

PORE 7151



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PACIFIC WEST REGIONAL OFFICE Memorandum

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JUN 25 2009

Memorandum

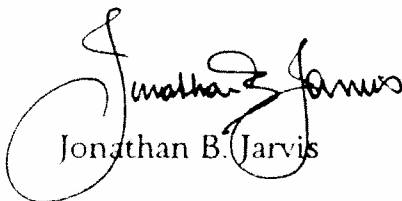
To: Superintendent, Point Reyes National Seashore

From: Regional Director, Pacific West Region

Subject: Environmental Compliance for Coastal Dune Habitat Restoration
in the Abbots Lagoon Area

The revised *Finding of No Significant Impact* for eradication of non-native plants and site restoration in the Abbots Lagoon area is approved. To complete this particular compliance effort, at the time when the park issues notice of the decision, the *Errata* prepared as a technical supplement to the original Environmental Assessment (EA) must be distributed to permitting agencies and all other parties that received or commented on the EA.

The Seashore's continuing efforts to restore natural conditions and functions demonstrate a concerted commitment to an exemplary applied research-resource management program. Congratulations to you and your staff for these initiatives!



Jonathan B. Jarvis

Attachment

cc:

PWRO-LIC

**U. S. Department of the Interior
National Park Service
Point Reyes National Seashore**

**Finding of No Significant Impact
Abbotts Lagoon Area Dune Restoration Plan
June 2009**

Introduction

The Abbotts Lagoon Area Dune Restoration Plan is a Line-Item Construction funded project that focuses on large-scale ecosystem restoration through removal of non-native invasive species. An Environmental Assessment was prepared for this project in compliance with National Environmental Policy Act (NEPA) and released to the public for review under Park Service Management policies. The EA provides a complete description of alternatives, avoidance and mitigation measures and analysis of impacts and is the basis upon which this Finding of No Significant Impact (FONSI) is based.

Through this project, Point Reyes National Seashore (Seashore) is proposing to restore 300 acres of coastal dune habitat south of Abbotts Lagoon to benefit species listed as threatened or endangered under the Endangered Species Act (e.g., federally listed species). Habitat would be restored by removing highly invasive, nonnative plant species which have greatly altered sand movement, dune structure and habitat function for native plants and animals uniquely adapted to this coastal environment.

Purpose and Need for Federal Action

The Seashore preserves some of the last remaining high quality coastal dune habitat in the United States. However, this habitat is seriously threatened by the rapid encroachment of two invasive, nonnative plant species, European beachgrass (*Ammophila arenaria*) and iceplant (*Carpobrotus* spp.). Over 70% (1,000 acres) of the park's dune habitat is dominated by these species, and they are rapidly spreading to other areas.

European beachgrass is particularly problematic at the Seashore. It was introduced to California in the late 1800s to help stabilize blowing sand dunes, which it does by spreading vegetatively by rhizomes. Iceplant (*Carpobrotus edulis*), a native of South Africa, was introduced to California in the late 1800s also to stabilize dunes. This succulent spreads both vegetatively and by seed and now is found growing along the entire coast of California (NPS 2003).

The Seashore's dunes provide habitat for 11 federally listed species; those at the project site include the threatened Western snowy plover (*Charadrius alexandrinus nivosus*), the endangered Myrtle's silverspot butterfly (*Spyeria zerene myrtleae*), and the endangered plants beach layia (*Layia carnosa*) and Tidestrom's lupine (*Lupinus tidestromii*). Additionally, the Seashore's dunes contain the largest remaining expanses of two rare native foredune habitat types--American dune grass (*Leymus mollis*) and beach pea (*Lathyrus littoralis*). These rare species and habitat types are imminently threatened by both environmental changes and displacement resulting from the presence and

spread of European beachgrass and iceplant. The primary effect comes from the dense, monotypic mats produced by both species. These mats preclude native plants from becoming established and alter sand dune structure and function by slowing sand movement and changing deposition patterns. Rather than the natural pattern of free-moving dunes that form perpendicular to the beach, dunes dominated by European beachgrass or iceplant mats are large, stable and form ridges parallel to the beach.

This configuration prohibits sand movement and movement of animal species or seeds of native plants between fore and reardunes, reducing the amount and quality of habitat available for native plants, dune beetles, plovers, and other native species. Altered foredunes effectively restrict breeding snowy plovers to a narrow strip of habitat between the high tide line and the lower edge of the dunes, the same narrow area of the beach used by visitors and dogs. Besides making nesting and chick rearing difficult, these densely vegetated dunes provide cover for predatory species that feed on plover eggs and chicks. Research at the Seashore also suggests that European beachgrass harbors a high number of deer mice, which feed preferentially on the seeds of endangered Tidestrom's lupine. Removal of European beachgrass and iceplant from dune habitat in Point Reyes National Seashore is part of the recovery plan for federally listed species occurring in these areas (U.S. Fish and Wildlife Service 1998a).

The purpose of the action is to improve and restore coastal dune habitat in the Point Reyes National Seashore. The Seashore has targeted the Abbotts Lagoon area as a site that offers both the chance to try different methods of removing European beachgrass and iceplant and one that has the largest acreage of high quality dune habitat. In addition, an infestation of beachgrass from the south is encroaching upon the southern end of the site, and action in these 300 acres would allow the park to halt the infestation and provide a future opportunity to continue treatment southward. The treatment area is also unique in that it is not part of a designated wilderness that stretches along much of the west coast of the park.

Background and Range of Alternatives Considered

The Seashore staff has completed several seasons of small-scale removal and follow-up projects and has used data from these projects to narrow the range of management tools, to identify the specific sites in the area where the best chance of success exists, and to predict the degree of success in restoring habitat for native species. These pilot projects have shown that resprouting of the invasive plants is a likely outcome of any treatment project that does not completely remove all rhizomes or root structures. Removing large number of resprouts is a difficult and expensive maintenance effort that, if not done, negates to a large degree the initial restoration of dune habitat.

The primary objectives related to dune restoration at Point Reyes National Seashore include:

- Remove nonnative, invasive plant species from dune habitat where they interfere with natural physical processes such as sand movement and hydrology.
- Remove nonnative, invasive plant species from dunes to create conditions under which native species can flourish.
- Minimize potential for nonnative species reinvasion of restored habitat.

- Increase potential coastal dune habitat for target threatened and endangered species affected by nonnative, invasive plant species.

Secondary objectives are goals that the park would like to achieve in taking action, but that do not define whether an alternative is reasonable. In other words, fulfilling these goals is desirable but not required.

- Increase visitor understanding of natural dune processes.
- Use adaptive management to inform and improve subsequent dune restoration efforts.
- Increase opportunities for research into understanding the restoration of coastal California dunes.

Three alternatives, including the No Action alternative, are analyzed in the EA. In addition to descriptions of treatment activities, staging, and access, each alternative includes a multitude of environmental protection and management measures. The No Action alternative in this case would mean that the proposed activity (dune restoration of 300 acres near Abbotts Lagoon) would not take place and that existing conditions and management activities would continue as they are currently. The No Action alternative includes continuing the current small-scale incremental restoration at a pace determined by staffing, funding opportunities and management priorities.

Each of the action alternatives (Alternative B or C) would treat an area along the coastline in the proximity of Abbotts Lagoon that covers approximately 300 acres. Alternative B would result in 93 acres of rear or backdunes treated with prescribed burning and herbicides, 27 acres of foredunes treated by excavation, and 13 acres near wetlands and other sensitive habitats and species treated by manual or hand removal. Iceplant removal totaling about one acre would take place in several locations. Treatment of resprouts during the year following initial construction would be conducted using herbicide and hand removal. Spraying of herbicide would be conducted with a backpack sprayer and calibrated, directed nozzle to control spray in dry conditions with a windspeed of less than 10 mph. Buffers would be established around rare plants, dune mat vegetation, and wetlands, as well as between the project area and adjacent organic pastures and cattle.

Alternative C was identified in the EA the park's preferred alternative. It would rely primarily on excavation and deep burial to remove European beachgrass from the project area. Iceplant would also be removed by physical means. Mechanical removal techniques use heavy equipment to dig up European beachgrass roots and rhizomes and completely remove all of the standing biomass. To prevent resprouting, the excavated biomass would be buried beneath a cap of clean sand at least 3 to 6 feet deep. Excavators would be used to perform the digging and burial of biomass. Bulldozers may be used to support the excavators in transporting and/or burying excavated biomass. Bulldozers may also be used to re-contour treatment sites after burial is completed. Hand removal would be used to remove beachgrass or iceplant from sensitive areas (in native dune mat or wetland, as well as in wetland buffers).

The use of herbicides through backpack spraying would primarily be restricted to treating resprouts in Alternative C, especially in areas where hand removal proves difficult or ineffective, such as within existing shrubs or in dense foredune areas where complete excavation of European beachgrass roots proves difficult. The same impact avoidance measures as described under Alternative B would be implemented.

Environmentally Preferable Alternative

In addition to being the Seashore's preferred alternative, Alternative C was also the environmentally preferable alternative. The environmentally preferable alternative is defined by the Council on Environmental Quality (CEQ) as the one which "causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves and enhances historic, cultural and natural resources."

The No Action alternative has several long-term adverse impacts to park resources both Alternatives B and C would alleviate in the long-term by removing *Ammophila*, making the action alternatives environmentally preferable to the No Action Alternative. These include continued minor to major adverse impacts on listed animal and plant species, minor to moderate adverse impacts on vegetation and wildlife, and moderate to major long-term adverse effects on natural sand movement.

The two action alternatives offer the same long-term advantages to these resources through *Ammophila* removal and differ primarily in impacts during implementation: therefore, it is these short-term impacts that determined the environmentally preferable option. Both Alternatives B and C would use excavators, although the noise and disturbance to wildlife from this source would be greater under Alternative C. This would be outweighed by the relative adverse impacts of herbicide and burning in Alternative B on resources such as wetlands, rare plants, red-legged frogs, snowy plover, Myrtle's silverspot butterfly, birds, invertebrates, soils, wetlands, visitor experience, and worker safety.

Description of Selected Action

Alternative C is the alternative the NPS is selecting for implementation. The preferred alternative was selected after initial assessment and comparison of the potential impacts, as well as potential advantages, associated with the alternatives. One of the factors selected in internal scoping as providing the paramount advantage in relation to the park's mission was "prevent loss of resources/maintain and improve condition of resources." While Alternatives B and C would equally improve the condition of resources in the long term, Alternative C would have fewer adverse impacts and therefore result in less loss of park natural resources during implementation. Cost was considered as well, but was secondary to the alternative's ability to meet the primary objective. In other words, costs and benefits were weighed and compared in selecting the preferred alternative.

In selecting the action to be implemented, comments by the public and other organizations and agencies were considered. While few letters were received, those submitted advocated implementation of the preferred alternative. None of the public comment letters required any modification to the alternatives, including the Preferred Alternative, so the Selected Alternative is the same as the Preferred Alternative in the EA.

As described above for Alternative C, the Selected Action consists of initial treatment by mechanically removing 126 acres of European beachgrass and iceplant and manually removing 7 acres of these species in buffer areas adjacent to rare plants, dune mat vegetation, and wetlands. Treatment of resprouts of European beachgrass and iceplant during subsequent years would involve controlled spraying of herbicide using backpack

sprayers or hand removal. The herbicidal product to be used would most likely be glyphosate, although, based on any information received from other agencies on the most effective and cost-effective approaches, another product or combination of products might be used to ensure the most effective results. The Seashore would have to obtain a Pesticide Use Permit annually for any herbicides used, and impacts from herbicide use would not be greater than those described in the EA for glyphosate. Pesticide Use Permits (PUPs) are administered by the Park Service's Integrated Pest Management Program. IPM is a decision-making process that coordinates knowledge of pest biology, the environment, and available technology to prevent unacceptable levels of pest damage, by cost-effective means, while posing the least possible risk to people, resources, and the environment.

To avoid or minimize impacts, the Seashore has proposed to implement extensive environmental protection or mitigation measures. Some of these are standard Resource Protection Measures that are implemented in all applicable Seashore projects: they typically include measures to minimize erosion and sediment mobilization, revegetation measures, explicit plans to prevent and respond to chemical spills, actions to protect cultural resources, measures to minimize disruption to recreation in the Seashore, and practices to protect plant and animal life in the project area. These Resource Protection Measures would be employed by the NPS or contractor staff engaged in construction activities. Some of the more important measures proposed for this project are described in the attached Table.

Alternatives Eliminated from Further Consideration

The National Park Service NEPA regulations (Director's Order 12) indicate that a range of alternatives must be developed with environmental resources as the primary determinant (section 2.7a). In other words, alternatives are to propose different means of accomplishing objectives while at the same time minimizing adverse impacts or maximizing beneficial impacts to some or all resources. Alternatives are also to be environmentally distinct, with issues "sharply defined" to provide a clear basis for choice among options (40 CFR 1502.14).

Several different approaches to creating an appropriate range of alternatives were reviewed by the interdisciplinary team during internal scoping. These included alternatives that focused on different methods of removal at the Abbotts Lagoon site; alternatives that treated differing numbers of acres; and alternatives that varied in the degree to which various objectives would be met or impacts would occur.

The park then developed four versions of treatment in this area, which differed in the amount of land they treated and ranged from 200 to 300 acres. Because these options would vary little in their environmental impacts, the planning team agreed they would not meet the requirement that alternatives be environmentally distinct. The team developed another approach, where each alternative would treat the same number of acres in the same general area, but one would focus on foredune restoration and the other would treat a combination of fore and reardune habitat. The foredune restoration would have maximized restoration of snowy plover nesting habitat, whereas the combination would have also restored habitat for Myrtle's silverspot butterfly, beach layia, Tidestrom's lupine and other rare vegetative communities. Because the foredune alternative would not also restore habitat for other listed or important rare species, this approach was also dismissed.

Why the Selected Action will not have a Significant Effect

In the EA, the following impact topics were analyzed for each of the alternatives, including the No Action Alternative: vegetation, species of special concern, wildlife, soils and sand movement, water resources, cultural resources, visitor experience, neighboring land use, and health and safety. Conclusions in the EA were provided to regulatory agencies including US Army Corps of Engineers, California Coastal Commission, US Fish and Wildlife Service, National Marine Fisheries Service, San Francisco Regional Water Quality Control Board and the State Historic Preservation Office.

The FONSI includes evaluation of criteria to determine whether an impact may be significant. The EA concluded that the selected alternative would have negligible to moderate effects (both adverse and beneficial) to park resources. None of the potential impacts are considered to be significant. This is supported by the discussion below of the relevant criteria for significance and the measures used by the selected alternative to avoid more than moderate impacts in each.

Criteria (see 40 CFR 1508.27):

1. The degree to which public health and safety are affected.

Treatment using heavy equipment would take place during the week rather than on the weekends. Holes created to bury European beachgrass would be covered quickly after they are filled, and equipment would be returned to the staging area. The area is not frequently visited, but those visitors in the area or adjacent to it may experience minor to moderate short term adverse impacts from noise, odors, and the presence of bulldozers and other equipment working if they visit during the 5-month treatment period on a weekday. These impacts would be reduced in intensity by conducting an extensive public information campaign and posting notices about the disruptive nature of construction work at the Visitor Centers, park web site, at the trailhead, and other locations. Hazards to equipment operators or other staff working at the site would be minimized through the use of professional equipment operators and sufficient training and protection (such as ear plugs to protect against noise impacts for example).

Negligible to minor short-term adverse effects from excavation and spraying would occur on the character of adjacent Wilderness. Similarly, negligible to minor short-term adverse effects on adjacent organic ranching operations could result from spraying of herbicide, but, after consultations with ranchers and the County, the Seashore will maintain at least a 25-foot buffer between spraying and adjacent ranchlands. However, overall, improvements in the condition and viability of the dune system to the south of lagoon should have a beneficial effect on the wilderness quality of the dunes directly adjacent to lagoon, as well as threatened and endangered plants and animals occurring there.

2. Any unique characteristics of the area; and the degree to which an action may adversely affect an endangered or threatened species or its habitat.

The entire dune system is ecologically unique as several threatened, endangered, or rare species of plants and animals grow here, as well as native vegetative communities, soils, wetlands and other water resources and native wildlife.

Adverse impacts from activities associated with restoration include the potential for temporary loss of habitat or crushing of slow moving animals or individual plants, collisions, and disturbance of wildlife from noise and people working on site. Each of these is outweighed by long term benefits, but as noted above the selected alternative includes measures to avoid or minimize impacts to existing native resources on the site during restoration work to the maximum extent practicable. Analysis in the EA shows that, to a large degree, these measures either eliminate or substantially reduce the extent or magnitude of impacts.

For example, impacts from the use of heavy equipment have been minimized to the maximum extent practicable by establishing buffers and construction windows during which construction in certain areas cannot occur. Buffers establish a spatial boundary in which mechanical excavation or if needed to manage resprouting, herbicide spraying cannot occur. Buffers have been established for snowy plovers (500 feet), California red-legged frog (100 feet), wetlands (25 feet), Tidestrom's lupine (10 feet), beach layia (10 feet), and western dog violet (*Viola adunca*; 25 feet), the larval host plant for Myrtle's silverspot butterfly. These areas would be flagged in order to reroute traffic. In addition, buffers for herbicide use have been established for organic crops and livestock (25 feet) to protect adjacent ranchlands. In terms of herbicide use, protection of plants, wildlife, and sensitive vegetation communities has been strengthened by stringent prescriptions on conditions (dry conditions with wind speed less than 10 mph) and approach (backpack sprayer with calibrated nozzle to direct spraying).

Pre-construction clearance surveys would be required in all areas prior to construction from anywhere from 1 week to 48 hours prior to construction start. In areas with dune mat vegetation that could potentially support Myrtle's silverspot butterfly, contractors would be required to reduce speed to 10 mph to avoid impacts to the butterfly between June 15 and August 31. Also, there would be no work in southern butterfly habitat between June 15 and August 31.

Through these stringent avoidance and mitigation measures, potential implementation-related impacts to resources would be reduced so they do not exceed moderate in intensity: many impacts are negligible or minor.

Impacts to other unique resources at the site would also occur, and some would be lessened through the use of mitigation. Coastal scrub vegetation intermixed with European beachgrass would be necessarily removed in some cases where it is heavily integrated. There would be minor to moderate adverse short-term impacts to wintering populations of snowy plovers and other birds from flushing, noise, and presence of excavators. Excavators could cause small mammal and invertebrate mortality because these species are slow moving and less obvious to heavy equipment operators. Heavy equipment could also cause disturbance to nesting birds and other sensitive bird species using Abbotts Lagoon, but impacts would be minimized by ensuring that no construction or staging occurs near the lagoon after July 31. Only negligible to minor impacts on wildlife species would be expected from spraying resprouts during the maintenance phase due to stringent guidance on use of herbicides. Moderate short-term impact from construction may occur for Myrtle's silverspot due operation of construction equipment through collisions with foraging adults, even if operated at lower speeds.

However, over the long-term, the proposed project would have minor to major long – term benefits for natural resources. The proposed project would result in an increase in diversity and cover of native dune plants and rare plants, including listed species. Restoration would have major, long-term benefits for two endangered plant species at the site: Tidestrom's lupine and beach layia. Eliminating *Ammophila* would decrease seed predation of Tidestrom's lupine by deer mice and increase population viability.

Increase of native dune habitat increases foraging sources and plants used for larvae for Myrtle's silverspot, resulting in moderate or major long-term benefits for this species. Removal of European beachgrass would increase unvegetated foreshore for plover nesting and would increase corridors for foraging and brood protection. It would also decrease predation of plovers by ravens, which use European beachgrass for concealment. Because of this tenuous status of plovers throughout the region, this project could not only have major localized benefits for this species, but moderate regional benefits, as well.

Negligible to minor short-term adverse impact to adjacent ranchlands may occur from redistribution of soils, but the Seashore would evaluate dune migration effects during lease renewal process and adjust fees accordingly. Over the long term, moderate to major long-term benefits would be expected from natural soil movement. The proposed project may also be impacted by many of the direct and indirect effects of climate change, including sea level rise, increased wave action, and higher winds. However, reestablishing natural dune migration or movement would provide greater resiliency for this system to threats from climate change such as sea level rise and wave- and wind-induced erosion by allowing it to move in response to these pressures. This would ensure that this system remains viable in the future and would continue to provide valuable benefits for plants, animals, and humans through protection from extreme tides and storm surge. Intact dunes also filter groundwater that flows from upland areas to the ocean.

3. The degree to which potential impacts are highly uncertain or involve unique or unknown risks.

None of the impacts resulting from treatment are so uncertain or unknown as to make them potentially significant. However, the degree of impacts from the movement of sand following removal of European beachgrass and the potential to affect adjacent ranchlands and wetlands are somewhat uncertain.

The magnitude of dune migration is difficult to predict. The EA identifies several studies and monitoring efforts of other restoration efforts that predict a range of results, from simple redistribution of sand on site, to as much as 1.4 m/year simply from the natural migration of sand unencumbered by European beachgrass. Two ranches are adjacent to the treatment site, and if extensive dune migration occurs, the extent of viable grazing land may decrease. Monitoring stations would be established throughout the project area and on the perimeter to assess dune movement and determine whether encroachment into adjacent ranchlands occurs. Information from this monitoring would be used during the five-year reappraisal process to determine the extent of grazable land and readjust fees. Overall, based on experiences from other restoration projects, impacts would be expected to be long-term and minor at most.

Shifting of dunes after implementation may cause some native dune mat vegetation and wetlands to become buried, but, overall, removal of European beachgrass would greatly increase area available for colonization by native dune species, including habitat for threatened and endangered species, which typically occur only in areas with relatively low vegetation cover. In addition, natural dune processes would be expected to reform wetlands in new "hollows." However, to ensure no net loss, the Seashore would mitigate any loss of wetland from dune migration. This would help to offset impacts to California red-legged frog that use some of these dune swale wetlands.

4. The degree to which the action may affect historic properties in, or eligible for listing in the National Register of Historic Places, or other significant, archeological, or cultural resources.

It is unknown whether archaeological sites occur in the project area, although a survey conducted during the planning phase of this project indicated no buried resources in the treatment area. To minimize impacts to unknown potential resources, archaeological monitoring of excavation areas during construction would be conducted periodically by a qualified specialist.

5. The degree to which impacts are likely to be highly controversial.

The factor relates primarily to the controversy surrounding the impact analysis, rather than the project itself. No comments indicating controversy surrounding the analysis were received (see Summary of Public Involvement below). In addition, the project itself has not generated any controversy. The initial scoping and public release of the EA resulted in limited public response (seven (7) letters on public draft release) regarding the project actions. The local community and public are generally supportive of ecological restoration projects that result in improvement in habitat for plants and wildlife.

Other factors agencies are to take into account in determining whether significant impacts are possible include:

- *Impacts that may have both beneficial and adverse aspects and which on balance may be beneficial, but that may still have significant adverse impacts;*
- *Whether an action may establish a precedent for future actions with significant effects, or represent a decision in principle about a future consideration;*
- *Whether the action is related to other actions that may have individual insignificant impacts but cumulatively significant effects; and*
- *Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment.*

The NPS believes none of these additional factors are relevant to this selected action. Based on the findings of the EA, as well as responses from the public and regulatory agencies, the National Park Service has concluded that the project will not have a significant effect on park resources or the environment, and that an EIS is not necessary.

Summary of Public Involvement

Initial Scoping

On October 14, 2005, a scoping letter and press release was sent to interested parties regarding the Coastal Dune Restoration Project. The scoping letter was sent to approximately 300 parties on the park's mailing list. In addition, a project description and scoping letter was placed on the NPS Planning, Environmental, and Public Comment (PEPC) website (<http://parkplanning.nps.gov/>).

The scoping period closed on December 2, 2005, and three letters were received. Two were from organizations—Marin Audubon Society and the California Native Plant Society. Both organizations were supportive of the project, but one had concerns about implementation that have been addressed in this EA. Concerns involved the potential impacts to federally and CNPS-listed plant species either from direct impacts or changes in terrain, with the organization advocating a potential restriction in work in some foredune areas on the eastern edge of the project area. The private party letter was concerned about noise and adverse impacts of heavy equipment in the dune area to wildlife. These issues are also addressed in this EA.

The park has also produced a flyer "Restore Critical Dune Habitat" (NPS 2005) that was placed on the PEPC and Point Reyes websites. NPS has conducted internal scoping as well.

EA Public Review Comments

Announcement of availability of the Abbotts Lagoon Area Dune Restoration Plan EA on the park web site or hardcopy by request was sent to a mailing list of approximately 280 groups, organizations, libraries, and individuals on February 2, 2009. The project EA including all its appendices, graphics, and other supporting documentation, was posted on the Point Reyes National Seashore website (http://www.nps.gov/pore/parkmgmt/planning_dunerestoration.htm) to which reviewers and interested parties were directed. Printed copies of the EA were mailed to all agencies, and 15 digital versions were provided to the California State Clearinghouse for review. One member of the public requested a hardcopy.

A public meeting was held on March 11, 2009, at 6:00 p.m. at the Seashore's Red Barn. The local radio station, KPMR, announced the meeting on Monday, March 9, 2009, and it was also noticed online in *Point Reyes Weekend* on March 10, 2009. Approximately three (3) members of the public attended, including two reporters from local papers. Approximately 17 members of park staff also attended. A presentation was made by Lorraine Parsons, Vegetation Ecologist at the Seashore, that detailed the need and purpose of the project, the proposed alternatives, the impact avoidance and mitigation measures, and the impacts and benefits of the alternatives on park resources.

The *Point Reyes Light* newspaper published an article on the project and meeting on March 12, 2009. The NPS conducted public review for 45 days, with the comment period ending on March 20, 2009. Seven (7) comment letters were received during this open comment period.

On February 13, 2009, the State Clearinghouse initiated a 30-day comment period for State agency review (SCH#2009024003). The State Clearinghouse closed the comment period on March 19, 2009. One agency responded, and it was an agency that had already sent an individual letter to the park. The EA was acknowledged to have complied with State Clearinghouse requirements on March 20, 2009.

Below is a summary of the written and oral comments received:

- Agree with selection of Alternative C as the preferred alternative
- Disagree with use of herbicides for retreatment purposes. Commenter felt that herbicides should not be used, because they are poisonous and may start a chain reaction. Commenter felt that all removal should be done manually, which would be better for the economy.
- Support implementation of mitigation measure that would ensure that there would be no staging near Abbotts Lagoon after July 30 so as to avoid disturbance to fall migration of birds using this valuable habitat.
- Have concerns about impacts of proposed project on California Native Plant Society (CNPS)-listed species.
- Support implementation of mitigation measure that would create more wetland as mitigation for potential loss of dune swale wetlands currently in the Project Area from long-term dune migration.
- Support mitigating impacts to visitors, particularly birders, by ensuring that information about the disruption of the natural soundscape by mechanized equipment use be adequately posted at the Visitor Centers, web page, trailheads, and by contact with known birding organizations.
- Should specify in the document the type of herbicide to be used and method of application.
- Should specify in the letter the approach for removing ice plant (*Carpobrotus* sp.).
- Should include in the document a timeline showing duration of each of the alternatives, including how unacceptable environmental constraints will be avoided.
- Should include cost estimates for each of the alternatives, including appropriate contingencies and what added costs might result from funding delays.
- Note that any impacts to state highways from increased traffic needs to be adequately addressed in a traffic study, mitigated, and permitted by the California Department of Transportation through an encroachment permit.
- Advocate better protection of wetland and dune habitat on adjacent ranch lands from grazing.
- Request fencing improvements to allow easier access by the public onto public lands.

None of the comments received surfaced issues not already considered in preparing the EA. All park responses to comments are compiled in an Errata prepared as a technical supplement to the EA (which also documents minor text corrections).

Agency Coordination

The status of permitting and compliance for the proposed project is discussed in more detail in this section. The project is required to comply with a number of federal laws, some of which are administered by state agencies. Compliance or consultation would be required with US Fish and Wildlife Service (USFWS; Endangered Species Act); California Coastal Commission (CCC; Coastal Act); the US Army Corps of Engineers

(USACE; Section 404 of the Clean Water Act); San Francisco Regional Water Quality Control Board (RWQCB; Section 401 of the Clean Water Act); and State Historic Preservation Office (SHPO; Section 106).

The NPS has not received any formal comments from regulatory agencies during release of the draft document, but agencies were notified both directly and through the State Clearinghouse Process, and the NPS has involved the USFWS in terms of soliciting feedback from the early planning stages.

US Fish and Wildlife Service - Endangered Species Act of 1973, as amended, PL 93-205, 87 Stat. 884, 16 USC §1531 et seq. The Endangered Species Act protects threatened and endangered species, as listed by the U.S. Fish and Wildlife Service (USFWS), from unauthorized take, and directs federal agencies to ensure that their actions do not jeopardize the continued existence of such species. Section 7 of the act defines federal agency responsibilities for consultation with the USFWS and National Marine Fisheries Service (NMFS; for marine life) and requires preparation of a Biological Assessment to analyze impacts to any threatened or endangered species that is likely to be affected by the proposal. Several telephone discussions were held with USFWS regarding conservation measures for species such as plover, and a site visit was conducted with USFWS on August 12, 2008. The USFWS provided its concurrence with the NPS findings on June 15, 2009.

Coastal Zone Management Act of 1972, as amended through PL 104-150, The Coastal Zone Protection Act of 1996 (16 U.S.C. §1451 et seq.). This act protects coastal environments and transfers regulatory authority to the states and excludes federal installations from the definition of "coastal zone." Within California, the California Coastal Commission (CCC) administers the state program (California Coastal Act) for implementation of the federal Coastal Zone Management Act (CZMA). Any action by a federal agency such as the Park Service requires a federal consistency determination by the CCC as required by CZMA. The CCC manages fill, dredge, and other non-point activities affecting wetlands within the Coastal Zone. In California, the Coastal Zone is broken into Local Coastal Program (LCP) units that specifically oversee land use and management of resources within their jurisdiction (see section "State and Local Legislation, Policies, and Plans"). The project site falls within the Coastal Zone and has wetlands that would be subject to oversight under the Coastal Act and the LCP. The CCC has been contacted as part of the State Clearinghouse process; the proposed project was submitted for a determination of consistency with the Coastal Act as it would not adversely affect coastal zone resources.

Federal Water Pollution Control Act (Clean Water Act) and subsequent amendments of 1977 (33 USC §1251 et seq.): Sections 404, 401, and NPDES: The Clean Water Act provides for the restoration and maintenance of the physical, chemical, and biological integrity of the nation's waters. Section 404 (33 U.S.C. 1344) of the Act prohibits the discharge of fill material into navigable waters, tributaries to navigable waters, and special aquatic sites of the United States, including wetlands, except as permitted under separate regulations by the U.S. Army Corps of Engineers (the Corps) and U.S. Environmental Protection Agency. Under Section 401 (33 U.S.C. 1341), states and tribes can assume responsibility for Section 401 oversight and can review and approve, condition, or deny all Federal permits or licenses that might result in a discharge to state or tribal waters, including wetlands. This project could potentially involve excavation and/or permanent or temporary fill in special aquatic sites such as

wetlands. It also has the potential to affect water quality within the Project and in downstream water bodies.

Because of this, the project may require Section 404 permits from the Corps and Section 401 certification from the San Francisco Regional Water Quality Control Board. A preliminary wetland reconnaissance has been conducted, which was used for project planning purposes. A copy of this map is included in the EA. Upon approval of this FONSI, a formal wetland delineation would be conducted and submitted to the Corps for verification. Should it appear from this verified delineation that jurisdictional wetlands are present in the Project Area and that these wetlands might be negatively impacted by project construction, staging, or access, a request to use Nationwide Permit 27 would also be submitted. Concurrent with submission of the NWP would be request for certification or waiver from the RWQCB under Section 401 of the CWA.

Any construction activity that includes clearing, grading, excavation, stockpiling, or reconstruction of existing facilities involving removal and replacement, resulting in land disturbance of 5 acres or greater, must be conducted in accordance with the **National Pollution Discharge Elimination System** General permit for Discharges of Storm Water Runoff Associated with Construction Activity (referred to as the Construction Activities Storm Water General Permit). The permit prohibits the discharge of materials other than storm water and states that storm water discharges shall not cause pollution. Each permitted construction site must prepare a site specific Stormwater Pollution Prevention Plan (SWPPP) prior to disturbing the site. The SWPPP must include a site description and identify BMPs that address erosion and sediment controls and management of construction waste. The SWPPP must also include post-construction controls and management of non-storm water. Applications for a NPDES will be submitted prior to construction by the park after receiving and approving a SWPPP from the selected contractor.

National Historic Preservation Act of 1966, as amended, PL 89-665, 80 Stat. 915, 16 USC §470 et seq. and 36 CFR 18, 60, 61, 63, 68, 79, 800. Section 106 of the National Historic Preservation Act requires agencies to take into account the effects of their actions on properties listed in or eligible for listing in the National Register of Historic Places. The NPS sent a scoping notice to the state historic preservation officer and the Advisory Council for Historic Preservation to initiate consultation. A letter was sent to State Historic Preservation Office (SHPO) on July 12, 2008, requesting concurrence with the NPS determination of the Area of Potential Effect (APE) and its findings. SHPO provided its concurrence with the NPS findings on May 21, 2009.

Archeological Resources Protection Act of 1979, PL 96-95, 93 Stat. 712, 16 USC §470aa et seq. and 43 CFR 7, subparts A and B, 36 CFR. This act secures the protection of archeological resources on public or Indian lands and fosters increased cooperation and exchange of information between private, government, and the professional community in order to facilitate the enforcement and education of present and future generations. It regulates excavation and collection on public and Indian lands and requires notification of Indian tribes who may consider a site of religious or cultural importance prior to issuing a permit. The Federated Indians of Graton Rancheria (FIGR) were contacted regarding this project by SHPO prior to issuance of its concurrence (S. Stratton, SHPO, *pers. comm.*) and have also been contacted by the Seashore (M. Rudo, NPS, *pers. comm.*). FIGR has voiced no concerns regarding the project (*ibid*). The NPS will meet its obligations under this Act in all activities conducted.

Impairment Statement

To assure fulfillment of the NPS mission, NPS Management Policies (NPS 2006) require decision-makers to consider impacts and determine in writing that a proposed action will not lead to an impairment of park resources and values before approving the action. The Management Policies state that impairment prohibited by the Organic Act is an impact that, in the professional judgment of the responsible NPS manager, would "harm the integrity of park resources or values, including the opportunities that would otherwise be present for the enjoyment of those resources or values." The Management Policies further provide specific guidance for NPS managers to use in analyzing whether a proposed action would result in impairment. The Management Policies state that "...an impact would be more likely to constitute an impairment to the extent that it affects a resource or value 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 the opportunities for enjoyment of the park; or
- identified as a goal in the park's general management plan or other relevant National Park Service planning documents" (NPS 2006).

The effects of the Selected Action have been analyzed for possible impairment of NPS resources and values. A full analysis of potential effects in the environmental assessment of the proposed actions has determined that the project would not result in impairment of NPS resources. The project will result in short-term disturbances during the period of construction, but none of these would be more than moderate in intensity and none would meet any of the three criteria for impairment outlined above. Restoration of the site would result in many benefits to park resources and values, including improved or enhanced physical dune processes and ecological function and improved resiliency of this system in the face of threats from climate change. As identified in the EA, the project may result in long-term, indirect impacts to wetlands through migration of dunes once European beachgrass has been removed. Through proposed mitigation measures, this impact has been judged not to cause a net loss of wetlands. Impacts to other federally listed species have been avoided or reduced substantially through extensive mitigation measures.

The actions approved under this project would result in substantial restoration to resources that are key to the natural integrity of this coastal park and its valuable ecosystems and sensitive species and to opportunities for enjoyment of the park by the thousands of visitors that come to this area each year. The project is also consistent with the park's enabling legislation, the identified goals of its General Management Plan and with preserving the natural and cultural integrity and opportunities for public enjoyment of the park.

Basis for the Decision

The Selected Action accomplishes the expressed purpose and need for Abbots Lagoon Area Dune Restoration Plan and is clearly superior to the continuation of the current approach, which involves implementation of small, limited-scope restoration projects to remove European beachgrass (*Ammophila arenaria*), which now covers 70 percent of

the park's dune habitat. The project enables the park to better meet the objectives of its enabling legislation, which were focused on saving and preserving, "for the purposes of public recreation, benefit, and inspiration, a portion of the diminishing seashore of the United States..." (Public Law 87-657).

The selected alternative does comply with Park Service Management Policy and other federal policy directives and objectives by restoring natural dune process, enhancing habitat for at least five (5) federally listed species, and mitigating for any long-term loss of wetlands from dune migration.

In addition, the project would improve resiliency of this system in face of threats from climate change such as sea level rise and increased wave- and wind-induced erosion by allowing the dunes to migrate or move in response to these pressures. While, over the short-term, the project would require frequent maintenance to ensure that European beachgrass is successfully eradicated, over the long-term (15-20 years), the project is expected to become self-sustaining, requiring only occasional site visits to ensure that European beachgrass has not reestablished.

Mechanized equipment is required to accomplish the magnitude of needed removal of European beachgrass. While the Project Area is not in designated Wilderness, use of mechanized equipment could result in short-term disturbance of the Wilderness experience for visitors at the adjacent Abbotts Lagoon, which does fall within Wilderness boundaries. The NPS has included a number of mitigation measures to reduce impacts on adjacent Wilderness areas, including avoidance of construction near the lagoon during migration season and adequate public notice among other measures.

The NPS believes that careful use of herbicide as a follow-up treatment following initial excavation of European beachgrass and the small amount of iceplant present in the Project Area represents the most effective and cost-efficient way of treating resprouts of these species. Herbicide would only be applied using backpack sprayers and calibrated, controlled nozzles during dry conditions when the wind speed does not exceed 10 mph.

Neither mechanical excavation nor herbicide would be used in areas with rare plants, native dune mat vegetation, or wetlands, with a buffer ranging from 10-to 25 feet. Hand removal would be performed exclusively in these areas both during initial construction and follow-up treatments. In addition, the NPS would establish a 25-foot buffer between any use of herbicide and adjacent ranchlands designated as either Organic Crop or Organic livestock in accordance with recommendations from the National Center for Appropriate Technology (NCAT).

Alternative C is the alternative selected for implementation. Alternative C is selected over Alternative B because it avoids the impacts of herbicide and prescribed fire during initial removal and because excavation and deep burial is a method proven to be successful in the removal of European beachgrass. Alternative C would also have fewer adverse impacts during implementation and, therefore, result in less loss of park natural resources.

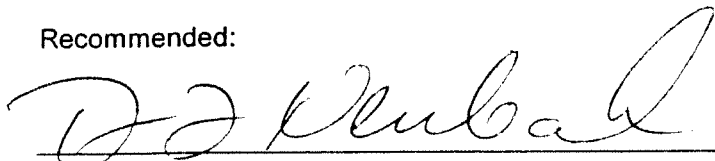
Conclusions

In coming to its decision, the NPS considered the range of alternatives, the potential impacts that may be generated by the Selected Action, and whether to prepare a site-specific Environmental Impact Statement (EIS). The Selected Action best accomplishes the overall project objectives, in keeping with the legislated purposes and the legal mandates of the NPS. Based on this detailed review, the NPS concludes that appropriate alternatives to the Selected Action have been analyzed and that the project will not generate any significant new or different environmental impacts requiring preparation of an EIS. Based on the environmental impact analysis documented in the EA, the capability of mitigations to reduce or avoid potential impacts, and with due consideration of the nature of public comment, the NPS has determined that the Selected Action is not a major federal action which could significantly affect the quality of the human environment.

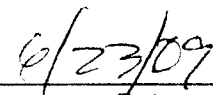
In conclusion, the Abbotts Lagoon Area Dune Restoration Plan does not constitute an action that would normally require the preparation of an EIS. It is tiered off of, and is consistent with, the GMP. The project would not have a significant impact on any aspect of the human environment, including public health and safety, cultural resources, or federally-protected species. The Selected Action would not cause significant negative indirect or cumulative effects and would not set a precedent for future actions. Implementation of the action would not violate any federal, state, or local law.

Therefore, in accordance with the National Environmental Policy Act of 1969 and regulations of the Council on Environmental Quality (40 CFR 1508.9), the selected alternative for the Abbotts Lagoon Area Dune Restoration Plan will be implemented as soon as practical, and an EIS will not be prepared.

Recommended:

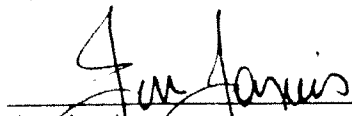


Don L. Neubacher
Superintendent, Point Reyes National Seashore

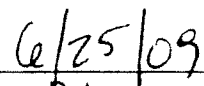


Date

Approved:



Jon Jarvis
Regional Director, PWR



Date

Summary of Prescribed Resource Protection Measures

Impact	Prescribed Measure	Responsibility ¹
1. Natural Resources		
Special Status Species	<p><i>All Species:</i></p> <ol style="list-style-type: none"> 1. Construction personnel will be educated regarding constraints and responsibilities in working in habitat with listed species 	<ol style="list-style-type: none"> 1. Contractor and NPS-RM
	<p><i>Western Snowy Plover.</i></p> <ol style="list-style-type: none"> 1. No work in foredunes between March 1 – September 15 2. No construction or hand removal within 500 feet of nests in either foredunes or backdunes 3. Backdunes treated first to leave foredune as buffer 4. Biological monitor to survey areas before construction 	<ol style="list-style-type: none"> 1. Contractor/Scheduling 2. Contractor/Construction 3. Contractor/Scheduling 4. NPS-RM/Construction
	<p><i>Myrtle's Silverspot.</i></p> <ol style="list-style-type: none"> 1. 10 mph speed limit for vehicles between June 15-Aug 31 2. Larval areas (including western dog violet) flagged to reroute traffic. 3. No use of herbicide in southern butterfly habitat between June 15-Aug 31; if butterflies found in northern portion, same restrictions would apply 4. No spraying within 25 feet of larval habitat 5. No removal or damage of larval habitat plants between Sept 1 and June 14 	<ol style="list-style-type: none"> 1. Contractor/Construction 2. Contractor and NPS-RM/Construction 3. Contractor/ Scheduling 4. Contractor and NPS-RM/Construction 5. Contractor/Scheduling and Construction
	<p><i>California Red-Legged Frog.</i></p> <ol style="list-style-type: none"> 1. Biological monitor to survey construction areas for CRLF suitability prior to construction start. 2. Suitable habitat surveyed 48 hours or less prior to construction start 3. No construction in documented CRLF habitat before July 31 4. 100-foot buffer required between construction and documented CRLF habitat 5. Suitable habitat areas require presence of CRLF biologist for daily clearance prior to work start and during initial grubbing activities 6. Daily clearance requirements can be reduced by installation of silt fence between documented CRLF habitat and adjacent construction activities 7. If a frog is observed, the animal(s) will be captured only by qualified personnel and relocated to an appropriate adjacent suitable habitat outside work area. 8. No herbicide spraying within 200 feet of CRLF occurrences 	<ol style="list-style-type: none"> 1. NPS-RM and Contractor 2. NPS-RM and Contractor 3. Contractor/Scheduling 4. Contractor/Construction 5. NPS-RM and Contractor 6. Contractor/Construction 7. NPS-RM and Contractor 8. Contractor/Construction
	<p><i>Beach Layia, Tidestrom's Lupine, and Sonoma spineflower and other rare plant species:</i></p> <ol style="list-style-type: none"> 1. Biological monitor survey restoration area and flag location of rare plants 2. No spraying or excavation within 10-foot buffer of rare plants 3. Hand removal only in buffer areas 4. No hand or mechanical removal in designated areas with rare plants <p><u>Measures specific to herbicides:</u></p> <ol style="list-style-type: none"> 5. Dry season spraying 6. Backpack sprayers used with directed, calibrated nozzles 7. Spraying only when winds are less than 10 mph 8. Shields potentially used to further direct spraying 	<ol style="list-style-type: none"> 1. NPS-RM 2. Contractor/Construction 3. Contractor/Construction 4. Contractor/Construction 5. Contractor/Construction 6. Contractor/Construction 7. Contractor/Construction 8. Contractor/Construction
	<p><i>Migratory Bird Species</i></p> <ol style="list-style-type: none"> 1. Between March 1–August 15, preconstruction surveys for migratory birds and nests conducted no more than 1 week prior to construction start. 2. If active nests of non-listed migratory birds found, minimum 100-foot exclusion zones established around nests to minimize disturbance-related impacts. 3. If active nests of special-status migratory birds found, exclusion zones established around nests, with width determined in consultation with USFWS 	<ol style="list-style-type: none"> 1. NPS-RM and Contractor 2. Contractor/Construction 3. Contractor/Construction

Wildlife	<i>Migrating Shorebirds and Waterfowl</i> 1. No construction or staging occurs near the lagoon after July 31.	1. Contractor/Construction
Vegetation	<i>Native Species-Dominated Dune Mat Communities</i> 1. No access through areas without concurrence of biological monitor that resources of concern are not present and no other route available. 2. No spraying or excavation within 10-foot buffer of dune mats 3. Hand removal only in buffer areas 4. Foot traffic only allowed with concurrence of biological monitor that access would not affect reproductive success of plants. <u>Measures specific to herbicides:</u> <i>See Special Status Plant Species above.</i>	1. Contractor and NPS-RM 2. Contractor/Construction 3. Contractor/Construction 4. Contractor and NPS-RM
Vegetation	<i>Measures to Protect Vegetation and Prevent the Introduction and Spread of Invasive Plant Species</i> 1. Tires and tracks of trucks and equipment washed off before entering and after leaving project sites to prevent seed transport.	1. Contractor/Construction
Water Resources/ Wetlands	1. Biological monitor survey restoration area and flag location of wetlands 2. To the maximum extent practicable, construction access and staging shall occur in uplands. No construction access through wetlands without permission of environmental monitor and NPS. 3. No excavation or spraying within 25-foot buffer for wetlands 4. Hand removal only in buffer areas and wetlands 5. If construction access or staging must occur in wetlands, access within these areas shall be kept to the minimum road width and acreage possible. 6. Construction access routes will be flagged to ensure that construction equipment does not detour from authorized entry points and access routes. 7. Any temporary "fill" or staging material placed in wetlands will be removed to upland locations at the earliest possible date. <u>Measures specific to herbicides:</u> <i>See Special Status Plant Species above.</i>	1. NPS-RM 2. Contractor/Construction 3. Contractor/Construction 4. Contractor/Construction 5. Contractor/Construction 6. Contractor/Construction 7. Contractor/Construction
Water Resources /Water Quality	1. Conduct construction work in accordance with site-specific construction plans that minimize the potential for increased delivery of sediment to surface waters of Abbotts Lagoon and Pacific Ocean. 2. Minimize the extent of areas to be cleared, graded, recontoured, or otherwise disturbed. 3. Grade and stabilize spoils sites to minimize erosion and sediment input to surface waters and generation of fugitive dust (see discussions under <i>Measures to Protect Air Quality</i>). 4. As appropriate, implement erosion control measures to prevent sediment from entering surface waters, including the use of silt fencing or fiber rolls to trap sediments and erosion control blankets on slopes and channel banks. <u>Measures specific to herbicides:</u> 5. Dry season spraying 6. No precipitation expected after spraying for at least 24 hours	1. Contractor/Construction 2. Contractor/Construction 3. Contractor/Construction 4. Contractor/Construction 5. Contractor/Construction 6. Contractor/Construction
Spill Prevention and Response Plan	1. Standard spill prevention and response measures be instituted that apply to the use of hazardous and toxic materials, such as fuels and lubricants for construction equipment. 2. Workers trained to avoid and manage spills. 3. Construction and maintenance materials prevented from entering surface waters and groundwater; 4. All spills cleaned up immediately 5. Appropriate agencies are notified of any spills and of cleanup procedures employed. 6. Spill containment and erosion control supplies kept on site to facilitate quick response to unanticipated storm events or emergencies. 7. Staging and storage areas for equipment, materials, fuels, lubricants, solvents,	1. Contractor and NPS-Maintenance 2. Contractor 3. Contractor 4. Contractor 5. Contractor 6. Contractor 7. Contractor

	<p>and other possible contaminants located at least 100 feet away from surface waters.</p> <ol style="list-style-type: none"> 8. No vehicles are fueled, lubricated, or otherwise serviced within the normal high-water area of any surface water body; 9. Vehicles are immediately removed from work areas if they are leaking; and 10. No equipment is operated in flowing water (suitable temporary structures are installed to divert water around in-channel work areas). 	<ol style="list-style-type: none"> 8. Contractor 9. Contractor 10. Contractor
Air Quality	<ol style="list-style-type: none"> 1. Limit the area subject to excavation, grading, and other construction activity at any one time. 2. Water unpaved access roads, parking areas, and staging areas as necessary, or stabilize them with nontoxic soil stabilizers approved for use adjacent to surface waters. 3. Apply (nontoxic) soil stabilizers to inactive earthwork areas (previously graded areas inactive for 10 days or more). 4. Enclose, cover, water, or apply nontoxic soil stabilizers to exposed stockpiles as necessary. 5. Maintain properly tuned equipment and limit idling time to 5 minutes. 6. Cover trucks hauling soil, sand, or other loose materials, or require them to maintain at least 2 feet of freeboard. 7. Replant vegetation or topsoil disturbed areas as quickly as possible. 8. Limit traffic speeds on unpaved roads to 10 mph. 	<ol style="list-style-type: none"> 1. Contractor/Construction 2. Contractor/Construction 3. Contractor/Construction 4. Contractor/Construction 5. Contractor/Construction 6. Contractor/Construction 7. Contractor/Construction 8. Contractor/Construction
2. Cultural Resources	<ol style="list-style-type: none"> 1. Prepare cultural resource monitoring plan to ensure that no ground-disturbing activities within areas of two identified buried soil levels result in no impacts to buried resources 2. Coordinate with the Federated Indians of Graton Rancheria (FIGR) to ensure that either a NPS or FIGR representative periodically monitors construction. 3. Work with cultural resource specialist in terms of coordinating some aspects of construction schedule and excavation depths to assist with monitoring efforts 4. Staging and access areas monitored by qualified cultural resource specialist prior to and during preparation 5. Heavy equipment operators trained on identification of cultural resources that may be encountered during excavation and appropriate response 6. In the case that resources are discovered during the course of construction, the NPS will act immediately and appropriately as documented in 36 CFR 800.13 "Post-review discoveries" (http://www.achp.gov/regqs.html#800.13). 	<ol style="list-style-type: none"> 1. NPS - CR 2. NPS - CR 3. Contractor and NPS - CR 4. Contractor and NPS - CR 5. Contractor and NPS - CR 6. Contractor and NPS - CR
3. Neighboring Land Uses	<ol style="list-style-type: none"> 1. 25-foot buffer between spraying of herbicide and adjacent areas designated as Organic Crop or Organic Livestock to comply with recommendations of NCAT and County of Marin standards 2. Installation of monitoring stations on ranch edge to evaluate potential dune migration inland into leased ranching operations on park lands 3. Changes in extent of grazable land evaluated as part of routine five-year reappraisal process of lease ranching operations on park lands 	<ol style="list-style-type: none"> 1. Contractor and NPS - RM and Range 2. NPS - RM 3. NPS - Range
4. Visual Quality	<ol style="list-style-type: none"> 1. Information regarding restoration activities posted in the park Visitor Centers as well as adjacent to restoration sites. 2. Explanation and education as to restoration objectives and activities included in interpretive areas. 	<ol style="list-style-type: none"> 1. NPS - RM 2. NPS - RM
5. Health and Safety	<ol style="list-style-type: none"> 1. Herbicides used in accordance with a Pesticide Use Proposal approved by the Pacific West Region Integrated Pest Management coordinator 2. Herbicide applications conducted by state-certified applicators 3. All herbicide use conducted in compliance with manufacturers' labels and only under prescribed weather conditions. 4. Calibrated backback sprayers used to avoid overspraying. 5. Application area may be closed to public to decrease risks 6. Traffic Safety Plan required that will address travel routes, closure plans, detour plans (if any), flagperson requirements (if any), locations of turnouts to 	<ol style="list-style-type: none"> 1. NPS - RM and Contractor 2. Contractor/Construction 3. Contractor/Construction 4. Contractor/Construction 5. NPS - Maintenance and Contractor 6. Contractor/Pre-Construct.

	<p>be constructed (if any), coordination with law enforcement and fire control agencies, measures ensuring emergency access, and additional need for traffic or speed-limit signs.</p> <p>7. Construction worker parking and access managed to avoid impeding access for park visitors and emergency vehicles.</p>	<p>and Construction</p> <p>7. Contractor/Construction</p>
6. Noise	<p>1. Construction equipment required to have sound-control devices at least as effective as those originally provided by the manufacturer</p> <p>2. No equipment operated with an unmuffled exhaust</p> <p>3. In general, construction will take place between 7:00 a.m. and 7:00 p.m., Monday through Friday, with weekends permissible only by permission from NPS.</p> <p>4. Signs in project vicinity provide NPS contact person for public concerns regarding noise</p> <p>5. Contractor to work with NPS on minimizing noise to the maximum extent practicable</p>	<p>1. Contractor/Construction</p> <p>2. Contractor/Construction</p> <p>3. Contractor/Construction</p> <p>4. NPS - RM</p> <p>5. Contractor and NPS</p>
7. Public Services	<p><i>Visitor Enjoyment and Recreational Uses</i></p> <p>1. All feasible measures taken to minimize effects of project construction on recreational use.</p> <p>2. Construction date/times, planned closures of portions of the project site and adjacent areas, and suggestions for alternative recreational opportunities provided to public via docents, rangers, park website, Visitor Centers, parking lot/trailheads.</p> <p>3. Interpretive information includes information on impacts to visitor enjoyment expected from construction</p> <p>4. Information posted in advance of construction start and planned closures</p>	<p>1. Contractor/Construction</p> <p>2. NPS - RM</p> <p>3. NPS - RM</p> <p>4. NPS and Contractor</p>
8. Economic	N/A	

¹ NPS=National Park Service; RM=Resource Management; CR=Cultural Resources