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TLRR: Control-Silver Peak Project

Attachment H.14
Habitat Restoration Plan

Prepared for

Southern California Edison

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Prepared by
Arcadis U.S., Inc.

Applicable Agencies

Bureau of Land Management	☒
United States Forest Service	☒
California Public Utilities Commission	☒

Applies to the following Project Work Packages:

Segment 1	Segment 2	Segment 3	Segment 4	Segment 5	Substations
☒	☒	☒	☒	☒	☐

Applicant Proposed Measure, Draft Environmental Measure, or Conservation and Management Actions Addressed:

APM WEAP
APM BIO-RES-1 Develop and Implement Habitat Restoration Plan
APM BIO-RES-2 Invasive Plant Management Plan
APM BIO-BOT-1 Special-status Herbaceous Plants (Annuals, Herbaceous Perennials, and Graminoids)
APM BIO-BOT-2 Special-status Perennial Plants and Other Species (Shrubs, Trees, Cacti, and Yuccas)

Contents

Tables

Figure

Acronyms and Abbreviations

ACCC	aluminum conductor composite core
ACSR	aluminum conductor steel reinforced
ADSS	all-dielectric self-supporting
amsl	above mean sea level
APM	Applicant Proposed Measure
BLM	Bureau of Land Management
BLM S	BLM Sensitive species
BMP	best management practice
Cal-IPC	California Invasive Plant Council
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CMA	Conservation and Management Action
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CPUC	California Public Utilities Commission
CRPR	California Rare Plant Rank
CSP	Control – Silver Peak
DI	ductile iron
DRECP	Desert Renewable Energy Conservation Plan
ESA	Environmentally Sensitive Area
FESA	Federal Endangered Species Act
HMMP	Habitat Mitigation and Management Plan
HRP	Habitat Restoration Plan
IPMP	Invasive Plant Management Plan
kV	kilovolt
LADWP	Los Angeles Department of Water and Power
LUPA	Land Use Plan Amendment
LWS	Lightweight Steel
Meer	Mechanical Electrical Equipment Room
NEPA	National Environmental Policy Act
OHGW	overhead groundwire
OHV	off-highway vehicle
OPGW	optical groundwire
PCA	Pest Control Advisor
PEA	Proponent's Environmental Assessment
ROW	Right-of-Way
SCE	Southern California Edison Company
SWPPP	Storm Water Pollution Prevention Plan
TSP	tubular steel pole
USEPA	U.S. Environmental Protection Agency
USFS	U.S. States Forest Service
USFS SCC	U.S. Forest Service Species of Conservation Concern
USFWS	U.S. Fish and Wildlife Service
WEAP	Worker Environmental Awareness Program

1.0 Introduction

The purpose of this Habitat Restoration Plan (HRP) is to comply with the habitat restoration requirements for Southern California Edison's (SCE) Control-Silver Peak Project (CSP Project or Project) as described by the Proponent's Environmental Assessment (PEA; SCE 2021) and applicable Applicant Proposed Measures (APMs) listed therein. The Plan describes the restoration methods to be implemented on areas temporarily disturbed during execution of the Project, and describes the performance goals for restoration; the overarching goal is the return of temporarily disturbed areas to approximately their pre-construction condition.

1.1 Project Overview

Through the CSP Project, SCE will remove existing subtransmission structures, install new subtransmission structures, install telecommunications and system protection equipment, and modify equipment at existing substations.

1.1.1 Segment 1

Segment 1 of the CSP Project is located west of the City of Bishop. Segment 1 is 3.4 miles in length. In Segment 1, the overhead groundwire (OHGW) installed on existing poles along one of the two pole lines found in Segment 1 would be removed and OPGW would be installed on those poles. Segment 1 is located on lands administered by the Bureau of Land Management (BLM) and on lands owned by the Los Angeles Department of Water and Power (LADWP).

1.1.2 Segment 2

Segment 2 of the CSP Project is located northwest of the City of Bishop. Two existing single-circuit pole lines are located in Segment 2. The existing poles and conductor would be removed, and new poles and conductor would be installed along the 1.4-mile length of Segment 2. OPGW would be installed on new poles along one of the pole lines, and OHGW would be installed on new poles along the other pole line. Segment 2 is located on lands owned by LADWP.

1.1.3 Segment 3

Segment 3 runs for approximately 37 miles from northwest of the City of Bishop to the California-Nevada border. Two existing single-circuit pole lines are located in Segment 3; the CSP Project would result in removal of one of the pole lines and rebuilding the remaining pole line from a single-circuit configuration to a double-circuit configuration. The existing poles and conductor would be removed, and new double-circuited-circuit poles and conductor would be installed along the length of Segment 3. OPGW would be installed on new poles. Segment 3 is located on lands administered by the BLM, managed by the United States Forest Service (USFS), on lands owned by LADWP, and on private lands.

1.1.4 Segment 4

Segment 4 is located in the Chalfant Valley between the City of Bishop and the community of Hammil. In Segment 4, two existing poles would be removed and two replacement poles would be installed. The existing conductor and cable attached to the poles would be transferred to the replacement poles. Insulators and other hardware on adjoining poles may be modified to accommodate the taller replacement poles. Work in Segment 4 would occur on lands administered by the BLM and on lands owned by LADWP.

1.1.5 Segment 5

Segment 5 is located in the Deep Springs Valley. In Segment 5, nine existing poles would be removed and nine replacement poles would be installed. The existing conductor and cable attached to the poles would be transferred to the replacement poles. Insulators and other hardware on adjoining poles may be modified to accommodate the taller replacement poles. Work in Segment 5 would occur on lands administered by the BLM and on private lands.

1.1.6 Control Substation

Control Substation is located at the western end of Segment 1; it is located on private land. At Control Substation, SCE will install telecommunication equipment on existing rack structures, install cable in new or existing underground cable raceways, and install new or replacement telecommunications infrastructure within existing cabinets, control buildings, or Mechanical and Electrical Equipment Rooms (MEERs). Further, relay settings will be updated.

1.1.7 White Mountain Substation

White Mountain Substation is located in Segment 3 on lands managed by the USFS. At White Mountain Substation, SCE will disconnect existing conductor from existing positions and connect new conductor to existing positions, and will install new OPGW and OHGW and make minor modifications to the existing terminal racks to accommodate the new OPGW and OHGW. Further, relay settings will be updated.

1.1.8 Fish Lake Valley Metering Station

Fish Lake Valley Metering Station is located at the eastern end of Segment 3; it is located on land administered by the BLM. At Fish Lake Valley Metering Station, SCE will install telecommunication equipment on existing rack structures, install cable in new or existing underground cable raceways, and install new or replacement telecommunications infrastructure within existing cabinets, control buildings, or MEERs. Further, relay settings will be updated and a capacitor bank and circuit breaker will be installed.

1.1.9 Zack Substation

Zack Substation is located at the northern end of Segment 4; it is located on private land. At Zack Substation, relay settings will be updated.

1.1.10 Deep Springs Substation

Deep Springs Substation is located at the southern end of Segment 5; it is located on private land. At Deep Springs Substation, relay settings will be updated.

1.2 Project Location

The proposed CSP Project is located within unincorporated Inyo County and unincorporated Mono County. The CSP Project is located on federal lands administered by the BLM and managed by the USFS, as well as on State Lands, on lands owned by the LADWP, and on private property.

1.3 Applicable Mitigation Requirements

As part of the CSP Project PEA (SCE 2021), SCE has identified APMs that it proposes to implement during construction to reduce or avoid impacts. The CSP Project is not likely to result in significant impacts to any resource area after implementation of the APMs. SCE would conduct the design and construction in accordance with its APMs. The APMs related to this HRP are listed below.

1.3.1 APM WEAP: Worker's Environmental Awareness Training Program

All activities, as determined appropriate on an activity-by-activity basis, will implement a worker education program that meets the approval of the BLM and USFS. The program will be carried out during all phases of the project (site mobilization, ground disturbance, grading, construction, operation, closure/decommissioning or project abandonment, and restoration/reclamation activities). The worker education program will provide interpretation for non-English speaking workers, and provide the same instruction for new workers prior to their working on site. As appropriate based on the activity, the program will contain information about:

- Site-specific biological and nonbiological resources.

- Information on the legal protection for protected resources and penalties for violation of federal and state laws and administrative sanctions for failure to comply with LUPA CMA requirements intended to protect site-specific biological and nonbiological resources.
- The required LUPA and project-specific measures for avoiding and minimizing effects during all project phases, including but not limited to resource setbacks, trash, speed limits, etc.
- Reporting requirements and measures to follow if protected resources are encountered, including potential work stoppage and requirements for notification of the designated biologist.
- Measures that personnel can take to promote the conservation of biological and nonbiological resources.

1.3.2 APM BIO-RES-1: Develop and Implement Habitat Restoration Plan

Temporary impacts to regulated species' habitats, plant species, and vegetation communities shall be restored or revegetated. Regulated species and vegetation communities include all species designated as threatened, endangered or rare, sensitive, or of concern by resource or land agencies. Species and vegetation communities that require restoration and revegetation will be determined in cooperation with the resource agencies and documented in the HRP; the HRP will be evolved and finalized during the NEPA process.

SCE will develop and implement a Habitat Restoration Plan (HRP). SCE will consult with appropriate agencies during development of the HRP and implement the HRP in conjunction with applicable permit conditions and mitigation measures. The HRP will be submitted to CPUC, BLM, and USFS for review and approval prior to the start of construction. Invasive plant management will be performed in conjunction with the HRP per the Invasive Plant Management Plan (BIO-RES-2).

Habitat Restoration Plan

For all revegetation or restoration sites, the HRP will include:

- Revegetation and restoration goals and objectives based on vegetation type and jurisdictional status of each site.
- Quantitative restoration success criteria.
- Implementation details as applicable. Details may include topsoil stockpiling and handling, postconstruction site preparation, soil decompaction and recontouring, planting and seeding palettes to include only native, locally sourced materials with confirmed ability to produce from suppliers, fall or other suitable season-season planting or seeding dates.
- Maintenance details, which may include irrigation or hand-watering schedule and equipment, and erosion control.
- Monitoring and Reporting, specifying monitoring schedule and data collection methods throughout establishment of vegetation with key indicators of successful or unsuccessful progress, and quantitative criteria values to objectively determine success or failure at the conclusion of the monitoring period.
- Adaptive management procedures such as reseeding, re-planting, drainage repairs, adjustments to irrigation schedule, and repair or remediation of sites to meet success criteria on schedule.

For temporary disturbance in disturbed areas such as roads or agricultural lands, the goal of the HRP will be revegetation to minimize spread of invasive plants, dust generation, and soil erosion. For revegetation sites the goals, objectives, and success criteria specified in the HRP will be limited to requirements of the Storm Water Pollution Prevention Plan (SWPPP) and the Invasive Plant Management Plan (IPMP, APM BIO-RES-2). No additional goals, objectives, or success criteria regarding habitat condition are required for revegetation sites.

For species and vegetation communities with permit requirements including wetlands and riparian habitats, the goal of the HRP will be to restore plant species, habitat values, or vegetation communities. For restoration sites the goals, objectives, and success criteria specified in the HRP will include native species cover and species richness compatible with the specific vegetation and habitat type.

If an unforeseen catastrophic event (e.g., flood, fire, or other event beyond SCE control) damages a restoration site within the monitoring period, SCE will assess adjacent areas and adjust success standards accordingly in coordination with the agencies.

In all restoration (per the HRP) areas, seed and/or potted nursery stock of locally native species will be used. The list of plants observed during botanical surveys of the project area will be used as a guide to site-specific plant selection, additional appropriate species may be included.

Monitoring of the revegetation sites will be conducted according to requirements of the SWPPP, and the IPMP. Monitoring of the restoration sites will continue annually until HRP success criteria are achieved. SCE will be responsible for implementing adaptive management as needed.

Reporting of revegetation will be according to requirements of the SWPPP and the IPMP. For all restoration areas, SCE will provide annual reports to the CPUC, BLM, and USFS to verify the total vegetation acreage subject to restoration, areas that have been completed, and areas still outstanding. The annual reports will also include a summary of the restoration and adaptive management activities for the previous year, success criteria progress and completion, and any adjustments to planned activities, for the upcoming year.

1.3.3 APM BIO-RES-2: Develop Invasive Plant Management Plan

SCE shall prepare and implement an Invasive Plant Management Plan (IPMP). This plan shall include measures designed to avoid the introduction and spread of new nonnative invasive plant species (invasive plants) and minimize the spread of existing invasive plants resulting from project activities. The IPMP also must meet BLM's requirements for NEPA disclosure and analysis if herbicide use is proposed for the project. The IPMP shall be submitted to the CPUC, BLM, and USFS for review and approval prior to the start of construction.

For the purpose of the IPMP, invasive plants shall include plants that (1) are invasive and rated high or moderate for negative ecological impact in the California Invasive Plant Inventory Database (Cal-IPC, 2006), or (2) aid and promote the spread of wildfires (such as *Bromus tectorum* (cheatgrass), *Brassica tournefortii* (Sahara mustard), and *Bromus madritensis* spp. *Rubens* (red brome)) or (3) identified by BLM or USFS as special concern. The IPMP will be implemented throughout project pre-construction, construction, and restoration phases.

Invasive Plant Management Plan

The IPMP will include the information defined in the following sections:

Assessment. An assessment of the Proposed Project's potential to cause spread or introduction of invasive plants into new areas, or to introduce new invasive plants into the ROW. This section will list known and potential invasive plants occurring on the ROW and in the project region and identify threat rankings and potential for project-related occurrence or spread for each species. This section will identify control goals (e.g., eradication, suppression, or containment) for invasive plants of concern with potential to occur on the ROW.

Pre-construction invasive plant inventory. SCE shall inventory of all invasive plants of concern in areas (both within and outside the ROW) subject to project-related vegetation removal/disturbance, "drive and crush," and ground-disturbing activity. The invasive plants inventory area shall also include vehicle and equipment access routes within the ROW and all project staging and storage yards. Invasive plants of concern shall be mapped by area of occurrence and percent cover. The map will be updated with new occurrences at least once a year. Inventory results will be provided to CPUC, BLM, and USFS upon request.

Pre-construction invasive plants treatment. Invasive plant infestations identified in the pre-construction invasive plants inventory shall be evaluated to identify potential for project-related spread and potential benefits (if any) of pre-construction treatment. Pre-construction treatment will consider the specific invasive

plants, potential seed banks, or other issues. The IPMP will identify any infestations to be controlled or eradicated prior to project construction. Control and follow-up monitoring of pre-construction invasive plants treatment sites will follow methods identified in appropriate sections of the IPMP.

Prevention. The IPMP will specify methods to minimize potential transport of new invasive plant seeds onto the ROW, or from one section of the ROW to another. The ROW may be divided into "weed zones," based on invasive plants of concern in the ROW. The IPMP will specify inspection procedures for construction equipment entering the Proposed Project area. Construction vehicles and equipment may be inspected and cleaned at entry points to specified sections of the ROW, and before leaving work sites where invasive plants of concern must be contained locally. Construction equipment shall be inspected to ensure it is free of any dirt or mud that could contain invasive plant seeds, roots, or rhizomes, and the tracks, outriggers, tires, and undercarriage will be carefully washed, with special attention being paid to axles, frame, cross members, motor mounts, underneath steps, running boards, and front bumper/brush guard assemblies. Other construction vehicles (e.g., pick-up trucks) that will be frequently entering and exiting the site will be inspected and washed on an as-needed basis. Tools such as chainsaws, hand clippers, pruners, etc., shall be cleaned of dirt and mud before entering project work areas.

All vehicles will be washed off-site, and vehicles entering the site will provide proof of washing and this proof will be recorded in a daily log, along with wash log receipts. When vehicles and equipment are washed, a daily log must be kept stating the location, date and time, types of equipment, methods used, and personnel present. The log shall contain the signature of the responsible crewmember. Written or electronic logs shall be available to BLM, USFS, and CPUC monitors on request.

Erosion control materials (e.g., straw bales) must be certified free of invasive plant seed ("weed-free") before they are brought onto the site. The IPMP must prohibit on-site storage or disposal of mulch or green waste that may contain invasive plant material. Mulch or green waste will be removed from the site in a covered vehicle to prevent seed dispersal and transported to a licensed landfill or composting facility.

The IPMP will specify guidelines for any soil, gravel, mulch, or fill material to be imported into the Proposed Project area, transported from site to site within the Proposed Project area, or transported from the Proposed Project area to an off-site SCE-approved facility, to prevent the introduction or spread of invasive plants to or from the Proposed Project area.

Monitoring. The IPMP shall specify methods to survey for invasive plants of concern during pre-construction, construction, and restoration phases; and shall specify qualifications of specialists responsible for invasive plant monitoring and identification. It must include a monitoring schedule to ensure timely detection and immediate control of new invasive plant infestations to prevent further spread. Surveying and monitoring for invasive plant infestations shall occur at least two times per year, to coincide with the early detection period for early season and late season invasive plants. The monitoring section shall also describe methods for post-eradication monitoring to evaluate success of control efforts and any need for follow-up control.

Control. The IPMP must specify manual and chemical invasive plant control methods to be employed. The IPMP shall include only invasive plant control measures with a demonstrated record of success for target invasive plants, based on the best available information. The plan shall describe proposed methods for promptly scheduling and implementing control activity when any project-related invasive plant infestation is located (e.g., located on a project disturbance site), to ensure effective and timely invasive plant control. Invasive plant infestations must be controlled or eradicated as soon as possible upon discovery, and before they go to seed, or when appropriate with the goal to prevent further spread. All proposed invasive plant control methods must minimize disturbance to native vegetation, limit ingress and egress to defined routes, and avoid damage to any environmentally sensitive areas (ESAs) identified within or adjacent to the ROW. New infestations by invasive plants of concern will be treated at a minimum of once annually until eradication, suppression, or containment goals are met. Invasive plant occurrences can be considered eradicated when no new seedlings or resprouts are observed for three consecutive years, or a single season where new seedlings or resprouts are observed in reference populations but not at the control site. Invasive plant control efforts may cease when eradication is complete.

Manual control shall specify well-timed removal of invasive plants or their seed heads with hand tools; seed heads and plants must be disposed of in accordance with guidelines from the relevant County Agricultural Commissioners, if such guidelines are available.

The chemical control section must include specific and detailed plans for any herbicide use. It must indicate where herbicides will be used, which herbicides will be used, and specify techniques to be used to avoid drift or residual toxicity to native vegetation or special-status plants, consistent with BLM's Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on Bureau of Land Management Lands in 17 Western States Programmatic Environmental Impact Statement (BLM, 2016), BLM's Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM, 2007), applicable and analogous USFS standards and guidelines, and National Invasive Species Management Plan (NISC, 2008). All herbicide applications will follow U.S. Environmental Protection Agency label instructions and will be in accordance with federal, state, and local laws and regulations. Only state and BLM-approved herbicides may be used in accordance with agency requirements. Herbicide treatment will be implemented by a Licensed Qualified Applicator. Herbicides shall be applied in accordance with product labels and applicator licenses. Herbicides shall not be applied during or within 24 hours of high confidence predicted rain. Only water-safe herbicides shall be used in riparian areas or within channels (engineered or not) where they could run off into downstream areas. Herbicides shall not be applied in high wind conditions.

Reporting schedule and contents. The IPMP shall specify reporting schedule and contents of each report.

1.3.4 APM BIO-BOT-1: Special-status Herbaceous Plants (Annuals, Herbaceous Perennials, and Graminoids)

SCE shall avoid, minimize or mitigate impacts to any state or federally listed, California Rare Plant Rank (CRPR) 1 or 2 herbaceous plants, California BLM Special Status herbaceous plants, or USFS Species of Conservation Concern herbaceous plants that may be located on the project disturbance areas or surrounding buffer areas.

Pre-construction survey. Pre-construction clearance surveys would be performed by a qualified biologist (i.e., a biologist with the requisite education and experience to address specific resources), which may be chosen from a previously approved CPUC approved biologist, to avoid or minimize impacts on special status plants. The pre-construction survey will be performed to re-identify the location of plants that were previously identified during baseline special status species survey(s) and to identify the presence of new (previously undescribed) special-status species. Disturbance free buffers for herbaceous species shall be 50-ft from the individual and/or occurrence boundary. If a smaller buffer is required, SCE shall obtain in the field concurrence of the smaller buffer from a BLM-, USFS-, and/or CPUC-approved biological monitor(s), depending on underlying land ownership.

In the event of a discovery of previously undescribed species, or a previously unknown population of a sensitive species, the boundary of the occurrence (defined by CNDDB as all individuals within a ¼ mile of each other) will be flagged, avoided, and monitored as discussed above and the CPUC, BLM, USFS, CDFW, and/or USFWS will be notified. Pre-construction clearance survey results will be made available to CPUC, BLM, and USFS.

Focused Survey. For construction areas where focused surveys have not occurred, focused surveys will take place prior to construction. Focused surveys will be conducted consistent with methodology described in the Project Biological Technical Report.

Restoration and Mitigation

SCE will implement the following activities; other conflicting permit conditions will supersede the activities below.

- Coordinate with Agencies. Agencies shall approve any impacts to special status plants. Impacts in excess of 10% of any occurrence shall be restored or mitigated.
- Habitat Restoration and Revegetation. A Habitat Restoration Plan (HRP) shall address topsoil, plant or propagules salvage, and restoration. Approval of the HRP by appropriate

agencies is required before impacts to special-status plant occurrences are allowed. For more information see APM BIO-RES-1.

- Salvage. SCE shall consult with a qualified restoration ecologist or horticulturist regarding the feasibility and likely success of salvage efforts for each species. If salvage is feasible, based on prior success with similar species, SCE shall include salvage methods in the HRP. For special-status plants, the goal shall be to preserve existing populations or establish new populations. The HRP will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether a species is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting plants or propagules, to retain intact soil conditions and maximize success; (e) details regarding storage of plants or propagules for each species; (f) location of the proposed recipient site, and detailed site preparation and plant introduction techniques, as applicable; (g) a description of the irrigation, and other maintenance activities, as applicable; (h) success criteria, including specific timeframe for survivorship of each species; and (i) a detailed monitoring program, commensurate with the HRP goals. Invasive plant control for special-status plants will be addressed in the Invasive Plant Management Plant (IPMP, APM BIO-RES-2).

- Off-site compensation. Where restoration is not feasible, SCE shall provide compensation lands consisting of habitat occupied by the impacted CRPR 1 or 2 ranked, California BLM Special Status, or USFS Species of Conservation Concern plant occurrences at a 1:1 ratio of acreage for any occupied habitat affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence. If compensation is selected as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be “nested” or “layered” with compensation for habitat loss. A mitigation ratio higher than 1:1 may be necessary if so-identified in an applicable federal or state land use management plan or conservation plan, or in a term or condition attached to a project authorization.

Annual construction monitoring reports shall be submitted to CPUC, BLM, and USFS. Reports shall include, but not be limited to, details of plants or propagules salvaged, stored, and transplanted (salvage and transplanting locations, species, number, size, condition, etc.); adaptive management efforts implemented (date, location, type of treatment, results, etc.); and evaluation of success of transplantation. After construction, salvage status will be described in the HRRP annual report.

1.3.5 APM BIO-BOT-2: Special-status Perennial Plants and Other Species (Shrubs, Trees, Cacti, and Yuccas)

SCE shall avoid, minimize or mitigate impacts to sensitive plants and natural communities, including any smoke trees (*Psorothamnus spinosus*), mesquites (*Prosopis* spp.), all species of the family *Agavaceae* (including Mojave yucca and Joshua tree), palo verde (*Parkinsonia* spp.), desert pincushion (*Coryphantha chlorantha*), matted cholla (*Grusonia parishii*), curved-spine beavertail (*Opuntia curvispina*), Mojave fishhook cactus (*Sclerocactus polyancistrus*) in the project area, or unique riparian vegetation, that may be located on the project disturbance areas or surrounding buffer areas.

Pre-construction survey. Pre-construction surveys would be conducted by a qualified specialist to identify any special-status perennial species or other species of tree, shrub, cactus, or yucca in the project area that require restoration or mitigation. Surveys would be consistent with the protocol outlined by California Department of Fish and Wildlife (CDFW) Protocols for Surveying and Evaluating Impacts to Species Status Native Plant Populations and Sensitive Nature Communities (May 2018). Prior to the start of construction, a qualified biologist (i.e., a biologist with the requisite education and experience to address specific resources), which may be chosen from a previously approved CPUC approved biologist, shall complete pre-construction surveys in all habitats to identify individuals or occurrences of smoke trees (*Psorothamnus spinosus*), mesquites (*Prosopis* spp.), all species of the family *Agavaceae* (including Mojave yucca and Joshua tree), palo verde (*Parkinsonia* spp.), desert pincushion (*Coryphantha chlorantha*), matted cholla (*Grusonia parishii*), curved-spine beavertail (*Opuntia curvispina*), Mojave fishhook cactus (*Sclerocactus*

polyancistrus) in the project area, or unique riparian vegetation. Where these species are known to occur, all work shall occur outside a 50-ft buffer; the buffer will be measured from the drip line or outer most part of the plant. If a smaller buffer is required, SCE shall obtain in the field concurrence of the smaller buffer from a BLM-, USFS-, and/or CPUC-approved biological monitor(s), depending on underlying land ownership. Buffer reductions may occur with the implementation of appropriate minimization measures. A qualified botanist/arborist monitor, with the authority to halt work, shall be present whenever work occurs within reduced buffers for any of these species. If avoidance of listed species is not feasible, SCE will consult with BLM/USFS/CDFW and implement additional measures pursuant to ESA/CESA, required after consultation.

In the event of an unexpected discovery of a new species or previously undocumented occurrence, the same steps will be used as discussed above. In addition, when there is an unexpected discovery of a new species, the CPUC, BLM, USFS, CDFW, and/or USFWS will be notified. Pre-construction clearance survey results will be made available to CPUC, BLM, and USFS.

Restoration and Mitigation

- Coordinate with Agencies. Agencies shall approve any impacts to the species.
- Habitat Restoration and Revegetation. If individuals of special-status species cannot be avoided, a Habitat Restoration Plan (HRP) shall address removal or salvage methods, number of individuals to be impacted, and restoration (see BIO-RES-1). Approval of the HRP by appropriate agencies is required before impacts to the given species is allowed.
- Salvage. Native Cactus Salvaging. Most native cactus and western Joshua tree (*Yucca brevifolia*) can be successfully salvaged and transplanted. Western Joshua tree will be avoided during Project work and not be salvaged. Therefore, native cactus shall be avoided or salvaged as follows:
    - For work on Federal lands, SCE will prepare and implement an HRP. The goal shall be maximum practicable survivorship of salvaged plants, (i.e., moving plants only once). The HRP will include at minimum: (a) species and locations of plants identified for salvage; (b) criteria for determining whether an individual plant is appropriate for salvage; (c) the appropriate season for salvage; (d) equipment and methods for collection, transport, and re-planting, to retain intact soil conditions and maximize success; (e) a requirement to mark each plant to identify the north-facing side prior to transport, and replant it in the same orientation; (f) details regarding storage of plants for each species; (g) location of the proposed recipient site, and detailed site preparation and plant introduction techniques, as applicable; (h) a description of the irrigation and other maintenance activities, as applicable; (i) success criteria, including specific timeframe for survivorship of each species; and (j) a detailed monitoring program, commensurate with the HRRP goals. Invasive plant control for special-status plants will be addressed in the Invasive Plant Management Plan (IPMP, APM BIO-RES-2).
- Tree Removal. Tree removal and trimming would be designed to minimize the total number of individual trees removed or significantly trimmed. A qualified arborist would be onsite to make recommendations on trimming and removal. Protection and replacement of trees impacted by project activities would be mitigated consistent with applicable jurisdiction and agency requirements, and included in the HRP.
- Offsite Compensation. If restoration is not feasible, SCE shall provide compensation lands consisting of habitat occupied by the impacted sensitive species at a 1:1 ratio of individuals or acreage, for any occupied habitat affected by the project. Occupied habitat will be calculated on the project site and on the compensation lands as including each special-status plant occurrence. If compensation is selected as a means of mitigating special-status plant impacts, it may be accomplished by purchasing credit in an established mitigation bank, acquiring conservation easements, or direct purchase and preservation of compensation lands. Compensation for these impacts may be “nested” or “layered” with compensation for habitat loss. A mitigation ratio higher than 1:1 may be necessary if so-identified in an applicable federal or state land use management plan or conservation plan, or in a term or condition attached to a project authorization.

Annual construction monitoring reports shall be submitted to CPUC, BLM, and USFS. Reports shall include, but not limited to, details of individuals or occurrences impacted (removed or salvaged), salvage, temporary storage, if applicable, and final transplant locations, including species, number, size, condition, at a minimum; adaptive management efforts implemented (date, location, type of treatment, results, etc.); and

evaluation of success of transplantation. After construction, salvage status will be described in the HRP annual report.

2.0 Summary of Maximum Potential Impacts to Vegetation Communities, Native Trees, Special-status Plants, and Wetlands and Jurisdictional Features

Project impacts are classified as temporary or permanent. Temporary impacts result from the removal of existing subtransmission structures, installation of replacement structures, and the establishment of temporary construction areas such as pulling and tensioning sites. Permanent impacts result from the rehabilitation/upgrading of existing access and spur roads, which may include widening the existing access and spur roads to meet SCEs standards for construction, and from the installation of replacement subtransmission structures. “Drive and crush” methods will be implemented to the extent feasible to preserve native vegetation and native seed banks. “Drive and crush” may include overland travel over existing low-lying vegetation, but may also incorporate trimming vegetation to ground level with root systems intact to facilitate vehicular access and flagging of special-status plant species and cacti for avoidance.

Biological surveys of the CSP Project alignment were conducted in 2017 and 2018, followed by surveys conducted in 2022 of native trees within the alignment, as well as vegetation characterization and tree and special-status species surveys within potential laydown yards (Arcadis 2019a,b, 2022). The survey area covered approximately 1,980.8 acres.

The CSP Project will potentially affect approximately 115.3 acres of vegetation and other land uses resulting from maximum anticipated temporary and permanent impacts. A maximum of 98.4 acres of native vegetation and 10.4 acres of other land uses (developed, active agriculture, open water, disturbed, etc.) will be subject to temporary impacts, for a total of 108.8 acres of temporary impacts. Anticipated maximum permanent impacts include 6.4 acres of native vegetation and 0.1 acres of other land uses, for a total of 6.5 acres of permanent impacts. The exact acreage of impacts will be recalculated when construction activities have been completed.

Summaries of the potential disturbances to vegetation communities, special status natural communities, native trees, special status plants and wildlife, critical habitat, regulated waters of the US, waters of the state, jurisdictional streambeds, and wetlands are provided in Tables 2-1 through 2-6. Each table consists of a set of several sub-tables, with the total numbers for the Project presented first, followed by numbers that apply to each of five land ownership categories. The five land ownership categories include BLM Bishop Office, BLM Ridgecrest Office, USFS Inyo National Forest (INF), LADWP, and private lands.

In all cases, the listed acres of impacts or numbers representing potential loss within potential Project work areas represent the maximum possible extent of Project work. In practice, due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, actual potential impacts or loss will be greatly reduced, as discussed in Section 3.

2.1 Maximum Potential Impacts to Vegetation Communities

Thirty-six alliances and 55 associations were identified within the CSP Project alignment during the 2017, 2018, and 2022 surveys; the identified alliances include 5 woodland alliances, 24 shrubland alliances, and 7 herbaceous alliances.

Tables 2-1a through Tables 2-1f summarize the mapped acreage of each alliance and association on the CSP Project alignment; the anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas; and the CDFW California State Rarity Ranking for each alliance and association (CDFW 2022). Sensitive natural communities are treated by CDFW as alliances or

associations with “threat” ranks of S3 or higher (S1, S2, S3), whereas S4 and S5 rankings are not designated as sensitive or threatened (CDFW 2022). In addition, the updated California Natural Communities List (CDFW 2022) designates sensitive associations without always assigning a threat ranking. Six additional land use types were also mapped that address agricultural and landscape plantings, open water, unvegetated wash or river bottom, developed areas, and disturbed areas. The acreage of these six land use types are treated separately from vegetation alliances and associations.

Table 2-1a provides a summary of mapped acreage of each alliance and association on all lands within the CSP Project alignment and the anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas.

Table 2-1b summarizes the mapped acreage of each alliance and association on lands managed by the BLM Bishop Office within the CSP Project alignment and the associated anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas.

Table 2-1c summarizes the mapped acreage of each alliance and association on lands managed by the BLM Ridgecrest Office within the CSP Project alignment and the associated anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas.

Table 2-1d summarizes the mapped acreage of each alliance and association on lands managed by the USFS INF within the CSP Project alignment and the associated anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas.

Table 2-1e summarizes the mapped acreage of each alliance and association on lands managed by the LADWP within the CSP Project alignment and the associated anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas.

Table 2-1f summarizes the mapped acreage of each alliance and association on private lands within the CSP Project alignment and the associated anticipated maximum temporary and permanent impacts for each alliance and association in proposed Project work areas.

In all cases, the listed impacts within potential Project work areas represent the maximum possible extent of Project work. In practice, due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, actual potential impacts will be greatly reduced.

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Woodland Forest Vegetation						
Bristlecone Pine Woodland	*Pinus longaeva* Woodland Alliance	*Pinus longaeva* Association	22.9	0.6	0.1	S2
Aspen Groves	*Populus tremuloides* Woodland Alliance	*Populus tremuloides - Pinus longaeva* Provisional Association	4.6	0.2	0.0	S3
Limber Pine Woodland	*Pinus flexilis* Woodland Alliance	*Pinus flexilis - Pinus longaeva* Provisional Association	2.3	0.2	0.0	S3
Goodding's Willow – Red Willow Riparian Woodland and Forest	*Salix gooddingii – Salix laevigata* Woodland Alliance	*Salix laevigata* Association	0.3	0.0	0.0	S3
Singleleaf Pinyon Woodland	*Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance	*Pinus monophylla* – (*Juniperus osteosperma*) / *Artemisia tridentata* subsp. *vaseyana* Association	185.8	1.8	2.4	S4
Total Acres Woodland Vegetation			***215.9***	***2.8***	***2.5***	
Shrubland Vegetation						
Water Birch Thicket	*Betula occidentalis* Shrubland Alliance	*Betula occidentalis* / *Salix* spp. Association	1.6	0.0	0.0	S2

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Fremont's and Nevada Smokebush Scrub	*Psorothamnus fremontii – Psorothamnus polydenius* Shrubland Alliance	*Psorothamnus polydenius - Atriplex confertifolia - Tetradymia* spp. Association	2.7	0.0	0.0	S3
		Psorothamnus polydenius – (*Psorothamnus arborescens*) Association	120.3	6.1	0.0	S3
		Sarcobatus baileyi Association	10.9	0.0	0.0	S3
Red-osier Dogwood - Interior Rose - Currant thickets	*Cornus sericea – Rosa woodsii – Ribes* spp. Shrubland Alliance	*Rosa woodsii* Association	2.7	0.3	0.03	S3
Spiny Menodora Scrub	*Menodora spinescens* Shrubland Alliance	*Menodora spinescens* - (*Ephedra nevadensis*) Association	1.9	0.0	0.0	S3
		Menodora spinescens – Atriplex confertifolia Association	7.5	0.0	0.0	S3
Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain	*Amelanchier utahensis – Cercocarpus montanus – Cercocarpus intricatus*	*Cercocarpus intricatus* Association	3.8	0.0	0.1	S3
		Philadelphus	2.0	0.0	0.0	S3

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Mahogany Scrub	Shrubland Alliance	*microphyllus* Association				
Winterfat Scrubland	*Krascheninnikovia lanata* Shrubland Alliance	*Krascheninnikovia lanata* Association	5.6	2.5	0.0	S3
Antelope Bitterbrush – Big Sagebrush Scrub	*Purshia tridentata – Artemisia tridentata* Shrubland Alliance	*Purshia tridentata – Artemisia tridentata* Association	19.5	0.0	0.1	S4, Yes[2]
Arroyo Willow Thickets	*Salix lasiolepis* Shrubland Alliance	Salix lasiolepis Association	53.8	0.1	0.2	S4, Yes[2]
		Salix lasiolepis / *Rosa woodsii* / mixed herbs Association	0.5	0.1	0.0	S4, Yes[2]
Blackbrush Scrub	*Coleogyne ramosissima* Shrubland Alliance	*Coleogyne ramosissima* Association	13.1	0.3	0.0	S4, Yes[2]
Allscale Scrub	*Atriplex polycarpa* Shrubland Alliance	*Atriplex polycarpa* Association	21.0	0.03	0.0	S4
		Atriplex polycarpa - Psorothamnus arborescens Provisional Association	1.6	1.6	0.0	S4
Cheesebush – Sweetbush scrub	*Ambrosia salsola – Bebbia juncea* Shrubland	*Ambrosia salsola* Association	69.7	0.3	0.0	S4

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
	Alliance	*Ambrosia salsola - Atriplex canescens* Provisional Association	22.5	0.2	0.1	S4
		Ambrosia salsola - Atriplex confertifolia Association	1.5	0.01	0.0	S4
Curl Leaf Mountain-mahogany Scrub	*Cercocarpus ledifolius* Shrubland Alliance	*Cercocarpus ledifolius – Artemisia tridentata* subsp. *vaseyana* Association	25.1	1.8	0.03	S4
Fourwing Saltbush Scrub	*Atriplex canescens* Shrubland Alliance	*Atriplex canescens* Association	83.1	6.4	0.06	S4
		Atriplex canescens Desert Wash Association	8.8	0.0	0.0	S4
		Atriplex canescens – Krascheninnikovia lanata Association	5.2	5.2	0.0	S4
		Atriplex canescens / herbaceous Association	5.1	4.7	0.0	S4, Yes[2]
Greasewood Scrub	*Sarcobatus vermiculatus* Shrubland Alliance	*Sarcobatus vermiculatus* Association	95.6	0.7	0.0	S4

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Sarcobatus vermiculatus - Atriplex confertifolia - (*Picrothamnus desertorum, Suaeda moquinii*) Association	5.2	0.0	0.0	S4
Mormon Tea Scrub	*Ephedra viridis* Shrubland Alliance	*Ephedra viridis* Association	3.3	3.3	0.0	S4
Mountain Big Sagebrush Scrub	*Artemisia tridentata* subsp. *vaseyana* Shrubland Alliance	*Artemisia tridentata* subsp. *vaseyana* Association	446.1	46.7	2.1	S4
		Artemisia tridentata subsp. vaseyana – *Purshia tridentata/Festuca idahoensis* Association	8.4	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana* – *Ephedra viridis* Association	3.5	3.5	0.0	S4
Needleleaf Rabbitbrush Scrub	*Ericameria teretifolia* Shrubland Alliance	*Ericameria teretifolia* Association	24.7	0.1	0.1	S4
Nevada Joint fir -	*Ephedra nevadensis* –	*Ephedra nevadensis*	117.1	4.2	0.2	S4

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Anderson's Boxthorn - Spiny Hopsage Scrub	*Lycium andersonii* – *Grayia spinosa* Shrubland Alliance	Provisional Association				
		Ephedra nevadensis - *Psorothamnus arborescens* Provisional Association	3.1	0.0	0.0	S4
Quailbush Scrub	*Atriplex lentiformis* Shrubland Alliance	*Atriplex lentiformis* Association	51.0	0.2	0.0	S4
		Atriplex lentiformis - *Ericameria nauseosa* Provisional Association	2.5	0.0	0.0	S4
Sandbar Willow Thickets	*Salix exigua* Shrubland Alliance	*Salix exigua* Association	35.1	0.3	0.4	S4
		Salix exigua - (*Salix gooddingii*) Provisional Association	1.9	0.0	0.0	S4
Shadscale Scrub	*Atriplex confertifolia* Shrubland Alliance	*Atriplex confertifolia* Great Basin Association	58.5	0.9	0.0	S4
		Atriplex confertifolia - *Ephedra nevadensis* Association	3.3	0.0	0.0	S4
		Atriplex confertifolia – *Krascheninnikovia lanata* Association	17.8	0.0	0.0	S4, Yes[2]

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Atriplex confertifolia - Psorothamnus arborescens Provisional Association	12.6	0.1	0.0	S4
Big Sagebrush Scrub	*Artemisia tridentata* Shrubland Alliance	*Artemisia tridentata* Association	8.3	0.1	0.1	S5
California Buckwheat Scrub	*Eriogonum fasciculatum* Shrubland Alliance	*Eriogonum fasciculatum* Association	12.3	0.0	0.3	S5
Rubber Rabbitbrush Scrub	*Ericameria nauseosa* Shrubland Alliance	*Ericameria nauseosa* Association	120.5	5.4	0.03	S5
Total Acres Shrubland Vegetation			***1,520.5***	***95.1***	***3.8***	***NA***
Herbaceous Vegetation						
Alkali Sacaton - Scratchgrass - Alkali Cordgrass Alkaline Wet Meadow	*Sporobolus airoides – Muhlenbergia asperifolia – Spartina gracilis* Herbaceous Alliance	*Muhlenbergia asperifolia - Distichlis spicata* Provisional Association	6.1	0.0	0.0	S2
Yerba Mansa - Nuttall's Sunflower - Nevada Goldenrod Alkaline Wet Meadows	*Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance	*Anemopsis californica* Association	0.1	0.0	0.0	S2
Ashy Ryegrass – Creeping Ryegrass Turfs	*Leymus cinereus – Leymus triticoides* Herbaceous Alliance	*Leymus triticoides* Association	6.2	0.3	0.0	S3

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Hardstem and California Bulrush Marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	*Schoenoplectus acutus* Association	0.2	0.0	0.0	S3S4, Yes [2]
Salt Grass Flats	*Distichlis spicata* Herbaceous Alliance	*Distichlis spicata* Association	2.5	0.0	0.0	S4
		Distichlis spicata - annual grasses Association	0.5	0.0	0.0	S4
Baltic and Mexican Rush Marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	*Juncus arcticus* var. *balticus* – (var. *mexicanus*) Association	1.6	0.0	0.1	S4
Wild Tarragon Patches	*Artemisia dracunculus* Herbaceous Alliance	*Artemisia dracunculus* Association	0.2	0.2	0.0	S4
Cattail Marshes	*Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	*Phragmites australis* subsp. *americanus* Association	0.6	0.0	0.0	S5, Yes [2]
		Typha (*latifolia*, *angustifolia*) Association	0.3	0.0	0.0	S5
Total Acres Herbaceous Vegetation			***18.3***	***0.5***	***0.1***	***NA***
Total Acres Native Vegetation			***1,754.7***	***98.4***	***6.4***	***NA***
Total Acres Non-Native Vegetation			***0.0***	***0.0***	***0.0***	***NA***

Table 2-1a Summary of Maximum Potential Impacts to Vegetation Communities on all Lands within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Total Acres All Vegetation	***1,754.7***	***98.4***	***6.4***	***NA***
		Total Acres of Sensitive Vegetation	***311.9***	***15.3***	***0.5***	***Yes***
Active Agriculture			18.3	0.2	0.0	None
Ornamental/Landscaped (lawns, gardens)			0.9	0.0	0.0	None
Open Water (ponds, lakes, streams, rivers)			1.1	0.0	0.0	None
Developed (towers, roads, etc.)			199.5	7.3	0.1	None
Disturbed (cleared area supporting ruderal vegetation, if any)			4.8	2.9	0.0	None
Unvegetated Wash or River Bottom			0.5	0.0	0.0	None
		Total Mapped Acres[2]	***1,987.2***	***108.8***	***6.5***	

Notes:
Sensitive Alliances and Associations are indicated in **Bold**
1. Alliance is not sensitive; however, the association is included as a Sensitive Association on 2022 CDFW California Sensitive Natural Communities list
2. Total mapped acres between sub-tables may not sum to grand total on Table 2-1a due to rounding errors
Alliance Rarity Rankings (CDFW 2022, https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background):
S1: Fewer than 6 viable occurrences statewide and/or up to 518 hectares
S2: 6-20 viable occurrences statewide and/or 518-2,590 hectares
S3: 21-100 viable occurrences statewide and/or 2,590-12,950 hectares
Additional Threat Ranks:
0.1: Very threatened 0.2: Threatened 0.3: No current threat known

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Woodland Forest Vegetation						
Bristlecone Pine Woodland	*Pinus longaeva* Woodland Alliance	*Pinus longaeva* Association	0.0	0.0	0.0	S2
Aspen Groves	*Populus tremuloides* Woodland Alliance	*Populus tremuloides - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Limber Pine Woodland	*Pinus flexilis* Woodland Alliance	*Pinus flexilis - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Goodding's Willow – Red Willow Riparian Woodland and Forest	*Salix gooddingii – Salix laevigata* Woodland Alliance	*Salix laevigata* Association	0.0	0.0	0.0	S3
Singleleaf Pinyon Woodland	*Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance	*Pinus monophylla* – (*Juniperus osteosperma*) / *Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Total Acres Woodland Vegetation			***0.0***	***0.0***	***0.0***	
Shrubland Vegetation						
Water Birch Thicket	*Betula occidentalis* Shrubland Alliance	*Betula occidentalis / Salix* spp. Association	0.0	0.0	0.0	S2
Fremont's and Nevada	*Psorothamnus fremontii*	*Psorothamnus*	2.7	0.0	0.0	S3

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Smokebush Scrub	– *Psorothamnus polydenius* Shrubland Alliance	*polydenius - Atriplex confertifolia - Tetradymia* spp. Association				
		Psorothamnus polydenius – (*Psorothamnus arborescens*) Association	53.2	0.0	0.0	S3
		Sarcobatus baileyi Association	7.4	0.0	0.0	S3
Red-osier Dogwood - Interior Rose - Currant thickets	*Cornus sericea – Rosa woodsii – Ribes* spp. Shrubland Alliance	*Rosa woodsii* Association	0.0	0.0	0.0	S3
Spiny Menodora Scrub	*Menodora spinescens* Shrubland Alliance	*Menodora spinescens* - (*Ephedra nevadensis*) Association	0.0	0.0	0.0	S3
		Menodora spinescens – Atriplex confertifolia Association	1.2	0.0	0.0	S3
Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain	*Amelanchier utahensis – Cercocarpus montanus – Cercocarpus intricatus*	*Cercocarpus intricatus* Association	0.0	0.0	0.0	S3
		Philadelphus	0.0	0.0	0.0	S3

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Mahogany Scrub	Shrubland Alliance	*microphyllus* Association				
Winterfat Scrubland	*Krascheninnikovia lanata* Shrubland Alliance	*Krascheninnikovia lanata* Association	0.0	0.0	0.0	S3
Antelope Bitterbrush – Big Sagebrush Scrub	*Purshia tridentata – Artemisia tridentata* Shrubland Alliance	*Purshia tridentata – Artemisia tridentata* Association	0.0	0.0	0.0	S4, Yes[2]
Arroyo Willow Thickets	*Salix lasiolepis* Shrubland Alliance	*Salix lasiolepis* Association	0.4	0.0	0.0	S4, Yes[2]
		Salix lasiolepis / *Rosa woodsii* / mixed herbs Association	0.0	0.0	0.0	S4, Yes[2]
Blackbrush Scrub	*Coleogyne ramosissima* Shrubland Alliance	*Coleogyne ramosissima* Association	0.0	0.0	0.0	S4, Yes[2]
Allscale Scrub	*Atriplex polycarpa* Shrubland Alliance	*Atriplex polycarpa* Association	21.0	0.03	0.0	S4
		Atriplex polycarpa - Psorothamnus arborescens Provisional Association	0.02	0.02	0.0	S4
Cheesebush – Sweetbush scrub	*Ambrosia salsola – Bebbia juncea* Shrubland	*Ambrosia salsola* Association	6.4	0.0	0.0	S4

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
	Alliance	*Ambrosia salsola - Atriplex canescens* Provisional Association	0.0	0.0	0.0	S4
		Ambrosia salsola - Atriplex confertifolia Association	0.0	0.0	0.0	S4
Curl Leaf Mountain-mahogany Scrub	*Cercocarpus ledifolius* Shrubland Alliance	*Cercocarpus ledifolius – Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Fourwing Saltbush Scrub	*Atriplex canescens* Shrubland Alliance	*Atriplex canescens* Association	2.4	0.0	0.0	S4
		Atriplex canescens Desert Wash Association	0.0	0.0	0.0	S4
		Atriplex canescens – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4
		Atriplex canescens / herbaceous Association	0.0	0.0	0.0	S4, Yes[2]
Greasewood Scrub	*Sarcobatus vermiculatus* Shrubland Alliance	*Sarcobatus vermiculatus* Association	0.0	0.0	0.0	S4

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Sarcobatus vermiculatus - Atriplex confertifolia - (*Picrothamnus desertorum, Suaeda moquinii*) Association	0.0	0.0	0.0	S4
Mormon Tea Scrub	*Ephedra viridis* Shrubland Alliance	*Ephedra viridis* Association	0.0	0.0	0.0	S4
Mountain Big Sagebrush Scrub	*Artemisia tridentata* subsp. *vaseyana* Shrubland Alliance	*Artemisia tridentata* subsp. *vaseyana* Association	0.6	0.01	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Purshia tridentata/Festuca idahoensis* Association	0.0	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Ephedra viridis* Association	0.0	0.0	0.0	S4
Needleleaf Rabbitbrush Scrub	*Ericameria teretifolia* Shrubland Alliance	*Ericameria teretifolia* Association	2.7	0.0	0.0	S4
Nevada Joint fir - Anderson's Boxthorn -	*Ephedra nevadensis – Lycium andersonii –*	*Ephedra nevadensis* Provisional Association	18.5	0.0	0.0	S4

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Spiny Hopsage Scrub	*Grayia spinosa* Shrubland Alliance	*Ephedra nevadensis - Psorothamnus arborescens* Provisional Association	3.1	0.0	0.0	S4
Quailbush Scrub	*Atriplex lentiformis* Shrubland Alliance	*Atriplex lentiformis* Association	0.0	0.0	0.0	S4
		Atriplex lentiformis - Ericameria nauseosa Provisional Association	0.0	0.0	0.0	S4
Sandbar Willow Thickets	*Salix exigua* Shrubland Alliance	*Salix exigua* Association	0.0	0.0	0.0	S4
		Salix exigua - (*Salix gooddingii*) Provisional Association	0.0	0.0	0.0	S4
Shadscale Scrub	*Atriplex confertifolia* Shrubland Alliance	*Atriplex confertifolia* Great Basin Association	33.7	0.0	0.0	S4
		Atriplex confertifolia - Ephedra nevadensis Association	3.3	0.0	0.0	S4
		Atriplex confertifolia – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4, Yes[2]

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Atriplex confertifolia - Psorothamnus arborescens Provisional Association	0.0	0.0	0.0	S4
Big Sagebrush Scrub	*Artemisia tridentata* Shrubland Alliance	*Artemisia tridentata* Association	0.0	0.0	0.0	S5
California Buckwheat Scrub	*Eriogonum fasciculatum* Shrubland Alliance	*Eriogonum fasciculatum* Association	0.0	0.0	0.0	S5
Rubber Rabbitbrush Scrub	*Ericameria nauseosa* Shrubland Alliance	*Ericameria nauseosa* Association	4.4	0.0	0.0	S5
Total Acres Shrubland Vegetation			***161.2***	***0.1***	***0.0***	
Herbaceous Vegetation						
Alkali Sacaton - Scratchgrass - Alkali Cordgrass Alkaline Wet Meadow	*Sporobolus airoides – Muhlenbergia asperifolia – Spartina gracilis* Herbaceous Alliance	*Muhlenbergia asperifolia - Distichlis spicata* Provisional Association	0.0	0.0	0.0	S2
Yerba Mansa - Nuttall's Sunflower - Nevada Goldenrod Alkaline	*Anemopsis californica – Helianthus nuttallii – Solidago spectabilis*	*Anemopsis californica* Association	0.0	0.0	0.0	S2

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Wet Meadows	Herbaceous Alliance					
Ashy Ryegrass – Creeping Ryegrass Turfs	*Leymus cinereus* – *Leymus triticoides* Herbaceous Alliance	*Leymus triticoides* Association	0.0	0.0	0.0	S3
Hardstem and California Bulrush Marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	*Schoenoplectus acutus* Association	0.0	0.0	0.0	S3S4, Yes [2]
Salt Grass Flats	*Distichlis spicata* Herbaceous Alliance	*Distichlis spicata* Association	0.0	0.0	0.0	S4
		Distichlis spicata - annual grasses Association	0.0	0.0	0.0	S4
Baltic and Mexican Rush Marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	*Juncus arcticus* var. *balticus* – (var. *mexicanus*) Association	0.0	0.0	0.0	S4
Wild Tarragon Patches	*Artemisia dracunculus* Herbaceous Alliance	*Artemisia dracunculus* Association	0.0	0.0	0.0	S4
Cattail Marshes	*Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	*Phragmites australis* subsp. *americanus* Association	0.0	0.0	0.0	S5, Yes [2]
		Typha (l*atifolia, angustifolia*)	0.0	0.0	0.0	S5

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Association				
Total Acres Herbaceous Vegetation			***0.0***	***0.0***	***0.0***	
Total Acres Native Vegetation			***161.2***	***0.1***	***0.0***	
Total Acres Non-Native Vegetation			***0.0***	***0.0***	***0.0***	
Total Acres All Vegetation			***161.2***	***0.1***	***0.0***	
Total Acres of Sensitive Vegetation			***64.7***	***0.0***	***0.0***	
Active Agriculture			0.0	0.0	0.0	None
Ornamental/Landscaped (lawns, gardens)			0.1	0.0	0.0	None
Open Water (ponds, lakes, streams, rivers)			0.0	0.0	0.0	None
Developed (towers, roads, etc.)			18.3	0.0	0.0	None
Disturbed (cleared area supporting ruderal vegetation, if any)			0.0	0.0	0.0	None
Unvegetated Wash or River Bottom			0.0	0.0	0.0	None
Total Mapped Acres[2]			***179.5***	***0.1***	***0.0***	

Notes:
Sensitive Alliances and Associations are indicated in **Bold**
1. Alliance is not sensitive; however, the association is included as a Sensitive Association on 2022 CDFW California Sensitive Natural Communities list
2. Total mapped acres between sub-tables may not sum to grand total on Table 2-1a due to rounding errors
Alliance Rarity Rankings (CDFW 2022, https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background):
S1: Fewer than 6 viable occurrences statewide and/or up to 518 hectares
S2: 6-20 viable occurrences statewide and/or 518-2,590 hectares
S3: 21-100 viable occurrences statewide and/or 2,590-12,950 hectares

Table 2-1b Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Bishop BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking

Additional Threat Ranks:
0.1: Very threatened 0.2: Threatened 0.3: No current threat known

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Woodland Forest Vegetation						
Bristlecone Pine Woodland	*Pinus longaeva* Woodland Alliance	*Pinus longaeva* Association	0.0	0.0	0.0	S2
Aspen Groves	*Populus tremuloides* Woodland Alliance	*Populus tremuloides - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Limber Pine Woodland	*Pinus flexilis* Woodland Alliance	*Pinus flexilis - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Goodding's Willow – Red Willow Riparian Woodland and Forest	*Salix gooddingii – Salix laevigata* Woodland Alliance	*Salix laevigata* Association	0.0	0.0	0.0	S3
Singleleaf Pinyon Woodland	Pinus monophylla – (Juniperus osteosperma) Woodland Alliance	Pinus monophylla – (Juniperus osteosperma) / Artemisia tridentata subsp. vaseyana Association	0.0	0.0	0.0	S4
Total Acres Woodland Vegetation			***0.0***	***0.0***	***0.0***	
Shrubland Vegetation						
Water Birch Thicket	*Betula occidentalis* Shrubland Alliance	*Betula occidentalis / Salix* spp. Association	0.0	0.0	0.0	S2

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Fremont's and Nevada Smokebush Scrub	*Psorothamnus fremontii – Psorothamnus polydenius* Shrubland Alliance	*Psorothamnus polydenius - Atriplex confertifolia - Tetradymia* spp. Association	0.0	0.0	0.0	S3
		Psorothamnus polydenius – (*Psorothamnus arborescens*) Association	11.3	6.1	0.0	S3
		Sarcobatus baileyi Association	0.0	0.0	0.0	S3
Red-osier Dogwood - Interior Rose - Currant thickets	*Cornus sericea – Rosa woodsii – Ribes* spp. Shrubland Alliance	*Rosa woodsii* Association	0.0	0.0	0.0	S3
Spiny Menodora Scrub	*Menodora spinescens* Shrubland Alliance	*Menodora spinescens* - (*Ephedra nevadensis*) Association	1.9	0.0	0.0	S3
		Menodora spinescens – Atriplex confertifolia Association	5.1	0.0	0.0	S3
Utah Serviceberry –	*Amelanchier utahensis* –	*Cercocarpus intricatus*	0.0	0.0	0.0	S3

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub	*Cercocarpus montanus* – *Cercocarpus intricatus* Shrubland Alliance	Association				
		Philadelphus microphyllus Association	0.0	0.0	0.0	S3
Winterfat Scrubland	*Krascheninnikovia lanata* Shrubland Alliance	*Krascheninnikovia lanata* Association	1.9	0.0	0.0	S3
Antelope Bitterbrush – Big Sagebrush Scrub	*Purshia tridentata* – *Artemisia tridentata* Shrubland Alliance	*Purshia tridentata* – *Artemisia tridentata* Association	19.5	0.0	0.1	S4, Yes[2]
Arroyo Willow Thickets	*Salix lasiolepis* Shrubland Alliance	*Salix lasiolepis* Association	0.1	0.0	0.0	S4, Yes[2]
		Salix lasiolepis / Rosa woodsii / mixed herbs Association	0.0	0.0	0.0	S4, Yes[2]
Blackbrush Scrub	*Coleogyne ramosissima* Shrubland Alliance	*Coleogyne ramosissima* Association	0.0	0.0	0.0	S4, Yes[2]
Allscale Scrub	*Atriplex polycarpa* Shrubland Alliance	*Atriplex polycarpa* Association	0.0	0.0	0.0	S4
		Atriplex polycarpa - Psorothamnus arborescens Provisional Association	0.0	0.0	0.0	S4

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Cheesebush – Sweetbush scrub	*Ambrosia salsola – Bebbia juncea* Shrubland Alliance	*Ambrosia salsola* Association	42.7	0.0	0.0	S4
		Ambrosia salsola - Atriplex canescens Provisional Association	22.5	0.2	0.06	S4
		Ambrosia salsola - Atriplex confertifolia Association	0.0	0.0	0.0	S4
Curl Leaf Mountain-mahogany Scrub	*Cercocarpus ledifolius* Shrubland Alliance	*Cercocarpus ledifolius – Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Fourwing Saltbush Scrub	*Atriplex canescens* Shrubland Alliance	*Atriplex canescens* Association	36.0	1.7	0.06	S4
		Atriplex canescens Desert Wash Association	8.2	0.0	0.0	S4
		Atriplex canescens – Krascheninnikovia lanata Association	5.2	5.2	0.0	S4
		Atriplex canescens / herbaceous Association	0.0	0.0	0.0	S4, Yes[2]
Greasewood Scrub	*Sarcobatus vermiculatus*	*Sarcobatus vermiculatus*	7.9	0.04	0.0	S4

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
	Shrubland Alliance	Association				
		Sarcobatus vermiculatus - Atriplex confertifolia - (*Picrothamnus desertorum, Suaeda moquinii*) Association	0.0	0.0	0.0	S4
Mormon Tea Scrub	*Ephedra viridis* Shrubland Alliance	*Ephedra viridis* Association	0.0	0.0	0.0	S4
Mountain Big Sagebrush Scrub	*Artemisia tridentata* subsp. *vaseyana* Shrubland Alliance	*Artemisia tridentata* subsp. *vaseyana* Association	95.4	5.7	0.7	S4
		Artemisia tridentata subsp. *vaseyana – Purshia tridentata/Festuca idahoensis* Association	8.4	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Ephedra viridis* Association	0.0	0.0	0.0	S4
Needleleaf Rabbitbrush Scrub	*Ericameria teretifolia* Shrubland Alliance	*Ericameria teretifolia* Association	6.9	0.0	0.1	S4
Nevada Joint fir - Anderson's Boxthorn -	*Ephedra nevadensis – Lycium andersonii –*	*Ephedra nevadensis* Provisional Association	27.5	0.1	0.2	S4

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Spiny Hopsage Scrub	*Grayia spinosa* Shrubland Alliance	*Ephedra nevadensis - Psorothamnus arborescens* Provisional Association	0.0	0.0	0.0	S4
Quailbush Scrub	*Atriplex lentiformis* Shrubland Alliance	*Atriplex lentiformis* Association	0.0	0.0	0.0	S4
		Atriplex lentiformis - Ericameria nauseosa Provisional Association	0.0	0.0	0.0	S4
Sandbar Willow Thickets	*Salix exigua* Shrubland Alliance	*Salix exigua* Association	0.0	0.0	0.0	S4
		Salix exigua - (*Salix gooddingii*) Provisional Association	0.0	0.0	0.0	S4
Shadscale Scrub	*Atriplex confertifolia* Shrubland Alliance	*Atriplex confertifolia* Great Basin Association	0.0	0.0	0.0	S4
		Atriplex confertifolia - Ephedra nevadensis Association	0.0	0.0	0.0	S4
		Atriplex confertifolia – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4, Yes[2]
		Atriplex confertifolia -	0.0	0.0	0.0	S4

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Psorothamnus arborescens Provisional Association				
Big Sagebrush Scrub	*Artemisia tridentata* Shrubland Alliance	*Artemisia tridentata* Association	0.0	0.0	0.0	S5
California Buckwheat Scrub	*Eriogonum fasciculatum* Shrubland Alliance	*Eriogonum fasciculatum* Association	0.0	0.0	0.0	S5
Rubber Rabbitbrush Scrub	*Ericameria nauseosa* Shrubland Alliance	*Ericameria nauseosa* Association	0.0	0.0	0.0	S5
Total Acres Shrubland Vegetation			***300.6***	***19.1***	***1.2***	***NA***
Herbaceous Vegetation						
Alkali Sacaton - Scratchgrass - Alkali Cordgrass Alkaline Wet Meadow	*Sporobolus airoides – Muhlenbergia asperifolia – Spartina gracilis* Herbaceous Alliance	*Muhlenbergia asperifolia - Distichlis spicata* Provisional Association	0.0	0.0	0.0	S2
Yerba Mansa - Nuttall's Sunflower - Nevada Goldenrod Alkaline Wet Meadows	*Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance	*Anemopsis californica* Association	0.0	0.0	0.0	S2
Ashy Ryegrass – Creeping Ryegrass Turfs	*Leymus cinereus – Leymus triticoides* Herbaceous Alliance	*Leymus triticoides* Association	0.0	0.0	0.0	S3

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Hardstem and California Bulrush Marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	*Schoenoplectus acutus* Association	0.0	0.0	0.0	S3S4, Yes [2]
Salt Grass Flats	*Distichlis spicata* Herbaceous Alliance	*Distichlis spicata* Association	0.0	0.0	0.0	S4
		Distichlis spicata - annual grasses Association	0.0	0.0	0.0	S4
Baltic and Mexican Rush Marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	*Juncus arcticus* var. *balticus* – (var. *mexicanus*) Association	0.0	0.0	0.0	S4
Wild Tarragon Patches	*Artemisia dracunculus* Herbaceous Alliance	*Artemisia dracunculus* Association	0.0	0.0	0.0	S4
Cattail Marshes	*Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	*Phragmites australis* subsp. *americanus* Association	0.0	0.0	0.0	S5, Yes [2]
		Typha (*latifolia, angustifolia*) Association	0.0	0.0	0.0	S5
Total Acres Herbaceous Vegetation			***0.0***	***0.0***	***0.0***	
Total Acres Native Vegetation			***300.6***	***19.1***	***1.2***	
Total Acres Non-Native Vegetation			***0.0***	***0.0***	***0.0***	

Table 2-1c Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Ridgecrest BLM Office within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Total Acres All Vegetation			***300.6***	***19.1***	***1.2***	
Total Acres of Sensitive Vegetation			***39.9***	***6.1***	***0.1***	
Active Agriculture			0.0	0.0	0.0	None
Ornamental/Landscaped (lawns, gardens)			0.0	0.0	0.0	None
Open Water (ponds, lakes, streams, rivers)			0.0	0.0	0.0	None
Developed (towers, roads, etc.)			28.4	0.1	0.0	None
Disturbed (cleared area supporting ruderal vegetation, if any)			0.0	0.0	0.0	None
Unvegetated Wash or River Bottom			0.0	0.0	0.0	None
		Total Mapped Acres[2]	***329.0***	***19.2***	***1.2***	

Notes:
Sensitive Alliances and Associations are indicated in **Bold**
1. Alliance is not sensitive; however, the association is included as a Sensitive Association on 2022 CDFW California Sensitive Natural Communities list
2. Total mapped acres between sub-tables may not sum to grand total on Table 2-1a due to rounding errors
Alliance Rarity Rankings (CDFW 2022, https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background):
S1: Fewer than 6 viable occurrences statewide and/or up to 518 hectares
S2: 6-20 viable occurrences statewide and/or 518-2,590 hectares
S3: 21-100 viable occurrences statewide and/or 2,590-12,950 hectares
Additional Threat Ranks:
0.1: Very threatened 0.2: Threatened 0.3: No current threat known

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Woodland Forest Vegetation						
Bristlecone Pine Woodland	*Pinus longaeva* Woodland Alliance	*Pinus longaeva* Association	22.9	0.6	0.1	S2
Aspen Groves	*Populus tremuloides* Woodland Alliance	*Populus tremuloides - Pinus longaeva* Provisional Association	4.6	0.2	0.0	S3
Limber Pine Woodland	*Pinus flexilis* Woodland Alliance	*Pinus flexilis - Pinus longaeva* Provisional Association	2.3	0.2	0.0	S3
Goodding's Willow – Red Willow Riparian Woodland and Forest	*Salix gooddingii – Salix laevigata* Woodland Alliance	*Salix laevigata* Association	0.0	0.0	0.0	S3
Singleleaf Pinyon Woodland	*Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance	*Pinus monophylla* – (*Juniperus osteosperma*) / *Artemisia tridentata* subsp. *vaseyana* Association	185.8	1.8	2.4	S4
Total Acres Woodland Vegetation			***215.6***	***2.8***	***2.5***	
Shrubland Vegetation						
Water Birch Thicket	*Betula occidentalis* Shrubland Alliance	*Betula occidentalis / Salix* spp. Association	1.6	0.0.	0.0	S2

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Fremont's and Nevada Smokebush Scrub	*Psorothamnus fremontii – Psorothamnus polydenius* Shrubland Alliance	*Psorothamnus polydenius - Atriplex confertifolia - Tetradymia* spp. Association	0.0	0.0	0.0	S3
		Psorothamnus polydenius – (*Psorothamnus arborescens*) Association	0.0	0.0	0.0	S3
		Sarcobatus baileyi Association	0.0	0.0	0.0	S3
Red-osier Dogwood - Interior Rose - Currant thickets	*Cornus sericea – Rosa woodsii – Ribes* spp. Shrubland Alliance	*Rosa woodsii* Association	1.0	0.3	0.03	S3
Spiny Menodora Scrub	*Menodora spinescens* Shrubland Alliance	*Menodora spinescens* - (*Ephedra nevadensis*) Association	0.0	0.0	0.0	S3
		Menodora spinescens – Atriplex confertifolia Association	0.0	0.0	0.0	S3
Utah Serviceberry –	*Amelanchier utahensis* –	*Cercocarpus intricatus*	3.8	0.0	0.1	S3

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub	*Cercocarpus montanus* – *Cercocarpus intricatus* Shrubland Alliance	Association				
		Philadelphus microphyllus Association	2.0	0.0	0.0	S3
Winterfat Scrubland	*Krascheninnikovia lanata* Shrubland Alliance	*Krascheninnikovia lanata* Association	1.2	0.0	0.0	S3
Antelope Bitterbrush – Big Sagebrush Scrub	*Purshia tridentata* – *Artemisia tridentata* Shrubland Alliance	*Purshia tridentata* – *Artemisia tridentata* Association	0.0	0.0	0.0	S4, Yes[2]
Arroyo Willow Thickets	*Salix lasiolepis* Shrubland Alliance	*Salix lasiolepis* Association	53.2	0.1	0.3	S4, Yes[2]
		Salix lasiolepis / Rosa woodsii / mixed herbs Association	0.5	0.0	0.0	S4, Yes[2]
Blackbrush Scrub	*Coleogyne ramosissima* Shrubland Alliance	*Coleogyne ramosissima* Association	0.0	0.0	0.0	S4, Yes[2]
Allscale Scrub	*Atriplex polycarpa* Shrubland Alliance	*Atriplex polycarpa* Association	0.0	0.0	0.0	S4
		Atriplex polycarpa - Psorothamnus arborescens Provisional Association	1.6	1.6	0.0	S4

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Cheesebush – Sweetbush scrub	*Ambrosia salsola – Bebbia juncea* Shrubland Alliance	*Ambrosia salsola* Association	10.5	0.3	0.0	S4
		Ambrosia salsola - Atriplex canescens Provisional Association	0.0	0.0	0.0	S4
		Ambrosia salsola - Atriplex confertifolia Association	1.5	0.01	0.0	S4
Curl Leaf Mountain-mahogany Scrub	*Cercocarpus ledifolius* Shrubland Alliance	*Cercocarpus ledifolius – Artemisia tridentata* subsp. *vaseyana* Association	25.1	1.8	0.03	S4
Fourwing Saltbush Scrub	*Atriplex canescens* Shrubland Alliance	*Atriplex canescens* Association	0.0	0.0	0.0	S4
		Atriplex canescens Desert Wash Association	0.0	0.0	0.0	S4
		Atriplex canescens – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4
		Atriplex canescens / herbaceous Association	0.0	0.0	0.0	S4, Yes[2]
Greasewood Scrub	*Sarcobatus vermiculatus*	*Sarcobatus vermiculatus*	0.0	0.0	0.0	S4

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
	Shrubland Alliance	Association				
		Sarcobatus vermiculatus - Atriplex confertifolia - (*Picrothamnus desertorum, Suaeda moquinii*) Association	0.0	0.0	0.0	S4
Mormon Tea Scrub	*Ephedra viridis* Shrubland Alliance	*Ephedra viridis* Association	3.3	3.3	0.0	S4
Mountain Big Sagebrush Scrub	*Artemisia tridentata* subsp. *vaseyana* Shrubland Alliance	*Artemisia tridentata* subsp. *vaseyana* Association	307.9	40.9	1.4	S4
		Artemisia tridentata subsp. *vaseyana – Purshia tridentata*/*Festuca idahoensis* Association	0.0	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Ephedra viridis* Association	3.5	3.5	0.0	S4
Needleleaf Rabbitbrush Scrub	*Ericameria teretifolia* Shrubland Alliance	*Ericameria teretifolia* Association	0.2	0.1	0.0	S4
Nevada Joint fir - Anderson's Boxthorn -	*Ephedra nevadensis – Lycium andersonii –*	*Ephedra nevadensis* Provisional Association	9.6	3.8	0.03	S4

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Spiny Hopsage Scrub	*Grayia spinosa* Shrubland Alliance	*Ephedra nevadensis - Psorothamnus arborescens* Provisional Association	0.0	0.0	0.0	S4
Quailbush Scrub	*Atriplex lentiformis* Shrubland Alliance	*Atriplex lentiformis* Association	0.0	0.0	0.0	S4
		Atriplex lentiformis - Ericameria nauseosa Provisional Association	0.0	0.0	0.0	S4
Sandbar Willow Thickets	*Salix exigua* Shrubland Alliance	*Salix exigua* Association	27.2	0.3	0.4	S4
		Salix exigua - (*Salix gooddingii*) Provisional Association	0.0	0.0	0.0	S4
Shadscale Scrub	*Atriplex confertifolia* Shrubland Alliance	*Atriplex confertifolia* Great Basin Association	7.3	0.9	0.0	S4
		Atriplex confertifolia - Ephedra nevadensis Association	0.0	0.0	0.0	S4
		Atriplex confertifolia – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4, Yes[2]
		Atriplex confertifolia -	5.5	0.1	0.0	S4

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Psorothamnus arborescens Provisional Association				
Big Sagebrush Scrub	*Artemisia tridentata* Shrubland Alliance	*Artemisia tridentata* Association	8.3	0.0	0.1	S5
California Buckwheat Scrub	*Eriogonum fasciculatum* Shrubland Alliance	*Eriogonum fasciculatum* Association	12.3	0.0	0.3	S5
Rubber Rabbitbrush Scrub	*Ericameria nauseosa* Shrubland Alliance	*Ericameria nauseosa* Association	6.9	0.1	0.03	S5
Total Acres Shrubland Vegetation			***493.9***	***57.1***	***2.6***	
Herbaceous Vegetation						
Alkali Sacaton - Scratchgrass - Alkali Cordgrass Alkaline Wet Meadow	*Sporobolus airoides – Muhlenbergia asperifolia – Spartina gracilis* Herbaceous Alliance	*Muhlenbergia asperifolia - Distichlis spicata* Provisional Association	0.0	0.0	0.0	S2
Yerba Mansa - Nuttall's Sunflower - Nevada Goldenrod Alkaline Wet Meadows	*Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance	*Anemopsis californica* Association	0.0	0.0	0.0	S2
Ashy Ryegrass – Creeping Ryegrass Turfs	*Leymus cinereus – Leymus triticoides* Herbaceous Alliance	*Leymus triticoides* Association	0.0	0.0	0.0	S3

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Hardstem and California Bulrush Marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	*Schoenoplectus acutus* Association	0.0	0.0	0.0	S3S4, Yes [2]
Salt Grass Flats	*Distichlis spicata* Herbaceous Alliance	*Distichlis spicata* Association	0.0	0.0	0.0	S4
		Distichlis spicata - annual grasses Association	0.0	0.0	0.0	S4
Baltic and Mexican Rush Marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	*Juncus arcticus* var. *balticus* – (var. *mexicanus*) Association	1.3	0.0	0.1	S4
Wild Tarragon Patches	*Artemisia dracunculus* Herbaceous Alliance	*Artemisia dracunculus* Association	0.2	0.2	0.0	S4
Cattail Marshes	*Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	*Phragmites australis* subsp. *americanus* Association	0.0	0.0	0.0	S5, Yes [2]
		Typha (*latifolia, angustifolia*) Association	0.0	0.0	0.0	S5
Total Acres Herbaceous Vegetation			***1.5***	***0.2***	***0.1***	
Total Acres Native Vegetation			***711.0***	***60.2***	***5.2***	
Total Acres Non-Native Vegetation			***0.0***	***0.0***	***0.0***	

Table 2-1d Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by US Forest Service within Inyo National Forest with the CSP Project Alignment

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Total Acres All Vegetation			***711.0***	***60.2***	***5.2***	
Total Acres of Sensitive Vegetation			***93.0***	***1.4***	***0.4***	
Active Agriculture			0.0	0.0	0.0	None
Ornamental/Landscaped (lawns, gardens)			0.0	0.0	0.0	None
Open Water (ponds, lakes, streams, rivers)			0.0	0.0	0.0	None
Developed (towers, roads, etc.)			40.4	1.3	0.1	None
Disturbed (cleared area supporting ruderal vegetation, if any)			0.4	0.4	0.0	None
Unvegetated Wash or River Bottom			0.0	0.0	0.0	None
Total Mapped Acres[2]			***751.8***	***61.9***	***5.3***	

Notes:
Sensitive Alliances and Associations are indicated in **Bold**
1. Alliance is not sensitive; however, the association is included as a Sensitive Association on 2022 CDFW California Sensitive Natural Communities list
2. Total mapped acres between sub-tables may not sum to grand total on Table 2-1a due to rounding errors
Alliance Rarity Rankings (CDFW 2022, https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background):
S1: Fewer than 6 viable occurrences statewide and/or up to 518 hectares
S2: 6-20 viable occurrences statewide and/or 518-2,590 hectares
S3: 21-100 viable occurrences statewide and/or 2,590-12,950 hectares
Additional Threat Ranks:
0.1: Very threatened 0.2: Threatened 0.3: No current threat known

Table 2-1e Summary of Maximum Potential Impacts to Vegetation Communities on Lands Managed by Los Angeles Department of Water and Power within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Woodland Forest Vegetation						
Bristlecone Pine Woodland	*Pinus longaeva* Woodland Alliance	*Pinus longaeva* Association	0.0	0.0	0.0	S2
Aspen Groves	*Populus tremuloides* Woodland Alliance	*Populus tremuloides - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Limber Pine Woodland	*Pinus flexilis* Woodland Alliance	*Pinus flexilis - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Goodding's Willow – Red Willow Riparian Woodland and Forest	*Salix gooddingii – Salix laevigata* Woodland Alliance	*Salix laevigata* Association	0.3	0.0	0.0	S3
Singleleaf Pinyon Woodland	*Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance	*Pinus monophylla* – (*Juniperus osteosperma*) / *Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Total Acres Woodland Vegetation			***0.3***	***0.0***	***0.0***	

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Shrubland Vegetation						
Water Birch Thicket	*Betula occidentalis* Shrubland Alliance	*Betula occidentalis / Salix* spp. Association	0.0	0.0	0.0	S2
Fremont's and Nevada Smokebush Scrub	*Psorothamnus fremontii – Psorothamnus polydenius* Shrubland Alliance	*Psorothamnus polydenius - Atriplex confertifolia - Tetradymia* spp. Association	0.0	0.0	0.0	S3
		Psorothamnus polydenius – (*Psorothamnus arborescens*) Association	51.8	0.0	0.0	S3
		Sarcobatus baileyi Association	3.6	0.0	0.0	S3
Red-osier Dogwood - Interior Rose - Currant thickets	*Cornus sericea – Rosa woodsii – Ribes* spp. Shrubland Alliance	*Rosa woodsii* Association	1.8	0.02	0.0	S3
Spiny Menodora Scrub	*Menodora spinescens* Shrubland Alliance	*Menodora spinescens* - (*Ephedra nevadensis*) Association	0.0	0.0	0.0	S3
		Menodora spinescens – Atriplex confertifolia Association	0.0	0.0	0.0	S3

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Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub	*Amelanchier utahensis – Cercocarpus montanus – Cercocarpus intricatus* Shrubland Alliance	*Cercocarpus intricatus* Association	0.0	0.0	0.0	S3
		Philadelphus microphyllus Association	0.0	0.0	0.0	S3
Winterfat Scrubland	*Krascheninnikovia lanata* Shrubland Alliance	*Krascheninnikovia lanata* Association	0.0	0.0	0.0	S3
Antelope Bitterbrush – Big Sagebrush Scrub	*Purshia tridentata – Artemisia tridentata* Shrubland Alliance	*Purshia tridentata – Artemisia tridentata* Association	0.0	0.0	0.0	S4, Yes[2]
Arroyo Willow Thickets	*Salix lasiolepis* Shrubland Alliance	*Salix lasiolepis* Association	0.1	0.0	0.0	S4, Yes[2]
		Salix lasiolepis / Rosa woodsii / mixed herbs Association	0.0	0.0	0.0	S4, Yes[2]
Blackbrush Scrub	*Coleogyne ramosissima* Shrubland Alliance	*Coleogyne ramosissima* Association	12.8	0.2	0.0	S4, Yes[2]
Allscale Scrub	*Atriplex polycarpa* Shrubland Alliance	*Atriplex polycarpa* Association	0.0	0.0	0.0	S4
		Atriplex polycarpa - Psorothamnus arborescens Provisional Association	0.0	0.0	0.0	S4

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Cheesebush – Sweetbush scrub	*Ambrosia salsola – Bebbia juncea* Shrubland Alliance	*Ambrosia salsola* Association	0.9	0.0	0.0	S4
		Ambrosia salsola - Atriplex canescens Provisional Association	0.0	0.0	0.0	S4
		Ambrosia salsola - Atriplex confertifolia Association	0.0	0.0	0.0	S4
Curl Leaf Mountain-mahogany Scrub	*Cercocarpus ledifolius* Shrubland Alliance	*Cercocarpus ledifolius – Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Fourwing Saltbush Scrub	*Atriplex canescens* Shrubland Alliance	*Atriplex canescens* Association	26.5	4.7	0.0	S4
		Atriplex canescens Desert Wash Association	0.6	0.0	0.0	S4
		Atriplex canescens – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4
		Atriplex canescens / herbaceous Association	0.0	0.0	0.0	S4, Yes[2]
Greasewood Scrub	*Sarcobatus vermiculatus*	*Sarcobatus vermiculatus*	83.4	0.0	0.0	S4

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	Shrubland Alliance	Association				
		Sarcobatus vermiculatus - Atriplex confertifolia - (*Picrothamnus desertorum, Suaeda moquinii*) Association	5.2	0.0	0.0	S4
Mormon Tea Scrub	*Ephedra viridis* Shrubland Alliance	*Ephedra viridis* Association	0.0	0.0	0.0	S4
Mountain Big Sagebrush Scrub	*Artemisia tridentata* subsp. *vaseyana* Shrubland Alliance	*Artemisia tridentata* subsp. *vaseyana* Association	24.2	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Purshia tridentata/Festuca idahoensis* Association	0.0	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Ephedra viridis* Association	0.0	0.0	0.0	S4
Needleleaf Rabbitbrush Scrub	*Ericameria teretifolia* Shrubland Alliance	*Ericameria teretifolia* Association	11.0	0.0	0.0	S4
Nevada Joint fir - Anderson's Boxthorn -	*Ephedra nevadensis – Lycium andersonii –*	*Ephedra nevadensis* Provisional Association	52.6	0.2	0.0	S4

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Spiny Hopsage Scrub	*Grayia spinosa* Shrubland Alliance	*Ephedra nevadensis - Psorothamnus arborescens* Provisional Association	0.0	0.0	0.0	S4
Quailbush Scrub	*Atriplex lentiformis* Shrubland Alliance	*Atriplex lentiformis* Association	51.0	0.2	0.0	S4
		Atriplex lentiformis - Ericameria nauseosa Provisional Association	2.5	0.0	0.0	S4
Sandbar Willow Thickets	*Salix exigua* Shrubland Alliance	*Salix exigua* Association	7.4	0.002	0.0	S4
		Salix exigua - (*Salix gooddingii*) Provisional Association	1.9	0.0	0.0	S4
Shadscale Scrub	*Atriplex confertifolia* Shrubland Alliance	*Atriplex confertifolia* Great Basin Association	17.5	0.0	0.0	S4
		Atriplex confertifolia - Ephedra nevadensis Association	0.0	0.0	0.0	S4
		Atriplex confertifolia – Krascheninnikovia lanata Association	17.8	0.0	0.0	S4, Yes[2]
		Atriplex confertifolia -	0.0	0.0	0.0	S4

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		Psorothamnus arborescens Provisional Association				
Big Sagebrush Scrub	*Artemisia tridentata* Shrubland Alliance	*Artemisia tridentata* Association	0.0	0.0	0.0	S5
California Buckwheat Scrub	*Eriogonum fasciculatum* Shrubland Alliance	*Eriogonum fasciculatum* Association	0.0	0.0	0.0	S5
Rubber Rabbitbrush Scrub	*Ericameria nauseosa* Shrubland Alliance	*Ericameria nauseosa* Association	107.2	0.001	0.0	S5
Total Acres Shrubland Vegetation			***479.8***	***10.7***	***0.0***	
Herbaceous Vegetation						
Alkali Sacaton - Scratchgrass - Alkali Cordgrass Alkaline Wet Meadow	*Sporobolus airoides – Muhlenbergia asperifolia – Spartina gracilis* Herbaceous Alliance	*Muhlenbergia asperifolia - Distichlis spicata* Provisional Association	6.1	0.0	0.0	S2
Yerba Mansa - Nuttall's Sunflower - Nevada Goldenrod Alkaline Wet Meadows	*Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance	*Anemopsis californica* Association	0.1	0.0	0.0	S2
Ashy Ryegrass – Creeping Ryegrass Turfs	*Leymus cinereus – Leymus triticoides* Herbaceous Alliance	*Leymus triticoides* Association	6.2	0.3	0.0	S3

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Hardstem and California Bulrush Marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	*Schoenoplectus acutus* Association	0.2	0.0	0.0	S3S4, Yes [2]
Salt Grass Flats	*Distichlis spicata* Herbaceous Alliance	*Distichlis spicata* Association	1.8	0.0	0.0	S4
		Distichlis spicata - annual grasses Association	0.0	0.0	0.0	S4
Baltic and Mexican Rush Marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	*Juncus arcticus* var. *balticus* – (var. *mexicanus*) Association	0.2	0.0	0.0	S4
Wild Tarragon Patches	*Artemisia dracunculus* Herbaceous Alliance	*Artemisia dracunculus* Association	0.0	0.0	0.0	S4
Cattail Marshes	*Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	*Phragmites australis* subsp. *americanus* Association	0.6	0.0	0.0	S5, Yes [2]
		Typha (*latifolia, angustifolia*) Association	0.3	0.0	0.0	S5
Total Acres Herbaceous Vegetation			***15.5***	***0.3***	***0.0***	***NA***
Total Acres Native Vegetation			***495.6***	***11.0***	***0.0***	
Total Acres Non-Native Vegetation			***0.0***	***0.0***	***0.0***	

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Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Total Acres All Vegetation			***495.6***	***11.0***	***0.0***	
Total Acres of Sensitive Vegetation			***101.2***	***0.5***	***0.0***	
Active Agriculture			0.0	0.0	0.0	None
Ornamental/Landscaped (lawns, gardens)			0.0	0.0	0.0	None
Open Water (ponds, lakes, streams, rivers)			1.1	0.0	0.0	None
Developed (towers, roads, etc.)			92.8	0.1	0.01	None
Disturbed (cleared area supporting ruderal vegetation, if any)			0.0	0.0	0.0	None
Unvegetated Wash or River Bottom			0.4	0.0	0.0	None
Total Mapped Acres[2]			**589.8**	**11.1**	**0.0**	

Notes:
Sensitive Alliances and Associations are indicated in **Bold**
1. Alliance is not sensitive; however, the association is included as a Sensitive Association on 2022 CDFW California Sensitive Natural Communities list
2. Total mapped acres between sub-tables may not sum to grand total on Table 2-1a due to rounding errors
Alliance Rarity Rankings (CDFW 2022, https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background):
S1: Fewer than 6 viable occurrences statewide and/or up to 518 hectares
S2: 6-20 viable occurrences statewide and/or 518-2,590 hectares
S3: 21-100 viable occurrences statewide and/or 2,590-12,950 hectares
Additional Threat Ranks:
0.1: Very threatened 0.2: Threatened 0.3: No current threat known

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Woodland Forest Vegetation						
Bristlecone Pine Woodland	*Pinus longaeva* Woodland Alliance	*Pinus longaeva* Association	0.0	0.0	0.0	S2
Aspen Groves	*Populus tremuloides* Woodland Alliance	*Populus tremuloides - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Limber Pine Woodland	*Pinus flexilis* Woodland Alliance	*Pinus flexilis - Pinus longaeva* Provisional Association	0.0	0.0	0.0	S3
Goodding's Willow – Red Willow Riparian Woodland and Forest	*Salix gooddingii – Salix laevigata* Woodland Alliance	*Salix laevigata* Association	0.0	0.0	0.0	S3
Singleleaf Pinyon Woodland	*Pinus monophylla* – (*Juniperus osteosperma*) Woodland Alliance	*Pinus monophylla* – (*Juniperus osteosperma*) / *Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Total Acres Woodland Vegetation			***0.0***	***0.0***	***0.0***	

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Shrubland Vegetation						
Water Birch Thicket	*Betula occidentalis* Shrubland Alliance	*Betula occidentalis / Salix* spp. Association	0.0	0.0	0.0	S2
Fremont's and Nevada Smokebush Scrub	*Psorothamnus fremontii – Psorothamnus polydenius* Shrubland Alliance	*Psorothamnus polydenius - Atriplex confertifolia - Tetradymia* spp. Association	0.0	0.0	0.0	S3
		Psorothamnus polydenius – (*Psorothamnus arborescens*) Association	3.9	0.0	0.0	S3
		Sarcobatus baileyi Association	0.0	0.0	0.0	S3
Red-osier Dogwood - Interior Rose - Currant thickets	*Cornus sericea – Rosa woodsii – Ribes* spp. Shrubland Alliance	*Rosa woodsii* Association	0.0	0.0	0.0	S3
Spiny Menodora Scrub	*Menodora spinescens* Shrubland Alliance	*Menodora spinescens* - (*Ephedra nevadensis*) Association	0.0	0.0	0.0	S3
		Menodora spinescens – Atriplex confertifolia Association	1.2	0.0	0.0	S3

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub	*Amelanchier utahensis – Cercocarpus montanus – Cercocarpus intricatus* Shrubland Alliance	*Cercocarpus intricatus* Association	0.0	0.0	0.0	S3
		Philadelphus microphyllus Association	0.0	0.0	0.0	S3
Winterfat Scrubland	*Krascheninnikovia lanata* Shrubland Alliance	*Krascheninnikovia lanata* Association	2.5	2.5	0.0	S3
Antelope Bitterbrush – Big Sagebrush Scrub	*Purshia tridentata – Artemisia tridentata* Shrubland Alliance	*Purshia tridentata – Artemisia tridentata* Association	0.0	0.0	0.0	S4, Yes[2]
Arroyo Willow Thickets	*Salix lasiolepis* Shrubland Alliance	*Salix lasiolepis* Association	0.1	0.0	0.0	S4, Yes[2]
		Salix lasiolepis / Rosa woodsii / mixed herbs Association	0.0	0.0	0.0	S4, Yes[2]
Blackbrush Scrub	*Coleogyne ramosissima* Shrubland Alliance	*Coleogyne ramosissima* Association	0.3	0.2	0.0	S4, Yes[2]
Allscale Scrub	*Atriplex polycarpa* Shrubland Alliance	*Atriplex polycarpa* Association	0.0	0.0	0.0	S4
		Atriplex polycarpa - Psorothamnus arborescens Provisional Association	0.0	0.0	0.0	S4

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Cheesebush – Sweetbush scrub	*Ambrosia salsola – Bebbia juncea* Shrubland Alliance	*Ambrosia salsola* Association	9.2	0.0	0.0	S4
		Ambrosia salsola - Atriplex canescens Provisional Association	0.0	0.0	0.0	S4
		Ambrosia salsola - Atriplex confertifolia Association	0.0	0.0	0.0	S4
Curl Leaf Mountain-mahogany Scrub	*Cercocarpus ledifolius* Shrubland Alliance	*Cercocarpus ledifolius – Artemisia tridentata* subsp. *vaseyana* Association	0.0	0.0	0.0	S4
Fourwing Saltbush Scrub	*Atriplex canescens* Shrubland Alliance	*Atriplex canescens* Association	18.1	0.01	0.0	S4
		Atriplex canescens Desert Wash Association	0.0	0.0	0.0	S4
		Atriplex canescens – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4
		Atriplex canescens / herbaceous Association	5.1	4.7	0.0	S4, Yes[2]
Greasewood Scrub	*Sarcobatus vermiculatus*	*Sarcobatus vermiculatus*	4.2	0.6	0.0	S4

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
	Shrubland Alliance	Association				
		Sarcobatus vermiculatus - Atriplex confertifolia - (*Picrothamnus desertorum, Suaeda moquinii*) Association	0.0	0.0	0.0	S4
Mormon Tea Scrub	*Ephedra viridis* Shrubland Alliance	*Ephedra viridis* Association	0.0	0.0	0.0	S4
Mountain Big Sagebrush Scrub	*Artemisia tridentata* subsp. *vaseyana* Shrubland Alliance	*Artemisia tridentata* subsp. *vaseyana* Association	18.0	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Purshia tridentata/Festuca idahoensis* Association	0.0	0.0	0.0	S4
		Artemisia tridentata subsp. *vaseyana – Ephedra viridis* Association	0.0	0.0	0.0	S4
Needleleaf Rabbitbrush Scrub	*Ericameria teretifolia* Shrubland Alliance	*Ericameria teretifolia* Association	4.0	0.0	0.0	S4
Nevada Joint fir - Anderson's Boxthorn -	*Ephedra nevadensis – Lycium andersonii –*	*Ephedra nevadensis* Provisional Association	8.9	0.1	0.0	S4

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Spiny Hopsage Scrub	*Grayia spinosa* Shrubland Alliance	*Ephedra nevadensis - Psorothamnus arborescens* Provisional Association	0.0	0.0	0.0	S4
Quailbush Scrub	*Atriplex lentiformis* Shrubland Alliance	*Atriplex lentiformis* Association	0.0	0.0	0.0	S4
		Atriplex lentiformis - Ericameria nauseosa Provisional Association	0.0	0.0	0.0	S4
Sandbar Willow Thickets	*Salix exigua* Shrubland Alliance	*Salix exigua* Association	0.5	0.0	0.0	S4
		Salix exigua - (*Salix gooddingii*) Provisional Association	0.0	0.0	0.0	S4
Shadscale Scrub	*Atriplex confertifolia* Shrubland Alliance	*Atriplex confertifolia* Great Basin Association	0.0	0.0	0.0	S4
		Atriplex confertifolia - Ephedra nevadensis Association	0.0	0.0	0.0	S4
		Atriplex confertifolia – Krascheninnikovia lanata Association	0.0	0.0	0.0	S4, Yes[2]
		Atriplex confertifolia -	7.1	0.0	0.0	S4

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
		Psorothamnus arborescens Provisional Association				
Big Sagebrush Scrub	*Artemisia tridentata* Shrubland Alliance	*Artemisia tridentata* Association	0.0	0.0	0.0	S5
California Buckwheat Scrub	*Eriogonum fasciculatum* Shrubland Alliance	*Eriogonum fasciculatum* Association	0.0	0.0	0.0	S5
Rubber Rabbitbrush Scrub	*Ericameria nauseosa* Shrubland Alliance	*Ericameria nauseosa* Association	1.9	0.0.	0.0	S5
Total Acres Shrubland Vegetation			***85.0***	***8.1***	***0.0***	
Herbaceous Vegetation						
Alkali Sacaton - Scratchgrass - Alkali Cordgrass Alkaline Wet Meadow	*Sporobolus airoides – Muhlenbergia asperifolia – Spartina gracilis* Herbaceous Alliance	*Muhlenbergia asperifolia - Distichlis spicata* Provisional Association	0.0	0.0	0.0	S2
Yerba Mansa - Nuttall's Sunflower - Nevada Goldenrod Alkaline Wet Meadows	*Anemopsis californica – Helianthus nuttallii – Solidago spectabilis* Herbaceous Alliance	*Anemopsis californica* Association	0.0	0.0	0.0	S2
Ashy Ryegrass – Creeping Ryegrass Turfs	*Leymus cinereus – Leymus triticoides* Herbaceous Alliance	*Leymus triticoides* Association	0.0	0.0	0.0	S3

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Hardstem and California Bulrush Marshes	*Schoenoplectus* (*acutus, californicus*) Herbaceous Alliance	*Schoenoplectus acutus* Association	0.0	0.0	0.0	S3S4, Yes [2]
Salt Grass Flats	*Distichlis spicata* Herbaceous Alliance	*Distichlis spicata* Association	0.7	0.0	0.0	S4
		Distichlis spicata - annual grasses Association	0.5	0.0	0.0	S4
Baltic and Mexican Rush Marshes	*Juncus arcticus* (var. *balticus, mexicanus*) Herbaceous Alliance	*Juncus arcticus* var. *balticus* – (var. mexicanus) Association	0.1	0.0	0.0	S4
Wild Tarragon Patches	*Artemisia dracunculus* Herbaceous Alliance	*Artemisia dracunculus* Association	0.0	0.0	0.0	S4
Cattail Marshes	*Typha* (*angustifolia, domingensis, latifolia*) Herbaceous Alliance	*Phragmites australis* subsp. *americanus* Association	0.0	0.0	0.0	S5, Yes [2]
		Typha (*latifolia, angustifolia*) Association	0.0	0.0	0.0	S5
Total Acres Herbaceous Vegetation			***1.3***	***0.0***	***0.0***	***NA***
Total Acres Native Vegetation			***86.3***	***8.1***	***0.0***	
Total Acres Non-Native Vegetation			***0.0***	***0.0***	***0.0***	

Table 2-1f Summary of Maximum Potential Impacts to Vegetation Communities on Private Land within the CSP Project Alignment

Vegetation Alliance Common Name	Vegetation Alliance Scientific Name	Vegetation Association	Total Area Mapped on CSP Project Alignment (acres)	Anticipated Maximum Temporary Impacts in Proposed Project Work Areas (acres)	Anticipated Maximum Permanent Impacts in Proposed Project Work Areas (acres)	California State Rarity Ranking
Total Acres All Vegetation			***86.3***	***8.1***	***0.0***	
Total Acres of Sensitive Vegetation			***13.1***	***7.3***	***0.0***	
Active Agriculture			18.3	0.2	0.0	None
Ornamental/Landscaped (lawns, gardens)			0.8	0.0	0.0	None
Open Water (ponds, lakes, streams, rivers)			0.0	0.0	0.0	None
Developed (towers, roads, etc.)			19.8	5.7	0.0	None
Disturbed (cleared area supporting ruderal vegetation, if any)			4.4	2.5	0.0	None
Unvegetated Wash or River Bottom			0.0	0.0	0.0	None
Total Mapped Acres[2]			**129.6**	**16.5**	**0.0**	

Notes:
Sensitive Alliances and Associations are indicated in **Bold**
1. Alliance is not sensitive; however, the association is included as a Sensitive Association on 2022 CDFW California Sensitive Natural Communities list
2. Total mapped acres between sub-tables may not sum to grand total on Table 2-1a due to rounding errors
Alliance Rarity Rankings (CDFW 2022, https://wildlife.ca.gov/Data/VegCAMP/Natural-Communities/Background):
S1: Fewer than 6 viable occurrences statewide and/or up to 518 hectares
S2: 6-20 viable occurrences statewide and/or 518-2,590 hectares
S3: 21-100 viable occurrences statewide and/or 2,590-12,950 hectares
Additional Threat Ranks:
0.1: Very threatened 0.2: Threatened 0.3: No current threat known

2.2 Native Trees in Potential Project Work Areas

A survey of individual native trees in potential Project work areas was conducted between July 6 and July 25, 2022. Tables 2-2a through Tables 2-2f summarize the number of mapped trees within anticipated Project work areas, as well as living trees that overhang proposed Project work areas or access roads and may require pruning to facilitate safe vehicular access.

Table 2-2a provides the total number of mapped native trees within proposed Project work areas on all lands within the CSP Project alignment.

Table 2-2b presents the number of mapped native trees within potential Project work areas on lands managed by the BLM Bishop Office within the CSP Project alignment, along with tree quantities that might be affected by potential pruning.

Table 2-2c presents the number of mapped native trees within potential Project work areas on lands managed by the BLM Ridgecrest Office within the CSP Project alignment, along with tree quantities that might be affected by potential pruning.

Table 2-2d presents the number of mapped native trees within potential Project work areas on lands managed by the USFS INF within the CSP Project alignment, along with tree quantities that might be affected by potential pruning.

Table 2-2e presents the number of mapped native trees within potential Project work areas on lands managed by the LADWP within the CSP Project alignment, along with tree quantities that might be affected by potential pruning.

Table 2-2f presents the number of mapped native trees within potential Project work areas on private lands within the CSP Project alignment, along with tree quantities that might be affected by potential pruning.

Most of these trees will be preserved by judicious use of helicopters and ground work. Actual tree quantities that might be affected by Project work will be supplied at a later design phase.

Table 2-2a Summary of Number of Mapped Living Native Trees within Potential Project Work Areas on all Lands within the CSP Project Alignment

Scientific Name	Common Name	Living Trees Requiring < 25%Canopy Pruning[1]	Living Trees Requiring > 25%Canopy Pruning[1]	Living Trees in Proposed Project Work Areas
Betula occidentalis	water birch	13	4	94
Juniperus osteosperma	Utah juniper	13	2	80
Pinus flexilis	limber pine	6	0	48
Pinus longaeva	bristlecone pine	15	7	186
Pinus monophylla	single-leaf pinyon pine	130	20	536
Populus fremontii	Fremont cottonwood	7	4	52
Populus tremuloides	quaking aspen	20	1	136
Populus trichocarpa	black cottonwood	5	5	25
Salix laevigata	red willow	3	1	19
Salix lasiolepis	arroyo willow	161	24	687
Salix lucida (*S. lasiandra* var. *lasiandra*)	shining willow	1	0	2
Salix lutea	yellow willow	12	0	11
Total Mapped Native Trees		**386**	**68**	**1,876**

1. Trees hanging over access roads and/or overhanging but not rooted in Proposed Project work areas

Table 2-2b Summary of Number of Mapped Living Native Trees within Potential Project Work Areas on Lands Managed by BLM Bishop Office

Scientific Name	Common Name	Living Trees Requiring < 25%Canopy Pruning[1]	Living Trees Requiring > 25%Canopy Pruning[1]	Living Trees in Proposed Project Work Areas
Betula occidentalis	water birch	0	0	0
Juniperus osteosperma	Utah juniper	0	0	0
Pinus flexilis	limber pine	0	0	0
Pinus longaeva	bristlecone pine	0	0	0
Pinus monophylla	single-leaf pinyon pine	0	0	0
Populus fremontii	Fremont cottonwood	3	0	2
Populus tremuloides	quaking aspen	0	0	0
Populus trichocarpa	black cottonwood	0	0	0
Salix laevigata	red willow	0	0	0
Salix lasiolepis	arroyo willow	0	0	0
Salix lucida (*S. lasiandra* var. *lasiandra*)	shining willow	0	0	0
Salix lutea	yellow willow	0	0	0
Total Mapped Native Trees		**3**	**0**	**2**

1. Trees hanging over access roads and/or overhanging but not rooted in Proposed Project work areas

Table 2-2c Summary of Number of Mapped Living Native Trees within Potential Project Work Areas on Lands Managed by BLM Ridgecrest Office

Scientific Name	Common Name	Living Trees Requiring < 25%Canopy Pruning[1]	Living Trees Requiring > 25%Canopy Pruning[1]	Living Trees in Proposed Project Work Areas
Betula occidentalis	water birch	0	0	0
Juniperus osteosperma	Utah juniper	0	0	0
Pinus flexilis	limber pine	0	0	0
Pinus longaeva	bristlecone pine	0	0	0
Pinus monophylla	single-leaf pinyon pine	0	0	0
Populus fremontii	Fremont cottonwood	0	0	0
Populus tremuloides	quaking aspen	0	0	0
Populus trichocarpa	black cottonwood	0	0	0
Salix laevigata	red willow	0	0	0
Salix lasiolepis	arroyo willow	0	0	0
Salix lucida (*S. lasiandra* var. *lasiandra*)	shining willow	0	0	0
Salix lutea	yellow willow	0	0	0
Total Mapped Native Trees		**0**	**0**	**0**

1. Trees hanging over access roads and/or overhanging but not rooted in Proposed Project work areas

Table 2-2d Summary of Number of Mapped Living Native Trees within Potential Project Work Areas on Lands Managed by U.S. Forest Service Inyo National Forest

Scientific Name	Common Name	Living Trees Requiring < 25%Canopy Pruning[1]	Living Trees Requiring > 25%Canopy Pruning[1]	Living Trees in Proposed Project Work Areas
Betula occidentalis	water birch	13	4	94
Juniperus osteosperma	Utah juniper	13	2	80
Pinus flexilis	limber pine	6	0	48
Pinus longaeva	bristlecone pine	15	7	186
Pinus monophylla	single-leaf pinyon pine	131	19	536
Populus fremontii	Fremont cottonwood	3	1	9
Populus tremuloides	quaking aspen	20	1	136
Populus trichocarpa	black cottonwood	5	5	25
Salix laevigata	red willow	1	1	17
Salix lasiolepis	arroyo willow	161	24	683
Salix lucida (*S. lasiandra* var. *lasiandra*)	shining willow	1	0	0
Salix lutea	yellow willow	12	0	11
Total Mapped Native Trees		**381**	**64**	**1,825**

1. Trees hanging over access roads and/or overhanging but not rooted in Proposed Project work areas

Table 2-2e Summary of Number of Mapped Living Native Trees within Potential Project Work Areas on Lands Managed by Los Angeles Department of Water and Power

Scientific Name	Common Name	Living Trees Requiring < 25%Canopy Pruning[1]	Living Trees Requiring > 25%Canopy Pruning[1]	Living Trees in Proposed Project Work Areas
Betula occidentalis	water birch	0	0	0
Juniperus osteosperma	Utah juniper	0	0	0
Pinus flexilis	limber pine	0	0	0
Pinus longaeva	bristlecone pine	0	0	0
Pinus monophylla	single-leaf pinyon pine	0	0	0
Populus fremontii	Fremont cottonwood	1	3	41
Populus tremuloides	quaking aspen	0	0	0
Populus trichocarpa	black cottonwood	0	0	0
Salix laevigata	red willow	2	0	2
Salix lasiolepis	arroyo willow	0	0	4
Salix lucida (*S. lasiandra* var. *lasiandra*)	shining willow	0	0	2
Salix lutea	yellow willow	0	0	0
Total Mapped Native Trees		**3**	**3**	**45**

1. Trees hanging over access roads and/or overhanging but not rooted in Proposed Project work areas

Table 2-2f Summary of Number of Mapped Living Native Trees within Potential Project Work Areas on Private Land

Scientific Name	Common Name	Living Trees Requiring < 25%Canopy Pruning[1]	Living Trees Requiring > 25%Canopy Pruning[1]	Living Trees in Proposed Project Work Areas
Betula occidentalis	water birch	0	0	0
Juniperus osteosperma	Utah juniper	0	0	0
Pinus flexilis	limber pine	0	0	0
Pinus longaeva	bristlecone pine	0	0	0
Pinus monophylla	single-leaf pinyon pine	0	0	0
Populus fremontii	Fremont cottonwood	0	0	0
Populus tremuloides	quaking aspen	0	0	0
Populus trichocarpa	black cottonwood	0	0	0
Salix laevigata	red willow	0	0	0
Salix lasiolepis	arroyo willow	0	0	0
Salix lucida (*S. lasiandra* var. *lasiandra*)	shining willow	0	0	0
Salix lutea	yellow willow	0	0	0
Total Mapped Native Trees		**0**	**0**	**0**

1. Trees hanging over access roads and/or overhanging but not rooted in Proposed Project work areas

2.3 Special-status Plant Species in Potential Project Work Areas

Nine non-listed special-status plant species were observed within the CSP Project alignment during 2017 and 2018 surveys; these include two shrub species, one cactus species, three herbaceous perennial species (including one grass), and three annual species; an additional seven plant species were observed with a CRPR of 4. The majority (94 percent) of the observed individuals of special-status plant species are annuals or herbaceous perennials that pass the dry or cold season as seeds or as dormant plants with no above-ground green foliage and underground storage organs. More information on the surveyed special-status plant species is detailed in the *TLRR Sensitive Species and Habitat Report: Control-Silver Peak 55 kV Subtransmission Line* (Arcadis 2019b).

Of the observed non-listed special status plant species, nine special-status plant species were identified within potential Project work areas.

Tables 2-3a through Tables 2-3f summarize the special-status plant species identified during the surveys in potential Project work areas within the CSP Project alignment, along with the regulatory status for each species and the number of individuals observed in potential Project work areas.

Table 2-3a provides a summary of the special-status plant species identified during the surveys on all lands within potential Project work areas on the CSP Project Alignment.

Table 2-3b presents the special-status plant species identified during the surveys within potential Project work areas on lands managed by the BLM Bishop Office within the CSP Project alignment.

Table 2-3c presents the special-status plant species identified during the surveys within potential Project work areas on lands managed by the BLM Ridgecrest Office within the CSP Project alignment.

Table 2-3d presents the special-status plant species identified during the surveys within potential Project work areas on lands managed by the USFS INF within the CSP Project alignment.

Table 2-3e presents the special-status plant species identified during the surveys within potential Project work areas on lands managed by the LADWP within the CSP Project alignment.

Table 2-3f presents the special-status plant species identified during the surveys within potential Project work areas on private lands within the CSP Project alignment.

In all cases, the number of special status plant species identified within potential Project work areas represent the maximum possible extent of Project work. In practice, due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, actual potential impacts will be greatly reduced.

Table 2-3a Summary of Number of Special-status Plants Observed within Potential Project Work Areas on All Lands within the CSP Project Alignment

Scientific Name	Common Name	Regulatory Status (Federal/State /CNPS)	Project Segment[1]	Number of Special-status Plants Observed within Potential Project Work Areas[2]
Oryctes nevadensis	Nevada oryctes	- / - / 2B.1	3	6
Aliciella triodon	coyote gilia	- / - / 2B.2	3	3,940
Astragalus serenoi var. *shockleyi*	naked milkvetch, Shockley's milk-vetch	- / - / 2B.2	3	2
Chaetadelpha wheeleri	Wheeler's chaetadelpha, Wheeler's dune-broom	- / - / 2B.2	4	6
Grusonia pulchella	sagebrush cholla	- / - / 2B.2	3	8
Eremothera boothii subsp. *intermedia*	desert shredding primrose	- / - / 2B.3	3	1,300
Physocarpus alternans	dwarf ninebark	- / - / 2B.3	3	2
Sarcobatus baileyi	Bailey's greasewood	- / - / 2B.3	4	914
Stipa divaricata	small-flowered rice grass	- / - / 2B.3	3	360
Total Number of Special-status Plants on All Lands				**6,538**

Notes:
1. Segment where observed special-status species may be potentially impacted by Project activities
2. Number based on number of individuals observed in potential Project disturbance areas in 2017 and/or 2018

CNPS – California Native Plant Society Ranks and Extensions

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere	.1 - Seriously endangered (over 80% of occurrences threatened / high degree and immediacy of threat)
List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	.2 – Fairly endangered (20-80% occurrences threatened)
	.3 – Not very endangered (<20% of occurrences threatened, or no current threats known)

Table 2-3b Summary of Number of Special-status Plants Observed within Potential Project Work Areas on Lands Managed by BLM Bishop Office within the CSP Project Alignment

Scientific Name	Common Name	Regulatory Status (Federal/State /CNPS)	Project Segment[1]	Number of Special-status Plants Observed within Potential Project Work Areas[2]
Oryctes nevadensis	Nevada oryctes	- / - / 2B.1	3	0
Aliciella triodon	coyote gilia	- / - / 2B.2	3	0
Astragalus serenoi var. *shockleyi*	naked milkvetch, Shockley's milk-vetch	- / - / 2B.2	3	0
Chaetadelpha wheeleri	Wheeler's chaetadelpha, Wheeler's dune-broom	- / - / 2B.2	4	0
Grusonia pulchella	sagebrush cholla	- / - / 2B.2	3	0
Eremothera boothii subsp. *intermedia*	desert shredding primrose	- / - / 2B.3	3	0
Physocarpus alternans	dwarf ninebark	- / - / 2B.3	3	0
Sarcobatus baileyi	Bailey's greasewood	- / - / 2B.3	4	0
Stipa divaricata	small-flowered rice grass	- / - / 2B.3	3	0
Total Number of Special-status Plants on BLM Lands (Bishop Office)				**0**

Notes:
1. Segment where observed special-status species may be potentially impacted by Project activities
2. Number based on number of individuals observed in potential Project disturbance areas in 2017 and/or 2018

CNPS – California Native Plant Society Ranks and Extensions

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere	.1 - Seriously endangered (over 80% of occurrences threatened / high degree and immediacy of threat)
List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	.2 – Fairly endangered (20-80% occurrences threatened)
	.3 – Not very endangered (<20% of occurrences threatened, or no current threats known)

Table 2-3c Summary of Number of Special-status Plants Observed within Potential Project Work Areas on Lands Managed by BLM Ridgecrest Office within the CSP Project Alignment

Scientific Name	Common Name	Regulatory Status (Federal/State /CNPS)	Project Segment[1]	Number of Special-status Plants Observed within Potential Project Work Areas[2]
Oryctes nevadensis	Nevada oryctes	- / - / 2B.1	3	0
Aliciella triodon	coyote gilia	- / - / 2B.2	3	120
Astragalus serenoi var. *shockleyi*	naked milkvetch, Shockley's milk-vetch	- / - / 2B.2	3	0
Chaetadelpha wheeleri	Wheeler's chaetadelpha, Wheeler's dune-broom	- / - / 2B.2	4	0
Grusonia pulchella	sagebrush cholla	- / - / 2B.2	3	3
Eremothera boothii subsp. *intermedia*	desert shredding primrose	- / - / 2B.3	3	100
Physocarpus alternans	dwarf ninebark	- / - / 2B.3	3	0
Sarcobatus baileyi	Bailey's greasewood	- / - / 2B.3	4	0
Stipa divaricata	small-flowered rice grass	- / - / 2B.3	3	0
Total Number of Special-status Plants on BLM Lands (Ridgecrest Office)				**223**

Notes:
1. Segment where observed special-status species may be potentially impacted by Project activities
2. Number based on number of individuals observed in potential Project disturbance areas in 2017 and/or 2018

CNPS – California Native Plant Society Ranks and Extensions

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere	.1 - Seriously endangered (over 80% of occurrences threatened / high degree and immediacy of threat)
List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	.2 – Fairly endangered (20-80% occurrences threatened)
	.3 – Not very endangered (<20% of occurrences threatened, or no current threats known)

Table 2-3d Summary of Number of Special-status Plants Observed within Potential Project Work Areas on Lands Managed by U.S. Forest Service - Inyo National Forest within the CSP Project Alignment

Scientific Name	Common Name	Regulatory Status (Federal/State/CNPS)	Project Segment[1]	Number of Special-status Plants Observed within Potential Project Work Areas[2]
Oryctes nevadensis	Nevada oryctes	- / - / 2B.1	3	0
Aliciella triodon	coyote gilia	- / - / 2B.2	3	1,700
Astragalus serenoi var. *shockleyi*	naked milkvetch, Shockley's milk-vetch	- / - / 2B.2	3	2
Chaetadelpha wheeleri	Wheeler's chaetadelpha, Wheeler's dune-broom	- / - / 2B.2	4	0
Grusonia pulchella	sagebrush cholla	- / - / 2B.2	3	0
Eremothera boothii subsp. *intermedia*	desert shredding primrose	- / - / 2B.3	3	1,200
Physocarpus alternans	dwarf ninebark	- / - / 2B.3	3	2
Sarcobatus baileyi	Bailey's greasewood	- / - / 2B.3	4	0
Stipa divaricata	small-flowered rice grass	- / - / 2B.3	3	360
Total Number of Special-status Plants on USFS Lands (Inyo NF)				**3,260**

Notes:
1. Segment where observed special-status species may be potentially impacted by Project activities
2. Number based on number of individuals observed in potential Project disturbance areas in 2017 and/or 2018

CNPS – California Native Plant Society Ranks and Extensions

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere	.1 - Seriously endangered (over 80% of occurrences threatened / high degree and immediacy of threat)
List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	.2 – Fairly endangered (20-80% occurrences threatened)
	.3 – Not very endangered (<20% of occurrences threatened, or no current threats known)

Table 2-3e Summary of Number of Special-status Plants Observed within Potential Project Work Areas on Lands Managed by Los Angeles Department of Water and Power within the CSP Project Alignment

Scientific Name	Common Name	Regulatory Status (Federal/State /CNPS)	Project Segment[1]	Number of Special-status Plants Observed within Potential Project Work Areas[2]
Oryctes nevadensis	Nevada oryctes	- / - / 2B.1	3	6
Aliciella triodon	coyote gilia	- / - / 2B.2	3	1,000
Astragalus serenoi var. *shockleyi*	naked milkvetch, Shockley's milk-vetch	- / - / 2B.2	3	0
Chaetadelpha wheeleri	Wheeler's chaetadelpha, Wheeler's dune-broom	- / - / 2B.2	4	0
Grusonia pulchella	sagebrush cholla	- / - / 2B.2	3	0
Eremothera boothii subsp. *intermedia*	desert shredding primrose	- / - / 2B.3	3	0
Physocarpus alternans	dwarf ninebark	- / - / 2B.3	3	0
Sarcobatus baileyi	Bailey's greasewood	- / - / 2B.3	4	0
Stipa divaricata	small-flowered rice grass	- / - / 2B.3	3	0
Total Number of Special-status Plants on LADWP Lands				**1,006**

Notes:
1. Segment where observed special-status species may be potentially impacted by Project activities
2. Number based on number of individuals observed in potential Project disturbance areas in 2017 and/or 2018

CNPS – California Native Plant Society Ranks and Extensions

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere	.1 - Seriously endangered (over 80% of occurrences threatened / high degree and immediacy of threat)
List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	.2 – Fairly endangered (20-80% occurrences threatened)
	.3 – Not very endangered (<20% of occurrences threatened, or no current threats known)

Table 2-3f Summary of Number of Special-status Plants Observed within Potential Project Work Areas on Private Land within the CSP Project Alignment

Scientific Name	Common Name	Regulatory Status (Federal/State/CNPS)	Project Segment[1]	Number of Special-status Plants Observed within Potential Project Work Areas[2]
Oryctes nevadensis	Nevada oryctes	- / - / 2B.1	3	0
Aliciella triodon	coyote gilia	- / - / 2B.2	3	1,120
Astragalus serenoi var. *shockleyi*	naked milkvetch, Shockley's milk-vetch	- / - / 2B.2	3	0
Chaetadelpha wheeleri	Wheeler's chaetadelpha, Wheeler's dune-broom	- / - / 2B.2	4	0
Grusonia pulchella	sagebrush cholla	- / - / 2B.2	3	0
Eremothera boothii subsp. *intermedia*	desert shredding primrose	- / - / 2B.3	3	0
Physocarpus alternans	dwarf ninebark	- / - / 2B.3	3	0
Sarcobatus baileyi	Bailey's greasewood	- / - / 2B.3	4	0
Stipa divaricata	small-flowered rice grass	- / - / 2B.3	3	0
Total Number of Special-status Plants on Private Lands				**1,120**

Notes:
1. Segment where observed special-status species may be potentially impacted by Project activities
2. Number based on number of individuals observed in potential Project disturbance areas in 2017 and/or 2018

CNPS – California Native Plant Society Ranks and Extensions

List 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere	.1 - Seriously endangered (over 80% of occurrences threatened / high degree and immediacy of threat)
List 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere	.2 – Fairly endangered (20-80% occurrences threatened)
	.3 – Not very endangered (<20% of occurrences threatened, or no current threats known)

2.4 Wetlands and Jurisdictional Features in Potential Project Work Areas

Potentially jurisdictional wetlands and non-wetland waters occur throughout the CSP Project alignment. General wetland habitats that occur within Segments 1, 2, 3, and 4 of the CSP Project alignment include emergent freshwater wetlands, scrub-shrub wetlands, and forested/woodland wetlands. Potentially jurisdictional non-wetland waters found in Segments 1, 2, 3, 4, and 5 are generally classified as rivers and streams. The Owens River is the only major river within the CSP Project alignment. Surface waters within Segment 3 also include Silver Creek and Wyman Creek. More information on the surveyed jurisdictional features is detailed in the *Wetlands and Other Waters Jurisdictional Delineation Report: Control-Silver Peak 55 kV Subtransmission Line* (Arcadis 2019a).

Tables 2-4a through Tables 2-4f summarize the acres of regulated Waters of the U.S. within potential Project work areas within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-4a summarizes the acres of regulated Waters of the U.S. within potential Project work areas on all lands within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-4b presents the acres of regulated Waters of the U.S. within potential Project work areas on lands managed by the BLM Bishop Office within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-4c presents the acres of regulated Waters of the U.S. within potential Project work areas on lands managed by the BLM Ridgecrest Office within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-4d presents the acres of regulated Waters of the U.S. within potential Project work areas on lands managed by the U.S. Forest Service Inyo National Forest within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-4e presents the acres of regulated Waters of the U.S. within potential Project work areas on lands managed by the Los Angeles Department of Water and Power within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-4f presents the acres of regulated Waters of the U.S. within potential Project work areas on private lands within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

In all cases, the listed impacts within potential Project work areas represent the maximum possible extent of Project work. In practice, due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, actual potential impacts will be greatly reduced.

Table 2-4a Summary of Maximum Acres of Regulated Waters of the U.S. within Potential Project Work Areas on All Lands within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	7	6.7	4	0.1	1
404 other waters	108	58.2	12	1.9	1

Table 2-4b Summary of Maximum Acres of Regulated Waters of the U.S. within Potential Project Work Areas on Lands Managed by BLM Bishop Office within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	0	0	0	0	0
404 other waters	25	0.03	1	0	0

Table 2-4c Summary of Maximum Acres of Regulated Waters of the U.S. within Potential Project Work Areas on Lands Managed by BLM Ridgecrest Office within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	0	0	0	0	0
404 other waters	48	2.7	4	0	0

Table 2-4d Summary of Maximum Acres of Regulated Waters of the U.S. within Potential Project Work Areas on Lands Managed by U.S. Forest Service – Inyo National Forest within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	2	2.3	2	0	0
404 other waters	13	39.0	2	0	0

Table 2-4e Summary of Maximum Acres of Regulated Waters of the U.S. within Potential Project Work Areas on Lands Managed by Los Angeles Department of Water and Power within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	2	0	0	0	0
404 other waters	12	0	0	0	0

Table 2-4f Summary of Maximum Acres of Regulated Waters of the U.S. within Potential Project Work Areas on Private Lands within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	0	0	0	0	0
404 other waters	1	0	0	0	0

Tables 2-5a through Tables 2-5f summarize the acres of regulated Waters of the State within potential Project work areas within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-5a summarizes the acres of regulated Waters of the State within potential Project work areas on all lands within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-5b presents the acres of regulated Waters of the State within potential Project work areas on lands managed by the BLM Bishop Office within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-5c presents the acres of regulated Waters of the State within potential Project work areas on lands managed by the BLM Ridgecrest Office within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-5d presents the acres of regulated Waters of the State within potential Project work areas on lands managed by the U.S. Forest Service Inyo National Forest within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-5e presents the acres of regulated Waters of the State within potential Project work areas on lands managed by the Los Angeles Department of Water and Power within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-5f presents the acres of regulated Waters of the State within potential Project work areas on private lands within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

In all cases, the listed impacts within potential Project work areas represent the maximum possible extent of Project work. In practice, due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, actual potential impacts will be greatly reduced.

Table 2-5a Summary of Maximum Acres of Regulated Waters of the State within Potential Project Work Areas within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	7	6.7	4	0.1	1
CDFW 1602	108	58.2	12	1.9	1

Table 2-5b Summary of Maximum Acres of Regulated Waters of the State within Potential Project Work Areas on Lands Managed by BLM Bishop Office within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	0	0	0	0	0
CDFW 1602	25	0.03	1	0	0

Table 2-5c Summary of Maximum Acres of Regulated Waters of the State within Potential Project Work Areas on Lands Managed by BLM Ridgecrest Office within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	0	0	0	0	0
CDFW 1602	48	2.7	4	0	0

Table 2-5d Summary of Maximum Acres of Regulated Waters of the State within Potential Project Work Areas on Lands Managed by U.S. Forest Service – Inyo National Forest within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	2	2	2.3	0	0
CDFW 1602	13	2	39.0	0	0

Table 2-5e Summary of Maximum Acres of Regulated Waters of the State within Potential Project Work Areas on Lands Managed by Los Angeles Department of Water and Power within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	2	0	0	0	0
CDFW 1602	12	0	0	0	0

Table 2-5f Summary of Maximum Acres of Regulated Waters of the State within Potential Project Work Areas on Private Lands within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 wetlands	0	0	0	0	0
CDFW 1602	1	0	0	0	0

Tables 2-6a through Tables 2-6f summarize the acres of jurisdictional streambeds within potential Project work areas within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-6a summarizes the acres of jurisdictional streambeds within potential Project work areas on all lands within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-6b presents the acres of jurisdictional streambeds within potential Project work areas on lands managed by the BLM Bishop Office within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-6c presents the acres of jurisdictional streambeds within potential Project work areas on lands managed by the BLM Ridgecrest Office within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-6d presents the acres of jurisdictional streambeds within potential Project work areas on lands managed by the U.S. Forest Service Inyo National Forest within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-6e presents the acres of jurisdictional streambeds within potential Project work areas on lands managed by the Los Angeles Department of Water and Power within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

Table 2-6f presents the acres of jurisdictional streambeds within potential Project work areas on private lands within the CSP Project alignment, including number of features and anticipated maximum temporary and permanent impacts.

In all cases, the listed impacts within potential Project work areas represent the maximum possible extent of Project work. In practice, due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, actual potential impacts will be greatly reduced.

Table 2-6a Summary of Maximum Acres of Jurisdictional Streambeds within Potential Project Work Areas within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 other waters	108	58.2	12	1.9	1
CDFW 1602	108	58.2	12	1.9	1

Table 2-6b Summary of Maximum Acres of Jurisdictional Streambeds within Potential Project Work Areas on Lands Managed by BLM Bishop Office within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 other waters	25	0.03	1	0	0
CDFW 1602	25	0.03	1	0	0

Table 2-6c Summary of Maximum Acres of Jurisdictional Streambeds within Potential Project Work Areas on Lands Managed by BLM Ridgecrest Office within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 other waters	48	2.7	4	0	0
CDFW 1602	48	2.7	4	0	0

Table 2-6d Summary of Maximum Acres of Jurisdictional Streambeds within Potential Project Work Areas on Lands Managed by U.S. Forest Service – Inyo National Forest within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 other waters	13	39.0	2	0	0
CDFW 1602	13	39.0	2	0	0

Table 2-6e Summary of Maximum Acres of Jurisdictional Streambeds within Potential Project Work Areas on Lands Managed by Los Angeles Department of Water and Power within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 other waters	12	0	0	0	0
CDFW 1602	12	0	0	0	0

Table 2-6f Summary of Maximum Acres of Jurisdictional Streambeds within Potential Project Work Areas on Private Lands within the CSP Project Alignment

Feature Type	Total Number of Features Mapped	Temporary Impacts		Permanent Impacts	
		Acres	Features	Acres	Features
404 other waters	1	0	0	0	0
CDFW 1602	1	0	0	0	0

3.0 Mitigation Strategy

SCE's approach to mitigate for impacts to sensitive biological and water resources due to construction of the CSP Project is to restore temporarily impacted areas consistent with APM BIO-RES-1 (Table 1-1), as well as the Conservation and Management Action (CMA) LUPA-BIO-7 in the Desert Renewable Energy Conservation Plan (DRECP) Land Use Plan Amendment (DRECP LUPA; BLM 2016), and measures included in the Land Management Plan for the Inyo National Forest (USFS 2019). The APMs for this Project (Table 1-1) will generally be applied Project-wide and include erosion control, soil stabilization, and restoration of areas temporarily impacted by the Project.

Temporary Project disturbance areas requiring restoration will be treated as "restoration areas". The term "restoration area", as used in this HRP and consistent with APM BIO-RES-1 (Table 1-1), reflects those areas that are subject to required restoration activities. Restoration areas are subject to quantifiable performance standards or targets (e.g., vegetation cover and species diversity). Quantitative monitoring will be conducted to document the progress of restoration areas in meeting performance targets. In addition, qualitative and quantitative monitoring will be conducted to assess maintenance needs, verify whether site stabilization has been achieved, and record the status of invasive plants in the site and the effectiveness of weed abatement measures.

Temporary impacts in areas dominated by non-native species will be revegetated with appropriate native species following initial treatments identified in the Project's IPMP. Temporary impacts to all other categories of land such as private lands or disturbed areas (e.g., agricultural lands, existing roads, OHV trails, grazing areas, trash/dump site, etc.) shall only be subject to the requirements of the Storm Water Pollution Prevention Plan (SWPPP) and the Invasive Plant Management Plan (IPMP, APM BIO-RES-2). No additional goals, objectives, or success criteria regarding habitat condition are required for these sites.

Temporary impacts in barren areas may not be subject to restoration requirements if the site is naturally barren, but site stabilization measures will be implemented in accordance with the CSP Project SWPPP. The HRP does not apply to private land. Temporary impacts on private lands would be addressed according to landowner requirements.

Restoration reflects areas with objective standards or goals for measures such as vegetation cover and species diversity. In addition to qualitative monitoring described for restoration, quantitative monitoring will be conducted to document the progress of restoration sites in meeting those goals.

This Plan outlines the methods for restoration of areas temporarily disturbed by the Project. The goal of the restoration efforts is for the treated areas to exhibit evidence of increasing native vegetative cover, density, diversity, and species dominance that is similar to the pre-disturbance conditions or existing conditions in adjacent native vegetation.

4.0 Baseline Conditions

Documentation of baseline conditions is an important component of the restoration program, as the performance criteria for the five-year restoration will be based on these data. Baseline condition (pre-impact) data will be collected for temporary impact areas. Pre-impact data for the Project site consist of identifying the vegetation community (native species, nonnative species); percent native cover; percent nonnative cover; presence of special status species; soils present; slope aspect(s); any observed disturbance from previous or historic activities; and photographs.

Vegetation surveys conducted in 2017, 2018, and 2022 documented 36 vegetation alliances and 55 associations present in the CSP Project area (Table 2-1).

Reference site data can also be used to assess performance issues in restoration areas compared with nearby natural sites to evaluate if a region-wide issue is affecting the revegetation success and to refine performance standards, if needed.

5.0 Implementation

This section describes general methods that will be used to restore vegetation communities and habitats impacted by the Project. Restoration of temporary disturbance areas following construction will occur as soon as practical after completion of construction activities in the affected area. Plan implementation will include tasks that will be completed prior to construction, during construction, and after construction.

Activities to be completed prior to construction include:

- Establishment of baseline conditions;
- Site-specific restoration planning;
- Seed source identification and collection during the appropriate season (at a minimum one year prior to construction).

Activities to be completed during construction include:

- Plant material salvage and procurement, including salvaging of cacti (Section 5.1.4) and special-status plants (Section 5.1.3) as well as salvage of material to be used for mulch;
- Topsoil salvaging and stockpiling to preserve the microbial network within the soil and retain the native seed bank and organic material important to nutrient cycles within the soil;
- Propagation of container plantings, as needed.

Post-construction activities include:

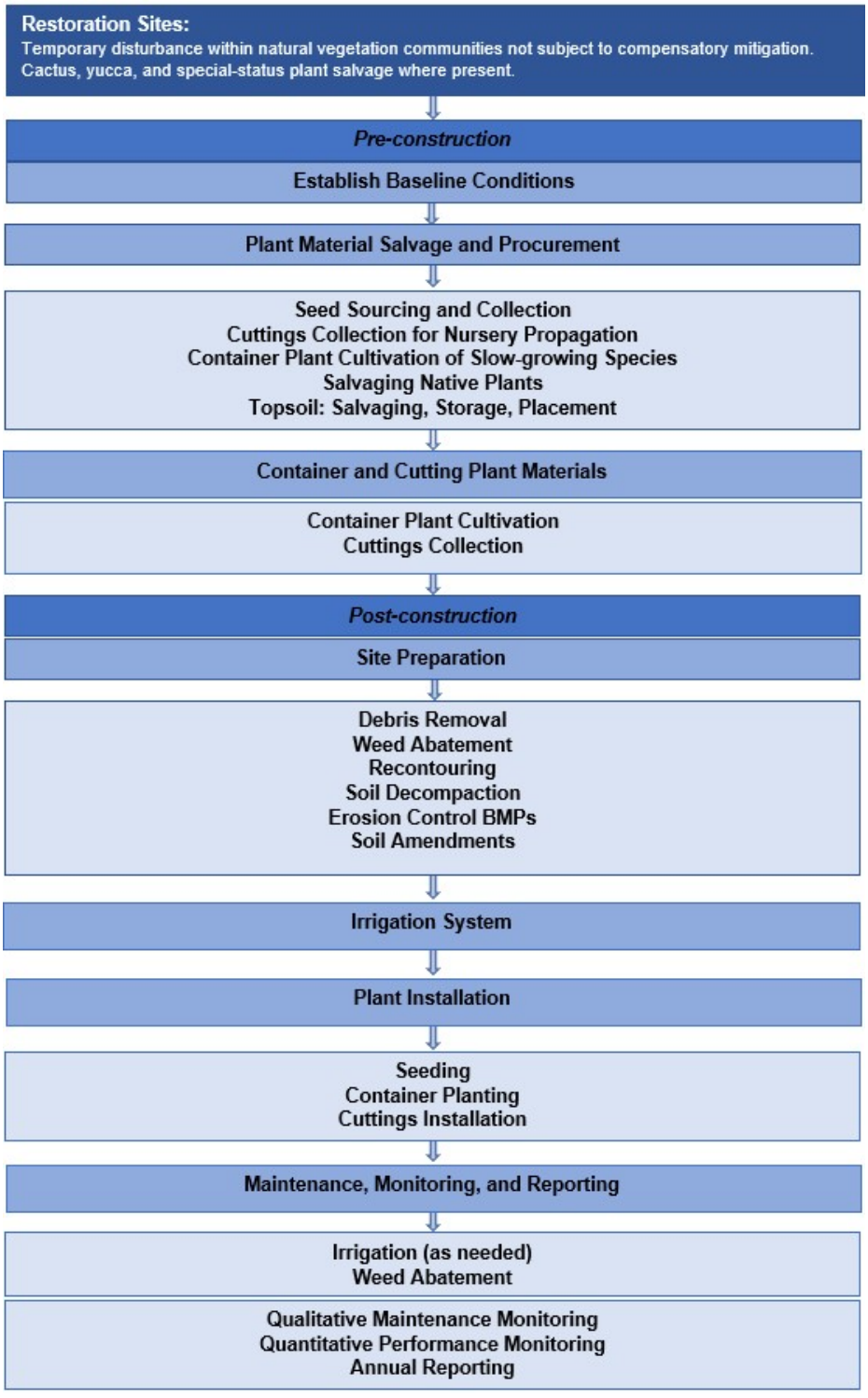
- Site preparation;
- Plant installation;
- Maintenance;
- Monitoring and reporting.
- The activities and sequencing associated with Project restoration are summarized in Sections 4 through 11 and are shown in a generalized flow chart (Figure 1).

5.1 Plant Material Procurement and Salvaging

Plant materials used for restoration will be derived from on-site sources to the extent feasible. This includes seed and cutting collection; container plant propagation from site-collected propagules; salvage of cacti and special-status plants; and salvage of material to be used for mulch. On-site seed collection is not anticipated to fully meet the needs of the restoration process, and supplementary materials may be used as described in this section and in Section 5.2. Generally, acquisition of propagules would occur prior to and during the construction process during the appropriate season for seed and cutting maturation.

Selection of on-site plant material for collection and salvage will be made by the Restoration Contractor in consultation with Project construction personnel. As described in this Plan, plant salvage will be determined in part by the plant's health and the probability of transplant success.

Figure 1 Restoration Sequence



5.1.1 Mitigation Plant Propagule Source and Collection

Seeds and cuttings may be obtained from on-site collection prior to or during construction, and seed may also be purchased from commercial vendors. Purchased seed would comply with U.S. Department of Agriculture rules and regulations under the Federal Seed Act. Purity and germination rates would be warranted by the seed supplier (e.g., all seed mixtures will be certified "weed free"). All seed would be furnished in sealed standard containers.

On-site seed and cutting collection would take place where authorized by the land management agency (primarily BLM or USFS) in the vicinity of the Project area. SCE will work with land management agencies to secure appropriate propagule collection authorizations and establish collection areas. Seed collection is described in more detail below. Container plant cultivation is summarized in Section 5.2.1. Collection of cuttings is described in Section 5.2.2.

Seed collection will occur at a minimum at least one prior to construction and may vary across the Project area. Native seed collections will be weed-free and stored in cool dry conditions until ready to use. Collection efforts will follow characterization of potential restoration sites and determination of planting palettes. Seed collection will target as many native annual and perennial species as are available during each collection phase.

Seed that has become wet, moldy, or otherwise damaged in transit or in storage would not be used and would be rejected and removed from the site. If sufficient seed cannot be collected/obtained for a particular species or vegetation community, seed will be substituted with seed of a comparable species with approval from the appropriate land management agency. Changes to seed or planting palettes will be submitted to BLM, CPUC, and USFS for approval. Seeds must be acquired from the appropriate provisional seed transfer zones (USFS 2022).

Seed shall contain no noxious, prohibited, or restricted weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. Seed tags or other official documentation shall be submitted to BLM and/or USFS at least 14 days before the date of proposed seeding for acceptance. Seed that does not meet the above criteria shall not be applied to public lands.

Nine planting palettes based on dominant vegetation types have been proposed for use across the Project area (see Tables 5-1 through 5-9) to be applied to temporary disturbance areas. These include planting palettes for Subalpine Forest (Bristlecone Pine Woodland, Limber Pine Woodland), Aspen Groves, Singleleaf Pinyon – Utah Juniper Woodland, Mountain Sagebrush Scrub (High Desert Scrub), High Desert Wash Shrubland, Saltbush – Alkali Scrub, Riparian Woodland, Moist Meadows and Wetland Margins, and Freshwater Marsh. Planting palettes include species common to several alliances and associations that occur in similar habitats or at similar elevations and may be modified on a case by case basis to target dominant species in a given area.

Vegetation communities that will not be impacted by Project activities are not included in the discussion below but are shown in Table 2-1.

The Restoration Contractor will work with the agencies and the Biological Compliance Lead in the field to determine the transition point for use of each planting palette to support site-specific restoration planning.

5.1.1.1 Subalpine Forest (Bristlecone Pine Woodland – Limber Pine Woodland)

Bristlecone and Limber Pine Woodlands are dominated by Great Basin bristlecone pine (*Pinus longaeva*), an extremely long-lived and slow-growing evergreen tree, and limber pine (*Pinus flexilis*). These woodlands occur primarily in the subalpine zone of the White Mountains above 9,000 feet above mean sea level (amsl) within Segment 3 of the CSP Project alignment, often on nutrient-deficient dolomites and limestones. Two alliances and two associations of Subalpine Forest vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). Both alliances include bristlecone pine as a dominant tree. Bristlecone Pine Woodland is dominated primarily by bristlecone pine. Limber Pine Woodland is dominated by both limber pine and bristlecone pine.

Alliances and associations of Bristlecone Pine Woodland and Limber Pine Woodlands within the CSP Project alignment include:

Vegetation Alliance Common Name	Association Name
Bristlecone pine woodland	*Pinus longaeva* Association
Limber pine woodland	*Pinus flexilis - Pinus longaeva* Provisional Association

Impacts to subalpine forest will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

The proposed Subalpine Forest planting palette includes observed dominant native woody species in Bristlecone and Limber Pine Woodlands, as well as common perennial forbs and a perennial grass. It also includes two species of sagebrush that serve as food and habitat for the greater sage grouse.

Table 5-1 Subalpine Forest Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Juniperus osteosperma	Utah juniper	tree	container	TBD	3
Pinus flexilis	limber pine	tree	container	TBD	3
Pinus longaeva	bristlecone pine	tree	container	TBD	3
Pinus monophylla	singleleaf pinyon pine	tree	container	TBD	3
Artemisia arbuscula	black sagebrush	shrub	container	TBD	
Artemisia tridentata subsp. *vaseyana*	mountain big sagebrush	shrub	container	TBD	3
Cercocarpus ledifolius	curl-leaf mountain-mahogany	shrub	container	TBD	3
Chamaebatiaria millefolium	desert sweet, fern bush	shrub	seed	1	3
Chrysothamnus viscidiflorus	green rabbitbrush	shrub	seed	1	3
Ephedra viridis	green Mormon tea	shrub	container	TBD	3
Philadelphus microphyllus var. *microphyllus*	littleleaf mockorange	shrub	container	TBD	3
Ribes cereum	mountain wax current	shrub	container	TBD	3

Symphoricarpos longiflorus	desert snowberry	shrub	container	TBD	3
Eriogonum ovalifolium	cushion buckwheat	perennial forb	seed	1	3
Leptosiphon nuttallii	Nuttall's linanthus	perennial forb	seed	1	3
Lupinus argenteus	silvery lupine	perennial forb	seed	1	3
Monardella odoratissima	mountain pennyroyal	perennial forb	seed	0.5	3
Stipa comata	needle-and-thread grass	perennial grass	seed	1	3

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.2 Aspen Groves

Aspen Groves occur in one location within the CSP Project alignment near the head of Silver Canyon at approximately 10,000 feet amsl. Aspen Groves are dominated by quaking aspen (*Populus tremuloides*) and also include bristlecone pine and limber pine as associated species in this location.

Aspen Groves (*Populus tremuloides* Forest and Woodland Alliance) includes one association in this area, the *Populus tremuloides – Pinus longaeva* Provisional Association.

The proposed Aspen Groves planting palette is similar to the nearby Subalpine Forest planting palette and includes dominant woody species as well as perennial forbs and a perennial grass. It also includes two species of sagebrush that serve as food and habitat for the greater sage grouse.

Impacts to Aspen Groves will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-2 Aspen Groves Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Pinus flexilis	limber pine	tree	container	TBD	3
Pinus longaeva	bristlecone pine	tree	container	TBD	3
Populus tremuloides	quaking aspen	tree	container	TBD	3
Artemisia arbuscula	black sagebrush	shrub	container	TBD	3
Artemisia tridentata subsp. *vaseyana*	mountain big sagebrush	shrub	container	TBD	3
Cercocarpus ledifolius	curl-leaf mountain-mahogany	shrub	container	TBD	3

Chamaebatiaria millefolium	desert sweet, fern bush	shrub	seed	1	3
Chrysothamnus viscidiflorus	green rabbitbrush	shrub	seed	1	3
Ephedra viridis	green Mormon tea	shrub	container	TBD	3
Ribes cereum	mountain wax currant	shrub	container	TBD	3
Symphoricarpos longiflorus	desert snowberry	shrub	container	TBD	3
Leptosiphon nuttallii	Nuttall's linanthus	perennial forb	seed	1	3
Lupinus argenteus	silvery lupine	perennial forb	seed	1	3
Monardella odoratissima	mountain pennyroyal	perennial forb	seed	0.5	3
Stipa comata	needle-and-thread grass	perennial grass	seed	1	3

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site.

5.1.1.3 Singleleaf Pinyon - Utah Juniper Woodland

Singleleaf Pinyon – Utah Juniper Woodland is dominated by singleleaf pinyon pine (*Pinus monophylla*), a tall long-lived tree in the Pine Family (Pinaceae); woodlands dominated by singleleaf pinyon pine occur above 6,400 feet amsl in the White Mountains in Segment 3 of the CSP Project alignment at elevations just below Limber Pine and Bristlecone Pine Woodlands on the upper slopes of Silver Canyon and Wyman Canyon. Utah juniper is much less common than singleleaf pinyon pine within the CSP Project alignment. Pockets of two uncommon shrubs form associations of Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub surrounded by areas supporting Singleleaf Pinyon – Utah Juniper Woodland vegetation in Segment 3: littleleaf mockorange (*Philadelphus microphyllus*) and small-leaf mountain-mahogany (*Cercocarpus intricatus*).

Two alliances and 3 associations of Singleleaf Pinyon – Utah Juniper Woodland vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	Association Name
Singleleaf pinyon – Utah juniper woodland	*Pinus monophylla – (Juniperus osteosperma) / Artemisia tridentata* (subsp. *vaseyana*) Association
Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub	*Philadelphus microphyllus* var. *microphyllus* Provisional Association *Cercocarpus intricatus* Association

The proposed Singleleaf Pinyon – Utah Juniper Woodland planting palette includes observed dominant native woody species in Singleleaf Pinyon – Utah Juniper Woodland and Utah Serviceberry – Birch Leaf Mountain Mahogany – Small Leaf Mountain Mahogany Scrub, as well as common perennial forbs and a perennial grass. It also includes mountain big sagebrush, which serves as food and habitat for the greater sage grouse.

Impacts to Singleleaf Pinyon – Utah Juniper Woodland will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-3 Singleleaf Pinyon – Utah Juniper Woodland Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Pinus monophylla	singleleaf pinyon pine	tree	container	TBD	3
Artemisia tridentata subsp. vaseyana	mountain big sagebrush	shrub	container	TBD	3
Cercocarpus intricatus	small-leaved mountain-mahogany	shrub	container	TBD	3
Cercocarpus ledifolius	curl-leaf mountain-mahogany	shrub	container	TBD	3
Chrysothamnus viscidiflorus	green rabbitbrush	shrub	seed	1	3
Coleogyne ramosissima	blackbrush	shrub	container	TBD	3
Ephedra viridis	Green Mormon tea	shrub	container	TBD	3
Eriogonum fasciculatum var. polifolium	California buckwheat	shrub	seed	2	3
Holodiscus discolor var. microphyllus	small-leaved creambush	shrub	seed	0.5	3
Krascheninnikovia lanata	winterfat	shrub	container	TBD	3
Philadelphus microphyllus var. *microphyllus*	littleleaf mockorange	shrub	container	TBD	3
Purshia tridentata var. glandulosa	bitterbrush, antelope brush	shrub	seed	1	3
Ribes cereum	mountain wax current	shrub	container	TBD	3
Symphoricarpos longiflorus	desert snowberry	shrub	container	TBD	3
Eriogonum ovalifolium	cushion buckwheat	perennial forb	seed	1	3
Leptosiphon nuttallii	Nuttall's linanthus	perennial forb	seed	1	3
Lupinus argenteus	silvery lupine	perennial forb	seed	1	3
Stipa comata	needle-and-thread grass	perennial grass	seed	1	3

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.4 High Desert Scrub (includes Mountain Sagebrush Scrub, Mountain Mahogany Scrub, Blackbush Scrub, and others)

High Desert Scrub is widespread in all segments of the CSP Project alignment on drier slopes below 6,400 feet amsl. High desert scrub is dominated by different shrub species, depending on location, including mountain big sagebrush (*Artemisia tridentata* subsp. *vaseyana*), big sagebrush (*Artemisia tridentata* subsp. *tridentata*), blackbrush (*Coleogyne ramosissima*), bitterbrush (*Purshia tridentata*), curl-leaf mountain-mahogany (*Cercocarpus ledifolius*), winterfat *(Krascheninnikovia lanata*), green ephedra (*Ephedra viridis*), spiny menodora (*Menodora spinescens*), shadscale (*Atriplex confertifolia*), needleleaf rabbitbrush (*Ericameria teretifolia),* rubber rabbitbrush (*Ericameria nauseosa*), California buckwheat (*Eriogonum fasciculatum* var. polifolium), and other shrub and herbaceous species. Stands of mountain-mahogany scrub, blackbush scrub, and other associations within this alliance are included in this category and figuresets showing their distribution can be found in the *TLRR Sensitive Species and Habitat Report: Control-Silver Peak 55 kV Subtransmission Line* (Arcadis 2019b).

A total of 13 alliances and 19 associations of High Desert Scrub vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	**Association Name**
Curl leaf mountain-mahogany scrub	*Cercocarpus ledifolius – Artemisia tridentata* subsp*. vaseyana* Association
Winterfat scrubland	*Krascheninnikovia lanata* Association
Spiny menodora scrub	*Menodora spinescens* – (*Ephedra nevadensis*) Association *Menodora spinescens – Atriplex confertifolia* Association
Blackbrush scrub	*Coleogyne ramosissima* Association
Antelope bitterbrush – big sagebrush scrub	*Purshia tridentata – Artemisia tridentata* (subsp. *vaseyana*) Association
Shadscale Scrub	*Atriplex confertifolia* Great Basin Association *Atriplex confertifolia – Ephedra nevadensis* Association *Atriplex confertifolia – Krascheninnikovia lanata* Association *Atriplex confertifolia – Psorothamnus arborescens* Provisional Association
Nevada joint fir - Anderson's boxthorn - spiny hopsage scrub	*Ephedra nevadensis* Provisional Association *Ephedra nevadensis – Psorothamnus arborescens* Provisional Association
Mormon tea scrub	*Ephedra viridis* Association
Needleleaf rabbitbrush scrub	*Ericameria teretifolia* Association
Big sagebrush scrub	*Artemisia tridentata* Association
Mountain big sagebrush scrub	*Artemisia tridentata* subsp. *vaseyana* Association *Artemisia tridentata* subsp. *vaseyana – Purshia tridentata/Festuca idahoensis* Association
California buckwheat scrub	*Eriogonum fasciculatum* Association
Rubber rabbitbrush scrub	*Ericameria nauseosa* Association

The proposed High Desert Scrub planting palette includes observed dominant species in High Desert Scrub, as well as common forbs and perennial grasses. It also includes mountain big sagebrush, which serves as food and habitat for the greater sage grouse.

Impacts to High Desert Scrub will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-4 High Desert Scrub Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Artemisia tridentata subsp. *tridentata*	big sagebrush	shrub	container	TBD	1, 2, 3, 4, 5
Artemisia tridentata subsp. *vaseyana*	mountain big sagebrush	shrub	container	TBD	1, 2, 3, 4, 5
Atriplex canescens	four-wing saltbush	shrub	seed	0.5	1, 2, 3, 4, 5
Atriplex confertifolia	shadscale	shrub	seed	2	1, 2, 3, 4, 5
Ambrosia salsola	cheeseweed	shrub	seed	0.5	1, 2, 3, 4, 5
Cercocarpus ledifolius	Curl-leaf mountain-mahogany	shrub	container	TBD	1, 2, 3, 4, 5
Chrysothamnus viscidiflorus	green rabbitbrush	shrub	seed	2	1, 2, 3, 4, 5
Coleogyne ramosissima	blackbrush	shrub	container	TBD	1, 2, 3, 4, 5
Ephedra nevadensis	Nevada ephedra	shrub	container	TBD	1, 2, 3, 4, 5
Ephedra viridis	Green Mormon tea	shrub	container	TBD	1, 2, 3, 4, 5
Ericameria nauseosa	rubber rabbitbrush	shrub	seed	1	1, 2, 3, 4, 5
Ericameria teretifolia	needleleaf rabbitbrush	shrub	seed	1	1, 2, 3, 4, 5
Eriogonum fasciculatum var. *polifolium*	California buckwheat	shrub	seed	3	1, 2, 3, 4, 5
Grayia spinosa	spiny hop-sage	shrub	seed	0.5	1, 2, 3, 4, 5
Holodiscus discolor var. *microphyllus*	Small-leaved creambush	shrub	seed	0.5	1, 2, 3, 4, 5
Krascheninnikovia lanata	winterfat	shrub	container	TBD	1, 2, 3, 4, 5
Menodora spinescens var. *spinescens*	spiny menodora	shrub	container	TBD	1, 2, 3, 4, 5
Philadelphus microphyllus var. *microphyllus*	littleleaf mockorange	shrub	container	TBD	1, 2, 3, 4, 5
Purshia tridentata var. *glandulosa*	bitterbrush, antelope brush	shrub	seed	0.5	1, 2, 3, 4, 5

Table 5-4 High Desert Scrub Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Tetradymia axillaris var. *axillaris*	catclaw horsebrush	shrub	seed	0.5	1, 2, 3, 4, 5
Leptosiphon nuttallii	Nuttall's linanthus	perennial forb	seed	0.5	1, 2, 3, 4, 5
Lupinus argenteus	silvery lupine	perennial forb	seed	0.5	1, 2, 3, 4, 5
Stipa comata	needle-and-thread grass	perennial grass	seed	0.5	1, 2, 3, 4, 5
Stipa speciosa	desert needlegrass	perennial grass	seed	0.5	1, 2, 3, 4, 5
Mentzelia albicaulis	small-flowered blazing star	annual forb	seed	0.5	1, 2, 3, 4, 5

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.5 High Desert Wash Shrubland

High Desert Wash Shrubland vegetation occurs primarily in valleys, flats, arroyos, intermittent channels, and washes within the CSP Project alignment where there is seasonal surface or subsurface water flow, depending on rainfall. High Desert Wash Shrubland occurs in all segments of the CSP Project alignment and supports shrubs such as cheesebush (*Ambrosia salsola*), Fremont's smokebush (*Psorothamnus fremontii*), Nevada smokebush (*Psorothamnus polydenius*), Bailey's greasewood (*Sarcobatus baileyi*), wild tarragon (*Artemisia dracunculus*), and other shrubs and herbaceous species. Three alliances and 7 associations of High Desert Wash Shrubland vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	Association Name
Fremont's and Nevada smokebush scrub	*Psorothamnus polydenius – Atriplex confertifolia – Tetradymia* spp. Association *Psorothamnus polydenius* – (*Psorothamnus arborescens*) Association *Sarcobatus baileyi* Association
Cheesebush - sweetbush scrub	*Ambrosia salsola* Association *Ambrosia salsola – Atriplex canescens* Provisional Association *Ambrosia salsola – Atriplex confertifolia* Association
Wild Tarragon Patches	*Artemisia dracunculus* Association

The proposed High Desert Wash Shrubland planting palette includes observed dominant species in High Desert Wash Shrubland vegetation, as well as common forbs and a perennial grass.

Impacts to High Desert Wash Shrubland will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-5 High Desert Wash Shrubland Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Ambrosia salsola	cheeseweed	shrub	seed	4	1, 2, 3, 4, 5
Ephedra nevadensis	Nevada ephedra	shrub	container	TBD	1, 2, 3, 4, 5
Grayia spinosa	spiny hop-sage	shrub	seed	1	1, 2, 3, 4, 5
Lycium andersonii	Anderson's thornbush	shrub	container	TBD	3, 5
Psorothamnus arborescens	Fremont's smokebush	shrub	container	TBD	1, 2, 3, 4, 5
Psorothamnus polydenius	Nevada smokebush, dotted dalea	shrub	container	TBD	3, 4, 5
Purshia tridentata var. *glandulosa*	bitterbrush, antelope brush	shrub	seed	1	1, 2, 3, 5
Artemisia dracunculus	wild tarragon	perennial forb	seed	0.5	3
Sphaeralcea ambigua	desert globe mallow	perennial forb	seed	1	1, 2, 3, 4, 5
Amsinckia tessellata	desert fiddleneck	annual forb	seed	1	1, 2, 3, 4
Malacothrix glabrata	desert dandelion	annual forb	seed	2	1, 2, 3, 4, 5
Mentzelia albicaulis	small-flowered blazing star	annual forb	seed	1	1, 2, 3, 4, 5
Stipa hymenoides	Indian ricegrass	perennial grass	seed	2	1, 2, 3, 4, 5

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.6 Saltbush – Alkali Scrub

The CSP Project alignment intersects alkali flats and other alkaline habitats in low-lying areas in all Segments. Dominant species in Saltbush – Alkali Scrub vegetation include several species of saltbush (*Atriplex* spp.), as well as greasewood (*Sarcobatus vermiculatus*), Bailey's greasewood, bush seepweed (*Suaeda nigra*), saltgrass (*Distichlis spicata*), and other salt-tolerant species. Native species diversity is lower in alkaline and salty soils than in other upland habitats. A total of 4 alliances and 9 associations of Saltbush – Alkali Scrub vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	Association Name
Greasewood Scrub	*Sarcobatus vermiculatus* Association *Sarcobatus vermiculatus – Atriplex confertifolia*- (*Picrothamnus desertorum*, *Suaeda moquinii*) Association
Quailbush Scrub	*Atriplex lentiformis* Association *Atriplex lentiformis – Ericameria nauseosa* Provisional Association
Allscale Scrub	*Atriplex polycarpa* Association
Fourwing Saltbush Scrub	*Atriplex canescens* Association *Atriplex canescens* Desert Wash Association Atriplex canescens – *Krascheninnikovia lanata* Association *Atriplex canescens* / herbaceous Association

The proposed Saltbush – Alkali Scrub planting palette includes observed dominant species in alliances and associations of Saltbush – Alkali Scrub vegetation.

Impacts to Saltbush – Alkali Scrub will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-6 Saltbush – Alkali Scrub Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Ambrosia salsola	cheeseweed	shrub	seed	2	1, 2, 3, 4, 5
Atriplex canescens var. *canescens*	fourwing saltbush	shrub	seed	1	1, 2, 3, 4, 5
Atriplex confertifolia	shadscale	shrub	seed	1	1, 2, 3, 4, 5
Atriplex lentiformis	quailbush, big saltbush	shrub	seed	1	1, 2, 3, 4
Atriplex polycarpa	allscale	shrub	seed	4	3
Atriplex torreyi	Torrey's saltbush	shrub	seed	1	1, 2, 3, 4, 5
Ericameria nauseosa	rubber rabbitbrush	shrub	seed	1	1, 2, 3, 4, 5
Grayia spinosa	spiny hop-sage	shrub	seed	1	1, 2, 3, 4, 5
Psorothamnus arborescens	Fremont's smokebush	shrub	container	TBD	1, 2, 3, 4, 5
Psorothamnus polydenius	Nevada smokebush, dotted dalea	shrub	container	TBD	3, 4, 5

Table 5-6 Saltbush – Alkali Scrub Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Sarcobatus baileyi	Bailey's greasewood	shrub	container	TBD	4
Sarcobatus vermiculatus	black greasewood	shrub	seed	1	1, 2, 3, 4, 5
Tetradymia axillaris var. *axillaris*	catclaw horsebrush	shrub	seed	1	1, 2, 3, 4, 5
Amsinckia tessellata	fiddleneck	annual forb	seed	1.5	1, 2, 3, 4, 5
Malacothrix glabrata	desert dandelion	annual forb	seed	1.5	1, 2, 3, 4, 5
Mentzelia albicaulis	small-flowered blazing star	annual forb	seed	0.5	1, 2, 3, 4, 5
Suaeda nigra	bush seepweed	perennial forb	seed	0.5	1, 2, 3, 4, 5
Distichlis spicata	saltgrass	perennial grass	seed or cuttings	1.5	1, 2, 3, 4, 5
Stipa hymenoides	Indian ricegrass	perennial grass	seed	0.5	1, 2, 3, 4, 5

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.7 Riparian Woodland

Riparian Woodland occurs primarily along the Owens River in Segment 3 and 4, as well as in Silver Canyon and Wyman Canyon in Segment 3 and in drainages and channels in Segments 1 and 2 where subsurface perennial moisture tends to be available much of the year to the dominant trees and shrubs. These include Fremont cottonwood (*Populus fremontii*) below 8,000 feet amsl and quaking aspen above 8,000 feet amsl; several species of willows (*Salix spp.*); water birch (*Betula occidentalis*); and associated species. A total of 5 alliances and 7 associations of Riparian Woodland and Scrub vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	Association Name
Goodding's willow – red willow riparian woodland and forest	*Salix laevigata* Association
Water birch thicket	*Betula occidentalis / Salix* spp. Association
Red-osier dogwood – interior rose – currant thickets	*Rosa woodsii* Association
Arroyo willow thickets	*Salix lasiolepis* Association *Salix lasiolepis / Rosa woodsii* / mixed herbs Association
Sandbar willow thickets	*Salix exigua* Association *Salix exigua* - (*Salix gooddingii*) Provisional Association

The proposed Riparian Woodland planting palette includes observed dominant species as well as associated shrubs and herbaceous species in Riparian Woodland vegetation.

Impacts to Riparian Woodland will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-7 Riparian Woodland Planting palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Populus fremontii	Fremont cottonwood	tree	cuttings	TBD	1, 3, 4
Populus tremuloides	quaking aspen	tree	cuttings	TBD	3
Salix gooddingii	Goodding's black willow	tree	cuttings	TBD	1, 3, 4
Salix laevigata	red willow	tree	cuttings	TBD	1, 3, 4
Salix lasiandra var. *lasiandra (S. lucida)*	yellow willow	tree	cuttings	TBD	1, 3, 4
Salix lasiolepis	arroyo willow	tree	cuttings	TBD	1, 3, 4
Betula occidentalis	water birch	shrub	seed or cuttings	1, TBD	1, 3
Ericameria nauseosa	rubber rabbitbrush	shrub	seed	3	1, 2, 3, 4, 5
Rosa woodsii subsp. *ultramontana*	interior wild rose	shrub	container	TBD	1, 2, 3, 4, 5
Salix exigua	sandbar willow	shrub	cuttings	TBD	1, 3, 4
Distichlis spicata	saltgrass	perennial grass	cuttings	TBD	1, 2, 3, 4, 5
Muhlenbergia asperifolia	scratchgrass	perennial grass	seed	1	3, 4
Sporobolus airoides	alkali sacaton	perennial grass	seed	2	1, 2, 3, 4, 5
Juncus balticus	Baltic rush	graminoid/rush	cuttings	TBD	1, 3, 4
Anemopsis californica	yerba mansa	perennial forb	cuttings or container	TBD	3

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.8 Moist Meadow and Wetland Margins

Moist Meadow and Wetland Margins vegetation occurs in moist soils in meadows or near the margins of marshes, floodplains, and streams in Segments 1, 2, 3, and 4 of the CSP Project alignment. Dominant vegetation includes perennial forbs, grasses, rushes, and sedges. A total of 5 alliances and 6 associations

of Moist Meadow and Wetland Margins vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	Association Name
Alkali sacaton – scratchgrass – alkali cordgrass alkaline wet meadow	*Muhlenbergia asperifolia – Distichlis spicata* Provisional Association
Yerba mansa – Nuttall's sunflower – Nevada goldenrod alkaline wet meadows	*Anemopsis californica* Association
Ashy ryegrass – creeping ryegrass turfs	*Leymus triticoides* Association
Salt grass flats	*Distichlis spicata* Association *Distichlis spicata* – annual grasses Association
Baltic and Mexican rush marshes	*Juncus arcticus* var. *balticus* – (var. *mexicanus*) Association

The proposed Moist Meadow and Wetland Margins planting palette includes observed dominant and associated species in Moist Meadow and Wetland Margins vegetation.

Impacts to Moist Meadow and Wetland Margins will be minimized to the maximum extent feasible due to a combination of impact avoidance methods, helicopter use, and careful siting of Project work activities, and topsoil salvaging and placement will be prioritized where soil is disturbed, see Section 3.

Table 5-8 Moist Meadow and Wetland Margins Planting Palette

Scientific Name	Common Name	Growth Habit	Propagule Type	Number of Containers, Cuttings, or Pounds per Acre (Pure Live Seed)	Segment(s)
Anemopsis californica	yerba mansa	perennial forb	cuttings or container	TBD	1, 3, 4
Distichlis spicata	saltgrass	perennial grass	cuttings	TBD	1, 3, 4
Sporobolus airoides	alkali sacaton	perennial grass	seed	5	1, 3, 4
Elymus triticoides	alkali rye	perennial grass	cuttings	TBD	1, 3, 4
Muhlenbergia asperifolia	scratchgrass	perennial grass	seed	1	1, 3, 4
Juncus balticus	Baltic rush	graminoid/rush	cuttings	TBD	1, 3, 4

Note: Planting palette is dependent on availability of seed and other propagules, as well as dominant vegetation at given restoration site

5.1.1.9 Freshwater Marsh

Freshwater Marsh vegetation occurs at the edges of streams, ponds, and lakes and within sloughs, swamps, marshes (fresh and brackish), and man-made ditches in Segments 1, 2, 3, and 4 of the CSP Project alignment. Dominant vegetation includes perennial grasses, sedges, and cattails. A total of 2 alliances and 3 associations of Freshwater Marsh vegetation overlap potential Project work areas and were characterized during the field surveys (Table 2-1). These include:

Vegetation Alliance Common Name	**Association Name**
Hardstem and California bulrush marshes	*Schoenoplectus acutus* Association
Cattail marshes	*Typha* (*latifolia, angustifolia*) Association *Phragmites australis* subsp. *americanus* Association

There are no anticipated permanent or temporary impacts to freshwater marsh vegetation so no planting recommendations are provided.

5.1.2 Salvage of Native Plant Material

Salvaging of cacti will be conducted according to the guidance provided in Section 5.1.4 and salvaging of special-status plants will be conducted according to the guidance provided in Section 5.1.3. All salvaging activities will also comply with conditions outlined in APM-BIO-BOT-1 and APM-BIO-BOT-2. In addition, plant material will be salvaged, where feasible given staging and storage constraints, to be used for mulch.

The practice of applying vertical and/or horizontal mulching reduces wind erosion, traps seed, provides refuge sites for wildlife, and acts as a protective barrier. Vertical mulch derived from chipped or shredded woody material can be used to prevent high winds or flood events from moving the mulch off site. Horizontal mulch is appropriate for large pieces of mulch that would not be practical to bury, such as a dead Joshua tree or large pruned willow branches.

These mulching practices may be incorporated into restoration efforts. Materials for vertical or horizontal mulch may include rocks, boulders, and natural organic debris (e.g., shrub branches and other plant materials). Where appropriate, sites will be brushed prior to topsoil salvage to salvage native plant material for mulching purposes during restoration activities. Salvaged plant material will be temporarily stored in a designated storage location.

Following construction, SCE will determine the best locations to place the plant material on the restoration sites. Woody plant material generated during vegetation removal operations may be preserved (windrowed) onsite as mulch for later use in soil rehabilitation of temporary disturbance areas. To the extent feasible, windrowed vegetation should be salvaged and kept intact for use as vertical mulch. Prior to use, windrowed vegetation may be chipped or shredded to a large particle size (1 to 3 inches). To prevent possible spread of non-native invasive species, only native material will be salvaged and reapplied to the restoration sites. To prevent fire hazards, all plant material stockpiling will be done in accordance with the Project-Specific Fire Prevention and Emergency Management Plan.

5.1.3 Special-status Plant Species Restoration, Salvage, and Relocation

Eight special-status plant species were observed within Project work areas, as detailed in Table 2-3a. Of these, three species are annuals and will be restored using site-collected seed prior to construction: Nevada oryctes (*Oryctes nevadensis*), coyote gilia (*Aliciella triodon*), and desert shredding primrose (*Eremothera boothii* subsp. *intermedia*). Two species are herbaceous perennials: Wheeler's chaetadelpha

(*Chaetadelpha wheeleri*) and naked milkvetch (*Astragalus serenoi* var. *shockleyi*). One species is a special-status cactus, sagebrush cholla (*Grusonia pulchella*), and two species are shrubs: dwarf ninebark (*Physocarpus alternans*) and Bailey's greasewood (*Sarcobatus baileyi*).

The following subsections describe the methods that will be implemented prior to construction, during construction, and, where relevant, during the post-construction/restoration phase of the Project to facilitate avoidance, minimization, and/or mitigation of impacts to special-status plants, if required. Restoration of special-status plant species will be in accordance with APM-BIO-BOT-1 and APM-BIO-BOT-2.

The only species of *Yucca* observed near the CSP Project alignment is Joshua tree (*Yucca brevifolia*), which does not occur within Project work areas and will be flagged for avoidance during Project work activities.

5.1.3.1 Pre-construction Impact Analysis

Prior to the start of construction, an updated analysis will be conducted to determine the extent to which CRPR 1 and 2 and/or BLM Sensitive and USFS Species of Conservation Concern plant species may be impacted by construction. The impact analysis will be conducted by intersecting the permanent and temporary disturbance areas with the local occurrences of special-status plants mapped in the study area. To the greatest extent possible given the data available, impacts will be quantified in terms of individual plants rather than occupied habitat area. For some species, however, it may not be feasible to count the number of individuals, particularly in the full extent of the local occurrence for the purpose of quantifying the percentage of individuals impacted.

Where avoidance of CRPR 1 or 2 and/or BLM Sensitive and USFS Species of Conservation Concern plant species is not feasible and the impacts are greater than 10 percent of the local occurrence[1], either by number of individual plants (if possible given available data) or by area of occupied habitat[2], the seed collection or salvage methods discussed below will be implemented. Among other instances, avoidance may be infeasible if individuals are located immediately adjacent to a pole identified for removal, or if large numbers of individuals are concentrated in an area where work cannot be avoided.

5.1.3.2 Pre-construction Survey

A pre-construction survey will be conducted prior to the start of construction in accordance with APM BIO-BOT-1 and APM BIO-BOT-2. The Construction Contractor and Qualified Biologists will cooperate to locate special-status plants expected to occur based on the analysis presented in this Plan, and to determine if impacts can be avoided. The Construction Contractor generally has some flexibility in where equipment is positioned in an approved disturbance area. The surveys will be conducted by Qualified Biologists[3] using the current CNPS - CDFW botanical survey protocol (CDFW 2018). The locations of each special-status plant or population will be recorded using a GPS-enabled handheld data collector. Particular effort will be made to verify the number of individual plants and record their precise locations where they occur inside Project disturbance areas, although this may be infeasible for some species. If construction proceeds at specific locations on a schedule that precludes seasonally appropriate pre-construction surveys and/or if drought conditions that affect the detectability of special-status plants, mitigation determinations will be based on the survey data from past surveys conducted for the Project.

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1 A local occurrence is a population or group of populations separated by no more than 0.25 mile.

2 For the purpose of analysis, occupied habitat is defined as each mapped plant location and a 25-foot buffer for the cumulative results of all focused plant surveys conducted for the Project, current to the date of the analysis.

3 A Qualified Biologist is a biologist approved by the appropriate land management agency to conduct pre-construction surveys, pre-activity sweeps, biological monitoring and/or relocation/salvage activities for special-status plant and wildlife species and nesting birds.

Where special-status plants occur, it may be possible to position equipment to avoid the plants completely or to reduce the number of plants affected. The results of the pre-construction survey will inform additional impact analysis and avoidance and/or mitigation actions.

5.1.3.3 Avoidance Buffers and Monitoring

Prior to the start of construction, buffers of sufficient size to prevent direct or indirect disturbance from construction activities, erosion, inundation, or dust will be established around each CRPR 1 or 2 plant/population and/or BLM S and USFS Species of Conservation Concern plant species in or near a defined construction area in accordance with APM BIO-BOT-1 and APM BIO-BOT-2. Buffers will be established at the direction of a Qualified Botanist in cooperation with the Construction Contractor, to the extent feasible. The purpose of buffering is to facilitate avoidance of special-status plants, adjacent suitable soils, and presumed seed bank. The buffer area will be clearly staked, flagged, and signed for avoidance and maintained throughout the construction phase. The size of the buffer will depend upon the proposed use of the adjacent lands and the plant's ecological requirements (e.g., sunlight, shade, water availability, edaphic physical and chemical characteristics). For plants/populations in close proximity to construction activities, exclusion fencing (e.g., snow fence, silt fence) may be implemented at the discretion of the Qualified Biologist and biological monitoring may be conducted to ensure avoidance.

5.1.3.4 Proposed Mitigation Actions

As described above, avoidance is the first course of action. However, where avoidance is not feasible, and where the Project would directly or indirectly affect more than 10 percent of a local occurrence of CRPR 1 or 2 and/or BLM Sensitive and USFS Species of Conservation Concern plant species, seed collection and/or salvage methods will be implemented as described in the following sections. Among other instances, avoidance may be infeasible if individuals are located immediately adjacent to a pole identified for removal, or if large numbers of individuals are concentrated in an area where work cannot be avoided.

5.1.3.4.1 Seed Collection

For some of the special-status plant species covered by this Plan, including annuals and perennial herbs, the recommended mitigation approach is to collect seed from source plants and replace lost individuals/occurrence extent by seeding during the restoration process. Topsoil salvage may incidentally also preserve the natural seedbank and potentially support restoration of special-status perennial herbs in sites that are subject to grading. The following annual species within Project work areas will be restored primarily from seed collection and sowing and/or topsoil salvaging: Nevada oryctes, coyote gilia, and desert shredding primrose. The seed of special-status herbaceous perennial species within Project work areas will also be collected prior to Project disturbance, as described below.

Prior to and during construction (if necessary and feasible), seed from special-status plant occurrences potentially impacted by the Project will be collected. Seed will be collected in such a manner as to not damage the parent plants. Only seeds (or fruit) that are ripe and readily detach from the plant will be collected. SCE may discretionarily collect up to 50 percent of recoverable seed per plant from plants within the same occurrence but outside the Project disturbance areas. To the extent possible, where seed collection is the primary method for salvage, seed collection activities will be scheduled during a time when seed production is at a maximum.

If grading is required within special-status perennial herb habitat, topsoil salvage and replacement will also be conducted, if feasible. Steep slopes, bedrock, and other factors may preclude topsoil salvage.

Collected seed will be incorporated into the planting palette that will be used in restoration of temporary disturbance and applied according to the Project's HRP. Seeds will only be applied to temporary disturbance areas within the occurrence that was the seed's original source and will not be introduced into other Project locations.

5.1.3.4.2 Relocation

The special-status plants likely to be affected by the Project are within temporary disturbance areas and in sites where work is likely to occur over a period of less than 14 days. SCE will determine whether individual special-status plants warrant attempted relocation based on each plant's health, availability of

suitable receptor sites, and the comparable viability of alternative salvage methods. Relocation of perennial herbs may be attempted; alternatively, seeds and/or cuttings may be collected and included in the restoration planting palette.

Impacted shrubs and subshrubs that cannot be salvaged will be replaced by cultivating plants from seeds and/or cuttings (i.e., nursery propagation) and replanting them as a proxy for the impacted individuals.

Relocation of individual plants may include planting in temporary disturbance areas within the Project boundaries where work is complete or moving plants to suitable receptor sites outside the temporary disturbance areas, within the ROW. Receptor sites for any salvaged plants shall be in the nearest area of habitat for the species that is not likely to be subjected to future disturbances (whether Project-related, such as operation and maintenance activities; recreational impacts, such as off-highway vehicle use; etc.). Receptor sites will, to the extent feasible, match the microhabitat conditions (e.g., slope, aspect, soil characteristics, plant community) of each plant's original location.

Special-status plants identified for salvage and relocation will be tagged with a unique identifier, the north side of the plant will be marked, and species, size, location, and current health will be recorded. The health assessment will be based on the following guidelines:

- Good: Plant has primarily normal and healthy growth, less than 10 percent dead or yellowed leaves and tissue.
- Fair: Plant shows signs of stress but has primarily live growth, 10 to 40 percent dead or yellowed leaves and tissue.
- Poor: Plant shows signs of severe stress or disease, more than 40 percent dead or yellowed leaves and tissue.

In coordination with the Restoration Ecologist, SCE will determine if the salvaged plant will be relocated to a receptor site or held on site and re-planted in the original location. Ecological and microhabitat information, as well as salvage date and location, will be recorded for each plant/occurrence at the time of salvage to assist in mitigation success. Representative photographs will also be taken at each salvage location. The planting location will be recorded once the relocation effort is complete.

Individual plants will be extracted by hand or with heavy equipment (Bobcat, backhoe, tree spade, or similar as appropriate) to include a root mass extending approximately 12 inches around the base of each plant. For large cactus mats, the plants may need to be segmented and removed in pieces. Injured or cut roots will be treated with sulfur. Salvaged plants will be placed in temporary pots and stored on site under shade cloth, then replanted in approximately the original location after post-construction site stabilization treatments have been applied, generally within one week of the initial excavation.

Planting holes will be excavated to diameters approximately twice that of the root ball (but not deeper than the root ball, to avoid settling). Planting holes will be thoroughly moistened prior to placement of salvaged plants. During installation, care will be taken to minimize disturbance of the root system. The plants will be placed in the holes and loose native soil will be backfilled into the hole around the plant and firmly hand-packed around the root ball to eliminate any air pockets. Berms or basins may be constructed to aid in irrigation, but special care will be taken to avoid pooling of water around plant stems or settling of the stem/root union below grade. Plants will be watered immediately after installation with at least one gallon of water.

To increase survival probability and overall plant success, salvaged plants are not proposed to be harvested a second time for replacement onto the Project site during post-construction restoration.

Rooting of established plants may be deep, requiring relocation of a large block of soil to maintain root structure. Seed collection and nursery propagation also may be considered.

Special-status plant species that may be salvaged and relocated include Wheeler's chaetadelpha, naked milkvetch, sagebrush cholla, dwarf ninebark, and Bailey's greasewood.

5.1.3.4.3 Nursery Propagation

To supplement salvaged plants and replace those that could not be salvaged, some special-status plants maybe grown from seed, bulbs/corms, or cuttings. Seeds, bulbs/corms, or cuttings from special-status plants in or adjacent to Project disturbance areas will be collected prior to construction. Native soil will

also be collected and used in cultivation. The size and shape of the containers used for nursery propagation will match the plant's rooting strategy (i.e., deep-rooted plants should be grown in tall pots to encourage more root development, while fibrous-rooted plants can be grown in shorter pots or as plugs). Any special-status shrubs grown in offsite nurseries will be planted in restored temporary disturbance areas in the fall after at least one year of nursery growth. All special-status plants will be planted within the occurrence location that was the original source of their seed, bulb/corm, or cutting. Replanting will generally occur in early spring (which will vary by location) to take advantage of warming temperatures and the initiation of seasonal growth. Planting and subsequent care and maintenance will follow the same procedures used for relocation of mature plants. If determined to be appropriate, plants may also be propagated in nurseries for the purpose of seed bulking, with the resulting seeds added to the restoration planting palettes as described in Section 5.1.1.

Roots or stems may be salvaged as a potential propagation technique for some species (i.e., woody stem cuttings or succulent stems). To ensure availability of material for mitigation and adaptive management, vegetatively reproducing species may be held at a qualified plant conservation institution or native plant nursery where materials shall be increased through division or other propagation methods prior to onsite mitigation. Seeds, rhizomes, or container plants resulting from nursery propagation may be used as backup for additional mitigation if success standards are not met and to allow for "over planting" during initial restoration implementation to increase the probability of success.

5.1.4 Cactus Salvaging and Relocation

This section outlines methods for the avoidance and minimization of impacts to cacti and yucca, cacti salvaging guidance, methods for relocation of cactus individuals when Project impacts are unavoidable, and maintenance, monitoring, and reporting if relocation occurs in accordance with APM-BIO-BOT-2. These methods are consistent with Federal and State requirements, including the DRECP and state statutes and codes.

Seven species of cacti were observed within the CSP Project alignment: golden cholla (*Cylindropuntia echinocarpa*), Engelmann's hedgehog cactus (*Echinocereus engelmannii*), Mojave king cup cactus (*E. mojavensis*), sagebrush cholla (*Grusonia pulchella*), beavertail cactus (*Opuntia basilaris*), plains prickly-pear (*O. polyacantha*), and Mojave fishhook cactus (*Sclerocactus polyancistrus*).

One species of *Yucca* was observed near but not within the CSP Project alignment: western Joshua tree (*Yucca brevifolia*). The western Joshua tree will not be impacted by Project activities, and buffers will be created to ensure impact avoidance. The western Joshua tree is currently a candidate species for listing status by CDFW as of August 2022; this species has no CRPR ranking.

Of these, two cactus species are included in the California Native Plant Society (CNPS) Rare Plant Inventory with a CRPR: sagebrush cholla (CRPR 2B.2) and Mojave fishhook cactus (CRPR 4.2), but only the sagebrush cholla has been observed within Project disturbance areas.

The following subsections describe the methods that will be implemented prior to construction, during construction, and during the post-construction/restoration phase of the Project to facilitate avoidance, minimization, and/or mitigation of impacts to cactus and yucca.

5.1.4.1 Project Design and Impact Minimization

The Project has been designed to minimize impacts to native habitats, including native vegetation communities with cactus and yucca, by incorporating previously developed and disturbed areas into the design and minimizing disturbance envelopes to the extent feasible. "Drive and crush" methods may also be implemented to the extent feasible to preserve native vegetation and native seed banks. "Drive and crush" may include overland travel over existing low-lying vegetation, but may also incorporate trimming vegetation to ground level with root systems intact to facilitate vehicular access and flagging of special-status plant species and cacti for avoidance.

5.1.4.1.1 Focused Surveys and Mapping

Prior to the start of construction, SCE will conduct focused surveys to inventory cactus and yucca individuals occurring in the Project disturbance areas. The data will serve to identify the number of

individual plants of each species that are suitable for transplant within each disturbance area, if necessary. The height and health status of each cactus that is suitable for transplant will be recorded.

5.1.4.1.2 Avoidance and Minimization

As described above, the Project has been designed to minimize impacts to native vegetation, including vegetation communities with cactus and yucca species, to the extent feasible. Western Joshua tree individuals of any size will be avoided. Based on the results of the preconstruction surveys, SCE will further work towards impact avoidance by coordinating with the Construction Contractor prior to the initiation of ground-disturbing activities to determine if impacts may be further reduced by modifying the disturbance areas and/or locating vehicles and equipment to avoid cactus and yucca.

For cactus and yucca plants (all species) within disturbance areas that can be avoided, avoidance buffers of an appropriate size will be clearly staked, flagged, fenced, and/or signed. The buffers will be maintained throughout the construction phase. The size of the buffers will vary depending on species, habitat, and type of construction disturbance.

5.1.4.2 Salvage and Relocation Approach

Where avoidance is not feasible, SCE will implement salvage and relocation as described in the following sections, depending on transplant suitability. The methods that follow will be implemented in coordination with a qualified Restoration Ecologist.

Salvage and relocation will be conducted as described below on BLM and USFS lands throughout the Project area. Salvage and relocation of non-special-status cactus species will not be conducted on non-federal lands. Salvage of special-status cactus (i.e., sagebrush cholla) are addressed in Section 5.1.3.

5.1.4.2.1 Health Assessments and Transplant Suitability

The ecophysiology of North American cactus was a principal subject of study during the first decades of the 20th Century, as summarized by McGinnies (1981). Cactus resist desiccation partly because they lack leaves and have a very small surface to mass ratio. Their cuticle is also thick, with stomata that close tightly during the day, open after dark, and respire at night to reduce moisture loss. Their root systems can also grow rapidly in response to increases in soil moisture, and rootlets also dieback readily, minimizing moisture loss caused by soil desiccation. Injuries, whether to the stem or root system of cactus, also callous quickly in the absence of fungi or other pathogens. Cactus are also rich in water and nutrients; their spines serve chiefly as defense mechanisms against herbivores.

Many of the physiological adaptations of cactus to desert environments also mean that they are relatively easy to transplant successfully if appropriate procedures are implemented. Rooted primarily in dry soils, cactus typically do not have the resistance to fungal pathogens possessed by most plants of more humid habitats. Thus, some of the procedures outlined herein anticipate the vulnerability of cactus to soil pathogens.

High survival rates following transplanting have been reported for a variety of cactus species, including *Echinocereus* spp., cholla (*Cylindropuntia* spp.), and opuntia (*Opuntia* spp.), which establish well from individual joints and pads. These transplants can be especially advantageous in acting as “nurse plants,” as grown plants in relocation areas provide beneficial modifications to the microclimate, such as shading or wind protection, which can enhance establishment of seeded plant species (Kigel 1995).

For cactus plants that cannot be avoided, a health assessment will be conducted. Health categories will include dead, poor, fair, and good and will be based on the following criteria:

Good: live, green leaves and branches (no yellowing), new growth in season, no or little damage from pests and disease.

Fair: pest, drought, and disease damage may be present but not fatal (e.g., some yellowing). Plants in fair health have predominantly green stems.

Poor: mostly dead stems, plant shows signs of severe stress or disease.

Dead: the entire aboveground portion of the plant is dead.

Cacti ranked in good or fair health will be candidates for relocation. Cacti ranked in poor health or dead will not be considered for transplanting and will be stockpiled for use as vertical mulch.

Age, as measured by size (height) of the potential transplant, can also be a factor for success for cactus. Smaller (i.e., young) cacti have demonstrated transplant survival rates of 95 percent; larger (i.e., old) cacti are not as receptive to relocation (NRCS 2009). Therefore, during the health assessment, height will also be documented for each plant and only smaller individuals of each cactus species will be designated for relocation.

5.1.4.2.2 Transplant Timing

Salvage of unavoidable candidate plants will occur prior to the start construction at each site. Seasonal considerations will be incorporated into the salvage effort when feasible, such as prioritizing the salvage of cacti during mild weather (e.g., spring). Periods of heavy rain will be avoided. If transplanting must occur during colder months or during rainfall periods, additional methods may be required to ensure successful transplantation (NRCS 2009).

5.1.4.2.3 Transplant Site Selection

The locations chosen to receive transplanted cactus individuals will be selected to maximize long-term survival of salvaged plants. Transplant sites will include sites where work is complete and/or where no impacts are anticipated, such as undisturbed margins of work areas or areas outside of but adjacent to the work area in undisturbed vegetation.

Transplant sites will be located within the SCE ROW or 100-foot buffer. When cactus individuals are transplanted outside of Project disturbance areas, the prospective transplant site will be evaluated to determine if any existing undisturbed cacti are present. Salvaged plants will not be planted in areas with existing high densities of cactus plants to avoid potentially jeopardizing success through over-competition for resources. Care will be taken to ensure that each transplant site is similar to the plant's original location with respect to slope, soil, soil texture, vegetation community, and degree of sun exposure. A desktop analysis and field survey will be conducted prior to conducting transplanting activities to facilitate avoidance of jurisdictional features, rare plant occurrences, and other sensitive resources (e.g., desert tortoise burrows, cultural resources).

5.1.4.2.4 Transplant Preparation Methods

Cactus individuals eligible for salvage based on the evaluation criteria defined in Section 5.1.4.2.1 will be prepared as follows:

- Record the species, size, and current health of the plant
- Record the removal and transplant location with GPS coordinates and required microsite data
- Determine the transplant procedure to be used
    - Transplant to adjacent site (preferred), or
    - Hold on site or transplant to temporary nursery, then re-plant in original location
- Attach numbered flagging, pins, or other demarcation to identify each plant (tying flagging on the north side for clumps of plants, or for single barrel plants, tying the flag around the stem and locating the knot on the north side to maintain direction)
- Salvaged plants will be stored on site prior to transplanting. In most cases, survival of transplanted plants will be maximized by allowing the roots to heal (approximately 5 days)

For all salvaged plants, materials and tools that come in contact with plant tissue (e.g., burlap, shovels used for excavations) will be rinsed in a 10 percent bleach solution before use on another plant. During the period that plants are held to allow the roots to heal, the plants will be stored in locations that minimize risk of damage or theft. Examples of potential locations may be at the edge of work areas where adequate space is present or at nearby Project features with available space.

Cacti relocated from the shade canopy of adjacent vegetation will not survive direct sunlight and will sunburn (NRCS 2009). Shade cloth will be implemented during hot season transplanting, if drought stress is apparent or suspected. The shade cloth, either supported by a structure over the plant or placed directly on the plant, can be used to protect plants following transplanting until the root system recovers adequate function. Shading will be used during the first summer following transplanting, if needed.

Herbivore protection, such as exclusionary fencing, may be required if signs of herbivore damage is observed at the time of transplanting or during monitoring events.

5.1.4.2.4.1 *Echinocereus* Cactus Salvage

Two *Echinocereus* cactus species are present or have the potential to occur in Project disturbance areas. These species include Engelmann's hedgehog cactus and Mojave king cup cactus. The following is generally a two-person process, recommended to ensure successful transplantation of barrel-type cactus species:

- The plant will be excavated with enough soil mass to maintain a viable root system. Small cactus (under eight inches in height) may be excavated with a shovel, with a soil and root mass extending outward three to six inches beyond the base of the plant. Cactus larger than eight inches in height and width will be prepared by excavation of a 12-inch deep trench around the plant, approximately 12 inches from the base.
- Hand tools will be used to undercut the root mass to a point near where it can be detached. Lateral roots will be saved to the extent possible to help stabilize the transplant (NRCS 2009). The root mass will be wrapped in canvas or burlap, and if needed, the cactus will be stabilized with staking. Cactus will be removed by hand or with hand tools and carts when possible. Large cactus individuals may require use of heavy equipment, such as an excavator, to lift them out of the trench.
- Immediately after removal from the trench, the root mass will be inspected. Damaged roots will be trimmed back and the root mass will be treated with sulfur to minimize infection risk. Excavated cactus individuals will then be stored on-site under shade cloth for several days, if needed, based on weather conditions, to allow root healing. Shade cloth will be supported by a framework to avoid entanglement with spines.
- After the root healing period, cactus individuals from short-term temporary disturbance areas will be replaced in approximately their original location after completion of construction activities and site stabilization actions. Replanting will require an excavation adequate to contain the root mass. Each cactus individual will be replanted with its original compass orientation (i.e., flagging side facing north), and the soil will be replaced and firmly packed and immediately watered. Watering will be adequate to saturate and compact the soil around the transplant; additional soil will be added as needed.

5.1.4.2.4.2 Cholla and *Opuntia* Salvage

Species of cholla and *Opuntia* are present or have the potential to occur in Project disturbance areas. These species include golden cholla, beavertail cactus, and plains prickly-pear. These species will be salvaged as intact individuals, if feasible, or through propagation of cuttings, a piece of a plant that is used in horticulture for vegetative (asexual) propagation.

Chollas grow with segmented stems that easily detach and fragment and larger plants often cannot be salvaged intact. However, chollas also readily root from the fragmented stem segments. Within Project disturbance areas, live cholla material will be salvaged and stockpiled for use as vertical mulch during restoration. Rooted chollas under three feet in height will be salvaged using methods described for *Echinocereus*. Larger chollas may also be salvaged with the root ball intact, although plant stems may be trimmed as cuttings if intact transplant cannot be achieved. If chollas fragment during the salvage attempt, the root ball will be planted and the stems will be scattered adjacent to the salvaged plant to provide an opportunity for regrowth.

Small *Opuntia* individuals may be salvaged using methods described for *Echinocereus* at the discretion of the Restoration Contractor. *Opuntia* individuals that cannot be salvaged whole without substantial stem fragmentation will be salvaged as cuttings, with supportive methods used to encourage rooting and cutting survival.

Opuntia pads (i.e., cuttings) will be salvaged from each individual that cannot be salvaged. Three to five healthy pads from each opuntia will be removed at the node (the area where the pads attach to one another) and kept together throughout the salvage and transplant process. Cuttings will be dusted with sulfur and allowed to heal for approximately seven days. Cuttings will be planted as a group from the original plant, buried vertically to approximately half the depth of the pad with the cut side down. Pads will be watered after transplant. The location will be staked with the original plant's unique identification, as tagging

separate pads will not be effective. Remaining opuntia material will be salvaged for use as vertical mulch during restoration.

5.1.4.2.5 Temporary Nurseries

Use of temporary nurseries will be avoided, as feasible. Temporary nurseries would require transplanting individual plants multiple times, which decreases the survival of salvaged plants. However, a temporary nursery may be considered if there is no suitable transplant location nearby. Some locations on the Project have high densities of cactus and the surrounding habitat may not support the addition of transplanted cactus from other areas. Therefore, if a suitable location is not available in the adjacent habitat, or would not be available within a short period of time, a temporary nursery will be considered.

Temporary nurseries would be on site if adequate space with level ground and access is available at a nearby Project disturbance area, or if necessary, at the nearest Project staging yard. Temporary nurseries would consist of a raised bed with native soils if on site or clean sand if in a yard. Prior to the final transplant from the temporary nursery back into the transplant site, the health of the plant will be evaluated. Plants in poor condition will be used as vertical mulch, as their probability of survival if transplanted is low.

If feasible, plants held in temporary nurseries would be replanted in early spring. After removal of plants from temporary nurseries, the above-ground frame and soil would be removed. Native soils would be used in the recontouring of the site after construction is complete.

5.1.5 Topsoil Salvage, Storage, and Placement

The practice of salvaging and stockpiling topsoil is intended to preserve the microbial network within the soil and to retain the native seed bank and organic material important to nutrient cycles within the soil. This treatment is most appropriate at sites with native vegetation in which severe disturbance to the soil will occur, such as grading or excavating, and the protection of existing soil is not feasible. Many work areas within the White Mountains will be accessed by helicopter and will not be subject to severe ground disturbance.

SCE proposes to salvage, stockpile, and reuse soil in temporary impact areas where it is feasible to do so and will clearly contribute to the successful establishment of the target vegetation communities or to support special-status species.

Criteria for potentially suitable sites for topsoil salvage include the following:

- construction activities such as underground trenching, heavy grading, or other excavation activities where natural soil horizons are substantially disrupted
- areas dominated by native species with low to no cover of non-native species

Stockpile locations should be identified in safe locations and restricted to existing approved disturbance areas and in compliance with other environmental and visual restrictions.

Limiting factors for topsoil salvage:

- slopes greater than 25%
- sites with cultural resources where ground-disturbing activities are limited
- weed infestation areas

Salvaged topsoil shall be stored in compliance with the SWPPP requirements. If covering the topsoil pile is recommended to prevent soil migration, use of jute or other permeable erosion control materials is recommended to allow adequate oxygen to soil biota.

5.2 Container and Cutting Plant Materials

Habitat restoration will be primarily achieved through a combination of seeding where possible, coupled with appropriate use of container plants and/or cuttings for species that exhibit low germination rates under field conditions, especially at high elevations. Use of container plants at high elevations in the White Mountains, where the growing season may last only 6-10 weeks, may facilitate establishment of dominant woody plants in a timely manner. Plant species that may benefit from establishment from container plantings include bristlecone pine, limber pine, singleleaf pinyon pine, Utah juniper, and several

species of high elevation shrubs such as littleleaf mockorange and small-leaf mountain-mahogany. The plant palette tables for different vegetation types in Section 5.1.1 identify suitable candidates for container plantings by habitat.

As described in Sections 5.1.2, 5.1.3, 5.1.4, and 5.1.5, salvage on native plant material and topsoil will also be implemented to restore native species and associated soil microbiomes.

5.2.1 Container Plant Cultivation

Container plants may be used for certain species that are unlikely to readily germinate under field conditions. Seeds or cuttings used for propagating nursery-grown container plantings must be acquired from locally-collected plant material within the appropriate seed transfer zones (USFS 2022) and may be collected prior to construction and delivered to a restoration nursery for cultivation, as described in Section 5.1.1.

The size and shape of the containers should match the plant's rooting strategy (i.e., deep-rooted plants should be grown in tall pots to encourage more root development, while fibrous-rooted plants can be grown in shorter pots or as plugs).

Container plants will be grown for a minimum period of four months in a greenhouse or under shade cloth and then conditioned in full sun for at least four months prior to planting. SCE will inspect all container plants prior to or upon delivery to verify that the plants are of the correct species and quantities, are visually free of weeds, pests and disease, and showing signs of healthy growth (e.g., no evidence of coiled roots), as determined by a visual field inspection upon delivery. Any plants that are not within these standards will be rejected.

Container plant installation is discussed in more detail in Section 5.5.2.

5.2.2 Cuttings Collection

Cuttings of shrub and tree species may be prepared to assist with plant establishment in restoration areas. Cuttings must be acquired from the appropriate seed transfer zones (USFS 2022). Cuttings may be used to propagate some species grown in a nursery to produce container stock if viable seed is not available. Unrooted cuttings of riparian species may be placed directly in the ground in restoration areas with moist substrates, based on guidance from the Project Restoration Ecologist.

Cuttings may be collected locally and prepared according to the following specifications. Cuttings generally should be harvested in the late winter months after the plants have entered dormancy and deciduous species have dropped leaves but before budding in early spring. Timing will be depending on location and elevation. Soaking of cuttings in water will occur immediately for select riparian species. Rooting hormones in the water may be used to increase the potential for establishment following transplantation. These guidelines apply to collection of cutting materials:

- Cuttings shall be placed in water until planting, any cuttings allowed to dry shall not be used, or cuttings may be collected and propagated at an approved and qualified nursery in containers from no more than 6 months prior to planting.
- Collect cuttings from healthy plants that are in a dormant state (riparian species).
- Collection should not exceed 25 percent in a single area, and no more than 25 percent of an individual plant shall be removed.
- Cuttings will be 1-5 feet in length and should range from 1-3 inches in diameter.
- Each cutting shall be cut one end square above a leaf bud and the cut the other end at a 45-degree angle.
- Trim any stems or leaves flush with the cutting.

Installation of cuttings is discussed in more detail in Section 5.5.3.

5.3 Post-construction Site Preparation

5.3.1 Removal of Debris

All restoration sites shall be free from trash and debris in accordance with APM BIO-RES-1 (Table 1) and desired conditions for invasive species (INV-FW-DC) outlined in the Land Management Plan for the Inyo National Forest (USFS 2019). SCE will make all reasonable efforts to remove trash and debris from every restoration site prior to installation and throughout the maintenance and monitoring period.

5.3.2 Non-native Plant Removal

Prior to seed and/or plant installation, SCE will remove any non-native plants from the restoration site by hand-pulling, mechanical removal, and/or herbicide application. Plant materials containing viable seed shall be immediately bagged, removed from the site and disposed of at an approved location. Rhizomatous species will be treated with herbicide to ensure that plants cannot re-sprout, if herbicide use is approved by the appropriate agency. All herbicides shall be applied in a manner to minimize/avoid drift or transport of chemical away from target plants and in accordance with all state and federal regulations and manufacturer's instructions by a Licensed Qualified Applicator under the direction of a Pest Control Advisor (PCA). In riparian areas, only water-safe herbicides approved for use near water shall be used unless otherwise approved.

A weed control management approach referred to as "grow and kill cycles" may also be implemented at select sites as a component of site preparation. Grow and kill cycles is the management approach of using irrigation or natural rainfall to intentionally stimulate the germination of weed seeds within the restoration site. The germination and growth of weed seeds is followed by subsequent treatment and removal of the weedy material, often by herbicide application, conducted at the appropriate growth stage to achieve maximum kill of the unwanted plants. Grow and kill cycles contribute to the reduction of weed seeds present within the existing seed bank by extracting and eliminating the material prior to installation of native seed material. Depending on the conditions of the site, multiple grow and kill cycles may be implemented within a single growing season. On sites with temporary irrigation systems installed, grow and kill cycles can be implemented during the dry season as well.

5.3.3 Recontouring

If necessary, temporary impact areas that are disturbed by Project construction activities will be recontoured to restore the original land contour and slope grade of the adjacent areas to the extent feasible to restore a natural appearance. Gravel or rock laid at temporary impact areas will be removed. Recontouring shall take place at the cessation of construction activities.

5.3.4 Soil Decompaction

Soils in restoration areas that are compacted or become compacted as a result of Project construction activities (e.g., use of heavy equipment or large construction vehicles, repeated/regular driving on site) shall be loosened prior to seeding and/or planting. Appropriate locations for soil decompaction will be identified by SCE in consultation with the Restoration Ecologist. A penetrometer may be used to measure the compaction on adjacent reference sites to determine if decompaction is required. Decompaction shall occur prior to the restoration installation activities. Decompaction can be achieved by loosening the soil using a backhoe, equipment with ripping teeth, a disk harrow, or manually using shovels. The soil at rooting depth shall be loosened to a minimum depth of 12 inches unless otherwise specified by a SCE restoration specialist; loosening may need to occur at a greater depth depending on the existing soil conditions. The surface shall be left rough-textured with no clods or rocks greater than three inches in diameter. Following loosening, the soil shall be track walked or texturized to create a surface suitable for hydroseeding and planting. For some sites, decompaction may be limited by the SWPPP requirements.

5.3.5 Erosion Control BMPs

SCE will maintain erosion control best management practices (BMPs) within restoration sites in compliance with SWPPP requirements. To prevent sediment from leaving the restoration areas or rills

from forming, SCE shall ensure that the proper remedial measures are in place. This may include hydroseeding, and/or installation of erosion control measures such as silt fencing, straw or coir wattles, hay bales, and jute netting. SCE will make every effort to integrate SWPPP treatments with restoration site preparation.

5.3.6 Soil Amendments

The use of soil amendments is not anticipated; however, if topsoil replacement is not possible, SCE may add organic soil amendments to improve nutrient holding capacity, soil structure, and root development under the guidance of the Project Restoration Ecologist, if consistent with the licensing/permitting documents. In addition, native plants with tolerance for specific conditions may be substituted for species in the current palette.

5.4 Irrigation System (Contingency)

Container stock installation requires an associated irrigation method to supply irrigation through the first one to three years. This may include the use of a water truck to water container plantings in small areas or installation of a temporary irrigation system.

Irrigation will be installed and tested prior to container plant installation and may include use of flood bubblers or drip emitters. In cases of very small or remote planting sites, DRiWATER or equivalent gel water product or hand watering using buckets may be used to irrigate container plants.

Irrigation frequency is discussed in Section 6.1.

5.5 Plant Installation

Plant installation methods, including seeding, container planting, cuttings installation, and plant protection are described in this section.

5.5.1 Seeding Methods

Seeding will be completed following site preparation activities and non-native plant abatement using the seed sourcing guidelines detailed in Section 5.1.1.

To the extent possible, seeding will be conducted when atmospheric moisture levels are high. Seeding would be accomplished through application of an appropriate seed mix via one of three techniques: imprint seeding, hydroseeding, or broadcast seeding. Seeding rates based on the seeding method will be incorporated into Site-based planning under the guidance of the Project Restoration Ecologist. For instance, broadcast seeding requires higher seeding rates than mechanical seeding.

The seeding method implemented at each restoration site will depend upon accessibility and size of the area to be seeded. Easily accessible areas will be seeded with the imprint seeding method, and/or hydroseeding method; smaller more remote and/or inaccessible areas will be broadcast seeded. These methods are described below.

5.5.1.1 Imprint Seeding

Imprint seeding may be used in mitigation sites that are large enough and accessible for the imprinting equipment and where the soils are neither too loose nor heavily compacted. Imprint seeding provides greater soil-to-seed contact and provides a pocket for water infiltration that protects and encourages germination. Imprinting is accomplished via a mechanical imprinter that is pulled behind a tractor or tracked vehicle and simultaneously spreads and buries seeds in V-shaped depressions. In appropriate soils, imprinting facilitates successful establishment of seed into the soil and eliminates the need for mulch, soil irrigation, and soil binding. Imprinting also increases rainwater infiltration, improves gas exchange between the soil and atmosphere, reduces erosion, and improves contact between seeds and soil water (Barnes, 1950; Gintzburger, 1987; Bainbridge 2007). Hard soils should be loosened using ripping shanks, or similar equipment, prior to imprinting to ensure that the troughs are deep enough to retain water. Wheat bran or similar binder should be mixed with seed to assist with uniformity of application rate. Where container planting is also planned, imprint seeding should take place prior to

container planting. In lieu of an imprinting machine, dozer track walking perpendicular to the site contours may also be used to create seed “safe sites” prior to hand-broadcasting or hydroseeding.

5.5.1.2 Hydroseeding

The designated seeding areas should be seeded using the following hydroseed application methods. Where container planting is planned, preventative measures may be taken to avoid damage to container plants and cuttings such as covering plants to prevent them from being coated with hydroseed slurry, or damaged from hydroseeding spraying. The seed mix (quantity will vary based on habitat type and site-specific conditions) will be mixed with approximately 2,000 pounds per acre of long-strand wood fiber, a colorant, 150 pounds per acre of binder (adjust accordingly for slope), and sufficient water to allow the mix to be applied evenly over the restoration area. All hydroseeding mixing shall be performed in a clean tank, rinsed a minimum of three times (to ensure the removal of any residual seed) in a wash out area. The hydroseeder would be equipped with a continuous agitation and recirculation system to produce a uniform slurry and have the capacity to apply this slurry at a uniform and continuous rate.

Application of hydroslurry would comply with product specifications. The designated areas would be sprayed with the slurry in a sweeping motion and in an arced stream until a uniform coat is achieved, with no slumping or shadowing as the material is spread at the required rate. Any excessive mulch coating on plants would be removed. The seed slurry would be applied within one hour of preparation as the viability of the seed could be compromised. A typical rate of application in arid California is 500 pounds per acre of wood fiber mulch for hydroseed-only sites and 1,500 to 2,000 pounds per acre of wood fiber mulch and a tackifier for the hydromulch method (Newton and Claassen 2003); however, the restoration contractor will determine the specific rate of application on a site-by-site basis in consultation with the SWPPP consultant.

5.5.1.3 Broadcast Seeding

Broadcast seeding will generally be used where mechanical seeding is deemed infeasible because of substrate, location, or disturbance area size. In general, application of hand-broadcasted seed will be reserved for areas approximately 0.5 acre or less or where small amounts of seed are needed. However, greater quantities of broadcast seed are generally required for successful plant establishment compared with mechanical seeding methods.

Hand-seeded sites will be raked or harrowed before seeding to break up the surface and after to allow seeds to fall into crevices. Raking or other post-seeding treatment to lightly cover seed will also be completed to enhance germination likelihood, provide even distribution of seed, and reduce losses to granivores. This will also help retain moisture for germination. The seed material may be broadcast by hand or using a seed spreader. Hand seeding will be timed to occur in early spring, depending on location.

5.5.2 Container Planting

Container planting will occur prior to seeding activities when feasible. All container plants will be inspected prior to planting to ensure that they are healthy, free of weeds, pests, and disease, and the proper size. Container plants will be installed in areas determined to be feasible and appropriate by SCE. During transport from the nursery or storage facility to the planting site the plant material will be handled carefully, such as the plants shall not be dropped, tossed or otherwise “roughly handled.” Upon plant delivery, container plants shall be stored in a designated temporary storage location that is within a developed or disturbed area approved by SCE. Plants will be protected from herbivory, vandalism or theft, as well as maintained (watered) while they are in temporary storage for planting.

Plants will typically be installed on a minimum of 10-foot centers for tree and large shrub species and 5-foot centers for small to medium-sized shrub species, with closer spacing for herbaceous perennials (although final spacing may vary upon container size used and species to be planted). Planting holes will be excavated to diameters approximately twice that of the root ball (but not deeper than the root ball, to avoid settling). Planting holes will be thoroughly moistened prior to placement of container plants. During installation of container stock, care will be taken to minimize disturbance of the root system while extracting the plants from their containers. The plants will be placed in the holes and loose native soil will

be backfilled into the hole around the plant and firmly hand-packed around the root ball to eliminate any air pockets. For deep pots, soil will be backfilled and packed in lifts of a few inches at a time to discourage settling of plants. Berms or basins may be constructed to aid in irrigation, but special care will be taken to avoid pooling of water around plant stems or settling of the stem/root union below grade. Plants will be watered deeply immediately after installation.

All container plants and trees shall be planted in accordance with the following specifications:

- Plants shall be planted with the roots untangled and sides scarified to promote new root development, roots shall be protected from weather exposure during planting.
- Planting holes shall be augured and be no more than 1.5 times the diameter and 2 times the depth of the container species to be planted.
- Planting holes shall be backfilled 25 percent with excavated native soil and filled with water and allowed to drain completely prior to planting. Container plants must never be installed in planting holes with standing water; all water shall be allowed to settle and infiltrate through the soil prior to plant installation.
- Plantings shall be set in well-drained planting holes with the crown of the root ball approximately 0.5 inches above the backfilled soil. The soil around the planting shall be tamped down sufficiently to eliminate any air pockets in the soil.
- A basin around the planting shall be constructed by creating a berm above the existing grade approximately 24 inches in diameter around the planting.
- Each planting shall be sufficiently watered after installation so that water reaches the lower roots.

Some planted container stock may require protection against herbivory. Herbivore barriers made of chicken wire or a similar material that will prevent herbivores to chew through the barrier. Barriers will be a minimum of two feet above ground. The herbivory cages shall be inspected during each maintenance visit and removed when that herbivory will no longer compromise the health and establishment of the plantings. Herbivory caging will be removed before it hinders plant development and growth. If determined that there is a potential threat of subterranean root damage by small mammals, wire cages constructed of chicken wire may be installed into planting holes prior to planting.

Container stock installation requires an associated irrigation method to supply irrigation through the first year at a minimum. Irrigation will be installed and tested prior to container plant installation and may include use of flood bubblers or drip emitters. In cases of very small or remote planting sites, DRiWATER or equivalent gel water product or hand watering using buckets may be used to irrigate container plants.

5.5.3 Cuttings Installation

Planting of cuttings will occur prior to seeding activities when feasible. Cuttings will be planted at the appropriate time for each species utilized. For example, cuttings from riparian tree species will be obtained, prepared, and planted when trees are dormant. Cuttings will be provided with supplemental water following planting until the cuttings show signs of growth and/or establishment. Cuttings will be planted with similar density and composition as adjacent habitat. After initial preparations as discussed above, cuttings shall be installed following these specifications:

- Cuttings shall be planted in holes approximately 2 inches in diameter; with a minimum depth of two-thirds of the cutting length; all planting holes shall have vertical sides.
- Each hole shall then be partially backfilled with excavated soil material then saturated with water; this step shall be repeated until the hole is at least half backfilled
- Once the water has absorbed into the soil, a cutting shall be inserted into the hole with the angled end in the ground. The cutting shall be installed so two-thirds of the cutting length is below ground with at least 3 leaf bud scars above the surface of the soil.
- The hole shall then be backfilled completely with excavated material and distributed evenly around the cutting, the backfill shall then be tamped down sufficiently to eliminate air pockets.
- After installation the cutting will be soaked at least twice to fully saturate the soil down to the base of the cutting and to assist with settling the cutting.

5.5.4 Plant Protection

Some plantings may be vulnerable to herbivory by rabbits, burros, deer, cattle, and/or other herbivores, and use of tree tubes, deer cages, or perimeter fencing may be considered for specific sites. In addition, some areas may be subject to offroad use and require plant protection, including but not limited to hard barriers, to protect vulnerable seedlings and plantings.

The installation of plant protection measures will be addressed on a case by case basis during the restoration planning phase of the Project.

6.0 Maintenance

Maintenance will begin with implementation of the restoration work at each of the Project's temporary disturbance areas and will continue for five (5) years or until success standards are met and will be consistent with APM BIO-RES-1 (Table 1). Maintenance tasks may include supplemental watering, erosion control, and weed/pest abatement. Environmental conditions will be monitored, and adaptive measures may be applied as necessary.

6.1 Irrigation

Germination in seeded areas will rely on natural precipitation. Supplemental watering is not proposed for the seeded restoration efforts. However, if the applied seed does not successfully germinate due to low seasonal precipitation, supplemental watering may be considered as a remedial action to promote plant establishment and growth. Supplemental watering may also be conducted in restoration areas where container plantings have been installed, if needed.

6.1.1 Supplemental Watering

The appropriate supplemental watering methodology will be decided on a case-by-case basis. Watering would be gradually reduced as the plants become established.

The goal of irrigation is to supplement or mimic natural rainfall patterns to promote root systems to maximize survival and vigor. Irrigation may be used on sites where container plants or cuttings are installed. Irrigation and supplemental watering may be considered in conjunction with other restoration treatments on a site-by-site basis. Specific schedules and quantities of irrigation will depend on weather patterns and site conditions.

6.2 Weed Control

Weed control measures will be implemented during post-construction restoration where necessary in accordance with the IPMP. Control measures may include physical (hand-pulling, mechanical removal) and chemical (herbicide application) treatment methods. These control methods shall be dependent on the weed species, location of weeds, and the time of year that weed control operations occur.

6.2.1 Physical Methods

Physical/manual weed control methods may be appropriate in sensitive habitats, immediately around container plant basins, around germinating native species, and in areas where chemical methods are prohibited. Recommended physical control methods are as follows:

- Hand-pulling may be used to remove localized and discrete populations of herbaceous species prior to seed set. Cutting may be used to remove shrub and tree species. This method may require follow-up herbicide applications to kill the root system and prevent re-sprouting.
- Mechanical removal may be used to remove weed infestations from large areas where few or no native plant species are present. This method may use a mower, weed whacker, or tiller.

6.2.2 Chemical Methods (Herbicides)

Herbicides can be a very effective method in controlling weed species by killing or inhibiting plant growth. The appropriate chemical and method of application is based on the species, the degree of infestation, time of year, temperature, and environmental conditions. Only state, BLM-, and/or USFS-approved herbicides may be used. In addition, herbicides will be used following USEPA label instructions, and applications will be performed in accordance with federal, state, and local laws and regulations. The environmental risks of using herbicides will be minimized by using marker dyes to make the herbicide visible in areas where it has been applied.

6.3 Plant Protection

Any installed plant protection measures will be maintained during the maintenance and monitoring period. Maintenance includes repairs, installation of additional measures, and removal of plant protection if plants have outgrown the protective barrier.

The installation of remedial plant protection measures will be addressed on a case by case basis during the maintenance phase of the Project.

7.0 Monitoring (excluding Special-status Plant Species and Cacti)

7.1 Monitoring

SCE will perform periodic monitoring to assess site stabilization and restoration progress at each restoration site. Assessments during monitoring may include seed germination observations, evaluation of restoration progress such as planting survival and volunteer recruitment of native species, estimates of percent native and weed cover by species, and documentation and correction of any erosion problems. SCE may also evaluate other performance indicators, including the presence of significant disease or pest problems, signs of herbivory, and the need for remedial measures.

The monitoring period will commence after installation and will continue for five (5) years consistent with APM BIO-RES-1 (Table 1) or until the success standards are met. Monitoring may consist of maintenance and performance monitoring. When the success standards are met, no further maintenance, monitoring, or remedial measures will be required.

7.1.1 Maintenance Monitoring

SCE will perform maintenance monitoring to assess the maintenance needs of the sites and progress in meeting success criteria. Maintenance monitoring will be focused on the potential need for remedial actions to address problems that could influence plant growth and not on the success standards themselves. Maintenance monitoring will be conducted Project-wide in restoration areas, as well as representative areas where drive-and-crush was implemented. Remedial actions may be implemented in drive-and-crush areas if maintenance monitoring indicates that the level of disturbance from the Project precludes successful natural recovery.

The frequency of visits may be adjusted based on the season (e.g., more weed growth occurs in spring and early summer, depending on location), restoration activity (i.e., container plant installation), and the needs of the site. Assessments may include evaluation of soil conditions (i.e., moisture), container plant health, container plant growth, seed germination, irrigation system function or the need for supplemental watering, volunteer recruitment of native species, presence/absence of non-native plant species, presence of significant disease or pest problems, general site maintenance, and any erosion problems.

7.1.2 Performance Monitoring

SCE will perform performance monitoring annually during the growing season. The specific timing will be intended to provide the most useful information on progress towards meeting restoration objectives. Generally, the monitoring survey will occur in early to mid-summer, depending on location, after annual plants would have reached maturity but before senescence and high summer temperatures. This timing allows estimates of the maximum level of annual and perennial ground cover and allows identification of most plant species. Monitoring for special-status species would occur in the appropriate season to identify and determine success.

The goal of performance monitoring is to evaluate the progress of the restoration site towards achieving success criteria, which are set relative to pre-Project disturbance (baseline) conditions. An appropriate reference site will be selected for each vegetation type that is similar in vegetative composition as well as environmental parameters for sites that may not have baseline data and to account for seasonal fluctuations of vegetation cover and diversity due to weather or climate conditions.

Data collection may include the general site conditions, native and nonnative plant percent cover, bare ground cover, plant density, container plant survival, species richness, and photo documentation and/or aerial surveys. Data collected will be compared to baseline conditions or reference site conditions to assess progress and determine if remedial actions are needed. In particular, the success standards for percent cover should be relative to baseline conditions. Baseline condition data may be modified based on reference site conditions over the monitoring period. For example, baseline data collected in drought conditions may be artificially low and may need adjustment relative to reference site data collected concurrently. Similarly, baseline conditions collected in a good rainfall year may need adjustment in extended drought conditions relative to reference site data collected concurrently.

Vegetation cover data collection will generally follow the line-point intercept methods outlined in the Monitoring Manual for Grassland, Shrubland, and Savanna Ecosystems, Volume 1 (Herrick et al. 2017). Cover data will be collected along three transects at most sites. Very small sites will require modified design and additional transects may be added to large sites. Data will be collected at specific points along the line. The design will be modified to fit the size and shape of the restoration site. Cover data using the CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form (CNPS 2019) methods may also be collected.

Vegetation sampling will follow the methods outlined in the CDFW-CNPS Protocol for the Combined Vegetation Rapid Assessment and Relevé Field Form (CNPS 2019). In addition, photographs of the site will be taken from permanent photo monitoring stations facing the restoration area. The locations of the photo monitoring stations will be recorded using GPS.

7.1.3 Monitoring Schedule

A five (5)-year maintenance and monitoring period will commence following installation to track progress toward achieving success standards. For the five (5)-year monitoring program, maintenance monitoring will occur monthly in Year 1 and quarterly for Years 2-5 and will continue until the success standards are met. Following installation, data from the first performance monitoring event, which generally occurs every summer, will be in the As-Built report. The monitoring schedule is presented in Table 7-1.

Table 7-1 Monitoring Schedule

Restoration Phase	Frequency (per Calendar Year)	Duration
Installation period	Twice per month (directly follows completion of plant installation).	120 Days
Maintenance Monitoring Years 1 -3	Up to 20 events; timing may vary by year but should be scheduled to sufficiently assess weed occurrence, soil moisture, planting health and growth, natural recruitment, and presence of disease or pests.	Variable

Maintenance Monitoring Years 4 & 5	8 events; timing may vary by year but should be scheduled to sufficiently assess weed occurrence, soil moisture, planting health and growth, natural recruitment, and presence of disease or pests.	Variable
Performance Monitoring Years 1- 5	5 events; will typically occur in summer but may vary by year to optimize data collection and account for year-to-year variations in rainfall and/or other factors.	Variable

8.0 Monitoring (Special-status Species and Cacti)

SCE will implement a monitoring, maintenance, and reporting program to record implementation efforts and to evaluate progress of the restoration efforts towards meeting the success standards set forth in this Plan. The purpose of monitoring and reporting is to document successes, failures, and remedial actions related to the effort. Monitoring the status and progress of this effort will allow for timely adaptive or remedial measures to increase the probability of success.

Monitoring and maintenance will begin at the commencement of the seeding, salvaging, and/or planting effort and will continue for up to 5 years, or until the success standards are met. When the success standards are met, no further maintenance, monitoring, or remedial measures will be required.

8.1 Monitoring

Seeded, salvaged, and/or planted special-status plant and cactus individuals will be monitored throughout the first year, beginning at the commencement of the seeding, planting, and/or salvage and relocation effort, to increase the rate of re-establishment and reproductive success. Performance monitoring will be conducted annually for up to five years, or until the success standards are met, or if directed otherwise by the appropriate agencies, following the schedule presented in Section 7.1.3.

Monitoring field work will be timed to allow a growing season following completion of transplanting (or previous monitoring effort) to occur and may be conducted concurrently with other monitoring surveys performed as required by this Plan. Monitoring will be conducted by qualified botanists with experience identifying native and non-native plants present in the Owens Valley, White Mountains, or nearby areas in the Great Basin. Performance monitoring frequency may be increased in response to observed conditions, such as unusually dry years or the potential need for remedial actions after the first year of maintenance.

8.2 Maintenance

Maintenance visits will be conducted approximately every 2-4 weeks in the first year but may be increased and/or extended in response to observed conditions, such as unusually dry years or the potential need for remedial actions after the first year of maintenance.

Seeded, salvaged, and/or planted special-status plant and cactus individuals will be monitored and maintained throughout the first year to increase the rate of re-establishment. For salvaged individuals or container plantings, depressions or small berms (depending on the species, size of plant, soil conditions, etc.) will be created at the base of each transplant to capture rain and irrigation water to better allow the soil to become and remain saturated. These watering basins may require maintenance over time.

Salvaged plantings or container plantings will receive one year of irrigation after planting and may require supplemental irrigation in Years 2 and 3, depending on natural precipitation. Irrigation can be conducted near sites with a permanent water source, and near permanent access roads, through the installation of a temporary system that can be fed by a water truck. Direct watering with a hose fed by a water truck may also be appropriate near access roads, if the process can be accomplished without damaging restored vegetation. In cases of very small or remote transplant sites, DRiWATER or equivalent gel water product or hand watering using buckets may be used to irrigate the transplanted plants.

Hand watering with buckets or a hose will be used as described above to wet the upper 4 to 5 inches of soil once per month, based on soil moisture levels. During prolonged hot, dry weather, transplanted cacti will be watered approximately every 14 days. Additional supplemental watering to help the plants establish will be provided as needed and determined by the Restoration Ecologist.

Watering will be kept to a minimum during the winter dormancy period. Transplants will not be watered during rainy periods. Watering will then follow the seasonal guidelines above, and at the discretion of the Restoration Ecologist.

Watering often encourages weed proliferation in disturbed or treated areas. Therefore, when irrigation occurs, applications of irrigation water will not be widely broadcast (e.g., overhead spray) but will be restricted to individual transplant specimens as much as possible (e.g., manually directed from a bucket or hose).

Manual removal prior to the plants' production of seed will be used to control weeds at planting sites. Grasses can be controlled by removing the flower heads. However, species such as mustards must be removed entirely, along with the roots, if possible. Methods for weed control will be implemented in accordance with guidelines and specifications provided in the Project's *Invasive Plant Management Plan*, prepared under a separate cover.

9.0 Success Standards

The following performance standards will be used for restoration areas on the Project:

- At least 60 percent of native cover, relative to pre-disturbance (baseline) or adjacent reference site native cover.
- At least 50 percent of the total number of native species observed in pre-disturbance (baseline) or adjacent reference site.
- Perennial species richness of at least 50 percent of pre-disturbance (baseline) or adjacent reference site.
- Recruitment of native plant seedlings documented within restoration areas.
- Non-native foliar cover will not exceed non-native baseline cover. Any new introductions of invasive plants will be addressed (contained, suppressed, or eradicated) per the IPMP.
- Evidence of wildlife use.

Restoration activities will continue until success standards are met. After five years, SCE will consult with the agencies to discuss options for restoration areas that have not met success standards.

10.0 Adaptive Management and Contingency Measures

Adaptive Management may be needed if there are significant changes to the restoration site(s) or if a site demonstrates a declining trend. As needed, SCE will implement Adaptive Management measures to facilitate success of the restoration site(s). Sites where current conditions do not reflect desired trends or are not stabilized may require remedial measures such as reseeding, supplemental watering, controlling invasive plant species, additional stabilization measures (e.g., erosion control blankets), and/or regulating human and/or wildlife access to the restoration site. Replacement or supplemental seeding will be representative of native plant species for the associated habitat area, provided in the seed palettes outlined in Section 5.1.1.

If an unforeseen catastrophic event (e.g., flood, fire, or other event beyond SCE control) damages a restoration area within the monitoring period, SCE will assess adjacent areas and adjust success standards accordingly in coordination with the agencies.

11.0 Reporting

SCE will prepare annual reports and will notify the BLM, CPUC, and USFS when the restoration effort is complete.

11.1 Annual Monitoring Report

SCE will prepare and submit annual reports for a period of five (5) years post-construction. The annual report will provide a summary of site conditions, restoration treatments, maintenance activities, and the results of the qualitative and quantitative monitoring. It will also include a general discussion of the previous year's changes at the restoration sites, special-status plant establishment, effectiveness of off-highway vehicle (OHV) deterrents and signs of encroachment, grazing impacts, trash removal, and remedial actions.

The annual report will also outline the activities for the following year and may include a discussion of adaptive management and contingency measures (see Section 10). Additional annual monitoring reports may be required if success criteria are not met within the five-year monitoring period.

Annual reports will be submitted by SCE to the BLM, CPUC, and USFS as appropriate.

11.2 Notification of Completion

SCE will notify the BLM, CPUC, and USFS when the restoration effort is complete and success, criteria have been met at sites. The notification would be submitted electronically and will be accompanied by a brief letter referencing the final annual report.

For sites that are unable to meet success criteria, SCE may request sign-off. For sites with disturbance outside SCE's control (e.g., vehicle use, livestock grazing, or land use conversion for non-Project purposes), it may not be possible to reestablish native vegetation. Some sites that have received all appropriate treatments and multiple years of adaptive management measures may not meet success standards. In these situations, the agencies (BLM, CPUC, State Water Resources Control Board [SWRCB], and USFS, as appropriate) may concur that additional efforts are not warranted and sign-off on these sites. The BLM and USFS must provide concurrence and sign off for restoration activities to cease on BLM and/or USFS lands.

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