

ACKERSON MEADOW RESTORATION FINDING OF NO SIGNIFICANT IMPACT

September 2021

Yosemite National Park and Stanislaus National Forest

This Finding of No Significant Impact (FONSI) documents the decision of the National Park Service (NPS) to select Alternative 1 for the Restoration of Ackerson Meadow in Yosemite National Park and the Stanislaus National Forest and that no significant impacts on the human environment are associated with that decision.

This FONSI is prepared pursuant to the National Environmental Policy Act (NEPA) and incorporates by reference the *Ackerson Meadow Restoration Environmental Assessment* (Ackerson Meadow EA), dated May 2021. The FONSI and *Ackerson Meadow EA* serve as compliance documents for NEPA, and comply with California Environmental Quality Act (CEQA) Guidelines Section §15221 and §15225(a). Pursuant to NEPA, and CEQA Guidelines Section §15051 and the , the NPS is the lead agency, and the United States Forest Service (USFS) is a cooperating agency for this effort. Yosemite National Park and the Stanislaus National Forest are working collaboratively on the project. The California Regional Water Quality Control Board is the lead agency for the CEQA process.

PURPOSE AND NEED

The Ackerson Meadow complex makes up the largest mid-elevation meadow complex in Yosemite National Park and represents one of the region's most extensive and contiguous meadow systems. While they account for only about one percent of the land cover in the entire Sierra Nevada, montane meadows and associated riparian communities provide habitat for approximately 20 percent of the 400 terrestrial vertebrate species that inhabit the Sierra Nevada.

The purpose of this project is to protect the remaining intact wetlands, restore lost wetland ecosystem function, and re-establish self-sustaining wetland processes in the Ackerson Meadow complex. Based on stratigraphic evaluations and radiocarbon dating, the Ackerson Meadow complex was an extensive wet meadow system with a high-water table throughout most of the growing season prior to human manipulation. Land use practices over the past 150+ years have created a large gully network that has drained 90 acres of wetlands in the meadow complex and threatens another 100 acres of wetland and wet meadow habitat. Roughly 151,000 cubic yards of soil has eroded from the meadow through the gully network. The eroding gullies have lowered the groundwater table and intercepted sheet water flows in the meadow, which has led to early-season onset of dry conditions and loss of wetland habitat and vegetation.

Action is needed to lessen the effects of the gully, specifically to raise the lowered groundwater table, return overland water movement including sheetflows, protect and re-establish extensive wetland vegetation, and halt excessive erosion and soil loss. Restoration actions will reconnect meadow floodplains with seasonal groundwater regimes that support natural wetland plant communities and enhance habitats for at-risk wildlife species, including the great gray owl (*Strix nebulosa*), little willow flycatcher (*Empidonax traillii*), and western pond turtle (*Actinemys marmorata*). Restoration actions will also enhance ecosystem resilience to climate change and support plant resources important to local native tribes.

Project Goals:

- (1) Protect intact wetlands from advancing gullies and headcuts and re-establish hydrologic conditions dominated by sheetflow and shallow dispersed swales.
- (2) Restore the extent of functional wetlands in the Ackerson Meadow complex by re-establishing sustained high-water tables and an increased proportion of wetland plants.
- (3) Restore high-quality habitat for at-risk wildlife species.

- (4) Restore native wetland vegetation communities including special status plants, culturally important plants, forage for wildlife and livestock, and remove invasive species.
- (5) Enhance ecosystem resilience to climate change.
- (6) Facilitate ecological restoration by enabling tribal tending and gathering of traditional use plant materials.
- (7) Provide functional grazing allotments on USFS-managed lands.
- (8) Preserve wilderness character by limiting activities and tools to the minimum required to restore water tables, especially in designated wilderness.

SELECTED ACTION AND RANGE OF ALTERNATIVES CONSIDERED

The *Ackerson Meadow EA* described and analyzed four alternatives, including a No Action Alternative (Alternative 4) and the following three action alternatives:

- Alternative 1: Full Gully Fill
- Alternative 2: Hand-Built Structures
- Alternative 3: Hybrid

These alternatives represent a range of options to satisfy the purpose and need for the project and meet relevant legal requirements. Based on this analysis, the NPS identified Alternative 1 as the Agency’s Preferred and Environmentally Preferable Alternative and selected this alternative for implementation.

Selected Action: Full Gully Fill (Alternative 1)

Under the Selected Action, erosion gullies will be completely filled in, restoring the level of the existing meadow terraces. This will restore the area to generally level topography dominated by sheetflow hydrology, shallow ephemeral and intermittent channels (e.g., swales), high-water tables, and expansive wet meadow vegetation. Up to 10 small off- or on-channel ponds may be created in the project area to enhance wildlife habitat. Fill material will be generated from a combination of nearby upland hillslope soil excavations and locally generated wood chips and biochar. The total volume needed to fill the erosion gullies will be approximately 151,000 cubic yards. The fill will consist of a mix of 70 percent mineral soil (approximately 106,000 cubic yards) and 30 percent organic fill (approximately 45,000 cubic yards). The final fill surface in the erosion gully will match the contours of the adjacent meadow, producing generally level-in-cross-section topography throughout most of the meadow. This landscape configuration will restore a sheetflow dominated hydrologic regime with only shallow, stable (non-erosive), and generally discontinuous and dispersed swales. Wetland hydrology will be restored to approximately 94 acres (Table 1), and hydrology supporting the roughly 100 acres of existing wetland and wet meadow will be protected, resulting in the restoration and preservation of approximately 194 acres of wetlands.

TABLE 1. RESTORED WETLAND ACREAGE

Alternative #	Restored Wetland Area	Acres
1	Full Gully Fill Total	93.6
	Rewetted dry meadow from full-fill	76.4
	Gully-filled surface wetlands	17.0
	Open-water unvegetated pond surfaces	0.2*

*Will be greater if up to 10 small off- or on-channel ponds are included in the final design to enhance wildlife habitat

The Selected Action will implement all actions as detailed in Alternative 1 in the *Ackerson Meadow EA*. No modifications were required to the Selected Action as a result of comments received on the *Ackerson Meadow EA* during the public comment period.

Filling the gully is anticipated to be complete within one to two years. The exact timing will depend on weather, operational logistics, and externalities such as wildfire events, equipment, and staff availability. Implementation may begin as early as 2022, depending on funding.

OTHER ALTERNATIVES CONSIDERED AND ANALYZED

Alternative 2 (Hand-Built Structures)

Alternative 2 included the installation of hand-built structures, including post-assisted log structures (PALS) and beaver dam analogs (BDAs) throughout the Ackerson Meadow complex within the gully system and tributaries. Alternative 2 also included several actions common to the Selected Action including re-establishment of native and rare vegetation, monitor and control invasive plant and animals species, avoidance and minimization of impact to at-risk wildlife species, tribal plant gathering for traditional purposes, harden of a low-water road crossing on road 1S26Y, temporary grazing exclusion fencing and water developments for grazing, fence maintenance, alignment, and reconfiguration, and temporary exclusion of public access.

Alternative 3 (Hybrid)

Alternative 3 included strategically utilizing the most effective method from Alternatives 1 and 2 for each reach of the gully network. Hand-built structures would be used to stabilize and naturally fill (via sediment) where gully depths are less than four feet. Within the uppermost reach of the Ackerson Meadow complex, which is the steepest portion of the valley, hand-built structures would have be used to encourage erosion and create an inset floodplain at a lower elevation than the existing meadow terrace. Two full-fill sections would have to be done where gully depths currently exceed four feet in depth, with a reach suitable for hand-built structures in between.

Alternative 4 (No Action)

Under the No Action Alternative, there would have been no fill required and no excavation would take place and there would be no maintenance requirements. Approximately 90 acres of former wetlands and associated high-value habitat would have continued to be dewatered. The long-term implications of the gully network in Ackerson Meadow complex are uncertain. Headward erosion would have continued to expand the gully drainage network within the additional remaining 100 acres of wet meadow at the Ackerson Meadow complex, eventually dewatering the remaining wetlands. Over the course of decades, centuries, or perhaps millennia, these processes may have reached a dynamic equilibrium where a broad groundwater-supported wetland would be recreated at the deeper incision elevation. However, it is also possible that a quasi-stable state would have been reached where large areas of dewatered former wetland are still perched high and dry above a water table that drains to a stable but deep channel. It is likely these abandoned former wetlands and dried meadow areas would have shifted to upland or even forest vegetation types. Invasive plant treatments and boundary fence maintenance would continue under current compliance, and as staff and funding are available.

Preliminary Options Considered and Dismissed

A range of actions and alternatives were considered and dismissed during the development of the project because they did not fully satisfy the objective of the purpose and need (Table 2).

TABLE 2. ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED

Action/Alternative	Reasons for Dismissal
Stabilize headcut features in place (no additional gully treatments).	Dismissed because this treatment would not achieve the purpose and need to restore native wetland vegetation communities, increase the extent of functional wetlands, promote hydrologic conditions dominated by sheetflow and shallow dispersed swales, and enhance ecosystem resilience to climate change.
Pond and plug treatments (fill for gully plugs derived on site by excavating ponds within the meadow surface).	Dismissed because this treatment would create extensive open deep-water habitats that are novel to the meadow complex and are not known to have existed at Ackerson Meadow in the past. Due to a lack of sediment supply, it is likely that the extensive open deep-water habitats created by this treatment would be permanent features within the meadow complex.
Full meadow gully plug treatments (fill for gully plugs derived by excavation of selected excavation areas off-site or from other off-site projects that produce excess fill).	Dismissed because this treatment would create extensive open deep-water habitats that are novel to the meadow complex and are not known to have existed at Ackerson Meadow in the past. Due to a lack of sediment supply, it is likely that the extensive open deep-water habitats created by this treatment would be permanent features within the meadow complex.
Meadow-wide construction of inset floodplain (i.e., using methods such as bank blasters or equipment to re-grade large portions of meadow to gain fill for gully, resulting in a lower level meadow cross-section surface).	Dismissed because this treatment would fail to meet the purpose and need to minimize and mitigate impacts related to restoration actions, but rather disturbance to former and existing wetlands and habitat for focal wildlife species by this treatment would be extensive and counter to the goals of the project.
Introduce beavers.	Dismissed because the NPS and USFS lack sufficient information on past beaver occupancy to determine appropriateness or chance of success.

DECISION RATIONALE

The Selected Action best meets the purpose and need of the project while minimizing impacts to visual, operational, natural and cultural resources. The Selected Action will maximize the acres of protected and restored existing and former wetlands and will minimize the amount of long-term maintenance needed.

WHY THE SELECTED ACTION WILL NOT RESULT IN SIGNIFICANT EFFECTS

In considering the degree of effects (Code of Federal Regulations [CFR] 1501.3) regarding both short- and long-term effects, beneficial and adverse effects, effects on public health and safety, and effects that would violate Federal, State, Tribal, or local law protecting the environment, as well as criteria for significant impact as defined by Council on Environmental Quality (CEQ) regulation 40 CFR 1508.1(g), the park determined that the Selected Action will not have a significant effect on the human environment. The “human environment,” as defined in Section 1508.14, includes the natural and physical environment and the relationship of people with that environment. Specifically, there are no highly uncertain or controversial impacts, unique or unknown risks, or elements of precedence, identified. Implementation of the Selected Action will not result in the loss or destruction of significant scientific, cultural, or historic resources and implementation of the Selected Action will not violate any federal, state, or local laws. The park determined that none of the significance criteria are triggered under the Selected Action:

- Impacts to the natural or physical environment and impacts to the relationship of people with that environment will not be significant.
- No highly uncertain or controversial impacts or elements of precedence have been identified.
- Implementation of the Selected Action will not violate federal, state, or local laws.
- Special status species will not be adversely affected.

- There will be no adverse effects to historic properties.

Based on the following summary of effects, and as discussed in the *Ackerson Meadow EA*, the park has determined that the Selected Action (Alternative 1) will not have a significant effect on the human environment.

Biotic Environment – Vegetation, Rare Plants, Wetlands and Floodplains, Soils, and Hydrology

The following is a summary of the analysis of the biotic environment evaluated in more detail in the EA. It is anticipated that the vegetation community composition and type within the restored and rewetted areas will transition over time shifting from upland species to a predominance of wet meadow species under the Selected Action. Replanting efforts described under the Selected Action will enhance native vegetation recovery on disturbed sites, inhibit invasive species, and provide erosion control. This will be a long-term beneficial impact.

Overall, the Selected Action will affect individuals of slenderstem (or Hetch Hetchy) monkeyflower (*Erythranthe [Mimulus] filicaulis*) and yellow-lipped monkeyflower (*Diplacus [Mimulus] pulchellus*) but it is not likely to result in a trend toward Federal listing or loss of viability for the species in the project area. The Selected Action will not affect Small's southern clarkia (*Clarkia australis*) and Mountain lady's slipper (*Cypripedium montanum* Douglas ex Lindl.). Under the Selected Action, direct disturbance to 1.8 acres of slenderstem monkeyflower and 11.0 acres of yellow-lipped monkeyflower is expected. Seed is likely to survive through the ground-disturbing activities. Salvaging the topsoil where these species are known to occur and redistributing it at the surface will preserve the seedbank and allow plant regeneration post-restoration.

The Selected Action will restore and re-wet the largest area of wetlands and re-creates long-term self-sustaining wetland function to roughly 190 acres of existing and former wetlands by extending connectivity of sheetflow and shallow swale hydrology throughout the floodplain of the Ackerson Meadow complex. Specific benefits to wetlands from the Selected Action include protection of 82 acres of existing wetlands on meadow surface, and approximately 94 acres of former wetlands will be rewetted (e.g., reconnected to surface and shallow groundwater hydrology) within the first year after construction.

Roughly 106,000 cubic yards of fill will be removed from nearby uplands and used to fill the 28-acre gully. The post-restoration filled surface will have variable compaction and erosion concerns, requiring protection by plantings, seeding, erosion control blankets, sedge mats, and covered by litter and duff. The Selected Action will spread runoff across the meadow surface, and thus require recovery of water deficit as the soil pores are filled with groundwater (e.g., the soil sponge). While 106,000 cubic yards of soil removal from up to 40 acres of uplands is irreversible, soil productivity and effects to vegetation will be partially mitigated by recontouring, decompaction, topsoil salvage and replacement, erosion control, and revegetation. Any sustained compaction from equipment use along the access routes despite use of track mats will be mitigated by deep-ripping.

Hydrologic conditions created by the Selected Action will be reflective of those that sustained the meadow for millennia before disturbance by humans. This will be a long-term beneficial impact to meadow hydrology.

Wildlife and Special Status Species Wildlife

The following is a summary of the analysis of wildlife and special status species wildlife evaluated in more detail in the EA. Under the Selected Action, restoration activities, human presence, and associated project noise will potentially eliminate or temporarily displace wildlife from the project area and immediate vicinities, including Migratory Bird Treaty Act (MBTA)-protected bird species and other special status species. Individuals of the smaller, less mobile and burrowing species will potentially be killed by restoration equipment, whereas mobile species will disperse to surrounding areas.

Overall, Southern Sierra Nevada Distinct Population Segment of Fisher (*Pekania pennanti*) (hereafter, fisher) may benefit from a diversification of habitats under the Selected Action if fisher expand their range and utilize the Ackerson Meadow complex in the future. Therefore, the Proposed Action may affect, but is not likely to adversely affect the Southern Sierra Nevada Distinct Population Segment of Fisher. The California red-legged frog (*Rana draytonii*) is not known to occur in the project area. The Proposed Action may affect, but is not likely to adversely affect the species due to habitat alteration. The creation of ponded habitats either off-channel or by not filling portions of some reaches will create a long-term increase in red-legged frog habitat.

Overall, meadow restoration will have long-term beneficial impacts by diversifying habitat available for these species. Therefore, although individuals may experience impacts, the Selected Action will not alter the existing trends in the habitats for Management Indicator Species that occur in the project area across the Sierra Nevada bioregion. Implementation of standard mitigation measures (Attachment A) and avoidance procedures will reduce the potential for disturbance and harm to wildlife.

Cultural

The following is a summary of the analysis of cultural resources evaluated in more detail in the EA. The Selected Action will include ground disturbance within six archeological sites that are not eligible for listing in the National Register of Historic Places (NRHP). The Historic Ackerson Ranch will be avoided during the undertaking though ground disturbance will occur adjacent to the associated features (barn and fence). Mitigation measures designed to protect archeological resources, including those related to proposed herbicide treatments, are discussed in Attachment A. Therefore, there will be no adverse effects to archeological resources under the Selected Action.

Wilderness

The following is a summary of the analysis of wilderness resources evaluated in more detail in the EA. Despite large impacts to the untrammeled and undeveloped qualities, the effect on wilderness character for the Selected Action will be beneficial. Because human causation of the current degraded condition is fairly certain, and the full fill method has been proven to be effective in similar meadows, the return of natural conditions and elimination of the threat from headcuts in South Ackerson Meadow will benefit wilderness character as a whole. At Main Inlet Creeks, the improved ecological connectivity and habitat continuity with the main meadow will benefit wilderness upstream. At South Inlet Creeks, impacts to the undeveloped and untrammeled qualities are avoided; but natural conditions are expected to slowly return with no threat of further incision.

PUBLIC INVOLVEMENT

Public Scoping

A 30-day public engagement period took place from July 20, 2020 through August 25, 2020. A public webinar took place on August 5, 2020 from 4:30 p.m. to 5:30 p.m. The NPS and USFS sent an electronic newsletter on July 20, 2020 to Yosemite National Park's mailing list. The "eblast" announced the public scoping period, the date of the first public webinar along with project information and a request for public input. The NPS and USFS distributed an electronic press release on July 20, 2020 to area media outlets along with a Fact Sheet, a copy of the Webinar PowerPoint Presentation, and other project information on the NPS Planning, Environment and Public Comment (PEPC) website. The project first appeared in the Stanislaus National Forest "virtual" Schedule of Proposed Actions (SOPA) on March 4, 2021, and the project first appeared in the published quarterly SOPA in April 2021. The SOPA provides general project information and National Environmental Policy Act planning status. The USFS provides a notice of availability that the quarterly published SOPA is available through GovDelivery. The GovDelivery SOPA mailing addresses include 331 individuals, groups, and organizations. An additional 68 individuals received a hard copy notice through the U.S. Postal Service.

Eighteen responses were received. In addition, the NPS and USFS received one comment that was beyond the scope of this project. All comments, substantive or non-substantive, were duly considered and are part of the decision file for this project.

Public Review and Comment Period

The *Ackerson Meadow EA* was released for public review on June 2, 2021, and the NPS accepted comments through July 8, 2021. The document was available through the PEPC website and hard copies were available as requested. The public review period was announced in a press release, a Yosemite electronic news release, the Union Democrat, and on the Yosemite National Park website.

During the 30-day public comment period, the park received 17 correspondences, generating 27 substantive comments. The planning team considered all comments. No modifications are included in the Selected Action as a result of comments received on the *Ackerson Meadow EA*. Table 3 categorizes the types of comments received during the comment period. A summary of the public comments received can be found on the PEPC website.

TABLE 3. TYPES OF PUBLIC COMMENTS ON THE ACKERSON MEADOW RESTORATION ENVIRONMENTAL ASSESSMENT

Project Issue/Theme	Total Comment Tally
Alternatives – No Action	1
Alternatives – Full Fill	10
Alternatives – Hand-Built Structures	2
Alternatives – Hybrid	1
Resource – Biotic Environment	2
Resource – Grazing	2
Resource – Air Quality	1
Transportation - Roads	1
Resource - Socioeconomics	1
Visitor Experience – Public Access	1
Herbicide Use	1
Public Engagement – Public Involvement	1
Other Comments - Funding	2
Other Comments - Cumulative	1
TOTAL	27

AGENCY CONSULTATION

U.S. Fish and Wildlife Service

The Endangered Species Act of 1973, as amended (16 United States Code 1531 et seq.), requires federal agencies to consult with the U.S. Fish and Wildlife Service to ensure any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of federally listed species or critical habitat. The NPS and USFS initiated informal consultation on May 4, 2021. The park requested concurrence with a “not likely to adversely affect” determination on the federally listed Southern Sierra Nevada Distinct Population Segment of the Fisher. The park and the USFS received a letter from the U.S. Fish and Wildlife Service (USFWS) on June 22, 2021 concurring with the determination that the proposed project may affect, but is not likely to adversely affect the Southern Sierra Nevada Distinct Population Segment of the Fisher. Consultation with the USFWS on other federal listed species, primarily the California red-legged frog, which there is no designated critical habitat in the project area, shall be ongoing throughout the project.

California State Historic Preservation Officer

On September 1, 2020, the NPS and USFS sent a letter to the State Historic Preservation Office (SHPO) identifying the historic properties present, the area of potential effects, and an assessment of effects of the

Ackerson Meadow Restoration undertaking. The NPS and USFS provided a National Historic Preservation Act Section 106 report to the SHPO and requested concurrence with the park's finding of No Adverse Effect associated with the proposed undertaking. The NPS and USFS received a response from SHPO on June 21, 2021, concurring with the finding of No Adverse Effect for the undertaking.

Traditionally-Associated American Indian Tribes and Groups

The NPS initiated consultation for the Ackerson Meadow Restoration project with seven associated American Indian tribes and groups in October 2017. The tribes participating in the consultation process included the American Indian Council of Mariposa County, Inc. (aka Southern Sierra Miwuk Nation), Bishop Paiute Tribe, Bridgeport Indian Colony, Mono Lake Kutzadikaa Tribe, North Fork Rancheria of Mono Indians of California, Picayune Rancheria of the Chukchansi Indians, and Tuolumne Band of Me-Wuk Indians. There are no tribes listed under CEQA (Assembly Bill 52) requesting consultation in Tuolumne County. Ongoing consultation for the project with the seven associated American Indian tribes meets California State consultation requirements under Public Resources Code section 21080.3.1 et seq.

The NPS held a meeting with the tribes to discuss the Ackerson Meadow Restoration project on June 25, 2018. A field meeting at Ackerson Meadow with tribal members was held on October 11, 2018. NPS sent an email to the tribes in September 2019 summarizing current data along with a monthly project status report. The NPS discussed the project with the tribes at a meeting in the Yosemite Valley auditorium on November 13, 2019, and another meeting in Mariposa on February 5, 2020.

The park sent a letter on September 14, 2020, requesting review of the Area of Potential Effects and the identification of historic properties affected. The park also requested input from tribal partners, particularly for identification of any concerns about the project, historic properties of traditional cultural and religious significance, and identification of traditionally-used plants and animals. The park received a variety of information and feedback from the tribes that has been integrated and/or addressed in the EA. Tribal members had several comments about the project, including a request for a tribal field visit to further discuss the project.

Tribal members noted that the archeological site boundaries throughout the project area did not represent the connected and comprehensive locations used by their ancestors. The NPS responded that the site boundaries were based on physical archeological remnants on the landscape. The NPS noted that archeologists and a Tribal Monitor, as necessary, will monitor all ground-disturbing activities within the project area during restoration activities. A tribal member noted that in 2019, cattle were damaging and trampling a milling feature and raised concerns about further damage. NPS is working with USFS and the permittee to stop impacts to this feature. Minimization and avoidance measures directing where cattle are gathered, and where mineral supplements are located, have reduced impacts to this feature. All parties continue to collaborate on ways to completely eliminate these impacts.

CONCLUSION

Based on the information contained in the *Ackerson Meadow EA* as summarized above; the comprehensive mitigation strategy to avoid and minimize impacts; and the full consideration of scoping and EA review comments received from agencies and the public; it is the determination of the NPS that the Selected Action is not a major federal action significantly affecting the quality of the human environment.

Implementation may begin as early as 2022, depending on funding.

In accordance with the National Environmental Policy Act of 1969 and regulations of the CEQ (40 CFR 1508.9), an environmental impact statement will not be prepared.

Recommended:

Teri Austin for Cicely Muldoon

September 16, 2021

Cicely Muldoon
Superintendent, Yosemite National Park

Date

Approved:

Cindy Orlando

September 21, 2021

Cindy Orlando
Acting Regional Director, National Park Service Interior Regions 8,9,10 &12

Date

**ATTACHMENT A:
MITIGATION MEASURES FROM THE ENVIRONMENTAL ASSESSMENT**

GENERAL RESTORATION MANAGEMENT MEASURES

- GRM 1. All Contractor and subcontractor employees will receive a brief orientation and watch a video about working at the project site prior to performing work. The orientation describes how to protect the natural, cultural, and physical resources of Yosemite National Park and the required mitigation.
- GRM 2. Prior to entry into the project site, pressure wash heavy equipment to prevent importation of non-native plant species (see Wetlands and Vegetation), tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks.
- GRM 3. All equipment will be inspected prior to commencing work and coming into the project area. Areas inspected will include, but not be limited to, tracks, track guard/housings, belly pans/under covers, buckets, rippers, and other attachments. Equipment that does not pass inspection will be turned around to the nearest cleaning facility outside the project site. The Contractor will notify the Contracting Officer (CO) or Contracting Officer's Representative (COR) at least two workdays (not including weekends) prior to bringing any equipment into the project site. Equipment found to have entered the project site with potential contaminants will be removed from the project site at the direction of the CO or COR at Contractor's sole expense.
- GRM 4. Keep impacts within the parameters of the project area and do not escalate beyond the scope of the environmental assessment (EA), and ensure that the project conforms with all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Confine work areas within creek channels to the smallest area necessary.
- GRM 5. The National Park Service (NPS)/United States (U.S.) Forest Service (USFS) will apply for and comply with all federal and state permits required for construction-related activities.
- GRM 6. Develop an emergency notification plan that allows contractors to properly notify NPS, USFS, federal, and/or state personnel in the event of an emergency during construction activities. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. Submit the emergency notification plan to the NPS/USFS for review/approval prior to commencement of construction activities.
- GRM 7. Prepare a Health and Safety Plan to address all aspects of Contractor health and safety issues compliant with Occupational Safety and Health Administration standards and other relevant regulations. Submit the plan for review and approval prior to construction.
- GRM 8. Limit the operating period for construction to daylight hours.

SOILS AND GEOHAZARDS

- GEO 1. Confine all earthmoving activities to within the work limits as defined in the site plans.
- GEO 2. Clearly identify landforms and other landscape features to be preserved (as identified on construction plans) by marking, fencing, or other approved techniques.
- GEO 3. Salvage topsoil and store in a separate location from sub-soils. Replace topsoil on top of other soils as excavations are backfilled. The location for stockpiling soils and other woody materials will be approved by the CO or COR.

HYDROLOGY AND WATER QUALITY

- WQ 1. Prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) that designates construction best management practices (BMPs) to be used to control the sources of fine sediment and to capture and filter it before entering surface waters.
- WQ 2. **Structural Practices:** Implement structural practices to divert flows from exposed soils, temporarily store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site as depicted on the construction drawings. Structural practices will be

- implemented in a timely manner during the construction process to minimize erosion and sediment runoff.
- WQ 3. **Silt Fences:** Provide silt fences, weed-free wattles (e.g., coconut coir fiber), or other approved erosion control barriers as a temporary structural practice to minimize erosion and sediment runoff. Ensure that erosion control measures are in place before precipitation events. Silt fences will be properly installed to effectively retain sediment immediately after completing each phase of work where erosion will occur in the form of sheet and rill erosion (e.g., clearing and grubbing, excavation, embankment, and grading). Silt fences will be installed in the locations indicated on the drawings or as needed based on Contractor operations. Final removal of silt fence barriers will be upon approval by the CO or COR.
- WQ 4. **Straw Bales:** Straw bales are not authorized for use in stormwater control. They have the potential to introduce exotic species into the environment. Wood straw is an acceptable alternative.
- WQ 5. **Erosion and Sediment Control Fabric:** Use only erosion and sediment control products that either do not contain netting, or that contain netting manufactured from 100 percent biodegradable non-plastic materials such as jute, sisal, or coir fiber. Degradable, photodegradable, ultraviolet-degradable, oxo-degradable, or oxo-biodegradable plastic netting (including polypropylene, nylon, polyethylene, and polyester) are not acceptable alternatives.
- WQ 6. **Silt Fence Stakes and Posts:** Wooden stakes or steel posts may be used for silt fence construction. Wooden stakes utilized for silt fence construction will be of hard or soft wood, and/or metal. Installation and maintenance will comply with the SWPPP and ensure sufficient integrity of the fence material to withstand all weather events. Typical wood stake dimensions are 1–1.25 by 1–1.25 by 60 inches, and typical steel posts (standard “U” or “T” section) have a minimum weight of 1.33 pounds per linear foot and a minimum length of five feet. Deviations from these will be approved by the CO or COR.
- WQ 7. Prepare a Spill Prevention and Response Plan and take appropriate spill prevention measures during all phases of the work. Wastewater with potentially hazardous substances from construction activities will not be allowed to enter waterways or to be discharged prior to being treated to remove pollutants. The Contractor will dispose of the construction-related wastewater off NPS/USFS property in accordance with all federal, state, regional, and local laws and regulations.
- WQ 8. Identify potentially hazardous substances to be used on the job site and handling procedures to ensure that hazardous substances are not released into the air, water, or ground. Comply with federal, state, and local laws and regulations for storage, handling, and disposal of these materials. Hazardous materials will not be discarded into the jobsite debris or waste disposal facilities. Empty containers will be removed from the site and disposed of in a manner prescribed by law. Used lubricants and used oil to be discarded will be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 Code of Federal Regulations (CFR) 279, state, and local laws and regulations.
- WQ 9. Store hazardous or flammable chemicals in the staging area or elsewhere on the site as approved by the CO or COR.
- WQ 10. A copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time is to be maintained on site and submitted to the CO or COR.
- WQ 11. Before new hazardous materials are brought on site, the MSDS file will be updated and submitted to the CO or COR.
- WQ 12. Mixing and loading will be done in areas where accidental spills will not contaminate streams or other water.

WETLANDS AND VEGETATION

- VEG 1. Undertake measures to prevent the introduction of exotic species in all project areas, including roadways, access routes, excavation zones, and staging areas. All earthmoving equipment must enter the project site free of dirt, dust, mud, seeds, or other potential contaminant. Equipment exhibiting any dirt or other material attached to frame, undercarriages, tires, wheels, or other parts will be thoroughly cleaned by the Contractor before entering the project site.
- VEG 2. The Contractor will get approval in writing from the CO or COR for fill material that must be used in a way or stored in a location not clearly specified in the contract.
- VEG 3. Avoid construction, staging equipment, and excavation within the drip line of California black oaks (*Quercus kelloggii*). If removal, damage, or such activity cannot be avoided, Contractor will consult with the NPS or USFS botanists to develop a mitigation strategy prior to construction in addition to the measures outlined below.
- VEG 4. Access to work sites requiring travel through areas outside the work limits must be approved by the CO or COR.
- VEG 5. Minimize disturbance to tree trunks and root zones to prevent damage to trees. Provide temporary barriers as needed (e.g., orange construction fence) to protect existing trees, critical root zones, sensitive plants, and other resources (archeology, wildlife, or others). In addition:
- Avoid soil compaction within plant root zones with heavy equipment and vehicles within the project work limits.
 - Do not cut wheels or make sharp turns with wheeled or tracked equipment in root zones.
 - Do not pile excavated soil against tree trunks.
 - Maintain original undisturbed soil topography in plant root zones whenever possible.
 - Use directional felling techniques to prevent damage to retained trees and other vegetation.
- VEG 6. Preserve trees, shrubs, vines, grasses, and other vegetation defined on the construction drawings by marking, fencing, or any other approved techniques. Restore vegetative features damaged or destroyed during construction operations outside the limits of the approved work area. Preserve tree snags where feasible as potential bat or bird habitat.
- VEG 7. No ropes, cables, or guy lines will be fastened to or attached to any trees for anchorage unless specifically authorized.
- VEG 8. Delineate wetlands and apply avoidance and protection measures during construction. Wetlands will be delineated by qualified staff or certified wetland specialists and clearly marked prior to work, at minimum: in sufficient manner to achieve permit requirements. Perform activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.
- VEG 9. Adhere at all times to the conditions of the U.S. Army Corps of Engineers Permit, a copy of which will be provided to the Contractor.
- VEG 10. Adhere at all times to the Water Certification from the California Regional Water Quality Control Board, a copy which will be provided to the Contractor.
- VEG 11. Perform work in streambeds during periods of low water conditions. Contractor will monitor stream flow conditions and weather forecasts at all times during the course of the work. Re-grade and restore disturbed areas to target contours to maintain drainage patterns prior to storms to the extent feasible.
- VEG 12. Temporary use of earthen plugs and excavation berms may be approved by the CO or COR to confine groundwater inflow to construction areas. To the extent feasible, these will be in locations designated on the construction plans. These plugs will be temporary, include a drainage plan, be sufficiently designed to prevent erosion, and prevent changes to natural flow patterns.

- VEG 13. When accessing work locations through meadows and wetlands, plank access route with 1 1/8-inch plywood, stabilization/track mats, pressure mats, or other method approved by the CO or COR.
- VEG 14. If it is not feasible for restoration activities to avoid special status plant species, develop conservation methods. Measures may include salvage of special status plants or seed-containing topsoil for use in revegetating disturbed areas and transplantation of special status plants or relocation of seed-containing topsoil wherever possible using methods and monitoring identified in the revegetation plan, monitoring to ensure successful revegetation, protection of plantings, and replacement of unsuccessful plant materials if practicable.
- VEG 15. Avoid removal or damage to deciduous oaks unless approved by a biologist.

WILDLIFE AND SPECIAL STATUS SPECIES

- WL 1. Sierra Nevada Population of Great Gray Owl (*Strix nebulosa*) Mitigations
- Biologists will conduct great gray owl surveys and nest searches to determine occupancy and nesting status.
 - Apply a limited operating period (LOP), prohibiting vegetation treatments and use of heavy machinery within 0.25 mile of an active great gray owl nest tree during the nesting period (March 1 to August 15). The LOP may be waived or reduced if a biologist determines that a particular action is unlikely to result in breeding disturbance considering the intensity, duration, timing, and specific location of the action.
 - To the extent feasible, maintain all large trees (greater than 24 inches diameter breast height [dbh]), trees with artificial nest structures and nest boxes, and any previously used nest tree.
 - Machinery accessing the meadow for restoration purposes will utilize the existing channel for ingress/egress to the extent feasible in order to reduce impacts to meadow habitat and great gray owl prey.
 - Consult with a biologist when gathering fill downslope of the road at borrow sites 6 and 5 to ensure that nest trees, canopy, and large green trees are adequately retained for owls.
- WL 2. Willow Flycatcher (*Empidonax traillii*) Mitigations
- Biologists will conduct willow flycatcher surveys to determine occupancy and nesting status.
 - Apply an LOP, prohibiting activities that affect vegetation or hydrology within 0.25 mile of active or historic willow flycatcher territories during the nesting period (May 1–to fledging or August 15 if fledge date is unknown). The LOP may be waived or reduced if a biologist determines that a particular action is unlikely to result in breeding disturbance.
 - In meadows with occupied willow flycatcher sites, allow only late-season grazing (after August 15) in the entire meadow (applies only to USFS lands).
 - Maintain as much native riparian vegetation as possible, salvage any willow in the stream channel that will otherwise be lost, and plant willow stakes and rootwads to increase the proportion of young willow.
 - Avoid collecting vegetation materials for beaver dam analogs (BDAs) or other habitat structure in willow flycatcher territories to the extent practicable. If not practicable to entirely avoid the territories, harvest less than 10 percent of annual growth from each individual willow. Elsewhere, harvest less than 20 percent of annual growth from each individual willow, and ensure willows are generally dense from the ground to the top of the plant. Avoid harvest of willows that overhang water features to the extent feasible.
- WL 3. Pond Turtle (*Actinemys marmorata*) Mitigations
- Two weeks prior to all fill activities in the meadow, biologists will survey, trap, and relocate turtles in the gully. Turtles will only be held during restoration activities long enough to transport them out of the project area (one hour or less) and will not be taken into captivity at any point. Turtles will need to be removed daily prior to the start of activities if they

return. If fill activities are in phases, the surveys and relocations should be coordinated two weeks prior and coordinated with each project phase as turtles may travel in between meadows and restoration areas.

- Excavation for meadow fill activities will not take place during the female nesting season (typically June 1–July 1), unless approved by NPS or USFS Aquatic Biologist.

WL 4. Fisher (*Pekania pennanti*) Mitigations

- Biologists will monitor for fisher with camera surveys. If a confirmed fisher detection occurs in the project vicinity, apply an LOP prohibiting vegetation treatments and use of heavy machinery from March 1 to June 30. The LOP may be waived or reduced if a biologist determines that a particular action is unlikely to result in breeding disturbance considering the intensity, duration, timing, and specific location of the action. For example, an activity that will affect less than 10 acres of denning habitat for three days after May 1 and will not remove any large trees.
- Maintain all live conifers greater than 24 inches dbh and hardwoods greater than 20 inches dbh unless the tree is an imminent threat to safety or infrastructure, or is otherwise approved for felling by a biologist. If a large tree (as defined above) needs to be felled, leave 15–20 feet of the thickest part of the trunk on site as a large log, particularly if decay is evident.
- Ensure sufficient habitat exists post-project, including overhead cover, large diameter snags, large diameter down logs, large diameter live conifer and oak trees with decay such as broken tops or cavities, root masses, live branches, and multi-layered vegetation.
- Leave a sufficient number of low-growing shrubs or downed wood to reduce fragmentation, where it is safe to do so.
- Protections During Work:
 - Do not generate noise at night.
 - Project staff will follow posted speed limits and reduce their speed by an additional five mph during dusk and dawn.
 - The Park Wildlife Biologist will teach work crews how to identify fisher. If a fisher is observed near a work area, work will cease immediately, and the Park biologist will be contacted for guidance and will notify the Service to determine if re-initiation of section 7 consultation is necessary.
 - Store all food and garbage in wildlife-proof containers at all times.
 - Cap or screen all pipes, water tanks, pole holes, and fit trenches with escape ramps if they cannot be closed each night to avoid entrapment of wildlife.
 - Allow for the safe passage of fisher through all temporary fencing.

WL 5. The Contractor and Contractor's employees will not feed any animals while on site.

WL 6. Maintain animal escape routes, such as a ramp or incline, from excavated pits and trenches.

Each morning prior to commencing work activities, inspect the site for trapped wildlife in excavation pits and carefully remove, except for California red-legged frog (*Rana aurora draytonii*) and the foothill yellow-legged frog (*Rana boylei*), which will not be captured or handled. Although neither frog species is believed to be on site, if found, immediately contact the CO or COR. Only certified biologists can handle these species.

WL 7. Store all food in wildlife-proof lockers or closed vehicles (i.e., never in an open truck bed) at all times. Place all garbage and recycling into wildlife-proof trash or dumpsters at the end of each day.

WL 8. Screen, cap, or fit all pipes, water tanks, or similar structures with escape ramps to avoid entrapment of wildlife. Allow for safe passage of fisher and other wildlife through fences.

WL 9. If nesting birds are observed (e.g., discovered by workers) that are not special status species, the project manager will notify the NPS/USFS wildlife biologist who will recommend steps to avoid undesirable impacts to the nest or young.

- WL 10. The NPS/USFS will brief the Contractor regarding wildlife concerns at project initiation and periodically throughout the project to avoid activities that are destructive to wildlife and habitats.
- WL 11. During dewatering, completely screen intakes with new wire mesh not larger than 5 millimeters to prevent aquatic species from entering the pump system.
- WL 12. During dewatering, release or pump water downstream at an appropriate rate to maintain downstream flows during construction and not increase downstream erosion.
- WL 13. Drain and flush all pumps, tanks, live wells, buckets, and other containers that will carry water contaminated with exotic plants and animals, such as the zebra mussel, prior to bringing equipment into the project site. Thoroughly wash all hauling tanks and equipment using a hard spray from a garden hose. If equipment was used in infested waters, use the following steps to clean the equipment:
- Wash with hot water (140 degrees Fahrenheit or 40 degrees Celsius) or a high-pressure washer (250 pounds per square inch). Remove all aquatic weeds – they can carry zebra mussels.
 - Disinfect equipment. Recent research shows that disinfection of nets and equipment with benzalkonium chloride at typical treatment rates (10 milligrams per liter for 24 hours, 100 milligrams per liter for three hours, or 250 milligrams per liter for 15 minutes) will effectively eliminate most exotic animals. Two other commonly used disinfectants, calcium hypochlorite and iodine, are ineffective against zebra mussels. Adult zebra mussels can live more than a week out of water in moist, shaded areas. Dry pumps, nets, and other equipment used in infested waters in the sun for two to four days after cleaning. If adult mussels are present, dry equipment for two weeks.
- WL 14. If a special status species is encountered within work areas, work crews will stop all activities in the surrounding area with the potential to harass, injure, or cause death of the individual. For special status species other than foothill yellow-legged frog, NPS/USFS biologist will assess the situation and select a course of action that will avoid adverse effects to the individual. If a foothill yellow-legged frog is encountered, all activity in the surrounding area will stop and the NPS/USFS will contact the U.S. Fish and Wildlife Service (USFWS) for further guidance prior to commencing activities in the surrounding area. Under no circumstance will the Contractor capture, handle, or relocate special status species.

AIR QUALITY

- AIR 1. NPS/USFS and/or a Contractor (as appropriate) will prepare, implement, and comply with a dust abatement program during construction. Measures include, but are not limited to, the following:
- Water or apply soil stabilizers to disturbed areas.
 - When hauling dry friable materials, securely cover truck beds, moisten top of load, or reduce transport speeds to prevent excessive blowing dust or loss of debris.
 - Limit speeds to a maximum of 15 miles per hour within construction areas. Slower speeds will be maintained if necessary to reduce dust formation.
 - Re-vegetate disturbed areas post-construction.
 - At construction zone access points, prevent paved areas from accumulating mud, soils, and other organic materials.
- AIR 2. The NPS/USFS and/or a Contractor (as appropriate) will prepare, implement, and comply with equipment exhaust controls program during construction. Measures include, but are not limited to, the following:
- Minimize idling times by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Provide clear signage for construction workers at all access points.

- Equip all construction equipment, diesel trucks, and generators with Best Available Control Technology for emission reductions of nitrogen oxides and particulate matter.
 - Require all contractors use equipment that meets California Air Resources Board's most recent certification standard for off-road heavy duty diesel engines.
 - Require all equipment operations to occur during daytime hours to minimize effects of local inversions.
 - Ensure all equipment meets all federal and state air emission and performance laws and standards.
- AIR 3. Vehicles or equipment with excessive emissions or discharging black smoke will be removed from operation immediately and may not be used until appropriate maintenance and repairs have corrected the emissions problem.

VISITOR EXPERIENCE

- VEX 1. Waste, trash, and debris will be controlled at all times and disposed in authorized containers in the Contractor's staging area or other approved location by CO or COR, adhering to all park regulations concerning food storage and refuge management.
- VEX 2. Burying or burning of trash and debris on-site is not permitted. All unused materials, trash, and debris will be the property of the Contractor and will be transported outside of the Yosemite National Park and Stanislaus National Forest boundaries for disposal in accordance with law.

TRANSPORTATION

- TRA 1. Contractor will prepare a Traffic Control Plan and submit for approval by NPS and USFS 3 weeks or more prior to project implementation. This plan will include, but not be limited to, the following:
- Maps indicating control and sign locations and briefing on how traffic on any project-affected route will be addressed to minimize effects on normal traffic patterns.
 - Full road closures are not permissible for this project due to the limited access provided by Evergreen Road, rather traffic control will be accomplished through delays and single lane openings as needed.
 - Description of how Contractor will provide for the protection of pedestrians and bicyclists, and safe vehicle passage through the use of signs and flag persons. In addition, address how access for emergency vehicles, police, rangers, fire, and disaster units will be maintained at all times.
 - Furnish and install all signs. Provide flag persons as required.
 - Show measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan will include measures to minimize the amount of mud and dust transported onto paved public roads by vehicles or runoff.
- TRA 2. Traffic control devices (such as all necessary signs, lights, flares, barricades, markers, cones, flagmen, and other protective facilities) will be provided in sufficient quantities and types as required to provide safe and adequate traffic control, be maintained in proper locations and working order, and remain in place at all times required to alert traffic of hazards.
- TRA 3. After hazard has been removed, remove or cover all traffic control devices.
- TRA 4. Traffic control and construction operations will conform to the requirements of California Department of Transportation Standard Specifications, Section 12, except as modified herein.

CULTURAL RESOURCES

- CR 1. The NPS Branch of Anthropology or Stanislaus National Forest Heritage Resource and Tribal Relations Program Manager will review potential contractors for proposed monitoring work on their associated lands. Any field personnel that do not meet Secretary of the Interior standards (i.e., do not have a graduate degree) must have sufficient experience in identifying, documenting, and protecting archeological site types common to the central Sierra Nevada,

particularly the types of sites previously documented in Ackerson Meadow (e.g., flaked-stone lithic scatters, ground-stone milling features and portable tools, middens, faunal remains, historical roads, work camps, logging sites, refuse scatters, ditches, fences).

ARCHEOLOGICAL RESOURCES

- AR 1. An NPS or USFS provided Archeological Monitor, and Tribal Monitor as necessary, will observe all ground-disturbing site work, including construction of temporary facilities at all culturally sensitive areas, from a safe location mutually agreed on by Contractor, CO or COR, and Monitors. As new ground is broken, Monitors will examine excavated materials using construction layout centerline and perimeter staking as a reference point to record locations of findings.
- AR 2. Do not begin ground-penetrating work such as excavation, trenching, drilling, or stump and root removal in culturally sensitive areas without the presence of Archeological Monitor, and if required, Tribal Monitor.
- AR 3. If resources are discovered while Monitors are absent, stop work immediately and report the discovery to the CO or COR.
- AR 4. A weekly work schedule is recommended for all ground-disturbing work occurring within or adjacent to archeologically sensitive areas. The schedule will include:
- A brief description of the nature of the work (e.g., grading, soil excavation, gully filling).
 - Starting and ending dates of ground-disturbing construction.
 - Locations of temporary facilities, such as staging areas, excavation pits, and haul and access roads.
 - Types of construction, such as clearing, topsoil stripping, trench excavation, excavation area excavation, and restoration.
 - Methods and equipment used for each type of construction.
 - Plan for relocating work in the event of inadvertent discovery of substantial archeological materials or items considered under the Native American Graves Protection and Repatriation Act (i.e., NAGPRA items).
- AR 5. Ground-disturbing actions must fall within the area of potential effects (APE) as established in existing tribal and California State Historic Preservation Officer (SHPO) consultation efforts. Any modification to the APE, particularly for the extent (i.e., surface area or depth) of ground disturbance adjacent to archeological sites that have not been evaluated or have a likelihood of containing subsurface materials (e.g., prehistoric sites along the edges of the meadow), will restart associated consultation efforts under the requirements of Section 106 of the National Historic Preservation Act (NHPA). It is the responsibility of the NPS/USFS and any personnel conducting work within the project area to comply with the requirements of NHPA and its implementing regulations in 36 CFR 800.
- AR 6. Archeological site boundaries and associated 20-meter buffers will be included in construction design to facilitate avoidance of substantial, intact, or unevaluated resources. All proposed ground disturbance will be avoided within the site boundaries and the 20-meter buffer, unless approved by a cultural resource specialist. Associated sharing of spatial data will include an agreement that will provide protection of these sensitive data.
- AR 7. The project APE includes ground disturbance within multiple archeological sites determined ineligible for the National Register of Historic Places (NRHP), including: CA-TUO-1751H (Ackerson Meadow portion of the Golden Rock Ditch); roads CA-TUO-6099H, -6100H, and -6104H; ditch CA-TUO-6101H, and ranching/homestead CA-TUO-6163H. It is anticipated that large portions of these resources will be disturbed during the undertaking. Remaining archeological work for these resources will be limited to documentation updates.
- AR 8. Avoid all disturbance to archeological sites not within the APE, particularly historic fence lines and corrals, the barn/garage in the Ackerson Ranch, and any unevaluated sites (e.g., lithic

scatters, stationary milling features, logging camps). In most cases, a 20-meter buffer from site boundaries will be used to delineate where ground disturbance should not occur. In some exceptions, such as access routes next to fence lines or along unevaluated roads that will not be altered by use, this buffer can be eliminated through close coordination with the project archeologist.

- AR 9. For tree felling operations, it is anticipated that the 20-meter buffer may not be enough to avoid sites, though a blanket requirement of substantial additional distance (e.g., 60 meters) to account for the maximum height of trees in the area is not recommended. Instead, felling teams should coordinate with the project archeologist to implement strategies that avoid dropping trees into substantial site areas, particularly on top of or next to stationary milling features. The project area contains many standing snags associated with the 2013 Rim Fire. In cases where trees must be removed for safety purposes (i.e., hazardous to crews), felled logs and slash will be relocated outside of sensitive site areas. Accumulation of large piles of logs and slash will not occur within sensitive site boundaries and must be taken apart and moved in coordination with the project archeologist.
- AR 10. Prior to construction, all sensitive cultural resources to be protected within the project area identified per the requirements of the plans and specifications will be clearly marked with flagging and/or plastic mesh fencing. Proper placement of flagging or fencing will be verified by the project archeologist.
- AR 11. Construction crews are strongly encouraged to concentrate periods of ground-disturbing work in localized geographic areas adjacent to or far from archeological sites to promote efficiency and reduce cost. Archeological Monitors will largely not be present during construction actions that are to occur 50 meters away from sensitive archeological sites, while tribal monitoring needs will be at the discretion of the Tribal Monitor.
- AR 12. The Archeological Monitor will record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis. If the monitor determines that any portion of the Proposed Action could have an adverse effect on the site, alternative methods of accomplishing the action will be discussed with the restoration personnel. Restoration activities within site boundaries will be conducted using manual tools rather than mechanized equipment whenever possible, and no wheeled vehicles used for transport of workers and tools will be allowed within 20 meters of the known site boundary.
- AR 13. If the Archeological Monitor or Tribal Monitor discovers significant resources, immediate relocation of the work to a non-sensitive area may be required to allow the Monitors to take soil samples and record resources. While Monitors are documenting resources in sensitive areas, crews will relocate work to non-sensitive areas.
- AR 14. If a monitor requires access to a construction area, the construction crew will furnish safe access, free from recognized hazards, to enable the monitor to complete his/her duties. This will commonly involve excavation area and gully filling access when surface survey and soil sampling is deemed necessary by the archeologist.
- AR 15. A treatment plan for the inadvertent discovery of historic properties or items addressed in NAGPRA will be incorporated into construction documents. General treatment measures include the following training requirements and specific objectives.
- AR 16. The project archeologist will train all members of the restoration/construction teams in the types of archeological materials that are likely present in the specific project area (including known site boundaries), how to identify archeological materials, and the procedures for contacting the appropriate parties in the event that significant archeological materials are encountered during restoration/construction activities. All restoration/construction personnel conducting ground-disturbing work will be required to participate in the training.
- AR 17. It is anticipated that minor discoveries of cultural materials, such as single or scattered deposits of flaked-stone debitage or historical refuse, will be encountered in work areas. This is

particularly true for work along roadways determined ineligible for the NRHP. Significant findings generally include prehistoric, protohistoric, and historic-era materials such as:

- Any surface or subsurface features (e.g., milling stations, hearths, midden deposits with associated habitation debris, foundations or any other intact structural remains); concentrations of flaked-stone debitage or diagnostic chipped stone tools (e.g., projectile points); concentrations of grinding implements; ornaments or ceremonial materials (e.g., glass beads, tinklers/prisms, ochre); unique items; concentrated deposits of shell or faunal remains; and large concentrations of complete or fragmentary ceramics/pottery, glass, metal, cans and bottles.
- A significant discovery may also be defined in previous archeological research, such as test or data recovery excavations within the same site. These may also be identified in the single site or district-level evaluation of significance, NRHP nomination form or report, or the existing Yosemite National Park and USFS archeological syntheses and research designs. Additional archival research may be necessary to further clarify the significance of the finding.

AR 18. If a significant discovery occurs during monitoring or as part of an inadvertent finding, work at or adjacent to the discovery will cease and the NPS will be immediately notified by calling the Yosemite National Park Branch of Anthropology. The area of the work stoppage should be adequate to provide for the security, protection, and integrity of the discovery. Protection measures include:

- Halting work within 10 meters of the finding.
- Notify the site or area crew lead and associated equipment operators.
- Place flagging, fencing, plating, or other markers to ensure the area is protected from damage by construction vehicles or personnel.
- Carefully remove vehicles and equipment within the immediate area surrounding the discovery.
- In most cases, the Field Archeologist and/or Tribal Monitor will dictate when work may resume in that location after they have evaluated the materials and offered recommendation for further site protection, if necessary.
- In rare cases, the Yosemite National Park Branch of Anthropology will provide direction on measures to perform longer-term site protection and potential additional archeological work that may require prompt consultation with tribal partners and the California SHPO in accordance with 36 CFR 800.13 (Protection of Historic Properties: Post-review discoveries). The archeological resource will be assessed for its eligibility for listing on the NRHP, and a determination of the project effects on the site will be made.

AR 19. In cases where ground disturbance will occur in portions of an unanticipated site that contribute to its significance, or surface survey data are not adequate to determine if the associated portion of the site is significant or not, an archeologist will provide controlled subsurface archeological survey and associated protection and collection of archeological materials in close coordination with the Yosemite National Park Branch of Anthropology. Based on the results of these investigations, a determination of the significance of the cultural materials in the proposed work area will be assessed.

AR 20. In some cases, the archeological work may be sufficient to identify that no additional significant cultural materials are in the work area, or those materials have been removed as part of controlled archeological investigations, and no archeological monitoring during further construction is necessary. In other cases, construction will move forward if Archeological and Tribal Monitors are present to address any potential additional significant findings within a site.

AR 21. If the site will be adversely affected, a treatment plan will also be prepared as needed during the assessment of the site's significance. Treatment plans will fully evaluate avoidance, project

redesign, and data recovery alternatives before outlining actions proposed to resolve adverse effects.

- AR 22. If human skeletal remains, associated funerary objects, or items of cultural patrimony are encountered, protocols under federal and state law will apply. All work will stop in the vicinity of the discovery, and the find will be secured and protected in place. The appropriate county coroner (Tuolumne), NPS and USFS Archeologists, and NPS/USFS project manager will be immediately notified. If analyses determine that the remains are American Indian, and that no further coroner investigation of the cause of death is required, the coroner will then be required to contact the Native American Heritage Commission (pursuant to Section 7050.5[c] of the California Health and Safety Code) and the County Coordinator of Indian Affairs. The remains will also be treated in accordance with the NAGPRA Regulations at 43 CFR 10.4 (Inadvertent Discoveries). This will require a stoppage of work in the area of work for a minimum of 30 calendar days.
- AR 23. The NPS and traditionally-associated American Indian tribes and groups will continue to collaborate on resources management and historic preservation activities during planning and implementation of the project. This includes assessing the potential for adverse effects to historic properties with traditional religious and cultural significance and attempting to avoid adverse effects to these resources.
- AR 24. A permit is required for any subsurface archeological investigations (e.g., excavation, shovel testing, coring, monitoring of construction) carried out on parklands by non-NPS personnel, unless carried out under a contract or a cooperative agreement specifically written for archeological investigations. Permits are issued under the Archeological Resources Protection Act of 1979. Applicants should submit a permit application to the Yosemite National Park Branch of Anthropology for coordination with the NPS regional archeologist. The NPS does not issue a permit for archeological investigations carried out by NPS archeologists, overseen by NPS archeologists, or to archeologists working on NPS archeological projects under a contract or cooperative agreement.
- AR 25. Archeological site documentation and evaluation efforts will be conducted or overseen by a person meeting the Secretary of the Interior's professional qualification standards per 36 CFR Part 61.
- AR 26. Tribal Monitors must be incorporated into all project planning communication, especially as part of weekly look ahead documents for ground-disturbing work and any construction delays or modifications. Professional standards for Tribal Monitors have not been developed. However, each tribal government may have their own standards and training requirements.
- AR 27. Tribal members will monitor a variety of resources and practices during construction and their work is not limited to archeological sites.

RANGE RESOURCES (USFS lands only)

- RR 1. Project fences must be constructed and maintained to USFS standards. Any range infrastructure that is damaged during project implementation will be repaired to USFS standards.
- RR 2. Temporary fences will be completely removed when no longer needed.
- RR 3. Develop an annual implementation schedule each year prior to project implementation. Share annual implementation schedule with USFS range staff at least two weeks prior to the permitted on-date for the Middle Fork allotment (June 1). This schedule will be used to provide advance notice to grazing permittees of planned activities that may affect the grazing operation.

REQUIREMENTS FOR NOXIOUS WEED ERADICATION (HERBICIDES) – USFS ONLY

General

- HH 1. Inspect sites prior to herbicide application to ensure that no one is present who is not officially participating in the application process.

- HH 2. Post signs after application, identifying the date of treatment, herbicide applied, contact name and phone number.
- HH 3. Restrict access into the treated areas until the liquid herbicide solution has dried.
- HH 4. Follow all label requirements for personal protective equipment (PPE). Use the following minimum protective clothing, unless specified otherwise on the label. This includes: coveralls over shirt and pants, socks, boots, safety glasses or goggles, hard hats and chemical resistant gloves. All clothing will be clean at the start of the day. Change clothing and clean the skin with soap and water if the herbicide mixture penetrates the clothing.
- HH 5. Provide soap and clean water at the work site. Wash with soap and water immediately after contact with the herbicide mixture. Wash with soap and water before eating, smoking, or going to the bathroom.
- HH 6. Apply herbicides only when meteorological conditions are suitable (heat, wind speed and direction, humidity, and precipitation), as defined on the label.

Aquatic Species

- HH 7. Do not refill individual herbicide backpacks within 25 feet of any stream with surface water, unless otherwise approved by an Aquatic Biologist.

Cultural Resources

- HH 8. Spot apply noxious weed treatments within prehistoric site boundaries, as long as the herbicide does not affect the use of resources by Native Americans. Hand pull noxious weeds within traditional gathering areas, unless otherwise approved by the Forest Archeologist/Forest Tribal Liaison.
- HH 9. Place signage, indicating application date and herbicide name, on-site once herbicide treatments begin and leave on-site for 30 days after application ends. Additionally, place a map at the Tuolumne Rancheria Tribal Hall indicating where and when areas were sprayed.

Range

- HH 10. Notify a range specialist at least eight weeks in advance of application if withholding of grazing is recommended by herbicide product label.

Watershed

- HH 11. Mixing and loading will be done in areas where accidental spills will not contaminate streams or other water.
- HH 12. Use only aquatic-approved formulations of herbicides in wetlands.
- HH 13. Maintain a 10-foot no-spray buffer on water for all non-aquatic herbicide formulations.
- HH 14. Aquatic-approved herbicides may be applied up to the waterline, but not in water.
- HH 15. When rimsulfuron, glyphosate, or imazapyr is applied with a low boom, increase no-spray buffer to 100 feet from water.
- HH 16. To the extent feasible, treatment in wetlands and riparian areas will occur during dry season and/or low water levels.

Wildlife

- HH 17. If herbicide spraying occurs in willow flycatcher territories during the LOP (May 1–August 15), crews will limit the number of people and time spent within 0.25 mile of willow flycatcher territories.

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**ATTACHMENT B:
ERRATA SHEETS FOR THE ACKERSON MEADOW
RESTORATION ENVIRONMENTAL ASSESSMENT**

The following list includes clarifications or corrections to the environmental assessment (EA). None of the corrections listed below substantially affects the analyses or conclusions of the effects in the EA.

Page 2-10: Table 2.5, *Note: The extent of open-water unvegetated pond surfaces for both alternative 1 and 3 would be increased if up to 10 small off- or on-channel ponds are included within the designs to enhance wildlife habitat.

Page 3-17: Alternative 1 restores and rewets the largest area of wetlands and re-creates long-term self-sustaining wetland function to roughly ~~160~~ 190 acres of existing and former wetlands by extending connectivity of sheetflow and shallow swale hydrology throughout the floodplain of the Ackerson Meadow complex.

Page C-8: Because glyphosate binds strongly to soils, it is unlikely to enter waters through surface or subsurface runoff except when the soil itself is washed away by runoff, and even then, it remains bound to soil particles and unavailable to plants (Rueppel et al. 1977; ~~Malik et al. 1989~~ Tu et al. 2001).

Page C-18: ~~Malik, J., G. Barry, and G. Kishore. 1989. The herbicide glyphosate. BioFactors. Mar 2(1):17-25. PMID: 2679650. PubMed.gov Website.~~ Tu, M., Hurd, C. & J.M. Randall. 2001. Weed Control Methods Handbook, The Nature Conservancy, <http://tncweeds.ucdavis.edu>, version: April 2001

Page C-9: The adsorption of imazapyr to soil particles is generally weak but can vary depending on soil properties (~~Mangels 1991~~ Tu et al. 2001). Adsorption is reversible, and desorption occurs readily (Anonymous 1994). Because the exact chemical form of the herbicide is determined by environmental pH, the adsorption capacity of imazapyr changes with soil pH. A decline in pH below five increases adsorption of imazapyr to soil particles. Above pH five, imazapyr becomes ionized, increasing its negative charge, and limiting its ability to bind with soils (~~Mangels 1991~~ Tu et al. 2001).

Page C-18: ~~Mangels, Gary 1991 AQUATIC ENVIRONMENT. The Imidazolinone Herbicides: 183. Google Books Website.~~

Page 2-2: This would enhance habitat for rare amphibians such as the California red-legged frog (*Rana draytonii*), ~~Southern mountain yellow-legged frog (*Rana muscosa*)~~, and Sierra Nevada yellow-legged frog (*Rana sierra*).

Page 2-8: Bolded text added to following paragraph: These areas were strategically chosen because the majority of the areas lack large, live green trees (e.g., they are primarily remnant high-intensity burn areas from the 2013 Rim Fire), they avoid archeological, wildlife, and other resources, and are within an accessible haul distance from the restoration area. **The same site selection criteria would be applied if the boundaries of the excavation sites require refinement.** Any areas that do include large live green trees would be avoided to the extent feasible, and all large trees (greater than 24 inches diameter breast height [dbh]), trees with artificial nest structures and nest boxes, and any previously used nest tree would be maintained.

Page 3-27: Federally listed species that have the potential to occur in the project area, based on known ranges and habitats, but for which no presence data in the project area exists are the Yosemite Toad (*Anaxyrus canorus*), California red-legged frog, ~~Southern mountain yellow-legged frog~~, Sierra Nevada yellow-legged frog, and Southern Sierra Nevada Distinct Population Segment of Fisher (*Pekania pennanti*) (hereafter, fisher)(Table F-1 in Appendix F). The range of the Delta smelt (*Hypomesus transpacificus*) (threatened) is too far from the project area to be considered for this project and the species has never been documented in the project area.

Page 4-1: The following text has been added to the USFWS section: Consultation with the USFWS regarding concurrence on a “may affect, not likely to adversely affect” determination for the California red-legged is ongoing.

Note: The signed Wilderness Minimum Requirements Analysis (Appendix G of the EA) is available upon request or can be found on the NPS PEPC website.

**ATTACHMENT C:
DETERMINATION OF NON-IMPAIRMENT**

ACKERSON MEADOW RESTORATION ENVIRONMENTAL ASSESSMENT

August 2021

This document evaluates and determines whether the Selected Action in the *Ackerson Meadow Restoration Environmental Assessment* will result in impairment to park resources or values. This evaluation is directed by provisions of the National Park Service (NPS) Organic Act of 1916 (16 U.S. Code, Section 1) and the NPS General Authorities Act of 1970 (16 U.S. Code Section 1A-1), including 1978 amendments. Per NPS *Management Policies* (2006) Section 1.4.5, an impact is more likely to constitute impairment when it affects resources and values whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified as significant in the park's general management plan or other relevant NPS planning documents

An impact is less likely to constitute impairment when it is an unavoidable result of a necessary action to preserve or restore the integrity of park resources or values and it is not possible to mitigate the effects. Park resources and values subject to the no-impairment standard include:

- the scenery, natural and historic objects, and wildlife of the park, and the processes and conditions that sustain them. This includes, to the extent present in the park, the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals.
- appropriate opportunities to experience enjoyment of the above resources without impairing resources.
- the park's role in contributing to the national dignity, the high public value and integrity, the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system.
- additional attributes encompassed by the specific values and purposes for which the park was established.

Description of Park Purpose and Significance

In 1864, the U.S. Congress passed landmark legislation that granted to the State of California the Yosemite Valley and the Mariposa Big Tree Grove (Act of June 30, 1864, 13 Stat., 325). Both areas were set aside “. . . for public use, resort, and recreation . . . inalienable for all time.” In fall of 1890, Congress created Yosemite National Park, directing the Secretary of the Interior to provide for the “preservation from injury of all timber, mineral deposits, natural curiosities, or wonders ... and their retention in their natural condition (26 Stat. 650).” The act excluded Yosemite Valley and the Mariposa Big Tree Grove, leaving them under the jurisdiction of the state of California. A Joint Resolution of congress in June 1906 accepted the transfer of Yosemite Valley and the Mariposa Big Tree Grove from the state of California to the federal government, subject to the provisions in the 1890 act.

Amending The 1980 Yosemite General Management Plan

In 1980, the NPS completed a *General Management Plan* (1980 GMP) for Yosemite. The plan has five broad goals:

- Reclaim priceless natural beauty
- Markedly reduce traffic congestion
- Allow natural processes to prevail
- Reduce crowding
- Promote visitor understanding and enjoyment

In 1984, the California Wilderness Act (98 Stat. 1632) officially designated segments of the Tuolumne River in Yosemite National Park as components of the national wild and scenic rivers system. The designated segments of the river include 54 of the 62 miles of the river within the boundaries of Yosemite National Park, including both of the river's primary forks, the Dana and Lyell Forks, but excluding the 8-mile segment through Hetch Hetchy Reservoir.

Non-Impairment Determinations for the Selected Alternative

Under guidelines promulgated by the October 2011 NPS National Leadership Council, Memorandum L7615 (2310), non-impairment determinations must include a discussion for each impacted resource analyzed in detail within the *Ackerson Meadow Restoration Environmental Assessment (EA)*. The discussion should pertain to park resources and values. Per the guidelines, it is not necessary to include visitor experience, socioeconomics, public health and safety, environmental justice, land use, park operations, or similar topics or concerns in the impairment discussion.

Biotic Environment –Vegetation, Rare Plants, Wetlands and Floodplains, Soils, Hydrology, Water Quality

Vegetation

It is anticipated that the vegetation community composition and type within the restored and rewetted areas will transition over time shifting from upland species to a predominance of wet meadow species. Overall, the Selected Action replanting plan will enhance native vegetation recovery on disturbed sites, inhibit invasive species, and provide erosion control. This will be a long-term beneficial impact on the vegetation in the meadows and the excavation areas and will not impair the purpose, mission, and significance of the park.

In order to minimize the risk of introduction and/or spread of invasive plants, the NPS will follow guidelines outlined in the park's Invasive Plant Management. The meadow, as well as roadways, excavation areas, and staging areas will be surveyed for invasive plants and treated annually before, during, and after restoration activities.

In order to minimize the loss of mature willows resulting from the Selected Action, willows will be stockpiled (and maintained), and later installed on the restored meadow surface. There will be short-term impacts (approximately three years) until the willow root wads and tops resprout and achieve pre-disturbance stature. The Selected Action will re-water 12 acres of willows by enhancing sheetflow and shallow swale hydrology encouraging new willow growth and spread.

The Selected Action also includes the removal of conifers (predominantly snags and green trees less than 24 inches in diameter) in up to 30 to 40 acres for soil excavation. Green trees greater than 24-inch diameter, as well as select smaller diameter trees and snags will be retained and avoided during excavation activities to the extent feasible. Grading to natural contours, topsoil replacement, and revegetation will mitigate the impacts of soil removal and long term revegetation in these areas is likely.

Rare Plants

Five sensitive or special status herbaceous species exist within the project area, and only two species within the planned disturbance footprint. The overall population size of slenderstem monkeyflower and yellow-lipped monkeyflower in the meadow is expected to diminish with the change in saturation and from direct disturbance, but will continue to occur, and likely proliferate outside of heavily saturated sites. Overall, the Selected Action will affect individuals of both monkeyflower species, but it is not likely to result in a trend toward federal listing or loss of viability for the species in the project area. The Selected Action will not affect Small's southern clarkia and mountain lady's slipper. Monkeyflower seed is likely to survive through the ground-disturbing activities. Salvaging the topsoil where these species are known to occur and redistributing it at the surface will preserve the seedbank and allow plant regeneration post-restoration. Beneficial effects to monkeyflowers are expected from treatments of non-native annual grasses associated with the Selected Action.

Wetlands and Floodplains

The Selected Action will restore and re-wet wetlands and re-create long-term self-sustaining wetland function to roughly 190 acres of existing and former wetlands by extending connectivity of sheetflow and shallow swale hydrology throughout the floodplain of the Ackerson Meadow complex. This will enhance habitats for at-risk wildlife species, improve ecosystem resilience to climate change, and support natural wetland plant communities, including plant resources important to local native tribes. While wetland function and vegetation will be disrupted and lost during construction, overall, the project will create and restore wetland resources and will not impair the purpose, mission, and significance of the park.

Soils and Geology

Yosemite is an outstanding example of major stages of the earth's geologic history and the geologic processes that formed the Sierra Nevada. The park encompasses geologic features including high alpine peaks, sheer cliffs, massive granite domes, expansive wilderness, and mid-elevation alpine meadows. Yosemite Valley contains three of the largest exposed granite monoliths in the world – El Capitan, Half Dome, and Mount Watkins. The Selected Action in the *Ackerson Meadow EA* will not materially affect the world-renowned geological formations of Yosemite National Park.

Under the Selected Action, approximately 106,000 cubic yards of fill will be removed from nearby uplands and used to fill the existing 28-acre gully. The post-restoration filled meadow surface will have variable compaction and erosion concerns, requiring protection by plantings, seeding, erosion control blankets, sedge mats, and covered by litter and duff. The Selected Action will spread runoff across the new meadow surface, and thus promote recovery of water deficit as the soil pores are filled with groundwater (e.g., the soil sponge). Although the soil removal from up to 40 acres of uplands is irreversible, soil productivity and effects to vegetation will be partially mitigated by recontouring, decompaction, topsoil salvage and replacement, erosion control, and revegetation. Any sustained compaction from equipment use along the access routes despite use of track mats will be mitigated by deep ripping. The Selected Action will recreate wetland soil functions and impacts to soils in the fill areas will be mitigated to the extent possible and will not impair the purpose, mission, and significance of the park.

Hydrology

Ackerson Meadow hydrology is dominated by a gully incision roughly 8 to 10 feet below the meadow surface. The natural course of shallow swales on the meadow surface are intercepted by the gully and headcut upstream, further advancing the incision throughout the meadow area. This further exacerbates soil loss from erosion and the declining water table, further drying the site.

The Selected Action will have a positive impact on surface water, groundwater, and water quality. The Selected Action eliminates flowing surface water within the existing gully and re-creates a dominance of sheetflow and shallow swale hydrology. Spreading and dispersing runoff from a single thread to multiple

threads and sheetflow allows runoff to percolate into the soil surface, thereby enhancing available groundwater and standing water within wetlands. Hydrologic conditions created by the Selected Action will be reflective of those that sustained the meadow for millennia before disturbance by humans. Therefore, the project will benefit the hydrology in the region and will not impair the purpose, mission, and significance of the park.

Water Quality

Due to the extent of equipment activity in the Selected Action, there is potential for minor petro-chemical impacts to water quality. Contamination control measures at the fueling and maintenance station will be implemented. Water quality may also be at risk from the use of herbicides. A detailed analysis of potential impacts to water quality from herbicides can be found in Appendix C of the EA. The analysis indicates that impacts to water quality would be minimal and concentrations of the herbicides in water will remain below the Maximum Contaminant Levels as defined by the California Regional Water Quality Control Board.

Implementation of management requirements designed to protect water quality will minimize the risk of impacts from herbicides and petro-chemicals. The Selected Action will eliminate the existing gully feature and headcuts, which will eliminate sources of erosion, sedimentation, and turbidity, and thus enhance water quality and will not impair the purpose, mission, and significance of the park.

Wildlife and Special Status Species Wildlife

Wildlife

Wildlife habitat in and around the Ackerson Meadow complex primarily consists of montane meadow, riparian habitat, and mixed conifer and mixed hardwood communities. While they account for only about one percent of the land cover in the entire Sierra Nevada, montane meadows and associated riparian communities provide habitat for approximately 20 percent of the 400 terrestrial vertebrate species that inhabit the region.

Under the Selected Action, restoration activities, human presence, and associated project noise will potentially eliminate or temporarily displace wildlife from the project area and immediate vicinities, including Migratory Bird Treaty Act (MBTA) protected bird species and other special status species. Individuals of the smaller, less mobile and burrowing species will potentially be killed by restoration equipment. Substantial areas of forested and meadow habitat will remain unaffected in the immediate vicinity of the project area, allowing temporary refuge for wildlife during restoration. In addition, operations that may affect sensitive wildlife, such as breeding birds, will occur outside of the avian nesting season to reduce breeding impacts.

Prior to restoration activities, non-native trout will be caught and removed from the project area, thereby reducing predation pressure on native amphibian species. In addition, following restoration activities, the project area will be monitored for invasive species that will have the potential to occupy the Ackerson Meadow complex, such as American bullfrog, and any occurrences will be removed.

Potential impacts from proposed herbicide application for noxious weed eradication under the Selected Action were assessed based on the probable or reasonably expected concentrations encountered following herbicide application as well as a worst-case or spill scenario. A detailed assessment of proposed herbicide concentrations and methods concluded that there will be a low risk of exceeding toxicity levels for wildlife, including reptiles, amphibians, birds, and mammals, based on the proposed application rates and methods.

While some local, short-term, construction-related effects to wildlife resources will occur, implementation of standard mitigation measures will reduce the potential for disturbance and harm to wildlife. Wildlife species that wholly or partially rely on wetland and riparian habitats for breeding, foraging, and other life functions will have a long-term benefit under the Selected Action from an increase in available habitat. The project will benefit wildlife resources and will not impair the purpose, mission, and significance of the park.

Special-Status Species

Special status wildlife species include those species listed, proposed, or candidates for listing as endangered or threatened under the Federal Endangered Species Act or California Endangered Species Act, United States (U.S.) Forest Service Sensitive Species and Management Indicator Species, and other special status species as recognized by the U.S. Fish and Wildlife Service (USFWS) or California Department of Fish and Wildlife. A complete list of special status species potentially occurring in the project area is included in Appendix F of the EA. Although multiple federally listed species have the potential to occur in the project area, no federally listed species are known to occur in the project area. The USFWS approved a Programmatic Biological Opinion to address management activities on project lands within the current range of the special-status species.

Short-term restoration disturbances under the Selected Action will result in temporary adverse habitat impacts. In the long-term, the Selected Action will have an overall beneficial impact on wildlife habitats and populations in the Ackerson Meadow complex. This will be achieved by the restoration and improvement of pre-existing wetland and riparian habitats, reconnecting of the natural hydrologic system of the project area to maintain those habitats, and monitoring/control of invasive species. Therefore, although the Selected Action may affect individual sensitive and special-status species, it is not likely to result in a trend toward federal listing or loss of viability for any special status species and will not impair the purpose, mission, and significance of the park.

Cultural – Archeological and Tribal Cultural Resources

Archeological Resources

The Selected Action, particularly the identification of potential soil excavation areas, was developed to avoid archeological site boundaries, especially any resources that contain a subsurface component. The Selected Action will include ground disturbance within six archeological sites that are not eligible for listing in the National Register of Historic Places (NRHP). The soil excavation areas will avoid all known archeological sites that have not been evaluated, including a 20-meter buffer, within the meadow restoration areas and access routes. Archeological site boundaries and associated 20-meter buffers will be included in construction design to facilitate avoidance of substantial, intact, or unevaluated resources. During all ground disturbance activities, an archeological monitor will be on site in case of an inadvertent discovery. If during construction previously unknown archeological resources are discovered, all work in the immediate vicinity of the discovery will be halted until the resources could be identified and documented and, an appropriate mitigation strategy developed.

The Selected Action will result in no adverse effects on archeological resources, with mitigation and avoidance measures in place. The Historic Ackerson Ranch is located within the area of potential effects (APE) of the Selected Action. The site will be treated as eligible for the NRHP and these resources will be avoided during the undertaking. The Selected Action will preserve and protect cultural resources and will not impair the purpose, mission, and significance of the park.

Tribal Resources

Ackerson Meadow is located within the traditional ethnographic boundaries of the Central Sierra Miwok (i.e., Me-Wuk) people. Historical and traditional accounts acknowledge that the Paiute groups also used these lands, particularly Hetch Hetchy Valley. Consultation with interested Native American tribal organizations and review of the existing literature has revealed no known ethnographic villages or other properties of cultural and religious significance associated with this location.

The Selected Action will not result in impairment of American Indian traditional cultural resources, including tribally identified, eligible, and listed NRHP properties. Traditional use sites and features important for maintaining cultural and spiritual traditions will not be altered. The NPS will continue to consult with traditionally associated American Indian tribes and groups throughout project implementation to ensure

that historic properties with religious and cultural significance are not adversely affected.

Grazing

Livestock grazing does not take place within Yosemite National Park, but does occur on adjacent U.S. Forest Service land.

Wilderness

The Wilderness Minimum Requirements Analysis (Appendix G of the EA) provides a detailed analysis of evaluation of impacts to wilderness and determination of minimum tool necessary to protect wilderness character. Under the Selected Action, fill will be placed in the wilderness at Main Inlet Creeks and South Ackerson; there will be no action at South Inlet Creeks. Approximately 75 percent (52 of 70 acres) of South Ackerson Meadow became part of the Yosemite Wilderness in 1984. The wilderness character of South Meadow is unavoidably affected by land uses and management practices in adjacent non-wilderness, including fire suppression and commercial grazing. Because human causation of the current degraded condition is evident, and the full fill method has been proven to be effective in similar meadows, the return of natural conditions and elimination of the threat from headcuts in South Ackerson Meadow will benefit wilderness character as a whole. Despite large impacts to the untrammled and undeveloped qualities, the effect on wilderness character for the Selected Action will be beneficial and will not impair the purpose, mission, and significance of the park.

Finding

With implementation of the Selected Action, there are no foreseeable impacts that will result in unacceptable impacts to any park resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park, (2) key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or (3) identified in the 1980 Yosemite General Management Plan or other relevant NPS planning documents as being a significant resource.

Based upon the analysis contained in the *Ackerson Meadow EA*, consultation required under section 106 of the National Historic Preservation Act, consultation with the USFWS, input from subject matter experts and others with relevant knowledge or experience, and consideration of the results of civic engagement and public involvement, it is the Superintendent's professional judgment that implementation of the Selected Action will result in no impairment of the purpose, mission, and significance of the park.