

U.S. Department of the Interior
National Park Service

Environmental Assessment
Restoration of Cahoon Meadow

Sequoia National Park
Tulare County, California

EXECUTIVE SUMMARY

The National Park Service (NPS) has released an environmental assessment (EA) evaluating a range of ecological restoration options to address a large erosion gully in Cahoon Meadow, located within the John Krebs Wilderness of Sequoia and Kings Canyon National Parks. Note that there are two Cahoon meadows within the parks. The Cahoon Meadow referred to in this proposal is located 2.8 miles west of Hockett Meadow in the southwestern portion of Sequoia National Parks. Cahoon Meadow, a 25.1 acre fen and wet meadow wetland complex, is the second largest wetland in the East Fork drainage of the Kaweah River. The site ranges from 7,260 to 7,430 feet in elevation, which is on the low end of the elevation range of wet meadows in Sequoia and Kings Canyon National Parks.

Cahoon Meadow is in a parcel of land that was acquired by the NPS in 1980; previously it was under private ownership and used as summer cattle pasture. The erosion problem at Cahoon Meadow was first documented in 1970, ten years before the land was acquired by the NPS. In June of 2014, an interdisciplinary team including wetlands scientists from Colorado State University and biologists from the NPS visited Cahoon Meadow to collect data on the meadow topography, soil, hydrology, and vegetation. Using this information, and building from the results of past and ongoing restoration efforts within and outside of the parks, several alternatives were developed to address the erosion gully, threats to intact wetlands, and draining of former wetlands in Cahoon Meadow.

Cahoon Meadow has been severely degraded by past grazing practices and erosion. Currently, there is a 17-foot deep by 60- to 90-foot wide gully that is adversely affecting the wetlands area. Portions of the wetland have been completely drained of water, creating large areas of dry, bare ground and dead vegetation.

The purpose of this project is to protect the remaining intact wetlands and restore wetland ecosystem function to Cahoon Meadow in such a manner that minimizes impacts to park resources, while ensuring a sustainable and feasible solution. Intact wetlands are important because they provide water storage and flood attenuation by reducing peak flows, stream velocity, and erosion. Wetlands function to filter and store water, and help control downstream sediment loads and sedimentation of adjoining waters. Wetlands maintain flows in down-gradient streams longer into the dry season, thereby sustaining downstream aquatic habitat.

The following are project objectives that were considered important in the development of the proposed action and alternatives.

- Comply with NPS legal mandates and policies.

- Protect the character of Sequoia and Kings Canyon National Parks' wilderness.
- Prevent the loss of ecosystem functions in the currently intact meadow above the headcuts.
- Restore wetland ecosystem functions to the 5.4 acres of dewatered wetland and gully below the headcuts.
- Protect the plant biodiversity provided by the intact fen and wet meadow complex within and downstream of Cahoon Meadow.
- Protect the wildlife biodiversity provided by fens and wet meadows in the Cahoon Meadow area.

The EA includes a no action alternative, and two action alternatives that consider the stabilization and/or full restoration of Cahoon Meadow. Under the no action alternative, no stabilization or restoration of the gully would occur. NPS biologists and/or cooperators would monitor the site periodically to document headward erosion, bank collapse, expansion of the dewatered area, and any other signs of rapid changes to the meadow.

The action alternatives, alternatives B and C, have a number of elements common to both, including:

- Reconstruct the trail from Cahoon Rock to Cahoon Meadow for the duration of the project. Once project work is completed, the trail would no longer be maintained and would be restored to natural conditions.
- Establish temporary crew camps. Upon completion of associated project work, all items at the crew camps would be removed and the area restored.
- Supply crews by pack stock during project work on an as needed basis.

The goal of alternative B is to stabilize the gully erosion to protect the remaining 14.9 acres of intact wetland upstream of the gully. To achieve this, a "rock chute" would be constructed along the headcut area to prevent further erosion of the intact meadow upstream. A standard engineering design for sloped transitions of water flow would be used. The rock chute would be approximately 160 feet wide, and designed to convey the 25-year recurrence interval flood.

Alternative B would be implemented over three years not including long-term potential repairs and maintenance actions. In year one, trail construction would occur. In year two, the rock chute and check dam(s) would be constructed. A large helicopter would be used to transport equipment (such as an excavator) and materials to the site and crews would be resupplied by stock on an as needed basis. The total duration of project work in year two would be about 3-5 weeks. Erosion repairs, if necessary, and trail restoration would occur in year three. Follow-up repair may be needed in year three (one year after construction), after the rock structure has sustained a season of flooding and spring runoff. Minor maintenance of the structure is estimated to be needed about every 25 years. After construction, park staff or cooperators would track the function and integrity of the rock structure so that repairs could be made promptly. A solar-powered remote camera would be installed to photograph site conditions on a daily basis in the winter, when access would be challenging. This information would be uploaded remotely and sent to the park via satellite.

The goal of alternative C is to protect 14.9 acres of wetland upstream of the gully from further loss and restore sustainable wetland function to 5.4 acres of dewatered meadow and gully bottom

by reestablishing wetland topography, hydrologic regime, and vegetation similar to the pre-erosion meadow. This alternative includes filling the gully to recreate a sheetflow system, and planting native wetland vegetation. The gully would be filled using existing soils from the adjacent dewatered meadow. The meadow would be graded to be flat in cross-section and eliminate all preferential flow paths, which would restore a sheetflow hydrologic regime and saturated soil conditions. The final meadow surface would be graded level in cross-section, with salvaged topsoil placed on top of the finished surface. Wetland plants, propagated in a nursery from seed collected at Cahoon Meadow, would be planted in the regraded and formerly dewatered areas. The plants would take several years to grow to sufficient density to prevent sediment erosion. Erosion control blanket and coconut (coir) “mattress” fiber or wattles, would be placed on the bare soil surface, and wetland plants embedded through the blanket.

Alternative C would be implemented as a four-year project. In year one, trail construction and the cutting of trees within the grading limits would occur. In year two, all earthwork would be completed and about half of the 90,000 native plants would be planted. The earthwork could be accomplished by one scraper/grader, a loader, a small bulldozer. A large helicopter would be used to transport equipment and materials to the site and crews would be resupplied by stock on an as needed basis. The total duration of project work in year two is estimated at 10 to 12 weeks (approximately 28-35 days of heavy equipment use). In year three, the remaining plants would be transported by a small helicopter to the site, and a crew would install the plants in an estimated two to three week period. Crews would camp in an upland area and be resupplied by stock on an as needed basis. In year four, the trail from Cahoon Rock to Cahoon Meadow would be restored to natural conditions. Maintenance to repair localized erosion gullies that may form prior to establishment of protective vegetation would be needed for one to three years until the plants grow to full density. No further long-term maintenance to the graded area is anticipated. The resulting hydrology, vegetation, and wetland function would be monitored in order to assess success. The site would be monitored annually for 2-3 years, then less than annually up to 10 years to assess long-term success.

Alternative C is identified as the NPS preferred alternative and proposed action because it best meets goals and objectives. While the NPS has identified a proposed action in the EA, the no action alternative remains a viable alternative for this project. The EA affords the opportunity for the public to provide input on whether it is more important to preserve the untrammeled and undeveloped qualities of wilderness character, or to restore and protect the natural quality of wilderness character. As no funding is yet available for implementation, if an action alternative is approved, funds specifically targeted for wetland restoration and/or disturbed lands restoration would be sought from sources inside and outside the NPS.

Based on internal and external scoping, the potential for significant adverse or beneficial impacts on these resources, and because the impacts associated with the issue are central to the proposal, the following issues / topics are evaluated in the EA: wilderness character, including untrammeled, undeveloped, natural, and opportunities for solitude or primitive and unconfined recreation; wetlands, including vegetation, plants of conservation concern, soils, and hydrology; and, water quality and water quantity. Mitigation measures and guidance were included in the development of the alternatives and additional mitigation measures, identified in the EA, would be incorporated into project implementation. Implementation of an action alternative would

require Clean Water Act section 404 and 401 permitting and these would be obtained prior to the commencement of work.

The EA has been prepared by the NPS in accordance with the National Environmental Policy Act (1969, as amended), Department of the Interior regulations, NPS guidance, and in accordance with the California Environmental Quality Act.

Public Scoping

Between December 10, 2014 and January 23, 2015, the NPS sought public input on the proposed action and alternatives to restore ecosystem function to Cahoon Meadow. A news release with project information was distributed to local and regional media outlets. A scoping letter was mailed to approximately 380 individuals, agencies, businesses, and interest groups, and 590 individuals on the parks' mailing list. A letter/email was sent to 54 tribal leaders, and 60 tribal representatives or individuals affiliated with area tribes. Notices were published in several newspapers and internet sites such as the Kaweah Commonwealth, Imperial Valley News, Valley Voice, and WN.com (World News).

The parks received comments from 13 different sources during the 45-day public scoping period. Nine correspondences were from unaffiliated individuals (one stated they do not have any comments at this time); one correspondence was from a tribe stating the project is outside their area of interest; one correspondence was from an official representative from a business called SCC Sequoia; and, two correspondences were from recreational groups- Kaweah Fly Fishers and Backcountry Horsemen of California- High Sierra Unit. In general, of the eleven substantive comments, most were in support of restoring the meadow and some shared past similar experiences and suggestions. Some of the supporting commenters included recommendations, such as using heavy earthmoving equipment and rock and earth for the dams; reintroducing beavers to accomplish the restoration work; and, to fill in the large gully with fill materials to avoid using check dams. Some of these supporters also questioned whether it's best to accept the change in Cahoon Meadow and take no action. The Backcountry Horsemen of California expressed support for using non-mechanized methods to restore and protect the wetland, and were not in favor of using mechanized equipment in wilderness. Many of the recommendations have been incorporated into the EA. Some options that were brought up during scoping were considered but dismissed (see "Alternatives Considered but Dismissed" section of the EA).

Notes to Reviewers and Respondents

If you wish to view and/or comment on this EA, you may submit comments online at <http://parkplanning.nps.gov/cahoon> or you may direct comments regarding this EA to the park in writing by mail, hand delivery, or fax to: Superintendent, Sequoia and Kings Canyon National Parks, Attn: Cahoon Meadow Restoration EA, 47050 Generals Highway, Three Rivers, CA 93271, or fax comments to (559) 565-4202. This EA will be on public review for 30 days. Comments must be received by April 22, 2016.

Note that, before including your address, phone number, email address, or other personal identifying information in your comment, should be aware that your entire comment – including your personal identifying information – may be made publicly available at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we would be able to do so.