DETERMINATION OF NON-IMPAIRMENT

STRAWBERRY CREEK RESTORATION

While Congress has given the National Park Service (NPS) management discretion to allow impacts within parks, that discretion is limited by the statutory requirement, generally enforceable by the federal courts, that the NPS must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This cornerstone of the Organic Act establishes the primary responsibility of the NPS: to ensure that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment of park resources and values may not be allowed by the NPS unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

The impairment that is prohibited by the Organic Act and the General Authorities 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 otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts.

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute 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, or
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

National Park Service's *Management Policies 2006* requires analysis of potential effects to determine whether or not actions would impair park resources. The park resources and values that are subject to the no-impairment standard include:

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

Redwood National Park was established by Congress in 1968 to "preserve significant examples of the coastal redwood ... forests and the streams ... with which they are associated for purposes of public inspiration, enjoyment, and scientific study." [Public Law 90-245]. As logging and road building continued in Redwood Creek upstream and upslope of the original park, concern about the continued damage to watersheds within the new park prompted park advocates to call for expansion to halt the impacts and allow for recovery. Congress expanded Redwood National Park in 1978 and authorized the NPS to develop a program for the rehabilitation of logged and roaded watersheds "to reduce risk of damage to streamside areas and for other purposes" [Public Law 95-250, Section 101(a) (6)].

The 1999 Redwood National and State Parks *Final General Management Plan/General Plan, Final Environmental Impact Statement/Environmental Impact Report* (RNSP GMP/FEIS) approved through the 2000 *Record of Decision* described the watershed restoration program to treat stream crossings on abandoned logging roads to reduce the potential for erosion. The GMP also describes a management strategy to collaborate with other federal, state, and local agencies, conservation organizations, and affected landowners to restore natural functioning to Redwood Creek estuary.

The following topics from the Strawberry Creek Restoration Environmental Assessment, dated February 2014, were considered as measures of the condition of the stream and watershed environment, including the Redwood Creek estuary into which Strawberry Creek flows, and are applicable to evaluation of the selected action for potential impairment:

Air quality, soils and topography, hydrology and water quality, floodplains, wetlands, vegetation, fish and wildlife species that are not listed as threatened or endangered, threatened and endangered species, and cultural resources.

Non-resource topics such as visitor use, socioeconomics of gateway communities or public health and safety are not subject to impairment determinations.

The selected action will not fully reverse the impairment of soils, topography, hydrology, water quality, floodplains, riparian wetlands, and vegetation in the Redwood Creek watershed upstream of the project area. The impairment to these resources from logging of old growth redwood forests and road building was the primary reason for expanding Redwood National Park in 1978. The "Redwood amendment" to the General Authorities Act reiterated the non-impairment provision of the Organic Act that applies to all national park units (*Management Policies 2006* 1.4.1 and 1.4.2).

Air Quality— Heavy equipment such as dump trucks and excavators used during restoration actions will produce pollutants in their exhaust that could impact air quality at the project site and immediately adjacent areas. Excavation may generate additional dust particulates into the air, but observations from similar projects indicate that water in the excavated soils will limit dust to a negligible level.

The selected action could result in adverse impacts to air quality through the generation of dust and additional exhaust fumes. These impacts would be negligible because they would be confined to the project site during heavy equipment operations and mitigated through current licensing to meet state air quality standards. As a result, there will be no impairment to air quality from implementing the selected action.

Soils and Topography— The selected action will reduce or prevent erosion of road fill from removal of four stream crossings and replacement of an undersized culvert. Stream crossings will be reshaped into the original landforms.

However, the selected action has the potential to cause short-term and long-term impacts. These potential short-term impacts include soil erosion during construction and erosion of 24 cubic yards of soils from stream crossing removal one to two years after construction. Potential construction impacts will be mitigated by erosion control BMPs. Because of these mitigation actions, short-term adverse effects from erosion during construction will be minor or negligible. Erosion of 24 cubic yards of soil is unavoidable but acceptable because the eroded sediment is expected to be trapped in vegetation and topographic irregularities in the drainage channel and released in small pulses over one to two years rather than in a single large pulse.

Short-term effects on soils from erosion will be minor or negligible because of the BMPs and multiple minimization measures that will be implemented.

There will be long-term effects on soils and topography from excavation to create stream channels and planting mounds and culvert replacement.

Effects on topography and soils for culvert replacement are negligible because these impacts occur on road fill within a very small area of a road corridor. Effects on topography and soils for stream crossing removals are negligible and beneficial because the original landform and hydrologic pattern will be restored. Effects on soils and topography to create new stream

channels in the wetland and planting mounds are adverse, long-term, moderate, and unavoidable but acceptable because they are necessary to meet the purpose and need for the project. About 30 acres of soils with properties similar to the excavated soils will be undisturbed in the wetland outside the project limits of disturbance as well as on adjacent private lands in the vicinity.

There will be no impairment to soils or topography in the project area from implementing the selected action. The selected action will reduce soil erosion over the long-term and restore the original topography of the upslope stream crossings. Potential adverse impacts from erosion will be mitigated through erosion control methods and BMPs. Long-term alteration to soils and topography from creation of stream channels and planting mounds are moderate and acceptable because these alterations are needed to achieve objectives for restoration outlined in the 1978 expansion legislation and the 1999 GMP. The selected action will have a negligible effect on reducing the impairment to soils from logging and road construction in the Redwood Creek watershed upstream of the project area.

Hydrology and Water Quality—The selected action will benefit water quality in Strawberry Creek by reducing chronic erosion and the potential for large-scale episodic erosion from failure of upslope stream crossings and an undersized culvert, removing invasive reed canary grass, and creating riparian zones that will shade the channel. The selected action will benefit hydrology by restoring original drainage patterns in the upslope stream crossings and restoring free-flowing stream channels. Removal of reed canary grass and creation of free-flowing channels will increase dissolved oxygen to a level that can support salmonids.

The short-term adverse effects on water quality from erosion associated with excavation could be minor, depending on the magnitude and duration of rains immediately following excavation. These adverse effects are unavoidable because they are necessary to prevent more severe adverse effects from failure of the culvert and stream crossing and from low dissolved oxygen levels that are lethal to salmonids. Potential adverse effects on water quality during excavation of stream crossings will be minimized through application of BMPs prescribed in the NOAA Restoration Center biological opinion and the California Department of Fish and Wildlife mitigation measures required for projects funded through the Fisheries Restoration Grant Program. The short-term adverse effects on water quality from erosion of small amounts of sediment after excavation are acceptable because good water quality is a critical component of watersheds whose conservation is necessary to fulfill specific purposes identified in the 1978 expansion legislation and are identified in the park's general management plan as being of significance.

Therefore, the selected action will not impair hydrology or water quality in Strawberry Creek. The selected action will have a negligible effect on reducing the impairment to hydrology and water quality in the Redwood Creek estuary that results from the presence of numerous abandoned logging roads, the legacy of clear-cut logging on a watershed-wide scale, and the flood control levees.

Floodplains—The selected action will benefit the floodplain of Strawberry Creek within the project area by restoring hydrologic patterns and by eliminating the potential for failure of the undersized culvert and the stream crossings that could deliver sediment directly into the floodplain in a major storm.

The creation of channels and mounds that confine low flows within the bankfull channel will restore the condition of a natural floodplain. The side and dead-end channels have been designed to flood at moderate flows to create additional backwater habitat for threatened fish. The highest flows will eventually overtop the mounds, spreading out onto the wetland. Confining low and moderate flows within a designed channel rather than allowing the flows to spread out in the wetland can be considered a long-term minor adverse effect. However, this is the condition of a naturally functioning floodplain that is a critical component of watersheds whose conservation is necessary to fulfill specific purposes identified in the establishing legislation of the park, and is identified in the park's general management plan as being of significance.

The selected action will restore a portion of the Strawberry Creek floodplain to a more natural condition and function.

Therefore, the selected action will not impair floodplains. The selected action will have a negligible benefit to the impairment of the floodplain of the Redwood Creek estuary that results from the presence of the flood control levees.

Wetlands—The selected action will benefit wetlands through removal of invasive species and planting of native riparian species; creating a well-defined, stable channel with abundant large woody debris embedded in the channel; and increasing topographic complexity through creation of channels and addition of side channels and sloping mounds adjacent to the main channel.

However, the selected action will have adverse effects to wetland vegetation because grubbing to remove invasive reed canary grass and other invasive grasses will affect localized areas of native species including slough sedge and common rush. There will be adverse effects to hydric soils from creation of temporary access roads; excavation to create channels; and placement of fill to create mounds.

These adverse effects are negligible to minor because the majority of vegetation to be removed is an invasive grass that has significant adverse effects on water quality and habitat for threatened fish, and because approximately 30 acres of similar wetland vegetation, including native species, and hydric soils will remain in adjacent wetlands that will not be affected by construction.

The selected action will result in a loss of 1.27 acres of wetlands regulated by the US Army Corps of Engineers as 3-parameter jurisdictional wetlands. Under the Corps' regulations, 0.91 acres of palustrine emergent wetlands will be converted to uplands to create planting mounds and 0.37 acres will be converted to Waters of the US as stream within the channels. The Corps evaluated these effects prior to issuing Department of the Army Permit No. 2009-0041N on January 3, 2014 to the NPS for the selected action to restore Strawberry Creek. The 0.91 acres are classified as palustrine forested wetlands and the 0.37 acres as riverine wetlands under the Cowardin system used by the NPS for managing wetlands under the *Procedural Manual #77-1: Wetland Protection*. The palustrine forested wetlands will function as a riparian zone along the stream channel. Therefore, there is no net loss of wetlands under the NPS guidelines for protecting wetlands.

The selected action will have a long-term benefit to wetlands from improving wetland functions. About 30 acres of palustrine emergent wetland will remain adjacent to the project site. The selected action will not impair wetland values and functions.

Vegetation Resources—The selected action will benefit native plants from removal of invasive reed canary grass and planting of native species on the mounds to create a riparian zone.

The selected action will have negligible short-term adverse effects from removal of 0.44 acres of vegetation to remove the upslope stream crossings. Most of this vegetation will be salvaged for use as mulch to be placed on the excavated areas. Topsoil recovered from stream crossing removal will be replaced when the landform is restored. The mulch and topsoil contain native seeds that will recolonize the restored landforms within one to two years.

The selected action will remove invasive species and increase plant community diversity by creating a riparian zone. As a result, there will be no impairment to vegetation in the project area.

Fish and Wildlife Resources—The current palustrine emergent wetland provides habitat for fish, amphibians, and birds. Wildlife habitat diversity will be increased by creating a stream channel and a riparian zone. Fish will benefit from increased dissolved oxygen through removal of invasive reed canary grass and improved stream flow. Thirty acres of palustrine emergent wetlands favored by amphibians and birds will remain adjacent to the project area.

Loss of habitat from vegetation removal and disturbance associated with construction will be a short-term adverse effect on individuals of small sedentary species that cannot move out of work sites. However, the selected action will have negligible effects on any population of fish or wildlife or the long-term persistence of any fish or wildlife species. Therefore, the selected action will not impair wildlife resources.

Threatened and Endangered Species—The restoration activities under the selected action may affect and are likely to adversely affect SONCC coho salmon and NC steelhead, and their designated critical habitat. These effects were evaluated by the National Marine Fisher Service (NMFS) in the NOAA Restoration Center Biological Opinion and Essential Fish Habitat (EFH) consultation issued on March 21, 2012 (2011/06430).

NMFS found that short-term adverse effects to listed fish from instream construction activities and temporary sediment mobilization will be outweighed by the long-term benefits to the species and their habitats from restoration of stream channels, replacement of the undersized culvert, and stream crossing restoration. The duration and magnitude of adverse effects to listed salmonids and designated critical habitat associated with implementation of the selected action will be significantly minimized due to the implementation of multiple avoidance and minimization measures found in the California Department of Fish and Game *California Salmonid Stream Habitat Restoration Manual, Third Edition*, and the reasonable and prudent measures and the terms and conditions required under the NOAA Restoration Center Programmatic Biological Opinion and Essential Fish Habitat consultation.

NMFS also found that the selected action is not likely to jeopardize the continued existence of Southern Oregon/Northern California Coast (SONCC) coho salmon and Northern California (NC) steelhead, and is not likely to result in the destruction or adverse modification of designated critical habitat for these species. The non-discretionary reasonable and prudent measures and terms and conditions of the biological opinion, as well as two additional discretionary conservation measures, are expected to reduce the amount or extent of incidental take of SONCC coho salmon and NC steelhead. The selected action will adversely affect EFH for coho salmon, but the activities will be conducted using adequate measures to avoid, minimize, mitigate, or otherwise offset the adverse effects to EFH.

There will be no direct adverse effects on northern spotted owls or marbled murrelets under the selected action. There will be indirect adverse effects on northern spotted owls from a slight amount of degradation of potentially suitable owl habitat from removal of understory vegetation for stream crossing removal. This adverse effect will persist for no more than five years and will be negligible over the long-term.

The selected action will have negligible adverse effects to northern spotted owls over the long-term, no effects on marbled murrelets, and a long-term benefit to SONCC coho salmon and NC steelhead from restoration of habitat and improvement of water quality. Therefore, the selected action will not cause impairment to threatened wildlife and fish species.

Non-Impairment of Cultural Resources—There are no significant historic properties or other significant cultural resources that will be affected by the selected action.

The selected action will not result in impairment of cultural resources because there are no known resources present in the project area and monitoring during construction will detect any currently unknown historic sites.

SUMMARY

As described above, adverse effects and environmental impacts anticipated as a result of implementing the selected action on 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 opportunities for enjoyment of the park, or identified as significant in the park's general management plan or other relevant NPS planning documents, will not rise to levels that would constitute impairment of park values and resources.