Vining in Mono County, California.

The purpose of this project is to minimize the rockfall from the existing cut slopes, improve safety and reduce maintenance personnel’s exposure. Six discrete cut slopes have been identified between PM 52.3 and PM 53.7 (see Table 1).

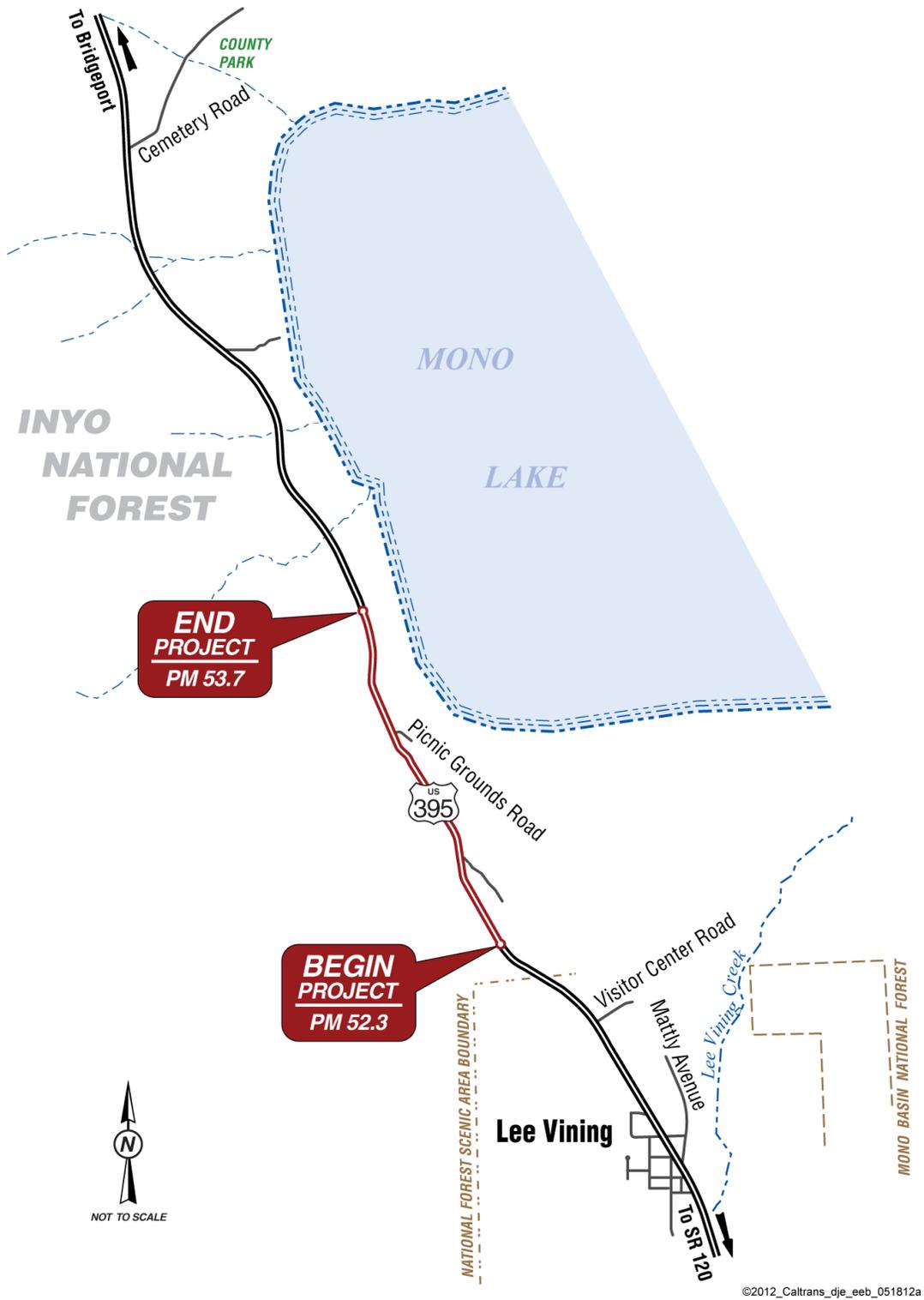
Slope Number	Post Miles	Slope Area (square feet)	Maximum Height (feet)	Rockfall Hazard Rating	Comments
1	52.34 to 52.43	7,400	37	92	Rock 8 inches to 2 feet in size
2	52.50 to 52.54	7,400	36	87	Rock 6 inches to 1.5 feet in size
3	52.91 to 52.97	6,530	35	69	Rock 8 inches to 2 feet in size
4	53.03 to 53.23	42,300	22-85	190	Rock 8 inches to 2 feet in size
5	53.28 to 53.44	41,000	116	262	Rock 8 inches to 2 feet and greater in size
6	53.51 to 53.62	15,300	58	567	Least amount of site distance and containment area, rock 18 inches to greater than 4 feet in size
Notes: 1. Areas and height measurements are approximate values of the existing condition. The total area of the 6 slopes combined is approximately 2.75 acres. 2. The larger the RHR value the higher the probability of rockfall and the more hazardous of a slope.					

The existing cut slopes are unstable and present a reduced level of safety to the traveling public due to falling rock that may reach the shoulders and traveled way. To protect the traveling public, Caltrans District 9 Maintenance personnel report they regularly remove rockfall from the highway, more frequently during the spring and periods of rainy weather. The steepness of the slopes and lack of vegetation contributes to their instability, particularly on slopes 5 and 6.



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Figure 1 Project Vicinity Map



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Figure 2 Project Location Map

Five accidents in the last 10 years (three in the last five years) were due to vehicles colliding with rocks or swerving to avoid rocks on the roadway for this section of US 395.

The July 2008 PSR presented two viable build alternatives. Each alternative was subdivided into two phases. The 1st phase proposed work on the higher risk slopes 4-6 and the 2nd phase proposed work on slopes 1-3. Alternative 1 proposed laying back (grading) slopes 1-3 and installing an anchored mesh/net system on slopes 4-6.

Alternative 2 proposed placing a draped mesh/net on slopes 1-3 and an anchored mesh/net on slopes 4-6. Scaling, revegetation and installation of erosion control blankets were also proposed for each alternative.

The alternatives have been refined since the PSR. One build alternative and one no-build alternative are considered for this project. Two design options are considered within this Draft Project Report for the build alternative. The impacts created by the design options were not distinct enough to warrant separate analysis in the Draft Environmental Document, therefore they were not included as separate alternatives. If the "build" alternative is approved it will be with a Project Development Team (PDT) recommendation of which design option or mix of design options should be designed.

The following are the alternatives proposed for this project:

Alternative 1- Build. Design Option 1:

Slopes 1 & 2: These slopes are proposed to be laid back to a less steep angle of 1.5:1 (horizontal to vertical). A new dike would be added to the toe of slope to replace the existing dike, which would be removed, to maintain the flow line. Slope rounding would be done at the top of the new slope to reduce erosion of the hinge point and to enhance the visual aesthetic. Existing topsoil collected prior to regrading the slope would be spread over the finished slope. Erosion control consisting of either a native seed mix and/or hydroseed along with an appropriate erosion control blanket would be added to the finished slope.

Slope 3: This slope is proposed to receive a vegetated solution applied to the existing slope. Under this alternative the existing slope would not be laid back to a lesser angle as proposed for slope 1 and slope 2, but would require rounding the top of the slope and rock scaling of the slope itself. After the top has been rounded and the surface rock scaled a number of vegetative treatments could be incorporated to help

reduce the surface erosion. At a minimum, native seed mix along with an erosion control blanket would be applied. Additional treatments such as applying a hydroseed mix and/or incorporating a high carbon supplement to the surface as applicable would be considered. A new dike could replace the existing deficient dike to prevent under cutting of the slope and maintain the flow line.

Slope 4: The southern half of this slope would receive a hybrid system composed of double twisted wire mesh (DTWM) while the northern half would receive DTWM drapery. Erosion control such as hydroseeding may be applied to the surface to promote revegetation and act as a Best Management Practice (BMP).

Slope 5: This slope would receive a hybrid system composed of cable mesh with DTWM. As an option to enhance the visual aesthetic DTWM could be placed over the cable mesh instead of beneath it. Erosion control such as hydroseeding may be applied to the surface to promote revegetation and act as a BMP.

Slope 6: Because of the limited sight distance for southbound travelers compounded by the limited containment area below the slope for rockfall debris, a hybrid or drapery system is deemed inappropriate here. Instead, this slope would receive an anchored cable mesh system with DTWM. As an option to enhance the visual aesthetic DTWM could be placed over the cable mesh instead of beneath it to provide a uniform look with other DTWM drapery installed on Slope 4. At the minimum, erosion control consisting of native seed mix or hydroseeding would be applied beneath the cable mesh system along with an erosion control blanket to promote revegetation and act as a BMP.

For *slopes 4-6* rock scaling will precede any placement of drapery or anchored mesh in order to remove any unstable surface rock from the slope. In addition to the rock scaling, localized grading within the eroding portion of the slope may be required to remove any surface irregularities to promote improved contact between the slope surface and the mesh. For drapery installations, large keystone rocks on the slope will be left in-place and either pinned or lashed down instead of excavated. For anchored mesh, large keystone rocks would be left in-place undisturbed below grade, but the portion above grade would be trimmed to within the tolerances specified in the standard specifications for earthwork. The existing available dirt shoulder would be uniformly graded to a back slope and angled towards the toe of slope of approximately 5 percent. This would be done to contain any loose rock that makes its way down the slope and without widening the existing catchment area. A dike could

be added to the toe of slope to prevent under cutting of the slope. Slope rounding would be performed where the actively eroding slope and the uphill non-eroding slope meet, and at any top of existing cuts which are not rounded. This would reduce surface erosion and prevent erosion of the hinge point.

Rock and soil removed during excavation will be hauled to an approved contractor-designated site.

Right of way from the US Forest Service will be required at all slopes for this option. An estimated total of 5.0 acres would be required.

Design Option 2:

Slopes 1, 2, and 3: These slopes would receive the same treatments proposed under Design Option 1 above.

Slope 4: This slope would receive an anchored DTWM system. At the minimum, erosion control consisting of native seed mix or hydroseeding would be applied beneath the anchored DTWM system along with an erosion control blanket to promote revegetation and act as a BMP.

Slopes 5 and 6: These slopes would receive an anchored cable mesh system with DTWM. As an option to enhance the visual aesthetic DTWM could be placed over the cable mesh instead of beneath it to provide a uniform look with other DTM drapery installed on Slope 4. At the minimum, erosion control consisting of native seed mix or hydroseeding would be applied beneath the cable mesh system along with an erosion control blanket to promote revegetation and act as a BMP.

Because of a deep, narrow gully on Slope 5, additional grading beyond rock scaling may be required in order to place the cable mesh system. This would create a larger visible area of disturbance compared with what exists now.

For *Slopes 4, 5, and 6* rock scaling would precede any placement of anchored mesh in order to remove any unstable surface rock from the slope. In addition to the rock scaling, localized grading within the eroding portion of the slope may be required to remove any surface irregularities to promote improved contact between the slope surface and the mesh. For anchored mesh, large keystone rocks would be left in-place undisturbed below grade, but the portion above grade would be trimmed to within the tolerances specified in the standard specifications for earthwork. The existing available dirt shoulder would be uniformly graded to a back slope and angled towards

the toe of the slope at approximately 5 percent. This will be done to contain any loose rock that makes its way down the slope without widening the existing catchment area. A dike could be added to the toe of slope to prevent undercutting of the slope. Slope rounding would be performed where the actively eroding slope and the uphill non eroding slope meet and at any top of existing cuts which are not rounded. This would reduce surface erosion and prevent concentrated surface flows.

Rock and soil removed during excavation will be hauled to an approved, contractor designated site.

Right of way from the US Forest Service will be required at all slopes for this option. An estimated 6 acres total would be required.

Construction:

For both construction options, an estimated 80 to 100 work days would be required to complete the project. During construction, the south-bound lane would be closed to traffic. Electric traffic signals would regulate alternating flows of traffic in the remaining open lane. Construction equipment would be staged at an existing highway maintenance yard in the town of Lee Vining.

Alternative 2 - No Build:

The "No Build" alternative would leave the slopes intact and unimproved. This alternative would not address the project purpose and need.

Chapter 2. Study Methods

This section discusses the methods utilized to determine the potential for special-status species or their habitat to be present within or adjacent to the projects' Environmental Study Limit (ESL). General habitat assessments and observations of wildlife were performed by URS biologists within and adjacent to the ESL during three field visits in June, July, and August of 2011. Surveys performed were: a greater sage-grouse habitat assessment, protocol-level willow flycatcher surveys, protocol-level botanical surveys, general wildlife surveys, and a U.S. Army Corps of Engineers (USACE) jurisdictional wetland delineation. The data provided in this report was taken from biological studies conducted in spring of 2007 and spring/summer of 2008, as well as information obtained in the literature reviews, as described below in Section 2.2.

2.1. Regulatory Requirements

Clean Water Act

The USACE Regulatory Branch regulates activities that discharge dredged or fill materials into the "Waters of the U.S." (WOUS) under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. This permitting authority applies to all WOUS.

Section 401 of the Clean Water Act provides the Regional Water Quality Control Board (RWQCB) with the authority to regulate, through a Water Quality Certification, any proposed federally permitted activity that may affect water quality.

Development allowed within any identified potentially jurisdictional areas in the ESL may be subject to requirements under Sections 401 and 404 of the Clean Water Act.

Executive Order 11990

Executive Order 11990 directs federal agencies to (1) minimize the destruction, loss, or degradation of wetlands and (2) preserve and enhance the natural and beneficial values of wetlands in carrying out the agencies' responsibilities.

Migratory Bird Treaty Act

Pursuant to the Migratory Bird Treaty Act of 1918, federal law prohibits the taking of migratory birds, their nests, or their eggs (16 United States Code, Section 703). In 1972, the Migratory Bird Treaty Act was amended to include protection for migratory birds of prey (e.g., raptors).

California Endangered Species Act

Pursuant to the California Endangered Species Act and Section 2081 of the California Fish and Game Code, an Incidental Take Permit from the California Department of Fish and Game (CDFG) is required for projects that could result in the take of a State listed threatened or endangered species. Under the California Endangered Species Act, “take” is defined as an activity that would directly or indirectly kill an individual of a species. A Section 2081 permit is issued when a project is consistent with an existing Biological Opinion.

Porter-Cologne Act

The Porter-Cologne Act provides the State with very broad authority to regulate “waters of the State” (which are defined as any surface water or groundwater, including saline waters).

California Fish and Game Code

Sections 1600–1616 of the California Fish and Game Code protect waters of the State. Activities of State and local agencies as well as public utilities that are project proponents are regulated by the CDFG under Section 1602 of the code; this section regulates any work that will: (1) substantially divert or obstruct the natural flow of any river, stream, or lake; (2) substantially change or use any material from the bed, channel, or bank of any river, stream, or lake; or (3) 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. For project activities that may affect stream channels and/or riparian vegetation regulated under Sections 1600 through 1603 (these activities have been described above), CDFG authorization is required in the form of a Streambed Alteration Agreement.

Unlawful Take or Destruction of Nests or Eggs

Section 3503.5 of the California Fish and Game Code specifically protects nests and eggs of birds of prey.

Section 3513 of the California Fish and Game Code duplicates the federal protection of migratory birds and prohibits taking and possession of any migratory nongame bird as designated in the Migratory Bird Treaty Act.

The following agencies have jurisdiction within the project area:

The U.S. Fish and Wildlife Service is responsible for all federally listed plant and animal species that may occur in the project area under the Federal Endangered Species Act of 1973 (16 U.S. Code 1531-1543). In addition, the U.S. Fish and Wildlife Service enforces the Migratory Bird Treaty Act (16 U.S. Code 703-711), which is responsible for the protection of migratory birds.

The California Department of Fish and Game is responsible for all state listed plant and animal species that may occur within the project area under the California Endangered Species Act (Fish and Game Code §Sections 2050-2116). The California Department of Fish and Game also acts as a trustee agency under the California Environmental Quality Act. In addition, the California Department of Fish and Game is responsible for determining impacts to lakebeds or streambeds and issuance of Streambed Alteration Agreements (Fish and Game Code §Section 1600).

The U.S. Army Corps of Engineers is the federal agency that oversees Section 404 of the Clean Water Act, which regulates activities that result in the discharge of dredged or fill material into waters of the U.S. including wetlands.

2.2. Studies Required

The area of the Environmental Study Limit (ESL) was defined as the project impact area – the area to be directly affected – plus adjacent areas that may be indirectly affected by the proposed project. In-office research of agency database queries included Mono County as well as the following US. Geological Survey 7.5 minute quadrangles: *Lee Vining, Mt. Dana, Dunderberg Peak, Twin Lakes, Lundy, Big Alkali, Tioga Pass, Bodie and Negit Island*. Databases researched were the California Natural Diversity Database (CNDDDB), California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Plants, 7th Edition, the U.S. Fish and Wildlife Service (FWS) Official Online Species Lists, and The National Wetland Inventory (NWI) dataset (USFWS 2009). Additional information was gathered on species accounts from the CDFG California Roadkill Observation System records, and academic research papers. In addition, high-resolution aerial photographs and

topographical maps of the project vicinity were examined. See Appendix A for all database results.

Based on in-office research, willow flycatcher (*Empidonax traillii*) and greater sage-grouse (*Centrocercus urophasianus*) were identified as special-status species that required protocol level surveys and/or specific habitat assessments. Other species were identified by Caltrans or by public comment as having importance to the local community and interest groups (such as the Mono Lake Committee). The latter category did not require species-specific protocol level surveys or habitat assessments, but these species received a greater emphasis during general biological surveys. Protocol Botanical surveys were required as a result of database queries that identified sixteen rare plant species with potential to occur within the ESL. The use of the NWI data set and high-resolution aerial photographs to evaluate existing landforms, vegetation, hydrology, and soil conditions identified potential wetlands and other waters of the U.S. within the ESL, therefore a jurisdictional wetland delineation was required.

Willow Flycatcher (*Empidonax traillii*)

Willow flycatcher surveys followed the CDFG A Willow Flycatcher Survey Protocol for California (Bombay, et. al. 2003). This protocol requires two survey visits in one year. One visit must occur in survey period 2 (June 15 to 25) and the second must occur either in survey period 1 (June 1 to 14) or survey period 3 (June 26 to July 15). These surveys must take place at least 5 days apart to be counted as separate surveys. For this project, the first survey visit on June 22 to 23 corresponded to survey period 2, and the second visit on July 12 to 14 corresponded to survey period 3.

The surveys were modified to exclude the playing of recorded willow flycatcher calls; the survey was accomplished by passive observation and listening only. The survey was thus limited to a “presence/absence” method of passive observation of habitat stands during the early morning, starting at 05:30, for approximately one hour, and listening for the characteristic “fitz-bew” and “whit” calls. The area was surveyed during early morning hours when willow flycatcher males were most likely to be vocalizing. As needed, biologists repositioned their survey observation points every 15 minutes to ensure complete coverage of the habitat stand. The survey was concluded at 06:45 when the “dawn chorus” began to taper off. All bird species observed or heard during the survey were recorded. URS biologists also obtained photographs to assist in the confirmation of species identification with a Canon T1i

digital camera equipped with a Canon 100-400mm f4.5-5.6 lens. Vehicle noise and traffic safety considerations precluded surveying from the edge of US 395.

Greater Sage-Grouse (*Centrocercus urophasianus*)

The greater sage-grouse habitat assessment survey protocol followed guidelines from Monitoring of Greater Sage-grouse Habitats and Populations (Connelly, et. al. 2003), modified to exclude the taking of actual measurements of habitat attributes.

Visual observations were made of vegetation relative density and canopy cover, while concurrent protocol level botanical surveys took data on habitat type, canopy cover, species composition and associated understory vegetation. Specific measurements of any habitat attribute were not taken. Habitat areas were outlined and noted on aerial photographs.

Data on current sage-grouse habitat use and occurrence in the region was gathered from research papers including Ecological Factors Influencing Nest Survival of Greater sage-grouse in Mono County, California (Kolada, et. al. 2009), Ecology of greater sage-grouse in the Bi-State Planning Area Final Report (Casazza, et. al. 2009), and Greater Sage-Grouse Conservation Plan for Nevada and Eastern California (Nevada Dept. of Wildlife, 2004).

Portions of the ESL that the survey team did not have safe access to (primarily due to steep slopes) were observed visually and with the aid of 8x40 binoculars. Biologists obtained site photographs with a Canon T1i digital camera equipped with a Canon 100-400mm f4.5-5.6 lens.

Botanical Surveys

Botanical surveys were conducted by walking the entire study area, following the protocol by the California Department of Fish and Game – Protocols for Surveying and Evaluating Impacts to Special Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities, dated November 24, 2009.

Protocol standards (CDFG 2009) state that for medium diversity grassland with moderate terrain, one person-hour per eight acres, per survey date is needed for a comprehensive field survey. For this survey effort, on average it took one person-hour, per five acres, per survey date, not including time spent by the botanist to

identify plants in the field and in the office. All plant taxa observed were recorded. See Appendix B for the complete list of plant species observed during surveys.

Sixteen rare plant species were identified to have potential to occur within the study area. Reference populations were observed (if accessible and available) during appropriate blooming periods. Rare plant reference populations that were visited but yielded no results in finding the plant species included *Botrychium lunaria*, *Mimulus glabratus* ssp. *utahensis*, *Streptanthus oliganthus*, *Thelypodium integrifolium* ssp. *complanatum*, and *Viola purpurea* ssp. *aurea*.

Species where plant reference populations were not observed included *Allium atrorubens* var. *atrorubens*, *Boechera cobrensis*, *Camissonia boothii* ssp. *boothii*, *Cusickiella quadricostata*, *Lupinus duranii*, *Lupinus pusillus* var. *intermontanus*, *Mentzelia torreyi*, *Phacelia monoensis*, *Silene oregana*, *Tetradymia tetrameres*, and *Thelypodium milleflorum*. Known locations of these species were on private land and survey personnel were not able to gain access for observation.

Wetland Delineation

The delineation of jurisdictional waters (including wetlands and other waters of the U.S.) followed the methods described in the Corps of Engineers Wetlands Delineation Manual (1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (2008), and The Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley 2008).

The field delineation was conducted from south to north by traveling along US 395. Existing landforms, vegetation, hydrology, and soil conditions were evaluated to identify potential wetlands and other waters of the U.S. within the Study Area. All aquatic features were further scrutinized based upon potential connectivity to the historical extent of Mono Lake, the closest potential traditional navigable water (TNW). Delineators did not have full rights of entry for all properties between the ESL and Mono Lake during the 2011 survey, therefore binoculars and aerial photos were used to examine connectivity between aquatic features in the ESL and the edge of Mono Lake. Biologists examined each visible culvert along US 395 and its respective inflow and outflow channel forms to see whether the feature draining through the culvert could have a significant nexus with Mono Lake, a potential TNW. All drainages and culverts observed in the ESL were mapped by walking their extent within the ESL with a GPS unit. Field notes and photographs were also taken to

record information about the feature. Potentially jurisdictional drainages were described using the data form from the OHWM Field Guide where necessary. Background research was conducted to determine the closest TNW to the study area and the jurisdictional status of any other large water features in the vicinity. During the site visit, paired data points were recorded in suspected wetland areas and in corresponding upland areas to compare hydrology, soils and vegetation in these locations. Test pits were dug at each point to determine hydrology and soil conditions. Locations of wetland data points were recorded by hand on aerial photographs and then again using a handheld Trimble GeoXH Global Positioning System (GPS) unit with sub-meter accuracy. After evaluating the hydrology, soils, and vegetation, the boundaries of wetlands were extrapolated and mapped using a GPS unit by following topographic contours, wetland vegetation boundaries, and clear hydrologic boundaries. Data was collected and mapped in California Coordinate System (State Plane) Zone III, NAD 83.

2.3. Personnel and Survey Dates

While Ronald Cummings was assigned as the lead biologist for the willow flycatcher survey and sage-grouse habitat assessment, Haley Smith the lead botanist, and Galen Peracca the lead wetlands ecologist, each member of the survey team assisted to some degree with every survey task as needed (Table 2).

2011 Survey Date	Personnel	Tasks Performed
June 22-24	Ronald Cummings Mark Wilson Haley Smith	General Biological Survey Willow Flycatcher Survey Sage-Grouse Habitat Assessment Botanical Survey
July 12-14	Ronald Cummings Mark Wilson Haley Smith Galen Peracca	General Biological Survey Willow Flycatcher Survey Sage-Grouse Habitat Assessment Botanical Survey Wetland Delineation
August 8-11	Emily Magnaghi Mark Wilson	Botanical Survey

Haley Smith – a botanist with more than 3 years experience with special status plant surveys and identification of sensitive and federally- and state-listed plant species, vegetation sampling, and habitat assessment. Her areas of expertise include California and Nevada special-status desert plant surveys with identification of over 250 species and desert vegetation community assessments.

Emily Magnaghi – has 11 years of experience in plant identification and vegetation surveys in California (Sierra, Mono, Kern, Los Angeles, Santa Clara, San Mateo, San Francisco, and Marin counties), Michigan, and Madagascar. This included five years of experience with habitat restoration in the San Francisco Bay Area with the Golden Gate National Parks Conservancy, and four years of experience working with botanical specimens at the California Academy of Sciences.

Ronald Cummings – is a URS Corporation senior wildlife biologist with 20 years of experience, has participated in 6 seasons of willow flycatcher surveys on the Sierra National Forest when employed as a District Wildlife Biologist with the U.S. Forest Service between 1992 and 2006. He received willow flycatcher survey protocol training, conducted by the U.S. Forest Service, at the Kern River Preserve, Lake Isabella, California, in the late 1990s.

Mark Wilson – a URS Corporation biologist has 5 years of experience in habitat assessments, special-status species surveys, and permitting.

2.4. Agency Coordination and Professional Contacts

April 1, 2011. URS biologist Lori Bono contacted (by email) biologist Debra Hawk from the Department of Fish and Game to inform her of the proposed project and schedule a field review of the project site to address any potential concerns or questions the Department of Fish and Game may have prior to the initiation of the biological surveys. Ms. Hawk responded and confirmed that a field review of the project site on April 6, 2011 would be acceptable.

April 4, 2011. Lori Bono contacted (by email) Debra Hawk to confirm the field review scheduled for April 6, 2011.

April 5, 2011. Debra Hawk contacted Lori Bono (by email) to inform her of the adverse weather conditions that were forecast for April 6, 2011 and suggested a postponement of the field review. Lori Bono responded (by email) that the

postponement of the field review was agreeable based on the large amount of snowfall and high winds that were forecast for the following day.

May 19, 2011. Debra Hawk forward Lori Bono an email from biologist Timothy Taylor with the Department of Fish and Game which informed her that due to the late snowfall and extended winter season, (with the exception of a few forbs on southern facing slopes) the plants in the Lee Vining area had not begun blooming yet and he estimated that their blooming period would be delayed until late June or early July.

June 2011. Email/Phone communication. Lee Ann Murphy, USDA Forest Service-Inyo National Forest biologist, shared with Lori Bono the only known Willow Flycatcher nesting area near Lee Vining is within Rush Creek.

June 16, 2011. Caltrans Right-Of-Way Agent Lora Rischer notified (by letter) the Bureau of Land Management that Caltrans would be conducting surveys within the proposed project area.

July 15, 2011. Email communication. Chris McCreedy sharing knowledge of multiple observations of willow flycatcher where SR 395 bisects the northern shore of Mono Lake

July 18, 2011. Phone communication. Lee Ann Murphy, USDA Forest Service-Inyo National Forest biologist was consulted by URS biologist Ronald Cummings regarding sage-grouse and its habitat.

2.5. Limitations That May Influence Results

The Sage Grouse habitat assessment was limited by inaccessibility to portions of the ESL. Areas were inaccessible to the survey team due to steep slopes. Slopes were observed visually and with the aid of 8x40 binoculars. Biologists obtained site photographs with a Canon T1i digital camera equipped with a Canon 100-400mm f4.5-5.6 lens.

An unusually late season winter weather and snow fall may have a broad affect on wildlife and plant species such as delaying blooming periods and changing wildlife migration patterns. A heavy snowpack prevented biologists from performing willow flycatcher surveys during the first survey period (June 1 to June 14).

Botanical surveys may confirm the presence of a rare plant on a site, but negative results do not guarantee that a rare plant species is absent. However, for practical

purposes, surveys that adhere to the special-status native plant populations and natural communities protocol provide reasonable evidence that the specified plant taxa do not occur in the survey area (Cypher 2002).

This survey effort only included one survey year, which limits the chance to detect a species that does not germinate every year. It is advised in the protocol that visits to the site in multiple years increase the likelihood of detection of a special status plant (CDFG 2009).

Chapter 3. Results: Environmental Setting

This chapter provides an evaluation of the environment where the proposed project occurs. This evaluation describes the project setting, including the study area, topographical features, soil types, water features, biological resources, and levels of human and/or natural disturbance.

3.1. Description of the Existing Biological and Physical Conditions

The project is located on the west side of US 395, north of Lee Vining, in Township 1N., Range 26E., Section 5 and Township 2N., Range 26E., Sections 30 and 31 in Mono County, California. See Figure 1 in Appendix A for a topographic map of the study area.

3.1.1. Study Area

The Environmental Study Limit (ESL) area follows the existing US 395 highway alignment, located above the western shore of Mono Lake. The ESL widens up to 250 feet from the roadway edge on both the east and west sides of US 395. It traverses a variety of habitat types. The primary vegetation type within the ESL is sage brush. Pinyon pine forests and rocky outcrops are located on the west side of US 395 along steep slopes. Three stands of riparian vegetation with willows and deciduous trees are scattered along the east side of US 395 within the ESL.

Several small, unnamed, seasonal streams and springs cross the study area and empty into Mono Lake to the east. They are either spring fed or are watered by the melting snow-pack from mountains west of the highway. Mono Lake is a State Reserve designated by State Parks for the protection of tufa and other natural resources found within the basin. It has also been designated as the Mono Basin National Forest Scenic Area by the U.S. Forest Service. The actual lakeshore is well outside the ESL.

3.1.2. Physical Conditions

Climate

The project area exhibits a semi-arid, high-elevation desert climate that is characterized by hot, dry summers and cold winters with moderate precipitation. Temperatures vary greatly throughout the year, with a temperature change of approximately 40 degrees between the coldest and warmest months of the year (WRCC 2011). Mean annual temperature is about 48° to 50° Fahrenheit (F).

The mean freeze-free period is in the range from 100 to 150 days (USFS 1998). The mean annual precipitation is about 12 to 15 inches, which occurs primarily between the months of November and March. Much of the precipitation is snow. Occasional summer thunderstorms may occur in the region (WRCC 2011).

Topographic Features

The topography in the study area is defined by the Mono Lake Basin to the East and the rocky, eastern slopes of the Sierra Nevada Mountains to the west. The landform in the vicinity of the study area ranges from very steep slopes, to nearly level, to gently sloping lake plain. Mono Valley is slightly elongated toward the northeast. The lake plain slopes southwest, so Mono Lake is situated at the southwest end of the valley. The elevation within the lake basin ranges from about 6,400 feet at the present lake level up to 7,180 feet at the highest Pleistocene lake level (USFS 1998). The present lake is saline and alkaline, containing about 6% salt. The Sierra Nevada Mountains to the west of the study area rise rapidly to an elevation of approximately 10,000 feet above sea level.

Most locations within the study area are located on old lake terraces that have been artificially leveled out near the lake shore to accommodate US 395. Elevation in the study area varies from south to north by approximately 304 feet. At the south end of the study area, outside of Lee Vining, the elevation is approximately 6,744 feet above sea level (asl). Elevation in the study area drops to a low of 6,440 feet asl, just south of Old Marina Road, and then generally flattens out through the remainder of the study area to reach an elevation of 6,460 feet asl at the north end of the project area at PM 54.5.

Soils

The soil survey for the Benton-Owens Valley Area Parts of Inyo and Mono County (NRCS 2002) provided information on known soil types within the study area. Defined soil units exist within the study area for part of the Rock Fall ESL and all of the Pole Line and borrow site ESLs. No other sources exist that contain soil information for the unmapped soil areas of the Rock Fall ESL. Hydric soils were identified using the NRCS 2006. The following soil map units were identified in the study area and are described below using information provided in the Benton-Owens Valley Area Part of Inyo and Mono County soil survey as well as official soil series descriptions from the NRCS website (NRCS 2002 and NRCS 2011).

- Alamedawell-Orecart complex
- Cryoborolls bouldery-Cryoborolls-Rock outcrop complex
- Dechambeau very gravelly-Dechambeau complex
- Dunderberg-Conwayridge association
- Lithic Xeric Torriorthents-Xeric Torriorthents-Rock outcrop complex
- Stecum-Charcol families-Rock outcrop complex*
- Watterson gravelly loamy sand

The Stecum-Charcol families-Rock outcrop complex was identified as occurring adjacent to the Rockfall Safety Project ESL. Because defined soil units do not exist for the entire ESL, the adjacent soil map unit may occur within the unmapped portions of the study area.

Alamedawell-Orecart complex. This complex is primarily composed of the two named soil series and occurs on lake terraces with 0 to 4 percent slopes. Both Alamedawell and Orecart soils formed in alluvium and sand over lacustrine deposits derived from volcanic ash. Orecart soils are deep and excessively drained soils with a loamy sand texture. Alamedawell soils are very deep and excessively drained with slow runoff and rapid permeability. The Alamedawell-Orecart complex is listed as a hydric soil on the Benton-Owens Valley hydric soils list.

Cryoborolls bouldery-Cryoborolls-Rock outcrop complex. Shallow to deep, well-drained soils found in high elevations on the slopes of mountains and in plateaus. Cryoborolls are derived from material weathered from metasedimentary, metavolcanic, or granitic rocks. This complex contains gravel and cobble on the soil surface; soil textures are very stony and boulder coarse sandy loam. This complex is found on slopes ranging from 15-50 percent.

Dechambeau very gravelly-Dechambeau complex. Dechambeau soils are deep, well-drained soils formed in a mixed alluvium influenced by volcanic ash. They occur on alluvial fans and lakeshore terraces, with slopes up to 15 percent. This complex has a coarse, gravelly loam texture and has slow runoff and moderately rapid permeability. The Dechambeau very gravelly-Dechambeau complex is listed as a hydric soil on the Benton-Owens Valley hydric soils list.

Dunderberg-Conwayridge association. This soil association is primarily composed of Conway and Dunderberg soil series. Conway soils are deep, poorly drained soils that occur on flood plains, alluvial fans, and fan, stream, and lakeshore terraces. They are derived from granitic and mixed ash sources and have a sandy loam texture.

Dunderberg soils are deep, well drained soils that occur on moraines. Dunderberg soils are derived from igneous and metamorphic rocks influenced by volcanic ash and have a sandy loam texture.

Lithic Xeric Torriorthents-Xeric Torriorthents-Rock outcrop complex. Xeric Torriorthents are moderately deep, well-drained soils found on mountainsides with slopes of 15-50 percent. They are derived from weathered granitic bedrock. The soil has a coarse sandy loam texture and contains boulders, cobbles, and gravel. The Lithic Xeric Torriorthents-Xeric Torriorthents-Rock outcrop complex is listed as a hydric soil on the Benton-Owens Valley hydric soils list.

Stecum-Charcol families-Rock outcrop complex. Both Charcol and Stecum soils are well-drained soils found on the slopes of mountains and foothills. Charcol soils are derived from weathered conglomerate, quartzite, and sandstone materials. Stecum soils are derived from granitic rock. This complex occurs on slopes of 30 to 70 percent. The Stecum-Charcol families-Rock outcrop complex is listed as a hydric soil on the Benton-Owens Valley hydric soils list.

Watterson gravelly loamy sand. Watterson soils are deep, well-drained soils derived from volcanic ash with granitic influence. They are found in the project area on alluvial fans and lake terraces with slopes ranging from 0 to 4 percent. Texture ranges from sandy loam to very gravelly sandy loam. They have moderately rapid permeability and slow to medium runoff. The Watterson gravelly loamy sand complex is listed as a hydric soil on the Benton-Owens Valley hydric soils list.

Soil types located within and adjacent to the study area are depicted in Figure 3.

Hydrological Resources

Water runoff from the eastern slopes of the Sierra Nevada Mountains and from the western slopes of the White Mountains flows into the Mono basin, and is captured by Mono Lake. Mono Lake is a naturally occurring endorheic basin, which by definition permits no outflow to rivers or streams that carry water into the ocean or into other watersheds. Although none of the major streams that feed the lake are located within the project study area, small erosional features and intermittent and seasonal drainages carry snow melt from uphill sources through incised channels into the Mono Lake Basin.

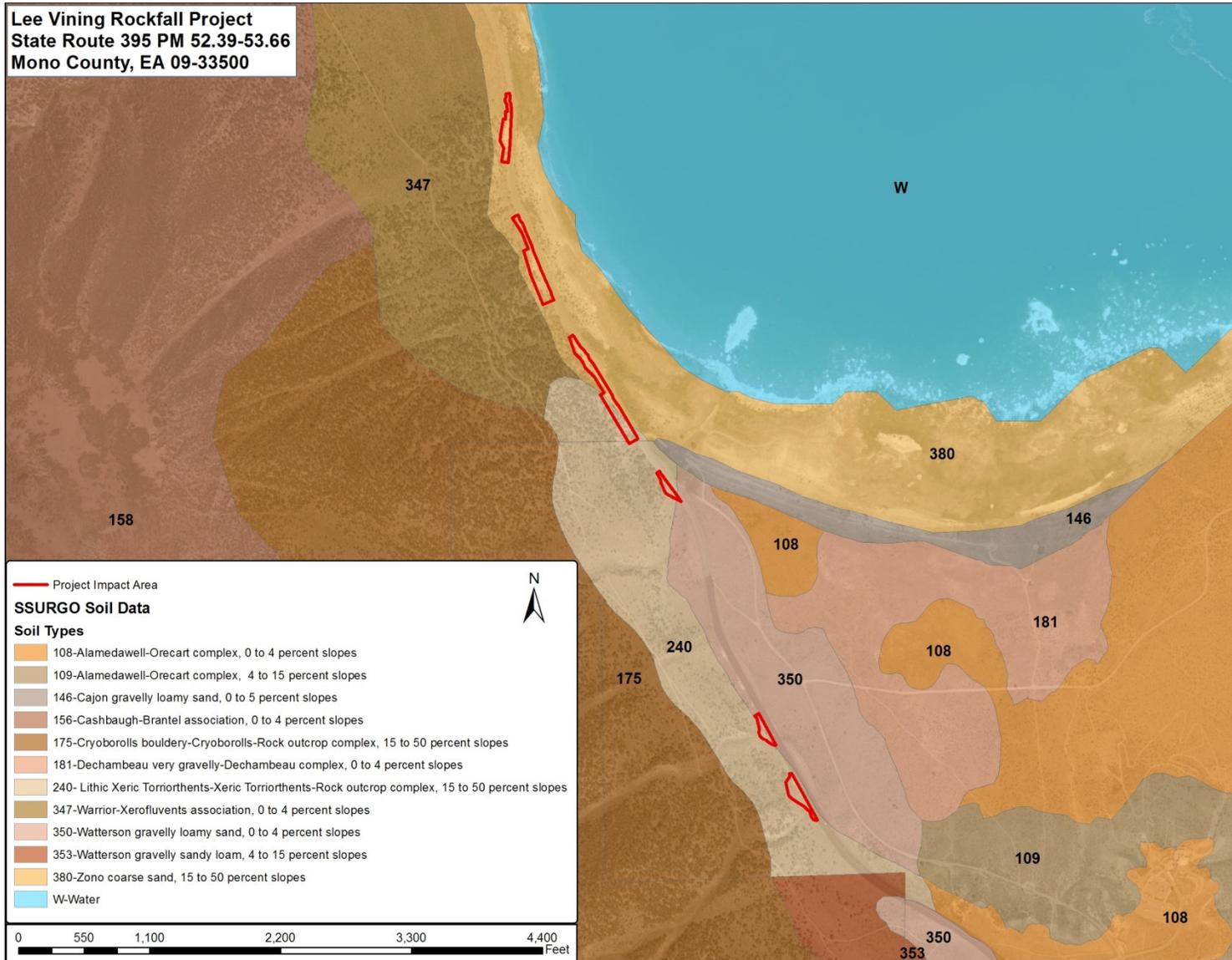


Figure 3 Soil Types

3.1.3. Biological Conditions in the Biological Study Area

3.1.3.1. NATURAL COMMUNITIES

No Natural communities of special concern were found to be present within the ESL.

3.1.3.2. VEGETATION COMMUNITIES

The project is located along a section of US 395 that is situated between the steep eastern slope of the Sierra Nevada Mountains and the bed of Mono Lake. Vegetation within the study area generally consists of mixed sage (*Artemisia* sp.) and antelope brush (*Purshia tridentata*) shrublands, pinyon pine (*Pinus monophylla*) forest, and intermittent patches of riparian habitat consisting of willow species (*Salix* spp.) mixed with deciduous shrubs and trees. A complete list of the species found within the study area is included in Appendix B. The following vegetation communities were identified using *A Manual of California Vegetation*, First Edition (Sawyer and Keeler-Wolf 1995).

Figures 1 and 2 in Appendix A provides a general map of the vegetation communities described by *A Manual of California Vegetation* (1995) and how they relate to the proposed slope treatment areas.

Big Sagebrush Series

Big sagebrush (*Artemisia tridentata*) scrubland is one of several abundant vegetation types within the study area and surrounding vicinity. The Big sagebrush series is an indicative vegetation type within the Great Basin scrubs, and dominates middle elevation cold desert valleys, washes, bajadas, and slopes between an elevation of 984 feet and 9,843 feet throughout the inter-West. Within the study area, Big Sagebrush occurs in the upland areas surrounding US 395. Commonly associated plants within the Big Sagebrush series include native species such as rubber rabbitbrush (*Ericameria nauseosa*), bitterbrush (*Purshia tridentata*), scattered singleleaf pinyon pine (*Pinus monophylla*) and grasses such as cheatgrass (*Bromus tectorum*) and bluebunch wheatgrass (*Elymus spicatus*).

Mixed Willow Series

Mixed willow (*Salix* spp.) woodlands are common along the edge of Mono Lake but are found in limited, scattered patches within the ESL. The Mixed Willow series within the area is comprised of one or two species including Geyer's willow (*Salix*

geyeriana), narrow-leaf willow (*Salix exigua*), and red willow (*Salix laevigata*). The mixed willow series is a general riparian habitat type, occurring throughout California, anywhere below 5,906 feet. Within the ESL, the mixed willow series occurs in moist places along the east side of US 395. The three primary clumps of mixed willow vegetation (Numbered #1, 2 and 3 from south to north) are located directly across the highway and downhill from rockfall treatment areas #3, 4 and 6 respectively.

Wetlands along the edge of the historic lakebed are dominated by an understory of sedges (*Carex* spp.) and rushes (*Juncus* sp.) with a mixed-willow overstory. Additional commonly associated plants within the Mixed willow series in the ESL include Fremont cottonwood (*Populus fremontii*), and white poplar (*Populus alba*) among intermittent upland species like rabbitbrush (*Ericameria* spp.).

Singleleaf Pinyon Series

Singleleaf Pinyon pine woodlands are found on pediments, slopes and ridges from 3,280 feet to 9,200 feet in elevation and are common on slopes to the west of US 395 in the Mono Basin. This vegetation community is characterized by a relatively open overstory canopy layer of singleleaf pinyon pine trees (*Pinus monophylla*). Scattered California juniper (*Juniperus californica*) and Jeffrey Pine (*Pinus jeffreyi*) are also found in the tree canopy in this vegetation community. Within the ESL, Singleleaf Pinyon Pine Series is found west of US 395 on the steep slopes and around the rockfall areas proposed for treatment. Common understory species in this vegetation community in the study area include dense bitterbrush and big sagebrush. Below the shrub layer, the ground layer is absent or sparsely vegetated with scattered grasses.

Transmontane Freshwater Marsh

Transmontane Freshwater Marshes are found within lake beds, and along the margins of springs and river bottomlands between 3,500 feet elevation and 7,500 feet elevation. Dominant species associated with the Transmontane Freshwater Marsh vegetation community include cattail (*Typha latifolia*), and *Carex* spp. (Holland 1986). In the ESL, the dominant vegetation is cattail and American brooklime (*Veronica americana*) with a minor component of glaucous willow herb (*Epilobium glaberrimum*). Transmontane freshwater marsh has a very limited distribution in the ESL and is found primarily within manipulated drainage channels. It is not associated with any of the rockfall sites proposed for treatment.

3.1.3.3. DOMINANT PLANT SPECIES

The primary vegetation type within the proposed projects' environmental study limit (ESL) is sage brush. Pinyon pine forests are located on the west side of US 395 along steep slopes. Three stands of willow and deciduous tree vegetation communities are scattered along US 395 in discrete stands adjacent to the ESL

The predominant habitat type within the projects' ESL is sage brush, primarily big sage (*Artemisia tridentata*) and silver sage (*Artemisia dumosa*). Antelope brush (*Purshia tridentata*) is also a component of the sage brush habitat; in many areas it is more dominant than the sage brush. Generally, the sage brush within the ESL is very dense. Within the ESL, the habitat on the steep slopes west of US 395 is primarily pinyon pine (*Pinus monophyla*) forest with a sage understory. Four patches of willow and deciduous tree vegetation occur to the east of US 395 within the projects' ESL, in moist areas between stretches of brush habitat.

3.1.3.4. COMMON ANIMAL SPECIES

The eastern Sierras provide habitat for a wide variety of wildlife species. Pinyon pine nuts provide forage for several bird and mammal species. Sage brush habitat types provide important winter range for mule deer, antelope, and sage grouse. Other large mammals include black bear, the rare big-horned sheep, and mountain lions. Medium sized mammals include the coyote, bobcat, the pine marten, raccoons, porcupine, marmot, and jack rabbit. Small mammals include cotton-tail rabbits, a variety of squirrels and chipmunks, gophers, and mice.

Mono Lake, adjacent to the project area, provides a unique habitat and food source (brine shrimp and alkali flies) for over 70 species of migratory birds, including huge numbers of eared grebes, California gulls, killdeer, and Wilson's and red-necked phalaropes. Over 325 bird species have been documented within the Mono Lake basin area, with 118 species breeding during the spring and summer months (Mono Lake Committee, Mono Basin Bird List, <http://www.monolake.org/about/birdlist>). Common ravens, scrub jays, and green-tailed towhees were observed often during biological surveys of the project area in 2011.

3.1.3.5. MIGRATION CORRIDORS

The location of wildlife remains and signs observed during the general biological surveys did not indicate any specific crossing points. Local topography and the Mono Lake shoreline would probably constrain most terrestrial wildlife movement to a north-south pathway parallel to SR 395. Data from the California Roadkill Observation System (CROS) indicate that large mammal road kills (presumably mule

deer) were recorded on US 395 in the southern end of the project area and north of the project area in locations of more gentle topography than is present along the area where the rockfall slopes are located. Other roadkills within the project area are limited to small and medium-sized mammals, which most likely would be coyotes, squirrels, rabbits, and other rodents. These recorded roadkills were not confined to any specific crossing point(s).

3.2. Regional Species and Habitats of Concern

Research on sensitive species that could occur within the ESL was done using the California Natural Diversity Database (CNDDDB), California Native Plant Society (CNPS) on-line inventory and the U.S. Fish and Wildlife Service official species list. The study identified a total of 72 plant and animal species considered sensitive by the U.S. Fish and Wildlife Service, California Department of Fish and Game, or California Native Plant Society that are either known to occur or have potential to occur in the region. However, due to the broad geographic scope of these queries, many species will not be found in the project area due to lack of suitable habitat, the area being outside the known elevation range of the species, or other factors. Table 4 lists all of the special-status species that may potentially occur within the ESL, including habitat description and occurrences, along with a brief rationale as to the possible presence or absence of the species.

Table 3: Listed, Proposed, and/or Special-Status Species, and Critical Habitat Potentially Occurring or Known to Occur in the Project Area.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
Plants:					
<i>Agrostis humilis</i>	Mountain bent grass	CNPS 2.3	Alpine boulder and rock field, meadow and seep, subalpine coniferous forest, wetland. Blooming period: July-September Elevation: 2670-3200 meters	A	Habitat not present. Wrong elevation.
<i>Allium atrorubens</i> var. <i>atrorubens</i>	Great Basin onion	CNPS 2.3	Great Basin scrub, pinyon and juniper woodland. Sandy or rocky soils. Blooming period: May-June Elevation: 1200-2315 meters	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Astragalus oophorus</i> var. <i>lavinii</i>	Lavin's milk-vetch	CNPS 1B.2	Great Basin scrub. Dry open areas. Blooming period: June Elevation: 2450-3050 meters	A	Although Great Basin scrub is present, occurrences of this species are outside a 10-mile radius of the study area.
<i>Boechera bodiensis</i>	Bodie Hills rock-cress	CNPS 1B.3	Alpine boulder and rock field, Great Basin scrub, Pinyon and juniper woodland, Subalpine coniferous forest. In rock crevices, outcrops, and on steep slopes. Granite and volcanic substrates. Blooming period: June-August Elevation: 2195-3530 meters	A	Microhabitat of rock crevices, outcrops and steep slopes is not present.
<i>Boechera cobrensis</i>	Masonic rock-cress	CNPS 2.3	Great Basin scrub, Pinyon and juniper woodland. Sandy soils.	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
			Blooming period: June-July Elevation: 1375-2800 meters		surveys for this species will be performed.
<i>Boechera tiehmii</i>	Tiehm's rock-cress	CNPS 1B.3	Alpine, alpine boulder and rock field. Blooming period: July – August Elevation: 2970 - 3590 meters	A	Habitat not present. Wrong elevation.
<i>Boechera tularensis</i>	Tulare rockcress	CNPS 1B.3	Subalpine coniferous forest, upper montane coniferous forest. Blooming period: June-July Elevation: 1825 - 3350 meters	A	Habitat not present.
<i>Botrychium ascendens</i>	upswept moonwort	CNPS 2.3	Lower montane coniferous forest. Blooming period: July-August Elevation: 1500 - 2285 meters	A	Habitat not present. Occurrences outside 10-mile radius of study area.
<i>Botrychium crenulatum</i>	scalloped moonwort	CNPS 2.2	Bog and fen, lower montane coniferous forest, marsh and swamp, meadow and seep, wetland. Blooming period: June-September Elevation: 1268 - 3280 meters	A	Habitat not present. Occurrences outside 10-mile radius of study area.
<i>Botrychium lunaria</i>	Common moonwort	CNPS 2.3	Upper montane coniferous forests in the eastern Sierra Nevada Mountains. Medium textured moist soils Blooming period: July-August. Elevation: 1980-3400 meters.	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Bruchia bolanderi</i>	Bolander's bruchia	CNPS 2.2	Lower montane coniferous forest, meadow and seep, upper montane coniferous forest.	A	Habitat not present. Occurrences outside 10-mile radius of study area.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
			Blooming period: n/a Elevation: 1700 - 2800 meters		
<i>Calochortus excavatus</i>	Inyo County star-tulip	CNPS 1B.1	Chenopod scrub, meadow and seep, wetland. Blooming period: April-July Elevation: 1150 - 2000 meters	A	Habitat not present. Occurrences outside 10-mile radius of study area.
<i>Camissonia boothii</i> ssp. <i>boothii</i>	Booth's evening primrose	CNPS 2.3	Joshua tree woodland, pinyon and juniper woodland. Sandy, dry desert soils. Blooming period: June-August Elevation: 900-2400 meters	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Carex davyi</i>	Davy's sedge	CNPS 1B.3	Subalpine coniferous forest, upper montane coniferous forest. Blooming period: May-August Elevation: 1500 - 3200 meters	A	Habitat not present. Occurrences outside 10-mile radius of study area.
<i>Carex praticola</i>	northern meadow sedge	CNPS 2.2	Meadow and seep, wetland. Blooming period: May-July Elevation: 0 - 3200 meters	A	Habitat not present. Occurrences outside 10-mile radius of study area.
<i>Carex scirpoidea</i> ssp. <i>pseudoscirpoidea</i>	western single-spiked sedge	CNPS 2.2	Alpine boulder and rock field, limestone, meadow and seep, subalpine coniferous forest, wetland. Blooming period: July-September Elevation: 3200 - 3700 meters	A	Habitat not present. Wrong elevation.
<i>Carex tiogana</i>	Tioga Pass sedge	CNPS 1B.3	Meadow and seep, wetland, mesic lake margins.	A	Habitat not present. Wrong elevation.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
			Blooming period: July-August Elevation: 3100 - 3300 meters		
<i>Chaetadelpa wheeleri</i>	Wheeler's dune-broom	CNPS 2.2	Desert dunes, Great Basin scrub, Mojavean desert scrub. Sandy soils. Blooming period: April-September Elevation: 850 - 1900 meters	A	Habitat not present. Wrong elevation.
<i>Crepis runcinata</i> ssp. <i>hallii</i>	Hall's meadow hawksbeard	CNPS 2.1	Mojavean desert scrub, pinyon and juniper woodlands. Moist alkaline valley bottoms. Blooming period: May-July Elevation: 1250 - 1978 meters	A	Habitat not present.
<i>Cusickiella quadricostata</i>	Bodie Hills Cusickiella	CNPS 1B.2	Great Basin scrub, pinyon and juniper woodlands. Rocky flats and slopes with clay soils. Blooming period: July Elevation: 200-2800 meters.	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Draba asterophora</i> var. <i>asterophora</i>	Tahoe draba	CNPS 1B.2	Alpine, alpine boulder and rock field, subalpine coniferous forest. Blooming period: July-September Elevation: 2500 - 3505 meters	A	Habitat not present. Wrong elevation.
<i>Draba cana</i>	canescent draba	CNPS 2.3	Alpine, alpine boulder and rock field, limestone, meadow and seep, subalpine coniferous forest. Carbonate soils. Blooming period: July Elevation: 3000 - 3505 meters	A	Habitat not present. Wrong elevation.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>Draba praealta</i>	tall draba	CNPS 2.3	Meadow and seep. Mesic. Blooming period: July-August Elevation: 2500 - 3415 meters	A	Habitat not present. Wrong elevation.
<i>Erigeron miser</i>	starved daisy	CNPS 1B.3	Upper montane coniferous forest. Blooming period: June-October Elevation: 1840 - 2620 meters	A	Habitat not present. Occurrences outside 10-mile radius of study area.
<i>Eriogonum nutans</i> var. <i>nutans</i>	Dugway wild buckwheat	CNPS 2.3	Chenopod scrub, Great Basin scrub. Sandy or gravelly soils. Blooming period: May-July Elevation: 1220-3000 meters	A	Occurrences outside 10-mile radius of study area.
<i>Eriogonum ochrocephalum</i> var. <i>alexanderiae</i>	Alexander's buckwheat	CNPS 2.2	Great Basin scrub, pinyon and juniper woodland. Shale or gravelly soils. Blooming period: May-July Elevation: 1300-2100 meters	A	Occurrences outside 10-mile radius of study area.
<i>Festuca minutiflora</i>	small-flowered fescue	CNPS 2.3	Alpine boulder and rock field. Blooming period: July Elevation: 3200 - 4050 meters	A	Habitat not present. Wrong elevation.
<i>Glyceria grandis</i>	American manna grass	CNPS 2.3	Meadow and seep, bogs and fens, marshes and swamps. Streambanks and lake margins. Blooming period: June-August Elevation: 15 - 1980 meters	A	Habitat not present.
<i>Kobresia myosuroides</i>	seep kobresia	CNPS 2.3	Alpine boulder and rock field, limestone, meadow and seep, subalpine coniferous forest. Blooming period: August	A	Habitat not present. Wrong elevation.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
			Elevation: 1490 - 3245 meters		
<i>Lupinus duranii</i>	Mono Lake lupine	CNPS 1B.2	Great Basin scrub, subalpine coniferous forests, upper montane coniferous forests. Dry volcanic pumice and gravelly soils. Blooming period: May-August Elevation: 2000-3000 meters	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Lupinus pusillus</i> var. <i>intermontanus</i>	intermountain lupine	CNPS 2.3	Great Basin scrub. Sandy soils. Blooming period: May-June Elevation: 1220-2060 meters	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Mentzelia torreyi</i>	Torrey's blazing star	CNPS 2.2	Great Basin scrub, Mojavean desert scrub, pinyon and juniper woodland. Sandy, rocky, alkaline soils; usually volcanic. Blooming period: June-August Elevation: 1170-2835 meters	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Mimulus guttatus</i> (= <i>M. glabratus</i> var. <i>utahensis</i>)	Seep monkeyflower (Utah monkeyflower)	Delisted due to taxonomic change (Formerly CNPS 2.1)	Meadows and seeps, pinyon and juniper woodland. Hydric soils. Blooming period: March-August Elevation: 610-2000 meter	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Minuartia stricta</i>	bog sandwort	CNPS 2.3	Alpine boulder and rock field, alpine dwarf scrub, meadow and seep. Blooming period: July-September Elevation: 2440 - 3960 meters	A	Habitat not present. Wrong elevation.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>Phacelia monoensis</i>	Mono County phacelia	CNPS 1B.2	Great Basin scrub, pinyon and juniper woodland. Clay alkaline soils. Blooming period: June Elevation: 1900-2900 meters	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Ranunculus hydrocharoides</i>	frog's-bit buttercup	CNPS 2.1	Freshwater marsh, marsh and swamp, wetland. Blooming period: June-September Elevation: 1100 - 2700 meters	A	Habitat not present.
<i>Salix brachycarpa</i> ssp. <i>brachycarpa</i>	short-fruited willow	CNPS 2.3	Alpine dwarf scrub, limestone, meadow and seep, subalpine coniferous forest, wetland. Blooming period: June-July Elevation: 3000 - 3500 meters	A	Habitat not present. Wrong elevation.
<i>Salix nivalis</i>	snow willow	CNPS 2.3	Alpine, alpine dwarf scrub. Blooming period: July-August Elevation: 3100 - 3500 meters	A	Habitat not present. Wrong elevation.
<i>Silene oregana</i>	Oregon campion	CNPS 2.3	Great Basin scrub, subalpine coniferous forests. Blooming period: July-September Elevation: 1500-2500 meters	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Streptanthus oliganthus</i>	Masonic Mountain jewelflower	CNPS 1B.2	Pinyon and juniper woodland habitats. Volcanic or rocky granitic soils. Blooming period: June-July Elevation: 1980-3050 meters	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Tetradymia</i>	dune horsebrush	CNPS 2.2	Great Basin scrub. Sandy soils and	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>tetrameres</i>			dunes. Blooming period: August Elevation: 1200-2135 meters		surveys for this species will be performed.
<i>Thelypodium integrifolium</i> ssp. <i>complanatum</i>	foxtail thelypodium	CNPS 2.2	Great Basin scrub, meadows and seeps. Alkaline, subalkaline, or mesic silty soils. Blooming period: June-October Elevation: 1100-2500 meters	P	Habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Thelypodium milleflorum</i>	many-flowered thelypodium	CNPS 2.2	Chenopod scrub, Great Basin scrub. Sandy soils. Blooming period: April-June Elevation: 1220-2500 meters	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
<i>Townsendia condensata</i>	cushion townsendia	CNPS 2.3	Alpine boulder and rock field, Subalpine coniferous forest. Blooming period: July-August Elevation: 2865 - 3675 meters	A	Habitat not present. Wrong elevation.
<i>Viola purpurea</i> ssp. <i>ssp.aurea</i>	golden violet	CNPS 2.2	Great Basin scrub, pinyon and juniper woodland. Dry, sandy slopes. Blooming period: April-June Elevation: 1000-2040 meters	P	Marginally suitable habitat is present within the ESL, but the species was not observed during the 2011 botanical surveys. Pre-construction surveys for this species will be performed.
Invertebrates:					
<i>Artemia monica</i>	Mono brine shrimp	none	Saline inland waters. Found only in Mono Lake.	A	Habitat not present. Current shoreline of Mono Lake is outside of the project limits.
Amphibians:					

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>Anaxyrus canorus</i>	Yosemite toad	CSC	Montane wet meadows of the central Sierras above 6,400', but also occurs in seasonal ponds associated with lodgepole pine and subalpine conifer forests.	A	Habitat not present. No wet meadows associated with lodgepole pine or subalpine conifer forests located within the project limits.
<i>Rana sierrae</i>	Sierra Nevada yellow-legged frog	CSC, FC, SC	Associated with low-gradient, permanent streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats above 4,500' in the Sierra Nevadas.	A	Habitat not present. Streams within the project limits are high-gradient and seasonal.
Birds:					
<i>Haliaeetus leucoccephalus</i>	bald eagle	FDL, SE, FP, FS	Nests in large, old-growth, or dominant live tree with open branch work, especially ponderosa pine. Requires large bodies of water, or free flowing rivers with abundant fish, and adjacent snags or other perches. Perches high in large, stoutly limbed trees, on snags or broken-topped trees, or on rocks near water.	A	Habitat not present. Mono Lake does not support fish and pinyon pine trees are not suitable for bald eagle nesting and perching.
<i>Accipiter gentilis</i>	Northern goshawk	CSC,FS	Coniferous forests and north facing nests near water. Prefers middle and higher elevations, and mature, dense conifer forests for nesting. Casual in winter in northern deserts, where it may be	P	Potential winter habitat may be present within project limits. Nesting habitat is not present within project limits.

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
			found in pinyon-juniper and low-elevation riparian habitats.		
<i>Buteo swainsoni</i>	Swainson's hawk	ST,FS	Grasslands with scattered trees, juniper sage flats, riparian areas, Savannahs, and agricultural or ranch.	A	Out of species range.
<i>Circus cyaneus</i>	Northern harrier	CSC	Breeding ranges from sea level to 9,000 feet. Breed and forage in freshwater marshes, brackish and saltwater marshes, wet meadows, weedy borders of lakes, rivers and streams, grasslands, pastures, desert sinks, and sagebrush flats.	P	Foraging habitat only exists within the project area.
<i>Pandion haliaetus</i>	osprey	None	Associated strictly with large, fish-bearing waters, primarily in ponderosa pine through mixed conifer habitats.	P	Nests in tufa formations within Mono Lake, forages in nearby streams and lakes. The only suitable habitat within the project limits is potential perching habitat within the pinyon forest vegetation type.
<i>Strix nebulosa</i>	great gray owl	SE	Breeds in old-growth red fir, mixed conifer, or lodgepole pine habitats, always in the vicinity of wet meadows, above 4,500' in the Sierra Nevadas.	A	Red fir, mixed conifer, and lodgepole habitats do not occur within in the project limits.
<i>Asio flammeus</i>	short-eared owl	CSC	Suitable Habitats include freshwater marshes, irrigated alfalfa, ungrazed grasslands or old pastures. Tule marsh or tall grasslands support nesting pairs. Preys mostly on small mammals, such as California vole.	A	Habitat not present

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>Asio otus</i>	Long-eared owl	CSC breeding	Frequents dense, riparian and live oak thickets near meadow edges, and nearby woodland and forest habitats. Also found in dense conifer stands at higher elevations.	P	Fledged juvenile observed in willow habitat within project limits during willow flycatcher surveys.
<i>Centrocercus urophasianus</i>	Greater sage grouse	FC, CSC	Sage-dominated brush lands in close proximity to water.	P	Within Rockfall project area, habitat is very low quality due to density of brush, presence of pinyon pine forest, and proximity to highway.
<i>Empidonax traillii</i>	willow flycatcher	SE	Summer resident in wet meadow and montane riparian habitats at 2,000 - 8,000 feet in the Sierra Nevada and Cascade Range. Most often occurs in broad, open river valleys or large mountain meadows with lush growth of shrubby willows.	P	No recorded nesting within project limits, but sightings of migrating individuals have been recorded.
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	FE, SE	Willow complexes in montane wet meadows and riparian habitats south of Lake Crowley in Mono County.	P	Suitable foraging habitat exists within the project limits, but current information has the Owens River south of Lake Crowley as this subspecies northern-most known limit (USFWS, 2002).
<i>Dendroica petechia brewsteri</i>	yellow warbler	CSC nesting	Occupies riparian vegetation in close proximity to water along streams and in wet meadows.	P	Species observed in willow habitat within project limits during willow flycatcher surveys.
<i>Icteria virens</i>	yellow breasted chat	CSC	Occupies riparian habitats with a well-developed shrub layer and open canopy. Nesting occurs around streams creeks, sloughs and rivers in thickets of vegetation (blackberry, grape, willow).	P	

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>Riparia riparia</i>	bank swallow	ST	Requires vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, ponds, lakes, and the ocean for nesting. Feeds primarily over grassland, shrubland, savannah, and open riparian areas during breeding season and over grassland, brushland, wetlands, and cropland during migration.	P	No suitable nesting habitat within project limits. Potentially suitable foraging habitat within project limits.
<i>Vireo bellii pusillus</i>	least Bell's vireo	FE, SE	Dense, structurally diverse riparian woodlands and brush thickets near water or intermittent streams, formerly found below 4,000' elevation east of the Sierras.	A	Species extirpated east of Sierras (USFWS, 1998), and project area is above species elevation limit.
<i>Xanthocephalus xanthocephalus</i>	yellow-headed blackbird	CSC	Occupy riparian vegetation near streams and wet meadows. Found in willows and cottonwoods	P	Nesting habitat not present within project area.
Mammals:					
<i>Sorex lyelli</i>	Mount Lyell shrew	CSC	High montane and cold steppe communities of the central and eastern slopes of the Sierra Nevada. Requires moist soils and riparian sites.	P	

Scientific Name	Common Name	Status*	General Habitat Description	Habitat P/A **	Rationale
<i>Aplodontia rufa</i>	mountain beaver	CSC	Favor dense riparian-deciduous vegetation near streams or springs with deep, friable soil for burrowing and a cool, moist microclimate.	P	Potentially suitable habitat is located within project vicinity, but not in or near rock slopes designated as construction areas.
<i>Taxidae taxus</i>	American badger	CSC	Found mostly in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils and populations of fossorial rodents for prey.	A	Brushy habitats in project area are generally very dense.
<i>Vulpes vulpes necator</i>	Sierra Nevada red fox	ST	Found in a wide variety of forest, brush, and meadow habitats in the high Sierras, from 3,900', but mostly above 7,000' elevation.	A	Sage brush habitats are not considered suitable. Project area is below most common elevational range for the species. Lack of sightings the region since 1993 despite monitoring efforts.
<i>Ovis canadensis sierrae</i>	Sierra Nevada bighorn sheep	FE, SE	Prefer open areas of low-growing vegetation for feeding, with close proximity to steep, rugged terrain for escape, lambing, and bedding, an adequate source of water, and travel routes linking these areas.	A	No suitable escape habitat, dense brush in project area hampers escape & movement. Proximity to SR 395 makes area not suitable for occupation by bighorn sheep (USFWS, 2007).
<i>Odocoileus hemionus</i>	mule deer	none	Found throughout the state in most habitats except desert and intensely managed agricultural lands. Mosaics of dense brush or forest thickets, riparian areas, and herbaceous openings with abundant edge provide the best habitat.	P	Remains of road-killed mule deer were noted close to US 395, and a doe was observed near the old marina during biological surveys.

*** Status**

California Native Plant Society, Inventory of Rare and Endangered Plants:

- (1A) Presumed extinct in California
- (1B) Rare, threatened, or endangered in California and elsewhere
- (2) Rare, threatened, or endangered in California but common elsewhere
- (3) More information is needed
- .1 - Seriously endangered in California
- .2 – Fairly endangered in California
- .3 – Not very endangered in California

U.S. Fish and Wildlife Service:

- (FE) Federal Endangered
- (FT) Federal Threatened
- (FPE) Federal Proposed Endangered
- (FPT) Federal Proposed Threatened
- (FC) Federal Candidate
- (FD) Federal Delisted
- (FPD) Federal Proposed for Delisting

California Department of Fish and Game:

- (SE) State Endangered
- (ST) State Threatened
- (FP) State Fully Protected
- (SR) State Rare
- (SC) State Candidate
- (R) California Natural Diversity Database Rare or Sensitive with no official status, or listed by non-regulatory agency
- (CSC) California Species of Special Concern.
- (NCSC) Natural Community of Special Concern

Bureau of Land Management

- (BLM-SC) Species of Special Concern

**** Habitat P/A**

Present [P] - habitat is present. Absent [A] - no habitat present and no further work needed. Critical Habitat [CH]

*** Unknown [U] - not enough information on the species available

Chapter 4. Results: Biological Resources, Discussion of Impacts and Mitigation

4.1. Special Status Plant Species

This section provides a detailed discussion of the 16 rare plant species that have potential habitat within the study area. Species information, reference site details, and survey results are discussed. If a species were found to be present avoidance and minimization efforts, project impacts, and compensatory mitigation would be discussed.

4.1.1. Discussion of *Allium atrorubens* var. *atrorubens*

The Great Basin onion (*Allium atrorubens* var. *atrorubens*) is a perennial bulbiferous herb in the lily family (*Alliaceae*). It is native to California, Arizona, Nevada, and Utah in the Great Basin. Its habitat consists of Great Basin scrub and pinyon and juniper woodland. It is found at elevations of 1200-2100m in sandy or rocky soils. The Great Basin onion grows to a height of 5-17cm with a scapose or cylindrical stem. Its leaves are minimal and linear or cylindric in shape with a coiled tip. Flowers are a dark red or purple, with perianth parts narrow and acute. Its flowering period occurs between May and June. Its fruits are capsule and loculicidal. Its name is derived from the latin word for garlic.

The Great Basin onion is included in the California Native Plant Society inventory of rare and endangered plants on list 2.3 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .3 indicating that the plant is not very endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Great Basin onion is 2.2 mi north of Conway Summit on US 395, approximately 9.4 miles north of the project area.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a moderate likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association to sandy, rocky, gravelly, or sometimes clay soils in the White Mountains. CNDDDB records indicate that it has an association with Juniper woodland, which is not present in the project area.

Avoidance and Minimization Efforts

No great basin onion was observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

No impacts to great basin onion are anticipated.

Compensatory Mitigation

No impacts to great basin onion are anticipated, therefore no compensatory mitigation is proposed.

4.1.2. Discussion of *Boecheera cobrensis* (*Arabis cobrensis*)

The Masonic rock cress, (*Boecheera cobrensis*, formerly *Arabis cobrensis*) is a perennial herb in the mustard family (*Brassicaceae*). It is native to California, Oregon, Nevada, Idaho, and Wyoming. In California it is found east of the Sierra Nevada Mountains in Great Basin scrub and pinyon and juniper woodland habitat. It occurs in sandy soils at elevations of 1375-3105m. The Masonic rock cress grows to a height of 20-50cm with several stems that are either simple or branched. Leaves are basal and numerous, 2-5cm in size, and linear in shape with dense, fine hairs. Its flowers are white with petals 4mm in size. Its flowering period occurs between June and July. Fruits are 2-4cm in size, suspended from above, with an obtuse tip and sparse hairs. Seeds are oblong to round with wide wings. Its name is derived from the Latin word for Arabia.

The Masonic rock cress is included in the California Native Plant Society inventory of rare and endangered plants on list 2.3 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .3 indicating that the plant is not very endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Masonic rock cress is 1.5 miles north of Black Point, Mono Lake, approximately 5 miles northeast of the project area.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a low likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association with sandy soils.

Avoidance and Minimization Efforts

Masonic rock cress was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Masonic rock cress was not observed onsite therefore impacts are not anticipated.

Compensatory Mitigation

No impacts to Masonic rock cress are anticipated, therefore no compensatory mitigation is proposed.

4.1.3. Discussion of *Botrychium lunaria*

Common moonwort (*Botrychium lunaria*) is a perennial rhizomatous herb that is a member of the Adder's-tongue family (*Ophioglossaceae*). It is native to the northern hemisphere as well as southern South America, Australia, and New Zealand. In California its habitat consists of meadows and seeps in subalpine coniferous forests, and upper montane coniferous forests in the high or eastern Sierra Nevada Mountains (CNPS 2011, Hickman 1993). It grows on medium to coarse textured moist soils at elevations of 3000-3400 meters. The common moonwort can grow up to 1 foot tall. The sterile part of the leaf separates from the fertile part above the middle of the leaf. It has 4-6 pairs of leaf segments that are 6-10cm long by 2-4cm wide. Its blooming period is between July and August. Moonworts are also known as grape-ferns due to the grape cluster-like appearance of the sporangia.

The common moonwort is included in the California Native Plant Society inventory of rare and endangered plants on list 2.3 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .3 indicating that the plant is not very threatened in California).

Survey Results

CNDDDB indicates the closest recorded location for common moonwort is the reference site population.

Although it appears that marginal suitable habitat is present, the plant was not found during botanical surveys for the species. Even though a reference population was not observed to know when the vegetative and/or reproductive state of the species was emergent in 2011, surveys for this species were conducted around similar dates to CNDDDB records and when associated plants were blooming. Associate plant information was also gathered from CNDDDB records.

There is a low likelihood that this species could occur in the study area due to the lack of a positive finding in the study area and due to its microhabitat association to rock crevices of metamorphics.

Avoidance and Minimization Efforts

Common moonwort was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed

Project Impacts

Common moonwort was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Common moonwort are anticipated, therefore no compensatory mitigation is proposed.

4.1.4. Discussion of *Camissonia boothii* ssp. *boothii*

Booth's evening primrose (*Camissonia boothii* ssp. *boothii*) is an annual herb in the evening primrose family (*Onagraceae*). It is native to California, Nevada, Arizona, and Washington. In California, it is found east and south of the Sierra Nevada Mountains in Joshua tree woodland and pinyon and juniper woodland habitat. It is found in sandy, dry desert soils at elevations of 900-2400m. Booth's evening primrose grows to a height of 15-40cm with an erect stem and horizontally-spreading glandular hairs. Its leaves are 30-80mm in size with a lanceolate to ovate shape and tipward serrations. Its flower is white to faded red and opens at dusk, with a hypanthium 4-8mm in size, sepals 4-8mm, and petals 3-7.5mm. Its flowering period occurs between Jun and August. Fruits are 8-35mm in size and are cylindrical in shape with brown seeds in 1 row per chamber. It is named after the German botanist L.A. von Chamisso.

Booth's evening primrose is included in the California Native Plant Society inventory of rare and endangered plants on list 2.3 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .3 indicating that the plant is not very endangered in California)

Survey Results

CNDDDB indicates the closest recorded location for Booth's evening primrose is the reference site population.

Although it appears that marginal suitable habitat is present, the plant was not found during botanical surveys for the species. Even though a reference population was not

observed to know when the species was blooming in 2011, surveys for this species where conducted around similar dates to CNDDDB records and when associated plants were blooming. Associate plant information was also gathered from CNDDDB records.

There is a low likelihood that this species could occur in the study area due to the lack of a positive finding in the study area and to its microhabitat association to pumice flats and lava sands.

Avoidance and Minimization Efforts

Booth's evening primrose was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Booth's evening primrose was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Booth's evening primrose are anticipated, therefore no compensatory mitigation is proposed.

4.1.5. Discussion of *Cusickiella quadricostata*

Bodie Hills *Cusickiella* (*Cusickiella quadricostata*) is a perennial herb that is a member of the mustard family (*Brassicaceae*). It is native to California as well as western Nevada. It is found in Great Basin scrub and pinyon and juniper woodlands in the eastern Sierra Nevada Mountains. It grows on rocky flats and slopes with clay soils at elevations of 2400-2800 meters. The Bodie Hills *Cusickiella* has hairy stems 2-5cm in height. Its leaves are linear to oblong with hairs on the margins and can be simple or multibranching. Flowers are yellow with erect petals. The flowering period occurs in July. The *Cusickiella* is named after W.C. Cusick, an Oregon plant collector.

The Bodie Hills *Cusickiella* is included in the California Native Plant Society inventory of rare and endangered plants on list 1B.2 (list 1B indicating extant rare, threatened, or endangered in California and elsewhere; .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Bodie Hills *Cusickiella* is in the Bodie Hills, north of Mono Lake, about 8 miles northeast of the project area.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a low likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association of being mainly confined to shallow decomposed granite or clay soils. CNDDDB records indicate it is endemic to the Walker River drainage in the western Bodie Hills, however, CNDDDB records also indicate it is found elsewhere in the area.

Avoidance and Minimization Efforts

Bodie Hills *Cusickiella* was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Bodie Hills *Cusickiella* was not observed onsite impacts are not anticipated

Compensatory Mitigation

No impacts to Bodie Hills *Cusickiella* are anticipated, therefore no compensatory mitigation is proposed.

4.1.6. Discussion of *Lupinus duranii*

The Mono Lake lupine (*Lupinus duranii*) is a perennial herb that is a member of the legume family (Fabaceae). It is native and endemic to California. It is found in eastern Sierra Nevada near Mono Lake in Great Basin scrub, subalpine coniferous forest, and upper montane coniferous forest habitat. It found at elevations of 2000-2500m in dry volcanic pumice and gravelly soils. The Mono Lake lupine grows to a height of 5-12cm and has an erect stem. Its leaves are basal with stipules 6-11mm long, petioles 2-8cm long, and leaflets 5-20cm long. Its flower has violet petals with an upper lip of 5-7mm and a lower lip 6-7mm. Its flowering period occurs between May and August. Fruit are 1-2cm with 3-5 white seeds. The lupine is named after the Latin word for wolf.

The Mono Lake lupine is included in the California Native Plant Society inventory of rare and endangered plants on list 1B.2 (list 1B indicating extant rare, threatened, or endangered in California and elsewhere; .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Mono Lake lupine is the reference site population.

Although it appears that marginal suitable habitat is present, the plant was not found during botanical surveys for the species. Even though a reference population was not observed to know when the species was blooming in 2011, surveys for this species were conducted around similar dates to CNDDDB records and when associated plants were blooming. Associate plant information was also gathered from CNDDDB records.

Avoidance and Minimization Efforts

Mono Lake lupine was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Mono Lake lupine was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Mono Lake lupine are anticipated, therefore no compensatory mitigation is proposed.

4.1.7. Discussion of *Lupinus pusillus* var. *intermontanus*

The intermountain lupine (*Lupinus pusillus* var. *intermontanus*) is an annual herb in the legume family (*Fabaceae*). It is native to California and the west coast from Washington to Arizona and as far east as Wyoming. In California, it is found east of the Sierra Nevada Mountains. Its habitat consists of Great Basin scrub. It is found in sandy soils at elevations of 1220-2060m. The intermountain lupine grows to a height of up to 10cm with an erect, hairy stem. Its leaves are cauline with petioles of 3-6cm in size and 5-6 leaflets of 10-20mm in size with a hairy upper surface. Its inflorescence is approximately 3cm in size containing spiraled flowers. Its flower is 6mm in size with pale blue petals fading to pinkish or whitish with a white banner and a yellow spot. Its flowering period occurs between May and June. Fruits are 1.5cm in length by 6mm in width, have an oblong shape, and are hairy. It has 2 seeds with wrinkled surfaces and ridged margins. It gets its name from the Latin word for wolf.

The intermountain lupine is included in the California Native Plant Society inventory of rare and endangered plants on list 2.3 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .3 indicating that the plant is not very endangered in California). The Mono Lake lupine is included in the California Native Plant Society inventory of rare and endangered plants on list 1B.2 (list 1B indicating extant rare, threatened, or endangered in California and elsewhere; .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for intermountain lupine is on the northeast side of Mono Lake south of Hwy 167 (Poleline Rd.) and the junction with Bodie Rd., about 8.6 miles east of the project area.

Although it appears that marginally suitable habitat is present, the plant was not found during botanical surveys for this species. There is a low likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association to deep, wind-sorted sand. CNDDDB records indicate it grows on semi-stabilized dunes

Avoidance and Minimization Efforts

Intermountain lupine was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Intermountain lupine was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Intermountain lupine are anticipated, therefore, no compensatory mitigation is proposed.

4.1.8. Discussion of *Mentzelia torreyi*

Torrey's blazing star (*Mentzelia torreyi*) is a perennial herb in the Loasa family (*Loasaceae*). It is native to California, Idaho, Nevada, and Oregon. Its habitat consists of Great Basin scrub, Mojavean desert scrub, and pinyon and juniper scrub. In California, Torrey's blazing star is found east and south of the Sierra Nevada Mountains. Torrey's blazing star grows to a height of 10-16cm. Its leaves are 2-4cm in length and may have 2-4 linear lobes. Its flowers are pale yellow in color with sepals 3-6mm in length, petals 9-15mm, stamens 7-10mm, and styles 8-12mm. Its flowering period occurs between June and August. Fruits are 4-8mm long by 1-6mm wide and are urn-shaped. Seeds are 2-2.5mm in size, fusiform, with one acute end and one truncated end.

Torrey's blazing star is included in the California Native Plant Society inventory of rare and endangered plants on list 2.2 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Torrey's blazing star is on the south side of Black Point on Mono Lake, about 3.5 miles east of the project area.

Although it appears that marginally suitable habitat may be present, the plant was not found during botanical surveys for this species. There is a low likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association to sandy, rocky, alkaline soils; usually volcanic. In the CNDDDB records there is a trend for it to have an association with pumice, on pumice flats.

Avoidance and Minimization Efforts

Torrey's blazing star was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Torrey's blazing star was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Torrey's blazing star are anticipated, therefore no compensatory mitigation is proposed.

4.1.9. Discussion of *Mimulus guttatus* (*M. glabratus* ssp. *utahensis*)

The Utah monkeyflower (*Mimulus guttatus*, formerly *Mimulus glabratus* ssp. *utahensis*) is a perennial rhizomatous herb that is a member of the lopseed family (*Phrymaceae*). Its species is native to California and occurs from northern Mexico to Alaska and as far east as the Rocky Mountains; the subspecies *utahensis* occurs only within California and Nevada east of the Sierra Nevada Mountains. Its habitat consists of meadows and seeps and Pinyon and juniper woodland. CNDDDB records indicate that it grows with sedges and salt grass. It is found at elevations between 610 to 2000m in hydric soils. The Utah monkeyflower grows to a height of 2-150cm with an erect stem. Its leaves are reduced to sessile bracts with petioles 0-95mm and blades 0-95mm that are ovate to round. Its flower is yellow in appearance with a pedicel of 10-80mm, calyx 6-30mm, and a tube throat 2-40mm long. Its flowering period occurs between March and August. Fruits are 5-12mm with numerous avoid yellow-brown seeds <1mm. The monkeyflower is named for its flower's comic-like appearance.

Survey Results

CNDDDB indicates the closest recorded location for Utah monkeyflower is the reference site population.

Although it appears that marginally suitable habitat may be present, the plant was not found during botanical surveys for the species. Even though a reference population was not observed to know when the species was blooming in 2011, surveys for this species were conducted around similar dates to CNDDDB records and when associated plants were blooming. Associate plant information was also gathered from CNDDDB records.

There is a low likelihood that this species could occur in the study area due to the lack of a positive finding in the study area and its microhabitat association to wet seep areas.

Avoidance and Minimization Efforts

Utah monkeyflower was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Utah monkeyflower was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Utah monkeyflower are anticipated, therefore no compensatory mitigation is proposed.

4.1.10. Discussion of *Phacelia monoensis*

Mono County Phacelia (*Phacelia monoensis*) is an annual herb in the waterleaf family (*Hydrophyllaceae*). It is native to California and Nevada east of the Sierra Nevada Mountains. Its habitat consists of Great Basin scrub and pinyon and juniper woodland. It is found in clay alkaline soils at elevations of 1900-2900m. The Mono County phacelia grows to a height of 2-12cm with a spreading or ascending branched stem. Its leaves are 8-25mm in size, oblong to ovate, and with smooth or lobed margins. Its flower is yellow with a pedicel of 1-2mm, calyx lobes of 2-4mm, and a corolla of 2-4mm in size. The flowers are narrowly bell-shaped, have stamens of 1.5-3mm in length, styles <1.5mm in length, and are persistent in fruit. Its flowering period occurs in June. Its fruit is 2.5-4mm in size with an ovoid shape and minute hairs. Seeds number less than 10 and are 1-1.7mm in size and brown in color.

The Mono County phacelia is included in the California Native Plant Society inventory of rare and endangered plants on list 1B.2 (list 1B indicating extant rare, threatened, or endangered in California and elsewhere; .1 indicating that the plant is seriously endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Mono County phacelia is in the Bodie Hills at Mormon Meadows, about 12 miles northeast of the project area.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a low likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association to red adobe clay soils.

Avoidance and Minimization Efforts

Mono County phacelia was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Mono County phacelia was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Mono County phacelia are anticipated, therefore no compensatory mitigation is proposed.

4.1.11. Discussion of *Silene oregana*

The Oregon champion (*Silene oregana*) is a perennial herb in the pink family (*Caryophyllaceae*). It is native to California, Oregon, Washington, and the Great Basin states. In California it occurs east of the Sierra Nevada Mountains. Its habitat consists of Great Basin scrub and subalpine coniferous forest. It occurs at elevations between 1500 and 2500m. The Oregon champion grows to a height of 30-70cm with an erect, minutely hairy stem. Leaves are gradually reduced upward, with lower leaves 5-8cm in length and 7-12cm in width with an oblanceolate shape, and with upper leaves 1-6cm in length by 2-6mm wide with a lanceolate shape. Its flower is white to pink with a calyx of 9-15mm and lobes of 2-3mm in size. The petal is without hair, has 4-6 appendages and blades that are 4-6-lobed. Stamens are greater in size than the petals and the styles are greatly reduced. Its flowering time occurs between July and September. Fruits are elliptic to ovoid in shape with a 3-4mm stalk that is minutely hairy. Seeds are 1-2mm in size and brown in color. The Oregon

campion gets its name from the Greek mythological Silenus who was covered in sticky foam.

The Oregon campion is included in the California Native Plant Society inventory of rare and endangered plants on list 2.3 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .3 indicating that the plant is not very endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Oregon campion is 1/2 mile north of Tioga Pass and about 8 miles southwest of the project area in the Sierra Nevada Mountains.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a low likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its habitat association. Although it may be found in sagebrush scrub, it is more commonly found at high elevations in Yellow Pine Forest, Northern Juniper Woodland, Red Fir Forest, Lodgepole Forest, Subalpine Forest in the Sierra Nevada Mountains.

Avoidance and Minimization Efforts

Oregon campion was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Oregon campion was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Oregon campion are anticipated, therefore no compensatory mitigation is proposed.

4.1.12. Discussion of *Streptanthus oliganthus*

The Masonic Mountain jewelflower (*Streptanthus oliganthus*) is a perennial herb in the mustard family (*Brassicaceae*). It is native to California and Nevada, occurring east of the Sierra Nevada Mountains. It is found in volcanic or rocky granitic Pinyon and juniper woodland habitats at elevations of 1980-3050m. The Masonic Mountain jewelflower grows to a height of 20-50cm. It has basal leaves 2-8cm in length with petioles longer than the blades. Its flowers are purple (with yellow buds) with sepals 7-10mm in length and petals 10-13mm in length. The margins of the flower are

curled to form round, cylindrical flowers. Its flowering period occurs between June and July. Fruits are 5-8cm long by 2.5-3.5cm wide with compressed seeds. The Masonic Mountain jewelflower is named from the Greek word for twisted flower.

The Masonic Mountain jewelflower is included in the California Native Plant Society inventory of rare and endangered plants on list 1B.2 (list 1B indicating extant rare, threatened, or endangered in California and elsewhere; .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for Masonic Mountain jewelflower is the reference site population.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a moderate likelihood that this species could occur in the project impact area due to the presence of a positive report within 2 miles of the study area and its microhabitat association to volcanic or decomposed granite soils, along roadsides and in old mine dumps.

Avoidance and Minimization Efforts

Masonic Mountain jewelflower was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Masonic Mountain jewelflower was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Masonic Mountain jewelflower are anticipated, therefore, no compensatory mitigation is proposed.

4.1.13. Discussion of *Tetradymia tetrameres*

The dune horsebrush (*Tetradymia tetrameres*) is a perennial shrub in the sunflower family (*Asteraceae*). It is native to California and Nevada east of the Sierra Nevada Mountains. Its habitat consists of Great Basin scrub. It is found in sandy soils and dunes at elevations of 1200-2135m. The dune horsebrush grows to a height of up to 200cm with stems covered in dense, matted hairs. Its main leaves are 1-4cm in length, linear and threadlike in shape, and are sometimes covered in dense, matted hairs. It has clustered leaves 10-20mm in size with a threadlike to linear-oblong shape. It has an inflorescence with 4-6 heads on short side branches, with peduncles 1-3mm in size, involucre 8-9mm in size, and 4 elliptic phyllaries. Flowers are pale yellow with

corollas of approximately 8mm. Its flowering period occurs in August. Fruit are 5-6mm in size and have a pappus of approximately 20 stiff bristles or scales. It gets its name from the Greek word for “4 together” in reference to the 4 flower heads present in this genus.

The dune horsebrush is included in the California Native Plant Society inventory of rare and endangered plants on list 2.2 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for dune horsebrush is east-northeast of the junction of Hwy 395 and Pole Line, 3 miles northeast of the project area.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for this species. There is a high likelihood that this species could occur in the project impact area due to the proximity of a positive finding near the study area and its association with sandy soils, Great Basin scrub, and low slopes.

Avoidance and Minimization Efforts

Dune horsebrush was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Dune horsebrush was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Dune horsebrush are anticipated, therefore no compensatory mitigation is proposed.

4.1.14. Discussion of *Thelypodium integrifolium* ssp. *complanatum*

The foxtail thelypodium (*Thelypodium integrifolium* ssp. *complanatum*) is a biennial herb in the mustard family (*Brassicaceae*). It is native to California and occurs as far east as Utah and as far north as Oregon. It is found in Great Basin scrub and in meadows and seeps. It prefers alkaline or subalkaline, mesic, silty soils at elevations of 1100-2500m. The foxtail thelypodium grows to a height of 45-170cm with a straight stem. Its leaves are basal and oblong to obovata 5-31cm in length. Flower petals are lavender to purple with petals 6-9mm in length. Its blooming period occurs between June and October. Fruits are 1.5-3cm in size with seeds in one row per

chamber with embryonic root at the edge or towards back of cotyledon. The foxtail thelypodium is named after the Greek word for female foot.

The foxtail thelypodium is included in the California Native Plant Society inventory of rare and endangered plants on list 2.2 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for foxtail thelypodium is the reference site population.

Although it appears that suitable habitat is present, the plant was not found during botanical surveys for the species. Even though a reference population was not observed to know when the species was blooming in 2011, surveys for this species were conducted around similar dates to CNDDDB records and when associated plants were blooming. Associate plant information was also gathered from CNDDDB records.

There is a low likelihood that this species could occur in the study area due to the lack of a positive finding in the study area and its microhabitat association with silty soils. Although CNDDDB and Calflora records indicate a more general association to wetland-riparian habitats, which occur within the study area, this species was not found during the surveys.

Avoidance and Minimization Efforts

Foxtail thelypodium was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Foxtail thelypodium was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to Foxtail thelypodium are anticipated, therefore no compensatory mitigation is proposed.

4.1.15. Discussion of *Thelypodium milleflorum*

The many-flowered thelypodium (*Thelypodium milleflorum*) is a perennial herb in the mustard family (*Brassicaceae*). It is native to California, Oregon, Washington, and the Great Basin states. In California, it is found east of the Sierra Nevada Mountains. Its habitat consists of chenopod scrub and Great Basin scrub. It is found in sandy soils

at elevations of 1220-2500m. The many-flowered thelypodium grows to a height of 45-130cm, and is generally branched. Leaves are basal and lower cauline and are 6-23cm in size with a narrowly oblong to lanceolate or ovate shape with pinnate lobes. Its flower has white petals with oblanceolate to spoon-shaped blades. Its flowering period occurs between April and June. Fruits are erect, appressed, and 3.5-8.5cm in length. Its seeds have an embryonic root at edge of one cotyledon. It gets its name from the Greek word for “female foot” named after the appearance of its fruit stalk.

The many-flowered thelypodium is included in the California Native Plant Society inventory of rare and endangered plants on list 2.2 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for many-flowered thelypodium is 7.6 miles south of Bodie, about 9 miles east of the project area.

Although it appears that marginally suitable habitat is present, the plant was not found during botanical surveys for this species. There is a moderate likelihood that this species could occur in the project impact area due to the lack of a positive finding in the study area and its microhabitat association to Big sagebrush and rabbitbrush/bitterbrush scrubs in sandy soils; often with other sand-related herbs. CNDDDB records indicate it grows among rocks, at the base of a volcanic cliff.

Avoidance and Minimization Efforts

Many-flowered thelypodium was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Many-flowered thelypodium was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to many-flowered thelypodium are anticipated, therefore no compensatory mitigation is proposed.

4.1.16. Discussion of *Viola purpurea* ssp. *aurea*

The many-flowered thelypodium (*Thelypodium milleflorum*) is a perennial herb in the mustard family (*Brassicaceae*). It is native to California, Oregon, Washington, and the Great Basin states. In California, it is found east of the Sierra Nevada Mountains. Its habitat consists of chenopod scrub and Great Basin scrub. It is found in sandy soils

at elevations of 1220-2500m. The many-flowered thelypodium grows to a height of 45-130cm, and is generally branched. Leaves are basal and lower cauline and are 6-23cm in size with a narrowly oblong to lanceolate or ovate shape with pinnate lobes. Its flower has white petals with oblanceolate to spoon-shaped blades. Its flowering period occurs between April and June. Fruits are erect, appressed, and 3.5-8.5cm in length. Its seeds have an embryonic root at edge of one cotyledon. It gets its name from the Greek word for “female foot” named after the appearance of its fruit stalk.

The many-flowered thelypodium is included in the California Native Plant Society inventory of rare and endangered plants on list 2.2 (list 2 indicating rare, threatened, or endangered plant in California, but more common elsewhere, and .2 indicating that the plant is fairly endangered in California).

Survey Results

CNDDDB indicates the closest recorded location for golden violet is the reference site population.

Although it appears that marginal suitable habitat is present, the plant was not found during botanical surveys for the species. Even though a reference population was not observed to know when the species was blooming in 2011, surveys for this species were conducted around similar dates to CNDDDB records and when associated plants were blooming. Associate plant information was also gathered from CNDDDB records.

There is a moderate likelihood that this species could occur in the study area due to the presence of 2 occurrences within 2.5 miles of the study area and its microhabitat association to dry, sandy slopes.

Avoidance and Minimization Efforts

Golden violet was not observed onsite. Therefore, no avoidance and minimization measure efforts are proposed.

Project Impacts

Golden violet was not observed onsite impacts are not anticipated.

Compensatory Mitigation

No impacts to golden violet are anticipated, therefore no compensatory mitigation is proposed.

4.2. Special Status Animal Species Occurrences

This section provides a detailed discussion of the special-status animal species that have potential habitat within the study area. Species information and survey results are discussed. If a species were found to be present avoidance and minimization efforts, project impacts, and compensatory mitigation would be discussed.

4.2.1. Discussion of Greater Sage-Grouse (*Centrocercus urophasianus*)

Greater sage-grouse (*Centrocercus urophasianus*) is an upland game species listed as a California Species of Special Concern (CSC) under the California Endangered Species Act (CESA), and a candidate for listing under the Endangered Species Act (ESA). Greater sage grouse were identified as having potential to occur in or near the project area because the project area is located within the known range of the species and suitable habitat does occur in the region. Suitable sage-grouse habitat consists of sage (*Artemisia* sp.) dominated brush lands in close proximity to water. While female sage grouse appear to select nest sites with greater than average shrub canopy cover than the overall home range, current literature suggests that a brush canopy cover of approximately 45% for general habitat and 55% for nesting habitat represents the upper limits of habitat suitability (Casazza, et. al. 2009, and Kolada, et. al. 2009). Flat, open areas in proximity to suitable nesting habitat are required for strutting grounds (leks) for the males as part of their breeding behavior (Connelly, et. al. 2000). Most nesting occurs within 3.7 to 5 miles of a lek site. The closest leks appear to be approximately 6.3 miles south of the project, in the Parker Meadows area near Grant Lake, and north of Mono Lake in the Bodie Hills area, approximately 6.6 miles north-east of the project site (Casazza, et. al. 2009). Pinyon pine forest habitat is not considered suitable for greater sage grouse (Nevada Department of Wildlife, 2004).

Information provided by the Inyo National Forest biologist Leeann Murphy (July, 2011) indicated that habitat adjacent to busy highways are not suitable for greater sage grouse due to the disturbance and high vehicle collision hazard, and that grouse generally avoid these areas.

Survey Results

The project area is within the known range of the greater sage grouse. Potentially suitable habitat occurs on and near the project area. Current literature indicates that the closest known populations of greater sage grouse are located in the Conway Summit area, 6.6 miles north of the project area, and at Parker Meadow, approximately 6 miles south of the project area. CNDDDB did not list any greater sage

grouse sightings in or adjacent to the project area. Although radio-telemetry studies have been performed, there is no evidence to show that grouse populations south of Mono Lake interact with populations north of the lake, or travel along the US 395 corridor along the western shore of Mono Lake (Casazza et. al. 2009).

Habitat assessment surveys of the project area were conducted by URS biologists in June and July of 2011. No sign or sightings of greater sage grouse were observed. Visual assessment of the overall sage habitat within the project area found brush densities to be very high, generally within a range of 60% to 90% canopy cover. This is substantially higher than the 45% - 55% range indicated in the literature for suitable habitat. The combination of the proximity of US 395, high brush density, the presence of unsuitable pinyon pine habitat, and the lack of recorded sightings indicates that the overall habitat within the project area is not suitable for greater sage grouse.

Avoidance and Minimization Efforts

Mitigation for sage-grouse habitat is not expected to be required within the ESLs for the Rockfall Safety project due to the lack of high-quality habitat, the proximity of an active highway, and a lack of documented use by sage grouse.

Project Impacts

Within the project impact area, 0.412 acres of the sage brush vegetation type will be removed from the west side of the highway during slope stabilization activities. This habitat is not suitable for greater sage grouse due to the proximity to US 395, the density of the brush, and the presence of pinyon pine forest habitat.

Compensatory Mitigation

Since no suitable habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.2. Discussion of Willow Flycatcher (*Empidonax traillii*)

The willow flycatcher (*Empidonax traillii*) (WIFL) is a member of the Tyrant flycatcher family, notable for their difficulty in field identification due to a similarity in appearance with several other species in the genus *Empidonax*. While all willow flycatchers are listed as Endangered under CESA, only the southwestern sub-species (*E. t. extimus*) is listed as Endangered under the Federal ESA. The subspecies *E. t. adastus* is more likely to occur in the project vicinity.

Suitable WIFL nesting habitat includes monotypic willow (*Salix* spp.) complexes as well as willows with an overstory of broadleaf trees including cottonwood (*Populus* spp.). WIFLs can also nest in wild rose or other dense shrub species that favor moist riparian habitats. The southwestern WIFL (*E. t. extimus*), however, requires dense riparian vegetation with surface water or at least saturated soils for nesting (Sogge, et. al. 1997). While the species of shrubs suitable for nesting can include such species as willows, alder (*Alnus* sp.), saltcedar (*Tamarix* sp.), Russian olive (*Elagnus angustifolia*), and wild rose (*Rosa* sp.), the foliage within these habitat stands is typically dense from ground cover through the canopy layers. WIFLs are not known to nest in linear riparian habitats less than 30 feet wide, and generally require a minimum of about 10-15 acres of habitat to nest (Sogge, et. al. 1997). However, they will use such small, narrow patches for foraging during migration (Ibid.).

Survey Results

Although there are no WIFL sightings recorded in CNDDDB in the project area, there is a record from 2004 approximately 1.3 miles to the east in the vicinity of Lee Vining Creek. WIFLs are known to occur within the project vicinity, having been sighted in the willow complexes on the east side of US 395 (McCreedy, 2011). The closest known nesting area is approximately 4 miles south of Lee Vining in the vicinity of Rush Creek (Leeann Murphy, Inyo National Forest Biologist, 2011).

The southwestern WIFL is only known to go as far north as the Owens River south of Lake Crowley in Mono County, CA (USFWS, 2011), approximately 35 miles south of the project area. The U.S. Geological Survey (USGS) is performing genetic sampling/analysis and plumage analysis to try to determine the subspecies of the nesting WIFLs at Rush Creek, but as of late 2011, the results were inconclusive and pending (McCreedy, 2011).

The project area was surveyed for WIFL in June and July of 2011. No WIFLs were detected. Three stands of willow vegetation were located that would be suitable foraging habitat for migrating WIFLs. These stands are a total of 3.8 acres in extent, of which only 0.5 acres is within the projects' Environmental Study Limit (ESL). These stands are not suitable WIFL nesting habitat due to their small size and lack of surface water. Therefore, it would be unlikely to find WIFLs nesting within the project area. The three willow stands, numbered 1-3 south to north, are directly across the highway from rockfall slope areas #3, 4, and 6 respectively (see Figure 1 and 2 in Appendix A).

Avoidance and Minimization Efforts

For willow stands #1 – 3, (See Figures 1 and 2 in Appendix A) which are adjacent to the proposed construction zones and may contain foraging willow flycatchers, four measures could be used to avoid and minimize potential impacts to willow flycatchers occupying the willow stands.

6. Restrict construction activities until after the breeding season when it is unlikely that willow flycatchers will be in the area. This measure would also allow other nesting birds time to fledge young, thus complying with the Migratory Bird Treaty Act (MBTA). A seasonal work restriction between March 1 and August 15, or preconstruction bird surveys of the project site, should be adequate to protect nesting birds.
7. Perform preconstruction surveys prior to construction activities on a weekly basis. This would allow construction to start earlier than with measure 1, however, should willow flycatchers be identified, construction disturbances within that area may be delayed until subsequent surveys indicated that willow flycatchers were no longer present.
8. Biological monitoring of the willow stands would provide for the detection of WIFLs and determine if individuals are being negatively impacted by construction-related disturbance. Construction may be halted on a temporary basis until the WIFLs are no longer in the area.
9. No construction personnel or equipment will be allowed to enter the willow habitat during the course of the project.

Given that no willow flycatcher habitat is expected to be removed, the proposed minimization measures are anticipated to be sufficient to protect individual willow flycatchers from potential impacts from project-related disturbances.

Project Impacts

Since the proposed project is planned to limit ground-disturbing activities to the west side of US 395, no loss of WIFL habitat is expected as result of the project.

Disturbance impacts caused by heavy machinery, noise, vibration, movement, the presence of work personnel, congested traffic, and localized air quality impacts due to dust and equipment exhaust at Construction Sites #3, 4 and 6 could be a concern for any WIFLs occupying the small patches of willow habitat nearby.

The intensity and duration of construction related disturbance across from rockfall treatment area #3 (willow stand #1) will be less than that of treatment areas #4 and 6 (willow stands #2 and 3 respectively), due to the fact that treatments there are going to be restricted to rounding the top of the slope, some rock scaling, and vegetation

treatments consisting of hydroseeding and the placement of erosion control blankets. The work at treatment area #3 is estimated to take one week to complete.

The greater amount of work involved at rockfall treatment areas #4 and 6 result from slope grading activity, a greater amount of rock scaling required, and the installation of the double-twisted wire mesh (DTWM) drapery and/or anchored cable mesh, as well as hydroseeding and erosion control blankets. This work is estimated to take two weeks to complete for each area. Therefore, willow stands #2 and 3 will experience project-related disturbance of greater intensity and duration than that expected for willow stand #1.

Compensatory Mitigation

Since no suitable habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.3. Discussion of Northern goshawk (*Accipiter gentilis*)

The Northern goshawk is a California Species of Concern and a US Forest Service sensitive species. This large, aggressive raptor is typically found in mature, dense conifer forests in mid-to high elevation regions of the Sierra Nevada Mountains. They prefer to nest near the bottom of the tree canopy on north-facing slopes in the densest part of a stand, but near openings. Goshawks prey mostly on birds but will also hunt squirrels and rabbits. They can winter in lower elevation areas of the high desert, where they may use pinyon-juniper forest types (Zeiner, et. al. 1988-1990).

4.3.3.1 Survey Results

Biological surveys of the project site in June and July of 2011 did not locate any Northern goshawks or their sign. Goshawks were not expected to be located since they would normally only be wintering in the area. There is one CNDDDB record, from 1983, of a goshawk approximately 1.4 miles southwest of the project area in the Mono Dome region.

Avoidance and Minimization Efforts

Since goshawks are not expected to be located in or near the project site during the construction season, no avoidance or minimization efforts are proposed for this species.

Project Impacts

Depending on the option selected, either 2.2 acres (Option 1) or 2.825 acres (Option 2) of pinyon pine habitat will be impacted by the project. All of the affected habitat is

in close proximity to US 395 and adjacent to the existing, rocky cut banks that overlook the highway. Within the affected area, some (not all) pinyon pine trees will be removed as necessary to facilitate the installation of the DTWM drapery and/or anchored cable mesh, and as a result of slope grading activity. The post-construction habitat condition will still be a viable stand of pinyon pine forest, but slightly less dense than the current condition. Since this forest type naturally varies greatly in stand density, the post construction habitat is expected to retain its current level of suitability as goshawk wintering habitat.

Since goshawks are not expected to be in the area during the construction season, no impacts to individual goshawks are expected.

Compensatory Mitigation

Since no impacts to individual goshawks or permanent loss of habitat is expected, no compensatory mitigation is proposed.

4.2.4. Discussion of Northern harrier (*Circus cyaneus*)

The Northern harrier is a raptor adapted to meadows, grasslands, open rangelands, and wetland areas. It is rarely found in wooded areas. Northern harriers nest on the ground in shrubby vegetation, usually on the edge of a marshy area. They have been known to nest in sagebrush flats several miles from water. Northern harriers prey on a variety of small creatures including mammals, birds, reptiles, amphibians, and insects (Zeiner, et. al. 1988-1990).

Survey Results

No Northern harriers were observed during biological surveys of the project area. There are no CNDDDB records of sightings in the project area, but there is a record from 2003 of a sighting approximately 1.3 miles east in the vicinity of Lee Vining Creek. While suitable foraging and possibly nesting habitat may occur in the vicinity of Mono Lake, none is present within or near to the proposed rockfall slope construction sites or within the biological study limits for the project.

Avoidance and Minimization Efforts

Since neither Northern harriers nor their habitat are expected to be found within or near the project area, no avoidance or minimization efforts are proposed.

Project Impacts

No suitable Northern harrier habitat will be affected by this project. No individual harriers are expected to be located within or near the project area. Therefore, no impacts to Northern harriers or their habitat are expected.

Compensatory Mitigation

Since no impact to individual harriers or loss of habitat is expected, no compensatory mitigation is proposed.

4.2.5. Discussion of osprey (*Pandion haliaetus*)

The osprey is the only bird of prey in North America which has fish as its primary food source. It is always associated with fish-bearing water bodies. Osprey typically build platform nests in the tops of large snags, dead-topped trees, cliffs, or on man-made structures (Zeiner, et. al. 1988-1990). In the case of Mono Lake, several pairs of osprey have built nests in the tufa towers near the lake shore. Since Mono Lake is too saline to support fish, the resident osprey forage in streams and lakes in the nearby mountains, mostly to the south and west of Lee Vining.

Survey Results

Osprey were not observed during biological surveys in June and July of 2011. However, they were known to have been nesting at Mono Lake during that time, in tufa formations approximately 2.6 miles from the project area. CNDDDB has a record of osprey on Mono Lake from 2005 that is 0.8 miles from the project area.

Avoidance and Minimization Efforts

Since the closest osprey occurrence is nearly a mile distance from the project area, and the project area does not include suitable habitat, no avoidance or minimization efforts are proposed.

Project Impacts

No suitable osprey habitat will be affected by this project. No individual osprey are expected to be located within or near the project area. Therefore, no impacts to osprey or their habitat are expected.

Compensatory Mitigation

Since no impact to individual osprey or loss of habitat is expected, no compensatory mitigation is proposed.

4.2.6. Discussion of long-eared owl (*Asio otus*)

The long-eared owl is a California Species of Concern. They favor dense riparian and live oak thickets near woodland or forested habitat with open areas for hunting. Voles and small rodents make up the majority of their prey (Zeiner, et. al. 1988-1990).

Survey Results

A juvenile long-eared owl was observed and photographed in willow stand #1 during willow flycatcher surveys in June, 2011. This stand is across the highway from slope #3, which is proposed for treatment under this project (primarily revegetation). The willow stands and dense riparian forest habitat on the east side of US 395 provide suitable habitat for long-eared owls.

Avoidance and Minimization Efforts

For willow stands #1 – 3, (See Figures 1 and 2 in Appendix A) which are adjacent to the proposed construction zones and may contain long-eared owls, four measures could be used to avoid and minimize potential impacts to long-eared owls occupying the willow stands.

1. Restrict construction activities until after the breeding season when it is unlikely that long-eared owls will be in the area. This measure would also allow other nesting birds time to fledge young, thus complying with the Migratory Bird Treaty Act (MBTA). A seasonal work restriction between March 1 and August 15, or preconstruction bird surveys of the project site, should be adequate to protect nesting birds.
2. Perform preconstruction surveys prior to construction activities on a weekly basis. This would allow construction to start earlier than with measure 1, however, should nesting long-eared owls be identified, construction disturbances within that area may be delayed until subsequent surveys indicated that long-eared owls were no longer present.
3. Biological monitoring of the willow stands would provide for the detection of long-eared owls and determine if individuals are being negatively impacted by construction-related disturbance. Construction may be halted on a temporary basis until the owls are no longer in the area.
4. No construction personnel or equipment will be allowed to enter the willow habitat during the course of the project.

Given that no long-eared owl habitat is expected to be removed, the proposed minimization measures are anticipated to be sufficient to protect individual long-eared owls.

Project Impacts

Since the proposed project is planned to limit ground-disturbing activities to the west side of US 395, no loss of long-eared owl habitat is expected as result of the project. Disturbance impacts caused by heavy machinery, noise, vibration, movement, the presence of work personnel, congested traffic, and localized air quality impacts due to dust and equipment exhaust at Construction Sites #3, 4 and 6 could be a concern for any long-eared owls occupying the small patches of willow habitat nearby.

The intensity and duration of construction related disturbance across from rockfall treatment area #3 (willow stand #1) will be less than that of treatment areas 4 and 6 (willow stands #2 and 3 respectively), due to the fact that treatments there are going to be restricted to rounding the top of the slope, some rock scaling, and vegetation treatments consisting of hydroseeding and the placement of erosion control blankets. The work at treatment area #3 is estimated to take one week to complete.

The greater amount of work involved at rockfall treatment areas #4 and 6 result from slope grading activity, a greater amount of rock scaling required, and the installation of the double-twisted wire mesh (DTWM) drapery and/or anchored cable mesh, as well as hydroseeding and erosion control blankets. The work at these two sites is estimated to take two weeks to complete for each site. Therefore, willow stands #2 and 3 will experience project-related disturbance of greater intensity and duration than that expected for willow stand #1.

Compensatory Mitigation

Since no suitable habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.7. Discussion of yellow warbler (*Dendroica petechia brewsteri*)

The insectivorous yellow warbler is a California Species of Concern for nesting. They are usually found in riparian deciduous habitats during the summer, including cottonwoods, willows, and alders. Yellow warblers can also breed in montane chaparral and open conifer forests with substantial amounts of brush. They migrate to California in April and are generally gone by October. Parasitism by brown-headed cowbirds and loss of riparian habitat has been implicated as likely causes of the decline in yellow warbler populations in California in recent decades (Zeiner, et. al. 1988-1990).

Survey Results

Individual adult yellow warblers were observed and photographed in willow stands #1 and #2 during willow flycatcher surveys in June and July, 2011. No nesting was noted, but habitat within the riparian areas and dense sage brush would be suitable for nesting.

Avoidance and Minimization Efforts

For willow stands #1 – 3, (See Figures 1 and 2 in Appendix A) which are adjacent to the proposed construction zones and may contain yellow warblers, four measures could be used to avoid and minimize potential impacts to yellow warblers occupying the willow stands.

1. Restrict construction activities until after the breeding season when it is unlikely that long-eared owls will be in the area. This measure would also allow other nesting birds time to fledge young, thus complying with the Migratory Bird Treaty Act (MBTA). A seasonal work restriction between March 1 and August 15, or preconstruction bird surveys of the project site, should be adequate to protect nesting birds.
2. Perform preconstruction surveys prior to construction activities on a weekly basis. This would allow construction to start earlier than with measure 1, however, should nesting yellow warblers be identified, construction disturbances within that area may be delayed until subsequent surveys indicated that yellow warblers were no longer present.
3. Biological monitoring of the willow stands would provide for the detection of yellow warblers and determine if individuals are being negatively impacted by construction-related disturbance. Construction may be halted on a temporary basis until the warblers are no longer in the area.
4. No construction personnel or equipment will be allowed to enter the willow habitat during the course of the project.

Given that no yellow warbler habitat is expected to be removed, the proposed minimization measures are anticipated to be sufficient to protect individual yellow warblers from potential impacts from project-related disturbances.

Project Impacts

Since the proposed project is planned to limit ground-disturbing activities to the west side of US 395, no loss of yellow warbler habitat is expected as result of the project. Disturbance impacts caused by heavy machinery, noise, vibration, movement, the presence of work personnel, congested traffic, and localized air quality impacts due to

dust and equipment exhaust at Construction Sites #3, 4 and 6 could be a concern for any yellow warblers occupying the small patches of willow habitat nearby.

The intensity and duration of construction related disturbance across from rockfall treatment area #3 (willow stand #1) will be less than that of treatment areas 4 and 6 (willow stands #2 and 3 respectively), due to the fact that treatments there are going to be restricted to rounding the top of the slope, some rock scaling, and vegetation treatments consisting of hydroseeding and the placement of erosion control blankets. The work at treatment area #3 is estimated to take one week to complete.

The greater amount of work involved at rockfall treatment areas #4 and 6 result from slope grading activity, a greater amount of rock scaling required, and the installation of the double-twisted wire mesh (DTWM) drapery and/or anchored cable mesh, as well as hydroseeding and erosion control blankets. The work at these two sites is estimated to take two weeks to complete per site. Therefore, willow stands #2 and 3 will experience project-related disturbance of greater intensity and duration than expected for willow stand #1.

Compensatory Mitigation

Since no suitable habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.8. Discussion of yellow breasted chat (*Icteria virens*)

The yellow-breasted chat is a California Species of Concern that can be found in open-canopied riparian habitats with a dense shrub layer and thickets near water. This insectivorous migrant usually arrives in California by April and departs by late September. Parasitism by brown-headed cowbirds and loss of riparian habitat have contributed to population declines in recent decades (Zeiner, et. al. 1988-1990).

Survey Results

No yellow breasted chats were located during biological surveys of the project area. There are no CNDDDB records in or near the project area. The California Wildlife and Habitats Relationship (CWHR) on-line database species range map indicates that the yellow-breasted chat occurs only in the very southern limits of Mono County. However, the Mono Lake Committee website (www.monobasinresearch.org) provides references to yellow-breasted chat sightings in the western Mono Basin as late as 1991.

The willow habitat near proposed construction sites is probably not suitable for yellow breasted chats due to the lack of surface water in these locations. The closest suitable habitat would be Lee Vining Creek, approximately 1.3 miles to the east, and an unnamed creek 0.4 miles north of the northern-most rockfall slope. It is very unlikely that any yellow-breasted chats would be found in the project area.

Avoidance and Minimization Efforts

Since the closest potential habitat is 0.4 miles from the project area, and the project area does not include any suitable habitat, no avoidance or minimization efforts are proposed.

Project Impacts

Due to the lack of suitable habitat or presence of the species in or near the project area, no impacts are expected.

Compensatory Mitigation

Since no suitable habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.9. Discussion of bank swallow (*Riparia riparia*)

The bank swallow, a California Threatened species, is dependent on vertical banks and cliffs with fine-textured or sandy soils near streams, rivers, lakes, and ponds for building its nesting burrows. A colonial nester, most of the remaining colonies are found along the banks of the Sacramento and Feather Rivers, with only scattered colonies remaining in other parts of the state. The channelization of streams and bank stabilization work, along with a variety of other disturbance factors, have contributed to marked population declines throughout the state in recent decades (Zeiner, et. al. 1988-1990).

Survey Results

The closest recorded sighting of bank swallows in CNDDDB is a record from 1984 approximately 5 miles north-northeast of the project area. No bank swallows were observed during the biological surveys in June and July of 2011. The rockfall slopes proposed for treatment are not suitable habitat because they are very rocky and not of the fine-textured or sandy quality that the swallows require for constructing burrows. There are no records of bank swallows ever having been observed along the portion of US 395 that traverses the project area.

Avoidance and Minimization Efforts

Since the closest recorded sighting is 5 miles from the project area, and the project area does not include any suitable habitat, no avoidance or minimization efforts are proposed.

Project Impacts

Due to the lack of suitable habitat or presence of the species in or near the project area, no impacts are expected.

Compensatory Mitigation

Since no suitable habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.10. Discussion of yellow-headed blackbird (*Xanthocephalus xanthocephalus*)

The yellow-headed blackbird (YHB) is a California Species of Concern. The YHB nests in fresh-water emergent wetlands with dense vegetation, such as cattails and tules, along the edge of lakes, ponds, and wetlands. This colonial nesting bird places its nest in emergent vegetation over water typically 2 – 4 feet deep, and thus favors larger wetland areas. The YHB forages for insects and seeds over water, or open grasslands and fields with moist ground. The YHB is a migratory species that only occurs in the Mono Lake region during the summer breeding season (Zeiner, et. al. 1988-1990).

Survey Results

Yellow-headed blackbirds were not observed during biological surveys in June and July of 2011. No suitable nesting or foraging habitat is located within the project area. The willow clumps on the east side of US 395 may provide suitable perching habitat.

Avoidance and Minimization Efforts

Since no YHB habitat will be affected, and potential disturbance impacts will be localized, temporary, and minor, not disrupting breeding or feeding behaviors, no avoidance and minimization efforts are proposed.

Project Impacts

No YHB habitat will be affected by the project. No YHB nests are expected to be located within or near the project area. At the most, any YHBs perching in willow clumps #1, 2 and 3 may be disturbed by construction related activity at rockfall slopes

#3, 4, and 6 respectively. These birds would fly away to areas beyond the disturbance zone. This impact would be localized, temporary, and minor, and is not expected to result in a measureable disruption of YHB nesting or feeding activities.

Compensatory Mitigation

Since no YHB habitat will be affected by the project, no compensatory mitigation is proposed.

4.2.11. Discussion of Mt. Lyell shrew (*Sorex lyelli*)

The Mt. Lyell shrew is a California Species of Concern. This little-known shrew was once known only from a few locations around Mt. Lyell in the central Sierra Nevada range. The Mt. Lyell shrew apparently favors riparian sites with moist soil, grass, and willows where it forages for insects and invertebrates in the soil and woody debris (Zeiner, et. al. 1988-1990).

Survey Results

No Mt. Lyell shrews were observed during biological surveys in June and July, 2011. The closest recorded occurrence in CNDDDB is an observation from 1915, 5.25 miles south of the project area, in the vicinity of Walker Creek, just west of US 395. The willow clumps and adjacent grassy openings on the east side of US 395 may provide suitable habitat within the project area. The rockfall slope areas proposed for construction are not suitable habitat.

Avoidance and Minimization Efforts

Since no shrew habitat will be impacted by the project, and the potential for project-related disturbance is low, no avoidance or minimization efforts are proposed.

Project Impacts

The construction activity proposed for this project will not impact any suitable Mt. Lyell shrew habitat. Willow clumps #2 and 3, across the highway from rockfall slope construction areas #4 and 6 respectively, may experience disturbance impacts from noise, vibration, and the proximity of construction equipment and personnel. The likelihood that this disturbance would be of a level sufficient to disrupt shrew behavior is not precisely known, but expected to be low. The proposed work activity for rockfall slope #3, across from willow clump #1, is substantially less than that for the other two slopes, and is not expected to be sufficient to result in measureable disturbance to willow clump #1 for a small mammal species such as the shrew.

Compensatory Mitigation

Since no Mt. Lyell shrew habitat will be impacted by the project, no compensatory mitigation is proposed.

4.2.12. Discussion of mountain beaver (*Aplodontia rufa*)

The uncommon mountain beaver is a California Species of Concern. The mountain beaver occurs in dense riparian-deciduous and open, brushy stages of most forest types throughout the Sierra Nevada range. Since they require deep, friable soils for burrowing and a cool, moist microclimate, they are commonly found near water. The herbivorous, mostly nocturnal mountain beaver has a small home range, with most of the animals' activity occurring within 24 meters (80 ft) of the burrow (Zeiner, et. al. 1988-1990).

Survey Results

No observations of mountain beaver or their sign was noted during biological surveys in June and July of 2011. While portions of the project area may contain potentially suitable habitat (willow thickets), the habitat quality is likely to be low because of the lack of streams and springs within the project area and the isolation of these stands from nearby suitable habitat. None of the proposed rockfall slope work areas have suitable habitat for mountain beaver. The closest recorded sighting in CNDDDB is a 1990 observation 1.25 miles north of the project area, near a spring just west of US 395.

Avoidance and Minimization Efforts

Since no mountain beaver habitat is in the proposed rockfall slope construction areas, potentially suitable habitat in the project area is of low quality and will not be impacted by the project, and the likelihood that mountain beavers occur in the project area is low, no avoidance and minimization efforts are proposed.

Project Impacts

Project impacts will be limited to disturbance impacts from noise, vibration, and construction equipment near willow clumps #1, 2 and 3. These willow clumps are of low habitat suitability for mountain beaver due to the lack of streams and springs. The potential that a mountain beaver would occur within an affected willow clump is low. No suitable habitat will be impacted within the rockfall slope construction areas.

Compensatory Mitigation

Since no suitable habitat will be impacted by the project, no compensatory mitigation is proposed.

4.2.13. Discussion of Sierra Nevada red fox (*Vulpes vulpes necator*)

The Sierra Nevada red fox (SNRF) is a rare, poorly understood subspecies of red fox that occurs in a wide variety of habitat types in the high Sierras, typically above 7,000 ft elevation, but occasionally as low as 3,900 ft. The SNRF is listed as Threatened by the State of California. They frequent habitat edges, using forest types typical of high elevations (red fir, mountain hemlock, lodgepole pine, whitebark pine), dense brush, and rock outcrops for denning and cover, while hunting in alpine meadows, fell fields, grasslands, and other openings. They are not known to use sagebrush habitat (Perrine et. al. 2010). They prey on a variety of small mammals and ground-nesting birds, eggs, reptiles, some insects, and fruits. They are preyed upon by bobcats, golden eagles, mountain lions, and, primarily, coyotes. Anecdotal evidence, mainly from early trappers, seems to indicate that the SNRF is very secretive and intolerant of human presence. However, three individuals in Lassen National Park became habituated to begging for handouts and were frequently seen at campgrounds, parking lots, and other tourist areas within the park (Perrine et. al. 2010).

The project area is within the presumed historical range of the SNRF. However, since 1993, the only detections of SNRF recorded have been in Lassen Volcanic National Park and surrounding areas of Lassen National Forest, in spite of the fact that numerous carnivore detection surveys have been performed up and down the Sierra range between 1996 and 2002 (Perrine et. al. 2010). There is some concern that the Lassen area may represent the last remaining population of SNRF in the Sierra Nevada Range (ibid).

Survey Results

No SNRF observations or sign were recorded during general biological surveys in June and July, 2011. The sage brush and pinyon pine habitat within the project area are probably not suitable, due to the lack of evidence that the SNRF uses such habitat types. The presence of the heavily travelled US 395 represents a serious mortality risk to SNRF from vehicle impact.

The CNDDDB has recorded a “nonspecific area” occurrence of SNRF, from 1989, designated along a 4.25 mile stretch of US 395 which includes the southern half of the project area. The project area, at roughly 6,200’ elevation, is below the elevation of the most common occurrences of the SNRF. The combination of elevation, proximity of the highway, lack of recent sightings, lack of suitable habitat, and rarity of the species makes for an exceptionally low likelihood that SNRF may occur in the project area.

Avoidance and Minimization Efforts

Since no suitable habitat will be impacted by the project, and it is highly unlikely that any SNRF occur near the project area, no avoidance or minimization efforts are proposed.

Project Impacts

According to the current available knowledge of this species, the habitat types included in and adjacent to the construction zones (sage brush and pinyon pine forest) are not suitable SNRF habitat. The 2.75 acres of mostly bare, steep, rocky slopes which will be treated to minimize rock fall are not suitable SNRF habitat. It is very unlikely that any SNRF occur in the area, so the potential that individual foxes would be disturbed by construction activity is extremely remote.

Compensatory Mitigation

Since no suitable habitat will be impacted by the project, no compensatory mitigation is proposed.

4.2.14. Discussion of mule deer (*Olocoileus hemionus*)

The mule deer is a common to abundant game species found throughout most of California except for desert environments and intensely managed agricultural areas which lack cover. Ideal habitat for mule deer includes a mosaic of early to mid-succession vegetation types which include forest or brush lands for escape cover and thermal regulation, grassy openings for foraging, and dense riparian areas for fawning habitat. The mule deer browses primarily on young brush and forbs, and, where available, relies heavily on acorns during the fall. Mountain populations can exhibit seasonal migration movements up and down slope in response to winter storms and summer snow melt. Although mule deer can be active any time of the day, they are generally crepuscular. Mule deer fall prey primarily to mountain lions, and occasionally to coyotes, black bears, bobcats, and domestic dogs (Zeiner, et. al. 1988-1990). The project area is within the range of the mule deer and contains suitable mule deer habitat.

Survey Results

During general biological surveys in June and July, 2011, one mule deer doe was observed near the old marina, near willow clumps #1 and 2. One fairly recent road-killed mule deer buck carcass was located near the south end of the project area, just off the west side of the highway, in an area of mostly flat topography. A small amount of older, scattered remains (leg bones, a decayed hide) were located within

the project survey area, along with deer pellets and occasional tracks. It is evident that mule deer are fairly common in the area.

While the location of remains and deer sign did not indicate any specific crossing points, local topography and the Mono Lake shoreline would probably constrain deer movement to a north-south route parallel to SR 395. This route is the least-cost pathway connecting the Bodie Hills/Conway Summit areas to the north with Parker Meadows and other habitat areas to the south. Due to the very steep hillsides on both the east and west sides of the highway in the vicinity of rockfall slopes #3, 4, 5, and 6, it is unlikely that deer would routinely use an east-west crossing of US 395 in that portion of the project area. The more gentle topography of the south end of the project area, in the vicinity of rockfall slopes #1 and 2, would facilitate easier crossing for mule deer in that location.

Avoidance and Minimization Efforts

Since only a very small amount of low-quality habitat will be impacted by the project, no avoidance or minimization efforts are proposed.

Project Impacts

The 2.26 acres of mostly bare, steep, rocky slopes which will be treated to minimize rock fall are not suitable mule deer habitat. The remaining 2.2 acres (Option 1) or 2.825 acres (Option 2) of pinyon pine and sage brush habitat impacted by the proposed rockfall safety treatments would cease to be suitable habitat for a time due to the loss of vegetation and installation of the DTWM drapery. This habitat is considered to be of very low quality due to the steepness of the slope and proximity to the heavily travelled US 395 highway. The stabilization of the slopes is expected to facilitate revegetation, so the habitat would recover over time.

Since mule deer are very wary and mobile, it is unlikely that any individual deer would be disturbed by construction activity since they can easily move away from or simply avoid the disturbance area. The carrying capacity of habitat in the project region will not be measurably affected by the level of impacts expected from this project.

Compensatory Mitigation

Since only a small quantity of a non-limiting, low quality habitat will be impacted by the project, no compensatory mitigation is proposed.

Chapter 5. Results: Permits and Technical Studies for Special Laws or Conditions

5.1. Federal Endangered Species Act Consultation Summary

Since no species listed under the ESA will be impacted by the project, no consultation with the USFWS is required.

5.2. Federal Fisheries and Essential Fish Habitat Consultation Summary

Since no fish or fish habitat will be impacted by the project, no consultation with NMFS is required.

5.3. California Endangered Species Act Consultation Summary

Since proposed mitigations will result in no impacts to State-listed species (willow flycatcher) and no willow flycatcher habitat will be affected by the proposed project, no consultation with CDFG is required.

5.4. Wetlands and Other Waters Coordination Summary

Since no wetlands, Other Waters, or Waters of the US are impacted by the project, no coordination with USACE, CDFG, or the RWQCB is required. The Ventura office of the USACE issued a letter on June 4, 2012, stating their determination that this project is not subject to the jurisdiction of the Army Corps of Engineers.

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Appendix A Project Maps

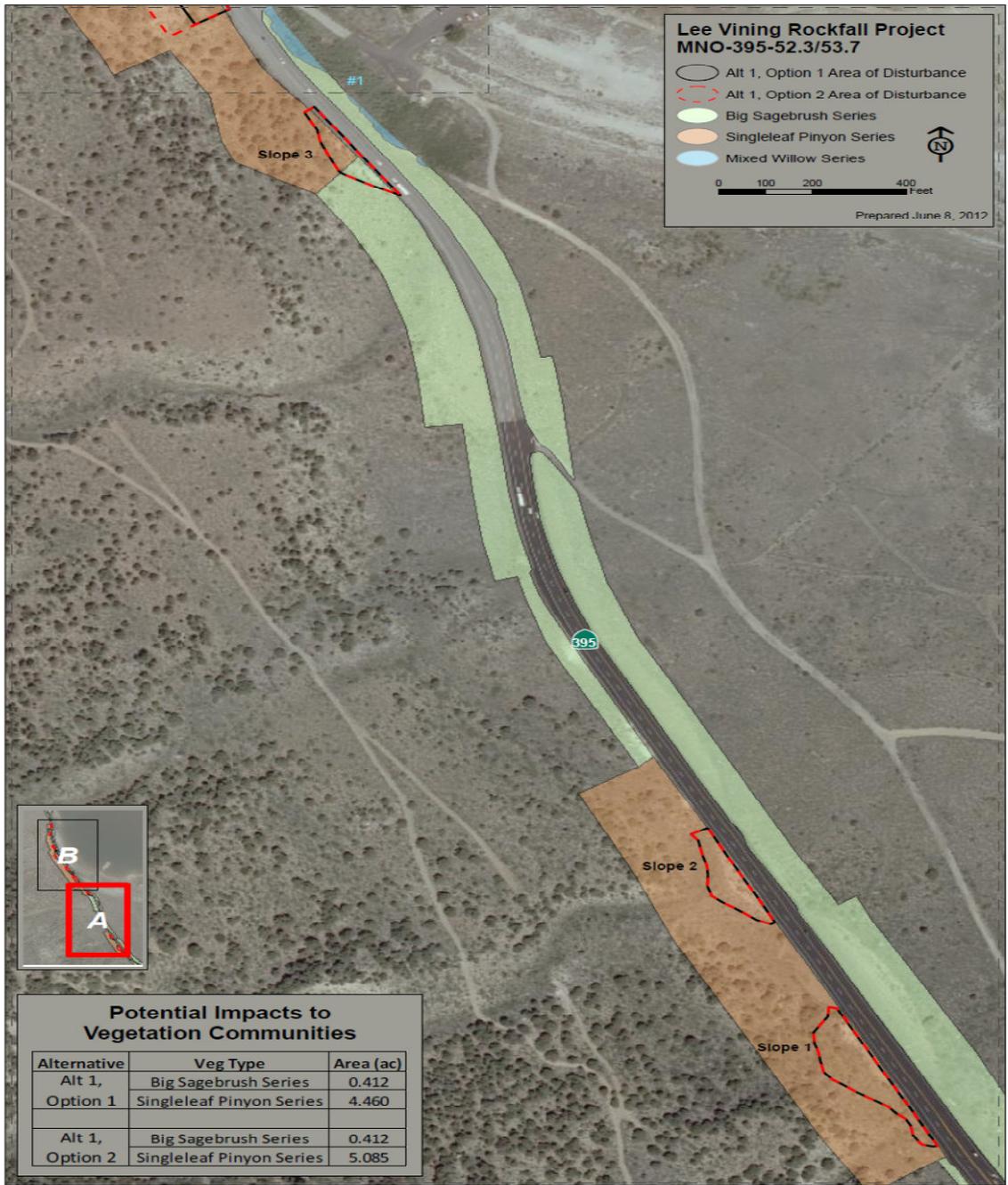


Figure A-1 Potential Impacts to Vegetation Communities, Map A



Figure A-2 Potential Impacts to Vegetation Communities, Map B

Appendix B Plant Species Observed During Botanical Surveys

Species Name	Common Name	Family	Indicator Status ²
<i>Osmorhiza occidentalis</i>	western sweetroot	Apiaceae	NL
<i>Sphenosciadium capitellatum</i>	ranger's buttons	Apiaceae	OBL
<i>Achillea millefolium</i>	common yarrow	Asteraceae	FACU
<i>Ambrosia artemisiifolia</i>	annual ragweed	Asteraceae	FACU
<i>Ambrosia dumosa</i>	burrowbrush	Asteraceae	NL
<i>Artemisia cana</i>	silver sagebrush	Asteraceae	FACW
<i>Artemisia tridentata</i>	big sagebrush	Asteraceae	NL
<i>Chaenactis parishii</i>	Parish's chaenactis	Asteraceae	NL
<i>Crepis intermedia</i>	limestone hawkbeard	Asteraceae	NL
<i>Ericameria nauseosa</i>	rubber rabbitbrush	Asteraceae	NL
<i>Euthamia occidentalis</i>	Western fragrant-goldenrod	Asteraceae	OBL
<i>Grindelia squarrosa serrulata</i>	curlycup gumweed	Asteraceae	FACU
<i>Gutierrezia sarothrae</i>	broom snakeweed	Asteraceae	NL
<i>Machaeranthera canescens</i>	hoary tansyaster	Asteraceae	FAC
<i>Senecio triangularis</i>	arrow-leaf groundsel	Asteraceae	OBL
<i>Stephanomeria exigua</i>	small wirelettuce	Asteraceae	NL
<i>Stephanomeria pauciflora</i>	brownplume wirelettuce	Asteraceae	NL
<i>Tetradymia canescens</i>	spineless horsebrush	Asteraceae	NL
<i>Townsendia scapigera</i>	tufted Townsend daisy	Asteraceae	NL
<i>Tragopogon dubius</i>	yellow salsify	Asteraceae	NL
<i>Wyethia mollis</i>	woolly mule-ears	Asteraceae	NL
<i>Amsinckia tessellata</i>	bristly fiddleneck	Boraginaceae	NL
<i>Cryptantha circumscissa</i>	cushion cryptantha	Boraginaceae	NL
<i>Cryptantha pterocarya</i>	wingnut cryptantha	Boraginaceae	NL
<i>Cryptantha virginensis</i>	Virgin River cryptantha	Boraginaceae	NL
<i>Tiquilia nuttallii</i>	Nuttall's crinklemat	Boraginaceae	NL
<i>Arabis pulchra</i>	beautiful rockcress	Brassicaceae	NL
<i>Brassica rapa</i>	field mustard	Brassicaceae	NL
<i>Cardamine breweri</i> var. <i>breweri</i>	Brewer's bittercress	Brassicaceae	FACW
<i>Erysimum (capitatum)</i>	sanddune wallflower	Brassicaceae	NL
<i>Lepidium fremontii</i>	desert pepperweed	Brassicaceae	NL
<i>Lepidium lasiocarpum</i>	shaggyfruit pepperweed	Brassicaceae	NL
<i>Sisymbrium altissimum</i>	tall tumble mustard	Brassicaceae	FACU
<i>Streptanthus cordatus</i>	heartleaf twistflower	Brassicaceae	NL
<i>Tropidocarpum gracile</i>	dobbie pod	Brassicaceae	NL

<i>Symphoricarpos rotundifolius</i> var. <i>parishii</i>	Parish's snowberry	Caprifoliaceae	NL
<i>Chenopodium album</i>	white amaranth	Chenopodiaceae	FAC
<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae	NL
<i>Cuscuta</i> sp.	dodder	Cuscutaceae	NL
<i>Carex athrostachya</i>	slender-beak sedge	Cyperaceae	FACW
<i>Carex douglasii</i>	Douglas sedge	Cyperaceae	FACU
<i>Carex praeegracilis</i>	clustered field sedge	Cyperaceae	FACW
<i>Carex simulata</i>	short-beaked sedge	Cyperaceae	FACW
<i>Gaultheria ovatifolia</i>	western teaberry	Ericaceae	FAC+
<i>Astragalus casei</i>	Case's milkvetch	Fabaceae	NL
<i>Astragalus lentiginosus</i>	specklepod milkvetch	Fabaceae	NI
<i>Lupinus argenteus</i>	silvery lupine	Fabaceae	NL
<i>Melilotus albus</i>	yellow sweetclover	Fabaceae	FACU+
<i>Robinia pseudoacacia</i>	black locust	Fabaceae	FAC
<i>Phacelia bicolor</i>	twocolor phacelia	Hydrophyllaceae	NL
<i>Phacelia hastata</i>	silverleaf phacelia	Hydrophyllaceae	NL
<i>Phacelia humilis</i>	low phacelia	Hydrophyllaceae	NL
<i>Phacelia ramosissima</i>	branching phacelia	Hydrophyllaceae	NL
<i>Juncus balticus</i>	Baltic rush	Juncaceae	OBL
<i>Juncus mexicanus</i>	Mexican rush	Juncaceae	FACW
<i>Juncus xiphioides</i>	iris-leaved rush	Juncaceae	OBL
<i>Agastache urticifolia</i>	nettleleaf giant hyssop	Lamiaceae	NL
<i>Monardella odoratissima</i>	mountain monardella	Lamiaceae	FACU
<i>Lilium parvum</i>	Sierra tiger lily	Liliaceae	OBL
<i>Maianthemum racemosum</i>	feathery false lily of the valley	Liliaceae	FAC
<i>Mentzelia albicaulis</i>	whitestem blazing star	Loasaceae	NL
<i>Mentzelia laevicaulis</i>	smoothstem blazingstar	Loasaceae	NL
<i>Foresteria pubescens</i>	dwaf swamp privet	Oleaceae	NI
<i>Epilobium glaberrimum</i>	glaucus willow-herb	Onagraceae	OBL
<i>Epilobium ciliatum</i>	hairy willow-herb	Onagraceae	FACW
<i>Gayophytum ramosissimum</i>	pinyon groundsmoke	Onagraceae	NL
<i>Argemone munita</i>	flatbud pricklypoppy	Papaveraceae	NL
<i>Pinus monophylla</i>	pinyon pine	Pinaceae	NL
<i>Plantago lanceolata</i>	English plantain	Plantaginaceae	FAC
<i>Achnatherum hymenoides</i>	Indian ricegrass	Poaceae	UPL
<i>Achnatherum speciosum</i>	desert needlegrass	Poaceae	NL
<i>Agropyron desertorum</i>	desert wheatgrass	Poaceae	NL
<i>Aristida purpurea</i>	purple threeawn	Poaceae	NL
<i>Bromus tectorum</i> *	cheatgrass	Poaceae	NL
<i>Distichlis spicata</i>	saltgrass	Poaceae	FACW
<i>Elymus elymoides</i>	bottlebrush squirreltail	Poaceae	FACU

<i>Elymus spicatus</i>	bluebunch wheatgrass	Poaceae	NL
<i>Leymus cinereus</i>	basin wildrye	Poaceae	NI
<i>Melica stricta</i>	rock melicgrass	Poaceae	NL
<i>Poa pratensis</i>	Kentucky bluegrass	Poaceae	FACU
<i>Poa palustris</i>	fowl bluegrass	Poaceae	FACW
<i>Thinopyrum intermedium</i>	intermediate wheatgrass	Poaceae	NL
<i>Eriastrum eremicum</i>	desert woollystar	Polemoniaceae	NL
<i>Gilia scopulorum</i>	rock gilia	Polemoniaceae	NL
<i>Linanthus pungens</i>	granite prickly phlox	Polemoniaceae	NL
<i>Chorizanthe brevicornu</i>	brittle spineflower	Polygonaceae	NL
<i>Eriogonum davidsonii</i>	Davidson's buckwheat	Polygonaceae	NL
<i>Eriogonum reniforme</i>	yellowturbans	Polygonaceae	NL
<i>Eriogonum umbulatum</i>	sulphur-flower buckwheat	Polygonaceae	NL
<i>Salsola tragus</i>	Russian thistle/tumbleweed	Polygonaceae	FACU
<i>Calyptidium monandrum</i>	pussypaws	Portulacaceae	NL
<i>Delphinium polycladon</i>	mountain marsh larkspur	Ranunculaceae	NL
<i>Ceanothus cordulatus</i>	whitethorn ceanothus	Rhamnaceae	NL
<i>Ceanothus greggii</i>	desert ceanothus	Rhamnaceae	NL
<i>Rhamnus californica californica</i>	California buckthorn	Rhamnaceae	NL
<i>Amelanchier utahensis</i>	Utah serviceberry	Rosaceae	NL
<i>Prunus andersonii</i>	desert peach	Rosaceae	FAC
<i>Purshia tridentata</i>	antelope bush	Rosaceae	NL
<i>Rosa californica</i>	Califonria rose	Rosaceae	FAC
<i>Galium multiflorum</i>	shrubby bedstraw	Rubiaceae	NL
<i>Populus alba</i>	white poplar	Salicaceae	NL
<i>Populus fremontii</i>	Fremont cottonwood	Salicaceae	FACW
<i>Populus tremuloides</i>	quaking aspen	Salicaceae	FAC
<i>Salix exigua</i>	narrowleaf willow	Salicaceae	NL
<i>Salix geyeriana</i>	Geyer willow	Salicaceae	OBL
<i>Salix laevigata</i>	red willow	Salicaceae	FACW
<i>Castilleja angustifolia</i>	northwestern Indian paintbrush	Scrophulariaceae	NL
<i>Castilleja linarifolia</i>	Wyoming Indian paintbrush	Scrophulariaceae	NL
<i>Castilleja miniata</i> ssp. <i>miniata</i>	giant paintbrush	Scrophulariaceae	FACW
<i>Castilleja minor</i>	small flower Indian paintbrush	Scrophulariaceae	OBL
<i>Mimulus guttatus</i>	seep monkeyflower	Scrophulariaceae	OBL
<i>Penstemon rostriflorus</i>	Bridge penstemon	Scrophulariaceae	NL
<i>Scrophularia desertorum</i>	desert figwort	Scrophulariaceae	NL
<i>Verbascum thapsus</i>	mullein	Scrophulariaceae	NL
<i>Veronica americana</i>	American brooklime	Scrophulariaceae	OBL
<i>Typha latifolia</i>	broad-leaf cattail	Typhaceae	OBL
<i>Ulmus pumila</i>	Siberian elm	Ulmaceae	NL

Urtica dioica ssp. holosericea	stinging nettle	Urticaceae	FACW
<p>¹This table includes all plants observed during the three 2011 survey periods and reported in the Botanical Survey report for the project (URS 2011).</p> <p>²Indicator Status was determined using the National List of Plant Species that Occur in Wetlands : California (Region 0) (Reed 1988) and the USDA Natural Resources Conservation Service's online PLANTS database</p>			

Appendix C Species Query Results

U.S. Fish & Wildlife Service

Sacramento Fish & Wildlife Office

Federal Endangered and Threatened Species that Occur in
or may be Affected by Projects in the Counties and/or
U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 120501031857

Database Last Updated: September 18, 2011

Quad Lists

Listed Species

Fish

- *Oncorhynchus* (=Salmo) *clarki seleniris*
 - Paiute cutthroat trout (T)

Mammals

- *Ovis canadensis californiana*
 - Sierra Nevada (=California) bighorn sheep (E)

Candidate Species

Amphibians

- *Bufo canorus*
 - Yosemite toad (C)
- *Rana muscosa*
 - mountain yellow-legged frog (C)

Mammals

- *Martes pennanti*
 - fisher (C)

Quads Containing Listed, Proposed or Candidate Species:

MOUNT DANA (453B)

http://www.fws.gov/sacramento/ES_Species/Lists/es_species_lists.cfm

5/1/2012

California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait
 EA 09-33500

Search Mono County + 9 Quads Lee Vining Mt. Dana, Dundenberg, Twin Lakes, Lundy, Big Alkali, Tioga Pass, Bodie, Negit Island -
 Selected County, Quad, Plants, CNPS Ranks 1 and 2

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Agrostis humilis</i> mountain bent grass	PMPOA040P0			G4	S1.3	2.3
2 <i>Allium atrorubens</i> var. <i>atorubens</i> Great Basin onion	PMLIL02061			G4T4	S2	2.3
3 <i>Astragalus oophorus</i> var. <i>lavinii</i> Lavin's milk-vetch	PDFAB0F6C4			G4T2	S1	1B.2
4 <i>Boechea bodiensis</i> Bodie Hills rock-cress	PDBRA06240			G2	S1.2	1B.3
5 <i>Boechea cobrensis</i> Masonic rock-cress	PDBRA06080			G5	S1S2	2.3
6 <i>Boechea tiehmii</i> Tiehm's rock-cress	PDBRA06280			G2	S2.3	1B.3
7 <i>Boechea tularensis</i> Tulare rock-cress	PDBRA40130			G2	S2	1B.3
8 <i>Botrychium ascendens</i> upswept moonwort	PPOPH010S0			G2G3	S1.3?	2.3
9 <i>Botrychium crenulatum</i> scalloped moonwort	PPOPH010L0			G3	S2.2	2.2
10 <i>Botrychium lunaria</i> common moonwort	PPOPH01080			G5	S2?	2.3
11 <i>Calochortus excavatus</i> Inyo County star-tulip	PMLIL0D0F0			G2	S2	1B.1
12 <i>Camissonia boothii</i> ssp. <i>boothii</i> Booth's evening-primrose	PDONA03052			G5T4	S2	2.3
13 <i>Carex praticola</i> northern meadow sedge	PMCYP03B20			G5	S2S3	2.2
14 <i>Carex scirpoidea</i> ssp. <i>pseudoscirpoidea</i> western single-spiked sedge	PMCYP03C85			G5T5	S2	2.2
15 <i>Carex tiogana</i> Tioga Pass sedge	PMCYP03GP0			G1	S1.2	1B.3
16 <i>Chaetadelpa wheeleri</i> Wheeler's dune-broom	PDAST21010			G4	S1S2	2.2
17 <i>Crepis runcinata</i> ssp. <i>hallii</i> Hall's meadow hawksbeard	PDAST2R0KB			G5T3?	S1S2	2.1
18 <i>Cusickiella quadricostata</i> Bodie Hills cusickiella	PDBRA2V010			G2	S2.2	1B.2
19 <i>Draba asterophora</i> var. <i>asterophora</i> Tahoe draba	PDBRA110D1			G2T2	S2	1B.2
20 <i>Draba cana</i> canescent draba	PDBRA110M0			G5	S1.3	2.3
21 <i>Draba praealta</i> tall draba	PDBRA11210			G5	S2.3	2.3
22 <i>Erigeron miser</i> starved daisy	PDAST3M2K0			G2	S2.3	1B.3
23 <i>Eriogonum alexanderiae</i> Alexander's buckwheat	PDPGN084C5			G2G3	S1	2.2

California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait
 EA 09-33500

Search Mono County + 9 Quads Lee Vining Mt. Dana, Dundenberg, Twin Lakes, Lundy, Big Alkali, Tioga Pass, Bodie, Negit Island -
 Selected County, Quad, Plants, CNPS Ranks 1 and 2

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
24 <i>Eriogonum nutans</i> var. <i>nutans</i> Dugway wild buckwheat	PDPGN084B2			G5T3T4	S2.3	2.3
25 <i>Festuca minutiflora</i> small-flowered fescue	PMPOA2V1M0			G5	S1.3	2.3
26 <i>Glyceria grandis</i> American manna grass	PMPOA2Y080			G5	S1.3?	2.3
27 <i>Kobresia myosuroides</i> seep kobresia	PMCYP0F010			G5	S1.3	2.3
28 <i>Lupinus duranii</i> Mono Lake lupine	PDFAB2B1E0			G2	S2.2	1B.2
29 <i>Lupinus pusillus</i> var. <i>intermontanus</i> intermontane lupine	PDFAB2B3B1			G5T5?	S2.2	2.3
30 <i>Mentzelia torreyi</i> Torrey's blazing star	PDLOA031S0			G4	S2.2	2.2
31 <i>Mimulus glabratus</i> ssp. <i>utahensis</i> Utah monkeyflower	PDSCR1B1A6			G5T5?	S1.1	2.1
32 <i>Minuartia stricta</i> bog sandwort	PDCAR0G0U0			G5	S2	2.3
33 <i>Phacelia monoensis</i> Mono County phacelia	PDHYD0C4V0			G3	S2.1	1B.1
34 <i>Ranunculus hydracharoides</i> frog's-bit buttercup	PDRAN0L190			G4G5	S1.1	2.1
35 <i>Salix brachycarpa</i> ssp. <i>brachycarpa</i> short-fruited willow	PDSAL020H5			G5T5	S1.3?	2.3
36 <i>Salix nivalis</i> snow willow	PDSAL024K0			G5	S1.3	2.3
37 <i>Silene oregana</i> Oregon campion	PDCAR0U170			G5	S2.3	2.3
38 <i>Streptanthus oliganthus</i> Masonic Mountain jewel-flower	PDBRA2G0V0			G3	S2.2	1B.2
39 <i>Tetradymia tetrameres</i> dune horsebrush	PDAST950A0			G4	S1.2	2.2
40 <i>Thelypodium integrifolium</i> ssp. <i>complanatum</i> foxtail thelypodium	PDBRA2N062			G5T5	S2.2	2.2
41 <i>Thelypodium milleflorum</i> many-flowered thelypodium	PDBRA2N0A0			G5	S2S3	2.2
42 <i>Townsendia condensata</i> cushion townsendia	PDAST9C040			G4	S1.3	2.3
43 <i>Viola purpurea</i> ssp. <i>aurea</i> golden violet	PDVIO04420			G5T2T3	S2S3	2.2

California Department of Fish and Game
 Natural Diversity Database
 Selected Elements by Scientific Name - Portrait
 2 quad search Mount Dana and Lee Vining - Animal Species

Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
1 <i>Accipiter gentilis</i> northern goshawk	ABNKC12060			G5	S3	SC
2 <i>Anaxyrus canorus</i> Yosemite toad	AAABB01040	Candidate		G2	S2	SC
3 <i>Aplodontia rufa californica</i> Sierra Nevada mountain beaver	AMAF01013			G5T3T4	S2S3	SC
4 <i>Artemia monica</i> Mono brine shrimp	ICBRA02010			G1	S1	
5 <i>Brachylagus idahoensis</i> pygmy rabbit	AMAEB04010			G4	S3	SC
6 <i>Buteo swainsoni</i> Swainson's hawk	ABNKC19070		Threatened	G5	S2	
7 <i>Circus cyaneus</i> northern harrier	ABNKC11010			G5	S3	SC
8 <i>Dendroica petechia brewsteri</i> yellow warbler	ABPBX03018			G5T3?	S2	SC
9 <i>Empidonax traillii</i> willow flycatcher	ABPAE33040		Endangered	G5	S1S2	
10 <i>Euderma maculatum</i> spotted bat	AMACC07010			G4	S2S3	SC
11 <i>Eumops perotis californicus</i> western mastiff bat	AMACD02011			G5T4	S3?	SC
12 <i>Gulo gulo</i> California wolverine	AMAJF03010	Candidate	Threatened	G4	S1	
13 <i>Larus californicus</i> California gull	ABNNM03110			G5	S2	
14 <i>Lasionycteris noctivagans</i> silver-haired bat	AMACC02010			G5	S3S4	
15 <i>Lasiurus cinereus</i> hoary bat	AMACC05030			G5	S4?	
16 <i>Lepus townsendii townsendii</i> western white-tailed jackrabbit	AMAEB03041			G5T5	S3?	SC
17 <i>Martes americana sierrae</i> Sierra marten	AMAJF01014			G5T3T4	S3S4	
18 <i>Martes pennanti (pacifica) DPS</i> Pacific fisher	AMAJF01021	Candidate		G5	S2S3	SC
19 <i>Myotis evotis</i> long-eared myotis	AMACC01070			G5	S4?	
20 <i>Myotis yumanensis</i> Yuma myotis	AMACC01020			G5	S4?	
21 <i>Ochotona princeps schisticeps</i> gray-headed pika	AMAEA0102H			G5T2T4	S2S4	
22 <i>Pandion haliaetus</i> osprey	ABNKC01010			G5	S3	
23 <i>Rana sierrae</i> Sierra Nevada yellow-legged frog	AAABH01340	Candidate	unknown code...	G1	S1	SC
24 <i>Sorex lyelli</i> Mount Lyell shrew	AMABA01020			G2G3	S2S3	SC

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Scientific Name/Common Name	Element Code	Federal Status	State Status	GRank	SRank	CDFG or CNPS
25 <i>Spizella breweri</i> Brewer's sparrow	ABPBX94040			G5	S3	
26 <i>Vulpes vulpes necator</i> Sierra Nevada red fox	AMAJA03012		Threatened	G5T3	S1	
27 <i>Xanthocephalus xanthocephalus</i> yellow-headed blackbird	ABPBXB3010			G5	S3S4	SC

Appendix D Site Photos



Photo 1: View of Slope #6 looking south with pinyon pine forest in the background.



Photo 2: Just south of slope #5 looking north.



Photo 3: Slope #3 looking north. Slopes 4, 5, and 6 are visible in the distance. Willow vegetation is just to the right of the highway.



Photo 4: South end of project area, looking north toward Slope #1.



Photo 5: Overview of sage brush habitat on east side of US 395. South end of project area, looking north.



Photo 6: Showing proximity of willow vegetation (Clump #2) in right foreground to Slope #4 in background.

Appendix E Avian Species Observed During Willow Flycatcher Surveys

California gulls – *Larus californicus* (hundreds, in Mono Lake, and flying around)
Long eared owl – *Asio otus* (fledged young)
Red-breasted sapsucker – *Sphyrapicus ruber*
Northern flicker – *Colaptes auratus*
Stellar’s jay – *Cyanocitta stelleri*
Western scrub jay – *Aphelocoma californica*
Common raven – *Corvus corax*
Violet-green swallow – *Tachycineta thalassina*
Cliff swallow – *Petrochelidon pyrrhonota*
House wren – *Troglodytes aedon*
American robin – *Turdus migratorius*
Cedar waxwing – *Bombycilla cedrorum*
European starling – *Sturnus vulgaris*
Yellow warbler – *Dendroica petechia*
MacGillivray’s warbler - *Oporornis tolmiei*
Western tanager – *Piranga ludoviciana*
Lazuli bunting – *Passerina amoena*
Brewer’s blackbird – *Euphagus cyanocephalus*
Spotted towhee – *Pipilo maculatus*
Bullock’s oriole – *Icterus galbula*
Black-headed grosbeak – *Pheucticus melanocephalus*

Appendix F Natural Resource Laws and Regulations

Federal Laws and Regulations

National Environmental Policy Act (42 U.S.C. 4321 et seq.). NEPA declares a continuing Federal policy "to use all practicable means and measures...to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations." NEPA directs "a systematic, interdisciplinary approach" to planning and decision making and requires environmental statements for "major Federal actions significantly affecting the quality of the human environment." Implementing regulations by the Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508) requires Federal agencies to identify and assess reasonable alternatives to proposed actions that will restore and enhance the quality of the human environment and avoid or minimize adverse environmental impacts. Federal agencies are further directed to emphasize significant environmental issues in project planning and to integrate impact studies required by other environmental laws and Executive Orders into the NEPA process. The NEPA process should therefore be seen as an overall framework for the environmental evaluation of Federal actions.

Endangered Species Act of 1973 (16 U.S.C. 1531-1543). This act and subsequent amendments provide guidance for the conservation of endangered and threatened species and the ecosystems upon which they depend.

- Section 7 requires Federal agencies, in consultation with, and with the assistance of the Secretary of the Interior or the Secretary of Commerce, as appropriate, to insure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of critical habitat for these species. The U. S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service (NMFS) share responsibilities for administering the Act. Regulations governing interagency cooperation under Section 7 are found at 50 CFR Part 402. The opinion issued at the conclusion of consultation will include a statement authorizing take that may occur incidental to an otherwise legal activity.
- Section 9 lists those actions that are prohibited under the Act. Take of a species listed in accordance with the Act is prohibited. There are two processes whereby take is allowed when it is incidental to an otherwise legal activity.

Migratory Bird Treaty Act (16 U.S.C. 703-711). This treaty with Canada, Mexico and Japan makes it unlawful at any time, by any means or in any manner, to pursue, hunt, take, capture, or kill migratory birds. The law applies to the removal of nests (such as swallow nests on bridges) occupied by migratory birds during the breeding season.

Clean Water Act (33 U.S.C. 1251-1376). The Clean Water Act (CWA) provides guidance for the restoration and maintenance of the chemical, physical, and biological integrity of the nation's waters.

- Section 401 requires that an applicant for a Federal license or permit that allows activities resulting in a discharge to waters of the United States, must obtain a state certification that the discharge complies with other provisions of CWA. The Regional Water Quality Boards administer the certification program in California.

- Section 402 establishes a permitting system for the discharge of any pollutant (except dredge or fill material) in to waters of the United States.
- Section 404 establishes a permit program administered by ACOE regulating the discharge of dredged or fill material into waters of the United States (including wetlands). Implementing regulations by ACOE are found at 33 CFR Parts 320-330. Guidelines for implementation are referred to as the Section 404 (b)(1) Guidelines and were developed by the Environmental Protection Agency (EPA) in conjunction with ACOE (40 CFR Parts 230). The Guidelines allow the discharge of dredged or fill material into the aquatic system only if there is no practicable alternative that will have less adverse impacts.

Fish and Wildlife Coordination Act (16 U.S.C. 661-666). This act applies to any Federal project where the waters of any stream or other body of water are impounded, diverted, deepened, or otherwise modified. Project proponents are required to consult with USFWS and the appropriate state wildlife agency. These agencies prepare reports and recommendations that document project effects on wildlife and identify measures that may be adopted to prevent loss or damage to wildlife resources. The term "wildlife" includes both animals and plants. Provisions of the Act are implemented through the NEPA process and Section 404 permit process.

Executive Order 11988 Floodplain Management (May 24, 1977). This order directs all Federal agencies to avoid the long-term and short-term adverse impacts associated with floodplain modification and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative.

Executive Order 11990 Protection of Wetlands (May 24, 1977). This order establishes a National policy to avoid adverse impacts on wetlands whenever there is a practicable alternative. The U. S. Department of Transportation (DOT) promulgated DOT Order 5660.1A in 1978 to comply with this direction. On Federally funded projects, impacts on wetlands must be identified in the environmental document. Alternatives that avoid wetlands must be considered. If wetland impacts cannot be avoided, then all practicable measures to minimize harm must be included. This must be documented in a specific Wetlands Only Practicable Alternative Finding in the final environmental document. An additional requirement is to provide early public involvement in projects affecting wetlands. The Federal Highway Administration (FHWA) provides technical assistance in meeting these criteria (FHWA Technical Advisory 6640.8A) and reviews environmental documents for compliance.

Executive Order 13112 Invasive Species February 3, 1999. This order directs all Federal agencies to prevent and control the spread of invasive plants and animals and to avoid direct or indirect impacts whenever there is a practicable alternative.

State Laws and Regulations

California Environmental Quality Act (P.R.C. 21000 et seq.). CEQA establishes State policy to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures. CEQA applies to actions directly undertaken, financed, or permitted by State lead agencies. Regulations for implementation are found in the State CEQA Guidelines published by the Resources Agency. These guidelines establish an overall process for the environmental evaluation of projects that is similar to that promulgated under NEPA. The Guidelines make provisions for joint NEPA/CEQA documents.

California Endangered Species Act (Fish and Game Code 2050 et seq.). This act establishes the policy of the State to conserve, protect, restore, and enhance threatened or endangered species and their habitats. California Endangered Species Act (CESA) mandates that State agencies should not approve projects that will jeopardize the continued existence of threatened or endangered species if reasonable and prudent alternatives are available that will avoid jeopardy. CESA requires State lead agencies to consult with the California Department of Fish and Game (CDFG) during the CEQA process to avoid jeopardy to threatened or endangered species. As an outcome of consultation, CDFG is required to issue a written finding indicating if a project will jeopardize threatened or endangered species and specifying reasonable and prudent alternatives that will avoid jeopardy. The Act provides for joint consultations when species are listed by both the State and Federal governments.

Native Plant Protection Act (Fish and Game Code 1900-1913). California's Native Plant Protection Act (NPPA) requires all State agencies to utilize their authority to carry out programs to conserve endangered and rare native plants. Provisions of NPPA prohibit the taking of listed plants from the wild and require notification of the CDFG at least 10 days in advance of any change in land use. This allows CDFG to salvage listed plant species that will otherwise be destroyed. Caltrans is required to conduct botanical inventories and consult with CDFG during project planning to comply with the provisions of this act and sections of CEQA that apply to rare or endangered plants.

Sections 1602-1603 of the Fish and Game Code. Under these sections of the Fish and Game Code, Caltrans and other agencies are required to notify CDFG prior to any project that will divert, obstruct or change the natural flow, bed, channel, or bank of any river, stream, or lake. Preliminary notification and project review generally occur during the environmental process. When an existing fish or wildlife resource may be substantially adversely affected, CDFG is required to propose reasonable project changes to protect the resource. These modifications are formalized in a Streambed Alteration Agreement that becomes part of the plans, specifications and bid documents for the project.

Agreements and Understandings

Memorandum of Understanding (MOU) with Fish and Wildlife Service (November 1988). This MOU establishes procedures for the early and continuous coordination of transportation project development activities between Caltrans and USFWS.

MOU with the Department of Fish and Game (December 1990). This MOU ensures that State transportation projects are planned, designed, constructed and maintained to protect fish and wildlife resources in conformance with CEQA and CESA.

Memorandum of Agreement (MOA) between FHWA, ACOE, EPA, USFWS, CDFG, and Caltrans (May 1991), Early Mitigation Planning for Transportation Improvements in California. This MOA establishes a process to identify and evaluate valuable natural resources and habitat at the earliest stages of transportation improvement planning. It provides a framework to implement coordinated mitigation planning at the beginning of the project development process leading to an agreement on mitigation strategy for guidance during project design.

Planning Guidelines for Standard Approaches to Mitigation Site Monitoring and Maintenance- under November 1988 MOU with Sacramento Office of USFWS (November 1991). This MOU provides planning guidelines to improve the success of project mitigation within the jurisdiction of Caltrans and USFWS.

MOU - NEPA and Clean Water Act Section 404 Integration Process (March 3, 1994). This MOU ensures the earliest possible consideration of environmental concerns pertaining to waters of the United States, including wetlands, at the transportation project planning, programming, and project development stages by integrating section 404 into the NEPA process.

Caltrans Policies

Transportation projects are planned and constructed to avoid or minimize impacts to biological resources whenever practicable.

Caltrans evaluates and plans for mitigation of adverse impacts to natural resources during the early stages of transportation planning and decision-making.

Caltrans works closely with resources agencies and FHWA in the development and implementation of mitigation for project impacts necessary to satisfy State and Federal laws while ensuring that mitigation necessitated by impacts to sensitive resources is a reasonable expenditure of highway funds.

If impact avoidance is not possible, the first consideration is to minimize impacts on-site.

If mitigation on-site is not practical, off-site compensation may be required. Off-site mitigation may include land acquisition and habitat improvement.

Federal Highway Administration Policies

Designation of Non-Federal Representative (50 CFR Section 402.08). Allows Federal agencies to delegate Informal Consultation and preparation of biological studies to a non-Federal representative. The Federal Highway Administration by letter to US Fish and Wildlife Service and National Marine Fisheries Service dated August 7, 1986, has previously delegated Informal Consultation for projects funded by the Federal-aid highway program to the California Department of Transportation. This delegation of authority provides for Caltrans to perform certain aspects of consultation, acting on behalf of the FHWA for Endangered Species Act consultation, and cannot be further delegated to local agencies or their consultants.