

ATTACHMENT A: MEASURES TO MINIMIZE ENVIRONMENTAL HARM

The National Park Service (NPS) places a strong emphasis on measures to avoid, minimize, or mitigate potential environmental impacts. The Wilderness Stewardship Plan / Final Environmental Impact Statement (WSP/FEIS) for Sequoia and Kings Canyon National Parks (SEKI or the parks) incorporates mitigations to protect wilderness character and natural and cultural resources. Mitigations are considered part of plan implementation, and must occur prior to, during, or after project implementation. In addition to the following measures, there are wilderness-specific mandates, policies, restrictions, and regulations (as summarized in appendix F of the WSP/FEIS) that are required to preserve wilderness character. Those requirements are not listed here.

Action	Responsibility
MEASURES TO PROTECT WILDERNESS CHARACTER AND NATURAL RESOURCES	

Measures to Protect Vegetation, Soils, Water Quality, and the Visitor Experience

Manure will be removed from within 100 feet of core camping and tie-up areas and scattered on dry terrain. The core camp is defined as that area within 100 feet of the fire ring or cooking area.	SEKI, Concessioners, CUA holders, Partners
Manure will be scattered whenever encountered, particularly in or near water. Manure piles will be removed from water whenever possible. Manure that accumulates at riding break areas will be scattered.	SEKI, Concessioners, CUA holders, Partners
After stock have grazed or have been held in an area, the area will be inspected and all manure piles will be scattered.	SEKI, Concessioners, CUA holders, Partners
Measures that give stock an opportunity to urinate and defecate away from water (e.g., stop to let them urinate before leading them to water to drink) will be taken.	SEKI, Concessioners, CUA holders, Partners
At park parking areas and trailheads, all manure will be removed.	SEKI, Concessioners, CUA holders, Partners
California or Nevada certified weed-free forage (baled or loose hay, hay cubes, or straw bedding) is required when hay products are used as supplemental forage or bedding in the frontcountry. This requirement will be included in pack station concession contracts and commercial use authorizations.	SEKI, Concessioners, CUA holders, Partners
Feed carried into wilderness will be commercially processed pellets, rolled grains, or fermented hay. These products have a high level of mechanical milling, heat treatment, and/or anaerobic fermentation that destroys seeds. Baled or loose hay and compressed hay cubes, which have little to no processing, will not be allowed in wilderness. This applies to all users: administrative, commercial, and private.	SEKI, Concessioners, CUA holders, Partners

Action	Responsibility
Stock users will be encouraged to purge their animals for three days on pellets, rolled grains, fermented hay, or certified weed-free forage prior to entering the parks.	SEKI, Concessioners, CUA holders, Partners
As a desired practice, stock will be inspected and cleaned by handlers prior to entering the parks, or prior to moving from frontcountry to wilderness within the parks, to remove any plant parts, seeds, or soil that may have adhered to animals, tack, or equipment.	SEKI, Concessioners, CUA holders, Partners
Packers will handle loads and tack in such a way as to avoid picking up plant parts, soil, or mud. This desired practice will be included in pack station concession contracts and commercial use authorizations. Private stock users will be informed of this practice through outreach and education.	SEKI, Concessioners, CUA holders, Partners
Manure that accumulates in corrals will be removed from the parks and not stockpiled or burned within the parks. This requirement will be included in pack station concession contracts.	SEKI, Concessioners, CUA holders, Partners
As a desired practice, NPS administrative corrals and concessioner pack stations will be kept free of invasive plants within a 50-foot buffer of the facility.	SEKI, Concessioners, CUA holders, Partners

Measures to Protect Vegetation, Soils, and Water Quality

The Ash Mountain helibase and frontcountry helispots will be kept free of invasive plants within a 50-foot buffer of the facility to reduce the risk of contaminating clothing, shoes, gear, and external loads. Cargo nets will be inspected and cleaned after use, particularly after use outside the parks or in low elevations.	SEKI, Partners
Helicopter users will be responsible for inspecting and cleaning their gear, clothing, boots, and external load items for plant seeds, plant parts, and caked dirt and mud before loading. Helitack staff will inspect and clean helicopter skids.	SEKI, Partners
Heliport staff will track helicopter landing sites and cargo net drops and provide locations to a designated contact annually. Invasive plant, heliport, and wilderness ranger staff will work together to survey for new introductions and control invasive plants in wilderness helispots.	SEKI, Partners
Trailheads will be inspected for invasive plants and kept weed-free. Invasive plant staff will work with trailhead rangers and trail crews to inspect for and remove invasive plants.	SEKI
When travelling from frontcountry to wilderness; from lower to higher elevations; from areas of known weed infestations (communicated in training); or to or from meadows, riparian areas, or other wetlands; wilderness users will be instructed to inspect, remove, and properly dispose of plant seeds, plant parts, and caked dirt and mud found on clothing, boots, tools, and camping equipment.	SEKI, Concessioners, CUA holders, Partners

Action	Responsibility
Invasive plant staff will strive to train all parks personnel in invasive plant identification, early detection, and reporting.	SEKI
A monitoring system is employed to track use, document conditions, and provide information for preventing and mitigating impacts from stock grazing. The monitoring program takes into account variation in annual climate, the characteristics of specific forage areas, and the inherent abilities of different species to withstand grazing and trampling pressure. The strategy for managing stock use is designed to prevent significant impacts to meadows through implementation of multiple complementary monitoring protocols and a suite of adaptive management tools.	SEKI
Where possible, crews will use established stock camps, trail crew camps, and backpacker camps. When a project requires that a new site be established for crew camping, appropriate Resource Management and Visitor Protection subject matter experts will be consulted regarding camp selection. Paramount in selecting a new site will be the ability to restore the site once the work project is completed and the camp is no longer needed.	SEKI
Park staff will use scrim, a coarsely woven fabric, or other protective coverings to protect vegetation where concentrated activities (such as administrative camps) will otherwise be likely to have long-term adverse impacts on ground cover.	SEKI
Projects will avoid in-stream work when possible. If in-stream work is required, activities will be coordinated with NPS hydrologists and compliance specialists.	SEKI
When new raised causeways are required to prevent increasing trail associated resource impacts or to provide adequate trail footing, these causeways will be constructed so as to minimize the effects on natural hydrologic processes, in consultation with a NPS hydrologist.	SEKI
Management actions will be taken to return campsites in out-of-standard areas to within standard including: increased education to the public in specific areas; increased ranger patrols to achieve compliance; rehabilitation of impacted areas, site-specific actions such as modifying sites to render them uninviting to camping or implementation of site specific short- or long-term closures to camping; changing group size, night limit, or campfire restrictions; reduction of commercial visitor services in out-of-standard areas; and changing trailhead quotas.	SEKI

Measures to Protect Wildlife (Including Special Status Wildlife)

Park staff, concessioners, CUA holders, and partners will comply with food storage, garbage disposal requirements, and the proper treatment of human waste at all times.	SEKI, Concessioners, CUA holders, Partners
Camping by humans, and grazing and pasturing by stock will be carefully managed, and in some areas prohibited, in meadows and other aquatic areas where the Northern Distinct Population Segment of the mountain yellow-legged frog, Sierra Nevada yellow-legged frog, and the Yosemite toad are breeding or using the area in large numbers.	SEKI

Action	Responsibility
Park staff, concessioners, CUA holders, partners, and visitors will be educated about how to avoid impacting the mountain yellow-legged frog, and encouraged to exercise caution when they encounter the animal.	SEKI, Concessioners, CUA holders, Partners
The parks will provide the USFWS with a copy of the annual Stock Use and Meadow Monitoring field reports within ten (10) working days of completion.	SEKI
The parks will provide the USFWS with a copy of any scientific or management report completed on the three listed amphibians and activities included in the WSP within ten (10) working days of issuance.	SEKI
Proposed trail realignments in proposed or designated critical habitats will require review by NPS biologists or ecologists.	SEKI
Existing trails that go through or near meadows used by the Yosemite toad may be rerouted away from those meadows.	SEKI
Park staff, concessioners, CUA holders, partners, and visitors will be educated about how to avoid impacting the Yosemite toad and encouraged to exercise caution when they encounter these animals.	SEKI, Concessioners, CUA holders, Partners
Monitoring will be used to determine if effects of visitor use on the Yosemite toad or its habitat are approaching unacceptable levels; visitor use will be adjusted in Yosemite toad habitat to prevent or mitigate degradation.	SEKI
Existing trails that run immediately adjacent to waters used by the mountain yellow-legged frog may be rerouted away from these areas.	SEKI
New Class 1 trails may be designed to avoid running immediately adjacent to waters used by the mountain yellow-legged frog.	SEKI
If monitoring detects habitats used by the mountain yellow-legged frog as being degraded due to overuse from stock grazing and/or hiker and stock traffic, visitor use restrictions will be changed to prevent or mitigate degradation.	SEKI
Off-trail travel may be limited near certain mountain yellow-legged frog populations to reduce the potential of trampling.	SEKI
New Class 1 trails will be constructed in a manner that minimizes opportunities for people to approach bighorn sheep from above or constructed completely outside of bighorn sheep habitat.	SEKI
Educational efforts cautioning park staff, concessioners, CUA holders, partners, and visitors not to directly approach bighorn sheep will be increased.	SEKI, Concessioners, CUA holders, Partners
Helicopter use in bighorn sheep habitat will be scheduled to avoid sensitive periods (e.g., lambing season) and will avoid flying low or landing within one mile of bighorn sheep.	SEKI, Partners

Action	Responsibility
Measures to Protect Soundscape	
Standard noise abatement measures (e.g., using the quietest available equipment/tools) and educational actions (e.g., informing the public about project work) will be implemented, as appropriate, during park operations and construction activities to reduce impacts on visitor opportunities for solitude and primitive and unconfined types of recreation.	SEKI
MEASURES TO PROTECT CULTURAL RESOURCES	
Cultural resources, including archeological sites, historic structures, and ethnographic resources, will be managed in accordance with the National Historic Preservation Act (NHPA), and other applicable laws.	SEKI
In accordance with section 106 of the NHPA, archeological surveys and investigations will precede new construction- or project-related ground disturbance as a result of implementing the WSP (e.g., the development of new trails in wilderness, the relocation of ranger stations, and for paleontological or other research excavations) to ensure that significant archeological resources are avoided to the greatest extent possible.	SEKI
The locations of administrative camps, trail reroutes, ground disturbance, and similar areas of potential impact will be assessed on a case-by-case basis.	SEKI
Work in areas where known cultural resources exist will be avoided to the extent possible.	SEKI
Archeological resources will be left undisturbed and preserved in a stable condition to prevent degradation and loss of research values unless intervention could be justified based on compelling research or site protection needs. Recovered archeological materials and associated records will be treated in accordance with NPS <i>Management Policies 2006</i> , NPS Museum Handbook, and 36 Code of Federal Regulations (CFR) Part 79.	SEKI
Should previously unknown historic or prehistoric resources be discovered during any project implementation, work will be halted in the discovery area, the site secured, and parks' cultural resource specialist notified. A qualified cultural resource management specialist will examine the area as soon as possible and will follow the procedures of 36 CFR Part 800.13[c].	SEKI
The parks will continue to provide federally recognized tribes with appropriate access to sacred sites and ethnographic resources in wilderness. Information received during tribal consultations will assist cultural resources management.	SEKI
If adverse effects are determined through the implementation of the WSP, pursuant to 36 CFR 800.5 the NPS in consultation with the State Historic Preservation Officer/Tribal Historic Preservation Officer (SHPO/THPO) and any Indian tribe that attaches religious and cultural significance to an identified historic property, the NPS shall apply the criteria of adverse	SEKI

Action	Responsibility
effect to historic properties within the area of potential effects. The agency official shall consider any views concerning such effects which have been provided by consulting parties and the public.	
Designs that are sensitive to and compatible with historic resources and cultural landscapes will be used for new construction subject to continuing consultations with the SHPO. If adverse impacts could not be avoided, these impacts would be mitigated by strategies determined through a consultation process with all interested/consulting parties.	SEKI