# CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

## 3.1 Introduction

The National Environmental Policy Act (NEPA) requires that environmental documents disclose the environmental impacts of a proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. NEPA requires consideration of context, intensity, and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate impacts. NPS policy also requires that "impairment" of resources be evaluated in all environmental documents.

Under the Endangered Species Act of 1973, the likelihood of a project to "adversely affect" federally protected species must be evaluated.

## 3.2 General Methodology

Beginning with Section 3.4, each resource type (geology and soils, hydrology and water quality, biological resources, cultural resources, public safety, air quality, visitor use and recreation, noise, and visual resources) is described under "affected environment".

Adverse, beneficial, and cumulative impacts are then analyzed for each alternative. This analysis considers "duration", "context", "intensity", and "type of impact", as defined below. Finally, a conclusion is drawn as to the "significance" of impact that each alternative is expected to have on each resource type and whether the proposed project is expected to result in "impairment" to park resources.

### 3.2.1 Duration

The duration of the impact considers whether the impact would occur in the short-term or the long-term.

- ***Short-term*** impacts are temporary, transitional, or construction-related impacts associated with project activities.
- ***Long-term*** impacts are typically those effects that would last several years or more or would be permanent.

### 3.2.2 Context

The context of the impact considers whether the impact would be local or regional. For the purposes of this analysis:

- ***Local impacts*** would generally occur within the immediate vicinity of the proposed project.
- ***Regional impacts*** would occur on surrounding lands and/or in adjacent communities.

### 3.2.3 Intensity

Intensity is a measure of the severity of an impact. The intensity of the impact considers whether the effect would be negligible, minor, moderate, or major.

- ***Negligible*** impacts would not be detectable and would have no discernible effect.
- ***Minor*** impacts would be slightly detectable, but would not be expected to have an overall effect.
- ***Moderate*** impacts would be clearly detectable and could have an appreciable effect.
- ***Major*** impacts would have a substantial, highly noticeable effect.

*Federally Listed Species*

The Endangered Species Act (ESA) defines the terminology used to assess impacts to listed species. Because this EA also doubles as a Biological Assessment (BA) to initiate formal consultation with the USFWS under section 7 of ESA, the following ESA terminology will be used to describe impacts to the federally endangered San Francisco garter snake and the federally threatened California red-legged frog.

- ***No effect:*** When a proposed action would not affect a listed species or designated critical habitat.
- ***May affect / is not likely to adversely affect:*** Effects on special status species are discountable (i.e., extremely unlikely to occur and not able to be meaningfully measured, detected, or evaluated) or are completely beneficial.
- ***May affect /is likely to adversely affect****:* When an adverse effect to a listed species may occur as a direct or indirect result of proposed actions and the effect either is not discountable or is completely beneficial.

### 3.2.4 Type of Impact

Impacts were evaluated in terms of whether they would be beneficial or adverse.

- ***Beneficial impacts*** would improve resources/conditions.
- ***Adverse impacts*** would deplete or negatively alter resources/conditions.

Impacts were also evaluated in terms of whether they would be direct or indirect.

- ***Direct impacts*** would be caused by an action and occurs at the same time and place.
- ***Indirect impacts*** are effects that are later in time or farther removed in distance, but still reasonably foreseeable.

### 3.2.6 Significance

Impacts to natural resources considered significant are those that would:

- Violate any applicable environmental law or regulation designed to protect wildlife, fisheries, plant species, or habitat areas;
- Affect a special status species or cause a net change to the habitat of the species;
- Change the ability of any resident or migratory fish or wildlife species to move;
- Cause measurable changes in species composition or abundance of a community with special status;
- Cause direct or indirect damage to geologic or hydrologic resources or processes, or increase the risk related to geologic hazards.

Impacts to cultural resources considered significant are those that would:

- Conflict with resource protection measures established by local, state, or federal regulatory programs;
- Cause direct or indirect adverse effects to prehistoric or historic archaeological sites listed or eligible for listing on the National Register of Historic Places or the California Register of Historic Resources, or that contribute to a National Historic Landmark District;
- Interfere with established recreational, educational, and scientific uses of the project site;
- Disturb any human remains.

Project related impacts to visitor use and experience would be significant if

- Visitor attendance was estimated to decrease in the long-term;
- If the type of uses available to visitors would be adversely altered resulting in a long-term, decrease of visitor enjoyment.

### 3.3 Cumulative Impacts

The Council on Environmental Quality (CEQ) regulations for implementing NEPA requires the assessment of cumulative impacts in the decision-making process for federal actions. A cumulative impact is described in the Council on Environmental Quality, Regulation 1508.7, as follows:

> *A "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

Cumulative impacts are considered for both the Action Alternative and the No Action Alternative. Cumulative impacts were determined by combining the effects of the alternative with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future actions within the vicinity of the project site, which includes portions of the City of Pacifica surrounding the Project Area to the north, east and south. The City of Pacifica and the City of San Francisco Planning Departments

and Departments of Recreation and Parks provided the following information; cumulative impacts are then evaluated per resource for each impact topic addressed in this chapter.

**General Area/Pacifica**
The California Department of Transportation (Caltrans) has proposed the widening of State Highway 1 from Westport Avenue to Fassler Avenue near Rockaway Beach. The proposed widening runs parallel but not adjacent to Mori Point. Caltrans has not proposed a specific plan, timeline or budget for the project. The Mori Point Restoration and Trail Plan will provide optimal environmental benefits for natural resources and visitors within the vicinity of the proposed widening.

**Adjacent Lands**
South of Mori Point, the City of Pacifica owns and manages Calera Creek as part of the city's tertiary water treatment system. The Mori Point Restoration and Trail Plan will enhance the city's efforts at Calera Creek by protecting adjacent habitat and prohibiting any activity that would adversely impact the quality of the creek.

The Peebles Atlantic Development Corporation recently acquired the property on either side of Calera Creek. Peebles has not submitted a formal development plan to the City of Pacifica. Opportunities for trail connections to Mori Point have been discussed. The Mori Point Restoration and Trail Plan will ensure a trail connection from the Sea Wall, through Mori Point, to locations south.

The Mori Point Restoration and Trail Plan will complement and advance the City of San Francisco's Significant Natural Resources Management Plan for the Sharp Park Golf Course and Laguna Salada Resource Enhancement Plan. The San Francisco Recreation and Parks Department regularly drains the wetlands adjacent to the NPS property to water the Sharp Park Golf Course. This project will remove invasive vegetation and trees, close excess trails from the levee to Laguna Salada, make other trail improvements, stabilize creek banks and add riparian vegetation, and implement habitat improvement activities for CA red-legged frog and SF garter snake. The Mori Point Restoration and Trail Plan will provide consistent habitat for the California red-legged frog through the construction and maintenance of ponds. The City of Pacifica's sea wall promenade also serves as the CCT connector through Pacifica. The Mori Point Restoration and Trail Plan will ensure an extension through the NPS-managed lands at Mori Point.

**On-site**
The Mori Point Restoration and Trail Plan will complement and advance the resource enhancement activities approved by the USFWS in 2005 for pond building, site stewardship and public outreach and mosquito control.

### 3.4 Impairment Analysis

In addition to determining the environmental consequences of the alternatives, NPS Management Policies 2001 requires the analysis of potential effects to determine if actions would impair park resources. Under the NPS Organic Act and the General Authorities Act, as amended, the NPS

may not allow the impairment of park resources and values except as authorized specifically by Congress.

Impairment is an impact that 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. An impact would be more likely to constitute an impairment to the extent that it 1) affects a resource or value whose conservation is necessary to fulfill specific purposes identified in the enabling legislation or proclamation of the park; 2) is key to the cultural or natural integrity of the park or to opportunities for enjoyment of the park; 3) or as identified as a goal in the park's general management plan or other relevant NPS planning document. An impact would be less likely to constitute an impairment to the extent that it is an unavoidable result, which cannot be reasonably further mitigated, of an action necessary to preserve or restore the integrity of park resources or values.

## 3.3 Regulatory Background

### 3.3.1 Soils and Geology

NPS Management Policies 2001 state, "The Park Service will preserve and protect geologic resources as integral components of park natural systems. As used here, the term "geologic resources" includes both geologic features and geologic processes. The Service will (1) assess the impacts of natural processes and human- related events on geologic resources; (2) maintain and restore the integrity of existing geologic resources; (3) integrate geologic resource management into Service operations and planning; and (4) interpret geologic resources for park visitors."

### 3.3.2 Hydrology, Water Quality, Wetlands, and Streams

Federal Clean Water Act

*Section 404 of the Clean Water Act* prohibits the discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers (USACE). Waters of the United States are broadly defined in USACE regulations (33 CFR 328) to include navigable waterways, their tributaries, and adjacent wetlands. The upper limit of jurisdiction wetlands in non-tidal streams and lakes is defined by the ordinary high-water mark, or the upper boundary of adjacent wetlands, whichever is higher.

The definition of waters of the United States includes wetland areas "that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 7b). Substantial impacts to wetlands may require an individual permit. Projects that only minimally affect wetlands may be eligible for one of the Nationwide Permits that require less review than an individual permit. The U.S. Environmental Protection Agency (USEPA) also has authority over wetlands and may override an USACE permit.

*Section 401 of the Clean Water Act* – The California Regional Water Quality Board (RWQCB) and the U.S. Environmental Protection Agency (EPA) set water quality standards that are ecologically protective of aquatic systems (RWQCB, 1995; EPA, 2000). Water Quality Certification or a waiver from the RWQCB is required before a Section 404 permit becomes valid. The RWQCB also reviews projects for consistency with Waste Discharge Requirements under the state land disposal regulations. In reviewing projects, the RWQCB may consider impacts to waters of the state, and may recommend mitigation for filling of wetlands and other impacts in accordance with the state wetland policy.

Executive Order No. 11990, Protection of Wetlands

Executive Order 11900 was signed by President Carter in 1977, in furtherance of the National Environmental Policy Act of 1969, as amended (42 U.S.C. 4321 et seq.), in order to avoid to the extent possible the long and short-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative. The Executive Order, Section 1(a), established a policy of "no net loss" of wetlands. Compensation for wetland impacts may include restoration and/or off-site replacement or enhancement. However, the characteristics of the restored or enhanced wetlands must be equal to or better than those of the affected wetlands.

### 3.3.3 Vegetation, Wildlife, and Special Status Species

Executive Order 13112, Invasive Species

Executive Order 13112 was signed by President Clinton in 1999, under the authority of the NEPA, as amended (42 U.S.C. 4321 et seq.), Non-indigenous Aquatic Nuisance Prevention and Control Act of 1990, as amended (16 U.S.C. 4701 et seq.), Lacey Act, as amended (18 U.S.C. 42), Federal Plant Pest Act (7 U.S.C. 150aa et seq.), Federal Noxious Weed Act of 1974, as amended (7 U.S.C. 2801 et seq.), Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The purpose of this order is to prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health impacts that invasive species cause. Section 2.a.2 states that federal agencies shall "(i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them."

California Coastal Act (Coastal Zone Management Act)

The California Coastal Act (updated January 1, 2005) was enacted by the State Legislature to (a) protect, maintain, and, where feasible, enhance and restore the overall quality of the coastal zone environment and its natural and artificial resources, (b) assure orderly, balanced utilization and conservation of coastal zone resources taking into account the social and economic needs of the people of the state, (c) maximize public access to and along the coast and maximize public recreational opportunities in the coastal zone consistent with sound resources conservation

principles and constitutionally protected rights of private property owners, (d) assure priority for coastal-dependent and coastal-related development over other development on the coast, and (e) encourage state and local initiatives and cooperation in preparing procedures to implement coordinated planning and development for mutually beneficial uses, including educational uses, in the coastal zone.

The Act states that (a) environmentally sensitive habitat areas shall be protected against any substantial disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas, and (b) development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would substantially degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Each local government lying, in whole or in part, within the coastal zone shall prepare a local coastal program for that portion of the coastal zone within its jurisdiction. The City of Pacifica approved their Local Coastal Land Use Plan on March 24, 1980.

The Act states that all public agencies and all federal agencies, to the extent possible under federal law or regulations or the United States Constitution, shall comply with the provisions of this division. The California Coastal Commission regulates land uses within the Coastal Zone and issues permits for proposed changes in land use and/or development activities.

Federal Endangered Species Act

The Federal Endangered Species Act of 1973 and Title 16 (implementing regulations) of the United States Code of Regulations (CFR) 17.1 et seq., designate and provide for protection of threatened and endangered plants and animals and their critical habitat. Procedures for addressing federally listed species follow two principal pathways, both of which require consultation with the USFWS, which administers the Act for all terrestrial species. A Section 7 Consultation (Interagency Consultation) involves projects with a federal connection or requirement; typically these are projects where a federal lead agency (i.e. NPS) is sponsoring or permitting the Proposed Project. In these instances, the federal lead agency initiates and coordinates the following steps:

- Informal consultation with USFWS to establish a list of target species.
- Preparation of a biological assessment assessing potential for the project to adversely affect listed species.
- Coordination between State and Federal biological resource agencies to assess impacts/proposed mitigation.
- Development of appropriate mitigation for all substantial impacts on federally listed species.

The USFWS ultimately issues a final Biological Opinion on whether the project would affect the federally listed species. A Section 10(a) Endangered Species Incidental Take Permit may be necessary when the "taking" or harming of a species is incidental to the lawful operation of a project.

Federal Migratory Bird Treaty Act (MBTA)

The Federal Migratory Bird Treaty Act (16 U.S.C., Sec. 703, Supp. I, 1989) prohibits killing, possessing, or trading in migratory birds, except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. Migratory birds include geese, ducks, shorebirds, raptors, songbirds and many others. The Migratory Bird Executive Order of January 11, 2001 directs executive departments and agencies to take certain actions to further implement the MBTA, and defines their responsibilities of each federal agency taking actions that have, or are likely to make, a measurable affect on migratory bird populations. All project actions must comply with this act; therefore, they cannot result in unauthorized take of migratory birds.

### 3.3.4 Cultural Resources

National Historic Preservation Act of 1966

The National Historic Preservation Act (PL89-665, 80 Stat. 915, 16 USC Section 470 et seq. and 36 CFR 18, 60, 61, 63, 68, 79, 800) 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 Advisory Council on Historic Preservation has developed implementing regulations (36 CFR 800), which allow agencies to develop agreements for consideration of these historic properties. In June 1992, the NPS, State Historic Preservation Officer, and the Advisory Council on Historic Preservation entered into a programmatic agreement regarding operation and maintenance activities within the GGNRA.

Archeological Resources Protection Act of 1979

This act (PL 96-95, 93 Stat. 712, 16 USC Section 470aa et seq. and 43 CFR 7, subparts A and B, 36 CFR) 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. It requires notification of Indian tribes who may consider a site of religious or cultural importance prior to issuing a permit.

### 3.3.5 Public Safety

NPS Management Policies (Chapter 8.2) state that "The National Park Service will make reasonable efforts to provide for the protection, safety, and security of park visitors, employees, concessionaires, and public and private property and to protect the natural and cultural resources entrusted to its care."

### 3.3.6 Air Quality

The NPS has a responsibility to protect air quality under both the 1916 Organic Act and the Clean Air Act. NPS Management Policies 2001 state, "The Service will seek to perpetuate the

best possible air quality in parks to (1) preserve natural resources and systems; (2) preserve cultural resources; and (3) sustain visitor enjoyment, human health, and scenic vistas. Vegetation, visibility, water quality, wildlife, historic and pre-historic structures and objects, cultural landscapes, and most other elements of a park environment are sensitive to air pollution and are referred to as 'air quality- related values.' The Service will assume an aggressive role in promoting and pursuing measures to protect these values from the adverse impacts of air pollution. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the Service will err on the side of protecting air quality and related values for future generations."

3.3.7 Visitor Use and Recreation

NPS Management Policies (Chapter 8.6) state that "The National Park Service will make reasonable efforts to provide for the protection, safety, and security of park visitors, employees, concessionaires, and public and private property and to protect the natural and cultural resources entrusted to its care".

3.3.8 Noise

NPS Management Policies 2001 and Director's Order #47, Sound Preservation and Noise Management mandate parks to preserve the natural soundscape associated with national park units. Management Policies state "The Service will take action to prevent or minimize all noise that, through frequency, magnitude, or duration, adversely affects the natural soundscape or other park resources or values, or that exceeds levels that have been identified as being acceptable to, or appropriate for, visitor uses at the sites being monitored."

3.3.9 Visual Resources

The protection of aesthetic values is addressed in the NPS Natural Resource Management Guidelines (NPS-77). These NPS Guidelines state: "Protection of aesthetic values is not a program in itself but is an element of most natural resource management programs. It may be argued that aesthetics is the over-arching principle that unites the various management strategies discussed in this Guideline. Our current visitors and the future generations for which we are managing parks "unimpaired" should be able to perceive the same objects (or the same types of objects)--whether animate or inanimate--and processes in the same contexts that existed when the park was established."

NPS Management Policies identify qualities such as natural quiet, solitude, space, scenery, a sense of history, sounds of nature, and clear night skies that have received congressional recognition and are important components of people's enjoyment of parks. These NPS Management Policies use the terms resources and values to mean the full spectrum of tangible and intangible attributes for which parks have been established and are being managed.
(1:3) NPS Management Policies also make numerous references to aspects of aesthetics as central issues considered in resource management. It includes, under the natural resources and values that the National Park Service must protect, "aesthetic values, such as scenic vistas, natural, quiet, and clear night skies."(4:1) "The National Park Service will cooperate with park

neighbors and local government agencies to seek to minimize the intrusion of artificial light into the night scene in parks with natural dark, recognizing the part that darkness and the night sky play in the overall visitor experience. In natural areas, artificial outdoor lighting will be limited to basic safety requirements and will be shielded when possible." (4:18-19)

## 3.4 Geology and Soils

### 3.4.1 Affected Environment

#### *3.4.1.1 Geology and Slope Stability*

The Mori Point site is located on the Pacific Coast near the base of the western foothills of the Santa Cruz Mountains in the Coast Range Geomorphic Province of Central California. The site consists of a steep east-west trending ridge between Highway 1 on the east and the Pacific Ocean shoreline on the west. Elevations range from a high of approximately 335 feet atop the west end of the ridge to a low of approximately seven feet above sea level in the north-central part of the site. The coastline is marked by a steep cliff that rises approximately 100 feet above a narrow sandy beach.

The Mori Point site is underlain by bedrock materials, alluvial soils, colluvium, slope wash, and miscellaneous fill. Bedrock in the area consists of Franciscan complex rocks of upper Jurassic to Cretaceous age (140 to 65 million years old) (Wagner et al., 1990, Jennings, 1977). These rocks are extremely diverse and deformed and generally lie in a belt along the eastern side of the San Andreas Fault, which is located approximately two miles northeast of the site. The site is located on a wedge of Franciscan greenstone between the San Andreas and the Pilarcitos Faults, the latter of which is located approximately 1.6 miles to the southwest. The greenstone bedrock at the site is highly fractured and weathered to depths of 50 feet or more. Weathered bedrock on the site is visible at the surface in a number of road cuts on the ridge. The weathered greenstone is fractured and jointed, and a brownish-red color. Fresh dark green bedrock can be seen in the surf zone on the western edge of the site and in the deep road cut along Highway 1.

The dominant geologic structure in this area is the active San Andreas Fault system, the main trace of which trends northwest/southeast through Pacifica, San Bruno, and Daly City, northeast of the site (Wagner et al., 1990, Jennings, 1977). This major fault has been the source of substantial seismic activity. There is no evidence of active faults within the project site, but strong ground shaking could occur during a moderate to major earthquake within the general vicinity.

Areas of existing and/or potentially unstable slopes at the site include: the sea cliff area where active erosion is occurring; a large active landslide on the north-facing slope in the eastern portion of the site; other smaller areas of landslide or soil creep; and areas of soil disturbance such as historic road cuts, quarries, and building pads. The broad swale in the center of the northern slope of the ridge appears to contain several generations of fill, but there is no evidence of landslide activity in this area.

Earth System Consultants (ESC) estimated that the Mori Point coastline has eroded

approximately 40 feet in the 37 years preceding their 1978 study (ESC, 1978). This equates to an average coastal retreat rate of approximately 1.1 feet per year. ESC states that erosion and instability along the sea cliff is a naturally occurring process, which is virtually impossible to mitigate.

The active landslide on the north-facing slope on the eastern portion of the site appears to have experienced several generations of movement. Initial movement probably occurred prior to development of the adjacent subdivision (ESC, 1978). Later movements appear to have been in the form of slow, progressive failures resulting in the distress that is evident in the retaining wall along the south side of Mori Road and the relatively fresh topographic scarps that are evident on the landslide surface. ESC noted distress in the retaining wall along Mori Road during their 1978 study – how much change in damage to the retaining wall relative to the present condition is not known. ESC studied this landslide extensively in 1978 and concluded the landslide is a relatively slow progressive failure in the highly plastic silty clay soil. Their analysis indicated that the slide area is unstable and especially sensitive to groundwater levels (hydrostatic and seepage forces), changes in loading conditions (e.g., cuts and fills in the slide area), and seismic forces. They also concluded that there is a high potential for seismically induced landslides or slope failures in this area and other mapped landslide areas, as well as very steep slopes or areas of creeping soil. In summary, localized landslides, deep soil creep, and coastal erosion are the principal forms of slope instability at the project site.

*3.4.1.2 Soils*

Subsurface investigations at the Mori Point site indicate soils consisting predominantly of silty clay overlying weathered Franciscan greenstone bedrock. The soil thickness across the site varies from zero to as much as 69 feet. South of the Mori Road, soils of the upland region consist of dark brown to reddish-brown silty clay to depths from 13 to greater than 50 feet (ESC, 1978). The greatest soil thickness was observed underlying active landslide areas. To the north of Mori Road, soil borings reveal 1.5 to 3.0 feet of shallow fill over relatively soft and saturated alluvial soils consisting of organic-rich, silty clay, which extend to a depth of about eight feet. The wet, organic-rich soils encountered at this location represent sediments deposited in a marsh – an environment that currently exists in this area of the site.

Extensive grading has altered the appearance and topography of the site over a long period of time. Disturbed areas appear to be the result of historic grading. All other areas appear to have been affected by soil creep and other forms of natural slope instability. Many of the low-lying areas of disturbed or unstable ground are marked on the surface by relatively thick growth of low vegetation.

*3.4.1.3 Seismicity*

The project site is located in a seismically active region. Three major active faults lie near the site: the San Andreas Fault (about 7.0-miles east), the North San Gregorio Fault (about 2.0-miles west), and the Hayward Fault (about 30-miles east). In the long-term, it is likely that the project site would experience periodic minor earthquakes and possibly a major earthquake (Moment magnitude [Mw] greater than 6.7 [California Division of Mines and Geology, 1996]) on one or

more of these nearby faults. Numerous earthquakes have been recorded in the region in the past, the largest of which was the 1906 San Francisco Earthquake (Mw of 7.9), which occurred on the San Andreas Fault. The most recent earthquake to affect the Bay Area was the Loma Prieta Earthquake of October 17, 1989, with an Mw of 6.9, in the Santa Cruz Mountains approximately 57 miles from the site.

The Working Group on California Earthquake Probabilities at the U.S. Geologic Survey (USGS 1999) predicted a 62-percent probability of a Mw of 6.7 or greater earthquake occurring in the San Francisco Bay Area by the year 2032. More specifically, the estimated 30-year probabilities of a Mw of 6.7 or greater earthquake for the Hayward-Rodgers Creek, San Andreas, and San Gregorio Faults are 27, 21, and 10 percent, respectively. Historically, ground surface displacements closely follow the trace of geologically young faults. The project site is not located within an Earthquake Fault Zone, as defined by the Alquist-Priolo Earthquake Fault Zoning Act, and no known active or potentially active faults exist on the site. Therefore, the risk of surface faulting is very low (Treadwell & Rollo, Inc. 2003).

Large earthquakes of the type likely to occur during the life of the project may be expected to cause very strong ground shaking at the site. This shaking can result in ground failure such as that associated with soil liquefaction (a phenomenon whereby unconsolidated and/or near saturated soil loses cohesion and is converted to a fluid state as a result of severe ground shaking), lateral spreading, seismically induced densification of natural or fill soils, and landsliding. Settlement caused by seismic densification may be especially noticeable where thick bodies of poorly compacted fill occur. Ground shaking and damages may be intensified within fill areas.

### 3.4.2 Environmental Consequences

#### *3.4.2.1 Alternative 1*

Short-term direct and indirect adverse impacts due to increased potential for erosion and sediment transport could occur during habitat restoration (soil decompaction, revegetation, and pond construction), removal of placed fills and debris, trail construction, removal, and improvements, erosion fixes, berm removal, boardwalk/bridge construction, and site improvements. Much of the proposed grading would include recontouring and/or creating slopes. Slope stability analysis would generally be required for cut, fill, and natural slopes whose slope gradient is steeper than two horizontal to one vertical (2:1), and on other slopes that possess unusual geologic conditions such as perennially or seasonally saturated conditions, contacts between fill and natural subsurface lithologies (e.g., fill on bedrock) or evidence of prior landslide activity.These potential short-term construction-related impacts would be local and regional, and minor. Long-term adverse impacts may result from differential settlement occurring in areas of filling and regrading, especially where soils are underlain by artificial fill. Differential settlement could activate landsliding, damage structure foundations adjacent to the project site, and cause settlement in trails and roads.

The California Geological Survey would provide additional policies and criteria to guide GGNRA in evaluating and mitigating seismic hazards. Identifying and mitigating seismic

hazards as part of the Mori Point land use planning processes would reduce the threat to public health and safety and minimize the loss of life and property. In the future, a geotechnical engineer would be retained to review the 1978 geotechnical investigation report and complete a site reconnaissance visit to evaluate the need for any further field studies at the project site in light of proposed project actions within Area A. The geotechnical engineer should also provide an assessment of the risks associated with active landslides at the site, along with recommendations for treatments if appropriate.

> ***Mitigation Measure*** - GGNRA would prohibit construction activities in any site area with seismic hazards until geologic and soil conditions of the site are investigated and appropriate mitigation measures, if any, are incorporated into development/restoration plans.

Long-term indirect beneficial impacts due to reduced erosion and sedimentation are anticipated from the following project actions: soil decompaction and revegetation, removal of placed fills, trail construction, removal, and improvements, erosion fixes, berm removal, and boardwalk/bridge construction. Additionally, changes in visitor use patterns resulting from guided use on appropriately constructed trails and limited use in sensitive areas would reduce erosion and sedimentation. These beneficial impacts are local and regional, and minor to major.

*Cumulative Impacts*

Neither the proposed action nor the cumulative projects would increase the likelihood or intensity of seismic activity at Mori Point, or the risk of other geologic hazards such as settlement or landsliding. All trail and drainage improvements completed in historic and landslide prone areas at Mori Point would be completed in a fashion that should actually reduce landslide hazard. At a minimum, there would be no change in the probability of landsliding. Most seismic and geologic hazards are unpredictable and unavoidable, and would continue to affect visitors and surrounding residents regardless of the proposed actions. However, development actions at Mori Point and the cumulative projects, would eventually lead to a greater number of people visiting the area and, therefore, in the event of an earthquake or landslide, more people could be exposed to injury and property could be damaged. Long-term, the project should reduce future degradation of soils and geologic resources.

The potential cumulative risk of additional exposure to seismic and geologic hazards as Mori Point's visitor and resident population increases is not considered significant. Cumulative soil erosion impacts would be offset by implementation of the Best Management Practices (Appendix E).

Conclusion

With incorporation of the above mitigation, potential adverse impacts to soil and geologic resources would be local, short and long-term, indirect, minor, and reduced to less-than significant levels. In contrast, the proposed project would result in local, short and long term, direct and indirect, and major beneficial impacts. The proposed project would have net beneficial impacts to the quality of soil and geologic resources.

*3.4.2.2 Alternative 2*

Under this alternative, in the long-term, less indirect adverse impacts from erosion and sedimentation are expected. This is a result of greater restrictions on trail use for horses and bikers, which are thought to have a greater impact than pedestrians.

Conclusion
With incorporation of the mitigation identified in Alternative 1, all potential adverse impacts to soil and geologic resources would be local, short and long-term, minor, indirect, and reduced to less-than significant levels. Beneficial impacts would be local, short and long-term, major, direct and indirect. Cumulative impacts would be as described under Alternative 1.

*3.4.2.3 Alternative 3*

Under Alternative 3, all trails would be designated multiple-use. Therefore, potential impacts to soil and geologic resources would be somewhat greater than those described under Alternative 1, due to increased trail width and construction zone. In the long-term, more indirect adverse impacts from increased levels of erosion and sedimentation are expected due to increased use by bikers and equestrians in steep and eroding slopes.

Conclusion
With incorporation of the mitigation identified in Alternative 1, all potential adverse impacts to soil and geologic resources would be local, short and long-term, minor, indirect, and reduced to less-than significant levels. Beneficial impacts would be local, short and long-term, major, direct and indirect. Cumulative impacts would be as described under Alternative 1.

*3.4.2.4 Alternative 4 (No Action Alternative)*

Under the No Action Alternative the proposed project would not be implemented. The No Action Alternative would not generate any new or enhanced geologic, soil, and seismic safety impacts. The accelerated erosion, both coastal bluff and steep uplands, would continue due to historic and existing site disturbance, most notably non-designated trail development.

Conclusion
The No Action Alternative would result in local and regional, short and long-term, major, direct and indirect adverse impacts to soil and geologic resources. The No Action alternative would not result in beneficial impacts to soil and geologic resources. Cumulative impacts would be as described under the Preferred Alternative.

*3.4.2.5 Impairment*

The proposed project is not expected to produce major, adverse impacts to a resource or value whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation of the GGNRA; 2) key to natural or cultural integrity of the park; or 3) identified as a goal in GGNRA's General Management Plan or other relevant National Park Service planning documents. Therefore, the proposed project is not expected to result in impairment to soil and

geologic resources.

## 3.5 Hydrology and Water Quality

### 3.5.1 Affected Environment

#### *3.5.1.1 Site Hydrology*

The climate at Mori Point and the surrounding area is commonly referred to as Mediterranean, a climate characterized by wet winters and dry summers. The climate along the central California coast is moderated by the Pacific Ocean and is characterized by even temperatures, frequent heavy fog, and prevailing winds from the west or northwest. Temperatures display a wider range further inland, away from the moderating effects of the ocean. Temperatures and rainfall are also influenced by elevation and local topography.

Precipitation in the San Francisco Bay Area is seasonal with over 80 percent of the annual rainfall occurring between the months of November and March. Very little precipitation occurs from June through September. The long-term mean annual precipitation for the project site is approximately 19 inches (Rantz, 1971), though annual rainfall ranges widely.

Numerous seasonal drainage courses, originating from site uplands, exist throughout the project site. A freshwater wetland occupies the northwest portion of the site immediately adjacent to Mori Road. Apart from limited perennial flow in the Mori Road drainage ditch, flow in the site's drainages is likely ephemeral – occurring only during rainfall events. Most watercourses have small contributing drainage areas and have been highly modified, most notably by historic excavation and grading activities, trail/road development, and off-road vehicle use. As a result, most watercourses are interrupted at some point along their length, resulting in unnatural ponding, concentrated run-off and excessive erosion.

Off-road vehicle activity on the site has resulted in the de-vegetation of much of the ridge and flat graded pads. Rills or gullies have formed on the steeper slopes as a result of concentrated run-off. In addition, off-road vehicle use has led to the loss of soil, compaction of remaining soil, and a rise in the amount of runoff. Permeability of surface materials has been reduced, which results in accelerated runoff.

#### *3.5.1.2 Groundwater Resources*

During site subsurface investigations in 1978, groundwater was encountered at depths ranging from zero to 48 feet below the ground surface (ESC, 1978). The shallowest groundwater conditions exist at the marsh area north of Mori Road (lowest site elevations), with depth to groundwater levels generally increasing as surface elevations increase across the central portion of the site. Groundwater depths are greatest along the ridge crest. Shallow groundwater conditions also exist in the vicinity of natural spring or wetland areas at the base of the central swale. Groundwater also emerges at perennial seeps located at the toe of the large central landslide along Mori Road. The surface flow resulting from these seeps drains to the west along a roadside ditch – ultimately discharging to the marsh area in the northwest corner of the site.

### 3.5.2 Environmental Consequences

#### *3.5.2.1 Alternative 1*

Excavation without proper design may yield slopes that are temporarily more prone to erosion and/or landsliding, creating a potentially short-term adverse impact on downstream areas and water quality. To mitigate this potential impact, the following mitigation measures will be implemented.

***Mitigation Measures:***

- Construction will be limited to the dry-weather months to the greatest extent practicable.
- Areas disturbed by equipment or vehicles will be rehabilitated as quickly as possible to prevent erosion, discourage the spread of nonnative plants and address soil compaction.
- Appropriate design would drain surface water from the trail to avoid ponding and development of soft, muddy surfaces that can lead to soil degradation and water quality impacts.
- Erosion and sediment control measures would be implemented where project actions could leave soils exposed to runoff prior to revegetation. Erosion control measures would be installed wherever necessary during construction to eliminate the potential for sediment discharge into stormwater, wetlands, and creeks.

Implementation of the mitigation measures and additional Best Management Practices in Appendix E are expected to minimize these short-term impacts so that they would be local and minor, especially when considering the net benefits described below.

Reintroducing properly functioning and integrated surface channels and wetlands to Mori Point would create features that would slow water flow and provide areas for temporary storm water detention. In addition to reducing peak flow magnitudes, detaining surface water runoff would provide the opportunity for on-site sediment deposition, thereby improving water quality. The trail rehabilitation and restoration efforts under the Preferred Alternative would reduce sediment and pollutant discharges to the northern wetland and Pacific Ocean. There would be no material change in the total volume of freshwater discharge to the existing northern freshwater marsh. These beneficial impacts would be local to regional and moderate to major.

*Cumulative Impacts*

Neither the proposed action nor the cumulative projects would increase the likelihood of adverse impacts to the water quality or hydrology at Mori Point. Work onsite would be completed in a manner protective of water quality and hydrology and the Preferred Alternative would improve hydrology in the long-term. Work completed as part of the City of San Francisco's Significant Natural Resources Management Plan for the Sharp Park Golf Course and Laguna Salada Resource Enhancement Plan would improve trails that impact water quality, stabilize creek banks and improve sensitive species habitat. These two projects could have local beneficial cumulative impacts.

Although the Mori Point project does not introduce any demands on water supply beyond those that currently exist for natural resources, the cumulative projects would introduce a greater population to the area and place greater demands for water resources over time. The demand for irrigation water by the cumulative projects could be alleviated by landscaping with drought tolerant plants and irrigating with recycled water. Potable water demands could be reduced through implementation and enforcement of conservation measures. With the regional use of recycled water by the cumulative projects, no significant cumulative effects would be expected; rather, the cumulative effects would be considered beneficial as less treated wastewater would be discharged to the Ocean, and less potable water would be consumed.

The cumulative projects would also likely lead to an increase in impervious surface area mostly as a result of created/widened roads and housing developments. If unmitigated, the net effect would be increases in storm runoff rates and potential urban contaminants. Again, the restoration and trail improvement components of the Mori Point project would yield net reductions in runoff and improved water quality (esp., reduced sediment mobilization and transport). If constructed pursuant to existing environmental codes and standards of practice (e.g., erosion control plans, stormwater pollution prevention plans, water quality BMPs) the cumulative impacts from all area projects would be offset by implementation of the Best Management Practices (Appendix E), resulting in no significant cumulative impact on water resources.

Conclusion

Potential adverse impacts to hydrologic and water quality conditions would be local, short-term, direct and indirect, minor, and reduced to less-than significant levels. In contrast, beneficial impacts would be local and regional, short and long-term, direct and indirect, and moderate to major. The proposed project would result in net benefits to water quality and hydrologic resources.

*3.5.2.2 Alternative 2*

All of the Action Alternatives would result in similar changes in site hydrologic characteristics. Because there are only slight differences in the degree and magnitude of change between Action Alternatives, the resulting effect on hydrologic conditions (e.g., evapotranspiration rates, mean annual runoff, depth to groundwater, peak storm flow magnitudes, etc.) would not vary substantially between alternatives.

Conclusion

Differences in impacts to hydrology and water quality between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Mitigation identified in Alternative 1 also applies to Alternative 2. Cumulative impacts would be as described under the Preferred Alternative.

*3.5.2.3 Alternative 3*

All of the Action Alternatives would result in similar changes in site hydrologic characteristics.

Because there are only slight differences in the degree and magnitude of change between Action Alternatives, the resulting effect on hydrologic conditions (e.g., evapotranspiration rates, mean annual runoff, depth to groundwater, peak storm flow magnitudes, etc.) would not vary substantially between alternatives.

Conclusion

Differences in impacts to hydrology and water quality between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Mitigation identified in Alternative 1 also applies to Alternative 3. Cumulative impacts would be as described under the Preferred Alternative.

*3.5.2.4 Alternative 4 (No Action Alternative)*

Under the No Action Alternative, no wetland, aquatic, or riparian habitat restoration activities would occur. Existing roads and trails would not be improved and would remain in their current locations. Because no substantial changes would be made in topography, vegetation and impervious surfaces, there would be no impact on surface water and groundwater hydrology or water quality. In turn, there would be no appreciable change in groundwater levels, surface water base flows, storm runoff, or water quality in the project area due to No Action Alternative activities. However, under the No Action Alternative, the current hydrological problems described under affected environment would persist, including unnatural ponding, concentrated run-off, and excessive erosion.

*Cumulative Impacts*

The No Action Alternative would not involve any actions to improve hydrology at the Mori Point. Over time, continued erosion due to human use of the site will continue. The cumulative projects would likely lead to an increase in impervious surface area mostly as a result of created/widened roads and housing developments. If unmitigated, the net effect would be increases in storm runoff rates and potential urban contaminants. When combined with the cumulative projects, these actions could cause adverse cumulative impacts.

Conclusion

The No Action Alternative would result in the continuation of baseline conditions, which have local and regional, short and long-term, major, direct and indirect adverse impacts to hydrology and water quality conditions. The No Action alternative would not result in beneficial impacts to hydrology and water quality conditions.

*3.5.2.5 Impairment*

The proposed project is not expected to produce major, adverse impacts to a resource or value whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation of the GGNRA; 2) key to natural or cultural integrity of the park; or 3) identified as a goal in GGNRA's General Management Plan or other relevant National Park Service planning documents. Therefore, the proposed project is not expected to result in impairment to hydrology or water quality.

## 3.6 Biological Resources

Biological resources are analyzed according to wildlife, vegetation and native plant communities, wetlands and special status species. Because special status species are analyzed separately, the wildlife section does not include these species. Analysis of special status species known to occur on site include the federally listed San Francisco garter snake, the federally threatened California red legged frog, raptors and migratory birds, and the San Francisco forktail damselfly. Special status species that have not been documented on site, but have the potential to occur in Mori Point habitats are also analyzed. These species include the western pond turtle, the California horned lizard, the dusky-footed woodrat, the Tomales isopod, Ricksecker's water scavenger beetle and Leech's skyline diving beetle and the American badger.

### 3.6.1 Wildlife

#### 3.6.1.1 Affected Environment - Wildlife

The wide range of vertebrates found at Mori Point reflects the site's diverse habitats. Coastal scrub, coastal prairie grasslands, rocky coastline, ponds and riparian areas support a variety of resident and migratory wildlife. Although a complete formal fauna inventory has not been conducted, local naturalists and wildlife enthusiasts provided a list of wildlife sightings at Mori Point. The reported fauna include 115 birds, 12 reptiles, 8 amphibians, and 23 mammal species.

The majority of vertebrates recorded at Mori Point are resident and migratory birds (115 species). The abundance of species observed indicates the important role that Mori Point plays within the migratory flight path for many raptors and songbirds. During bird migration, many species utilize Mori Point and other large fragmented areas along the San Francisco Peninsula as a place to shelter and hunt. White-tailed kites, red-tailed hawks, and red-shouldered hawks can often be seen stalking small prey, such as California voles, deer mice, and young brush rabbits. In addition to many birds of prey, Mori Point offers a rocky coastline where shore birds and marine birds feed.

Mori Point provides habitat for several sensitive species. The federally endangered San Francisco garter snake and federally threatened California red-legged frog use seasonal ponds, freshwater seeps and upland coastal scrub and grassland habitat for feeding, reproduction, and shelter. The drainage ditch along Mori Road provides breeding habitat for the larval stage of the locally rare San Francisco forktail damselfly.

Throughout Mori Point, three species of terrestrial salamanders can be found. Of the three species, the California slender salamander is the most abundant. This small wormlike salamander inhabits loose soil in areas where surface water is not present. The two other species observed at Mori Point are the arboreal and Monterey/yellow-eyed intergrades salamander.

Although the majority of Mori Point's mammals are small rodents, mule deer and gray foxes have also been seen. Mule deer have been reported using the site as a corridor between adjacent open space areas. The gray fox is believed to have denned within the willows next to the

seasonal ponds.

Very little is known about the diversity of invertebrates at Mori Point. The GGNRA plans to conduct a general census to determine the variety of invertebrates throughout the habitat types at Mori Point, with assistance from local state and community colleges.

Mori Point is also home to many non-native wildlife species, including feral cats and other wildlife commonly associated with suburban lands.

3.6.1.2 Environmental Consequences - Wildlife

***Alternative 1 – Wildlife Impacts***

Site-wide Management and Long-term Stewardship Actions may result in short-term direct adverse impacts to wildlife, including possible harm or mortality to small or immobile wildlife species, such as small mammals, reptiles, amphibians and invertebrates due to strikes or crushing. However, these impacts would be temporary and/or infrequent, local and minor.

Site-wide Management Actions (trail construction, etc.) may result in long-term direct adverse impacts to wildlife from the permanent removal of 2% (2.7 acres) of habitat, and short-term direct adverse impacts to wildlife from the temporary impact to 15% (16.6 acres) of the site (Table 7). However, these impacts to habitat are considered to be minor because they primarily occur locally in currently disturbed habitat (existing trails, fill, debris and concrete pads, etc.) which is largely devoid of vegetation, and is thus unlikely to support a high diversity of wildlife species. It is anticipated that 13% (6.1 acres) of the Coyote Brush vegetation type would be adversely affected in the short-term, and 1% (0.7 acres) would be adversely affected in the long-term. Because the Coyote Brush vegetation alliance is the most abundant on-site, it is anticipated that wildlife species occupying impacted areas would have a sufficient amount of alternative habitat available to them during and following project activities. Adverse impacts to wildlife are considered local and minor, especially when considering the net beneficial impacts to wildlife.

Site-wide Management Actions may result in short-term indirect adverse impacts due to inadvertent habitat removal and degradation (i.e., from dust, vegetation trampling, erosion, sedimentation) and wildlife disturbance resulting in interrupted feeding and breeding activities and/or site abandonment (i.e., due to equipment noise, vibration, trampling, disturbance from crew movement, staging), during the following activities: soil decompaction, invasive species removal, planting, fill and debris removal, non-designated trail removal, trail construction, hydrological repairs, and erosion repair activities. To reduce the impact from construction, trees or shrubs encroaching on access roads will be trimmed back to allow vehicles to pass by without going off the road and into habitat. All material stockpiling and staging areas will be located within project right of ways in non sensitive areas, or at designated disturbed/developed areas outside of design construction zones.
The implementation of project elements will be conducted in incremental phases (as feasible) by region to ensure that disturbance to habitats and species is restricted to small and/or spatially separate portions of the site at any one time. These areas will be defined in coordination with the

NPS Aquatic Ecologist. The implementation of site improvements may also result in short-term indirect disturbance of wildlife species due to increased visitor use around site improvements after installation.

Site-wide Management Actions and Stewardship Actions may result in long-term indirect adverse impacts to wildlife from ongoing activities including trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. However, these impacts are anticipated to occur infrequently, and would be local and minor, especially when considering the net benefits to wildlife described below.

Site-wide Management Actions would result in long-term, direct beneficial impacts. Locally, the project would result in a net increase of over 13.3 acres of native habitat due to soil decompaction, planting, erosion repair, non-designated trail removal, and trail construction and improvement. Additionally, long-term stewardship actions such as invasive species removal and trash pick up would improve habitat throughout the 110 acre site. Restored habitats at Mori Point would provide food and shelter for resident and non-resident wildlife alike. These beneficial impacts to wildlife would be local to regional and minor to moderate.

Wildlife would also indirectly benefit from reduced recreational use in sensitive habitats due to the construction of an upgraded trail system that would guide visitor-use along established trails. In this manner, habitat degradation and disturbance to wildlife due to off-trail traffic would be reduced. Hydrologic and erosion repairs, in conjunction with guided visitor use, would reduce erosion and sedimentation, thereby increasing habitat quality for aquatic wildlife species. The hydrological and pond construction work conducted in Special Restoration Areas A and B would result in increased size and connectivity of wetland habitat for wildlife.

Long-term Stewardship Actions would also result in a net indirect benefit to wildlife due to improvements in native habitat species diversity and function from ongoing weed control, revegetation, and monitoring efforts; reduction in threats from predators due to on-going trash removal and site improvements; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails, and increased overall public awareness and support for wildlife conservation due to educational and community programs. These beneficial impacts would be local to regional, and minor to moderate.

*Cumulative Impacts*

Past regional development projects, including residential, commercial, and transportation-related (i.e. Highway 1) have resulted in habitat fragmentation and disturbance along the Pacifica coast. These projects have limited and constrained habitat to key areas, including Mori Point, where native plant communities and wildlife can still survive and thrive. Additional development projects would further compound this situation. Proposed project activities would temporarily disturb on-site native plant communities and wildlife, particularly combined with the recent site restoration activities from pond construction conducted in 2004-2005, resulting in a temporary cumulative impact to such resources. However, proposed activities would be implemented in phases, limiting the scale and distribution of such impacts. Also, the majority of proposed project actions would occur before most of the future development projects, allowing for

relatively undisturbed on-site habitat as refuge for wildlife species following project implementation. In addition, the overall benefit to native habitats and resident wildlife species following project implementation would result in a cumulative beneficial impact to biological resources, particularly when combined with other habitat and wildlife restoration efforts (weed and tree removal, revegetation, predator and erosion control, and off-leash dog prohibitions) proposed north of the site at Laguna Salada and in the Sharp Park Natural Area.

Conclusion

Alternative 1 would result in short and long-term, direct and indirect, local, and minor adverse impacts to wildlife. With the implementation of the Best Management Practices in Appendix E, impacts would be less-than-significant. In contrast, the proposed project would result in long-term, direct and indirect, local to regional, and minor to moderate beneficial impacts. Although 2.7 acres of habitat would be removed, site restoration actions would restore at least 13.3 acres of habitat, leaving a net increase of 10.6 acres of habitat with a ratio of nearly 1:5 for habitat removed to habitat restored. Overall, the proposed project would result in net benefits to the quantity and quality of wildlife habitat.

***Alternative 2 - Wildlife Impacts***

The majority of the proposed short-term and long-term activities for Alternative 2 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 2 would be identical to the impacts described under Alternative 1. However, the trail use designations are more limited under Alternative 2 than under the Preferred Alternative. The trail use designations would result in 2.4 miles of trails that would be "hiker only" as compared to 1.3 miles of hiker-only trails in Alternative 1. This would likely result in less visitor traffic and reduced potential for off-trail trespass by bicycles and horses (or by hikers to avoid bicycles and horses) along the "hiker only" trail segments, thereby reducing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation. This reduction in potential impacts would be most substantial along the Bowl Trail, as this areas supports some of the most sensitive wetland and pond habitats on-site, which provide habitat for federally listed species. However, the reduction of these potential impacts under Alternative 2 is not quantifiable.

Conclusion

Differences in impacts to *Wildlife* resources between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be the same as for Alternative 1.

***Alternative 3 - Wildlife Impacts***

The majority of the proposed short-term and long-term activities for Alternative 3 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 3 would be identical to the impacts described under Alternative 1. However, these trail use designations under Alternative 3 would result approximately 3.5 miles of trails that would be designated "multiple-use" as compared to "hiker only" under Alternative 1. This increase in trail use options would likely result in increased potential for off-trail trespass by bicycles and horses

(or by hikers to avoid bicycles and horses) along the Peak Trail, Point Trail, the Coastal Trail Coastal Connector Trail, and the Ridge Trail, thereby increasing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation (particularly in "Special Restoration Area C", the erosion repair site along the Peak Trail). However, the increase of these potential impacts under Alternative 3 is not quantifiable.

Conclusion

Differences in impacts to *Wildlife* resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be the same as Alternative 1.

***Alternative 4 - Wildlife Impacts***

Under the "No Action" Alternative (Alternative 4), none of the proposed actions would be implemented within the Project Area. Therefore, no trail construction or removal would occur, and there would be no restoration or improvement of wildlife habitat. As a result, no negative impacts would occur to biological resources from these activities from equipment, vehicle or crewmember disturbances, habitat removal, harm, or mortality. However, impacts to biological resources from continued uncontrolled visitor use along the many non-designated trails, and especially from illegal off-road vehicle use, would continued to result in possible disturbance and mortality to wildlife and special status wildlife, and degradation (from trampling and erosion) to wildlife habitats, native plant communities and wetlands.

Wildlife habitat and native plant communities would remain unchanged initially, but because additional native plant communities might not be restored due to trash/debris removal, weed removal, and planting, no additional benefits to wildlife could be expected or ensured. Over the long-term, the distribution and species composition of wildlife habitats, vegetation and native plant communities would change due to further encroachment by invasive, non-native plant species. Active restoration activities such as soil decompaction and planting would not occur in the Disturbed habitat, and therefore, there would be no net increase in 5.4 acres of native plant communities.

Uncontrolled visitor use and the lack of active habitat restoration would result in the slow loss and degradation of suitable foraging, aestivation, upland, and wetland habitat for California red-legged frog, San Francisco garter snake, and other special status wildlife from ongoing visitor use (non-designated trail development, erosion, trash, invasive plant encroachment, illegal uses such as off-road vehicle and off-road bicycle use). There would be no net benefit to these from pond construction or hydrology connectivity improvements. In addition, without active management, the grassland habitats used for upland aestivation and dispersal for California red-legged frog and San Francisco garter snake, as well as some special status birds, would continue to be lost as converts to scrub habitat over time.

*Cumulative Impacts*

If the proposed actions did not occur and no habitat restoration or management of the site occurred, potential increased visitation as a result of nearby developments could further impact

resources and there would be no undisturbed on-site habitat as refuge for wildlife species. Combined with the cumulative projects, habitat fragmentation and disturbance would continue and contribute to adverse cumulative impacts.

Conclusion

Alternative 4 may result in long-term, indirect, adverse, local and minor to moderate impacts to *Wildlife* which are anticipated to be less-than-significant.

### 3.6.2 Vegetation and Native Plant Communities

#### 3.6.2.1 Affected Environment – Vegetation and Native Plant Communities

According to *The Ecological Subregions of California* (Miles and Goudy, 1997), Mori Point is within the Central California Coast Section[3], which is typically characterized by hills and valleys in the southern Coast Ranges of California. It is located at the northern end of the Santa Cruz Mountains subsection, which consists of all lands west of the San Andreas Fault south to the Watsonville Plains around Monterey Bay. The climate of this subsection is very mild due to the strong marine influence, and an average annual precipitation varying between 20 to 60 inches. Summer fog is very common.

Specific information about the vegetation communities found at Mori Point was gathered in 2005. Information was collected using the rapid assessment field method as developed by the California Native Plant Society (CNPS). A total of 11 alliances (Figure 13) were identified at Mori Point (Table 2). These 11 alliances, which include Coyote Brush, Purple Needlegrass and California Sagebrush alliances, are comprised of 22 vegetation associations (Table 3; Appendix A). Coyote Brush (47 acres) and Purple Needlegrass (23 acres) are the dominant vegetation alliances found at Mori Point. Four of these vegetation alliances are also considered sensitive plant communities, known or believed to be of high priority for inventory in the California Natural Diversity Database (CDFG 2003): Purple Needlegrass, Red Fescue, California Oatgrass and Arroyo Willow. Wetland habitats are also considered sensitive plant communities (such as Cattail, Small-fruited Bulrush, Rush, and portions of Arroyo Willow alliances), as they are regulated by state and federal agencies; however, these are addressed separately in Section 3.6.1.3 below. Additionally, over 130 species of vascular plants have been documented. Non-native plant species are plants that have been deliberately or accidentally introduced into the area, and are not a part of the region's natural ecosystem. Invasive non-native plant species are of particular management concern at Mori Point as they have the potential to rapidly spread throughout the area, reducing habitat for native flora and wildlife. Individual populations and/or occurrences of a number of targeted non-native invasive plant species have been mapped as part of on-going vegetation management. These species include pampas grass, Cape ivy, ice plant, and a number of shrubs (including French and Scotch brooms and cotoneaster). Due to the urban interface and current rates of ingress by invasive species, it is very likely that without active

[3] Following the Forest Service National Hierarchical Framework (McNab & Avers, 1994), which consists of (in order of increasing specificity) Domain, Division, Province, Section and Sub-section.

**FIGURE 13. VEGETATION ALLIANCES WITHIN THE PROJECT AREA.**

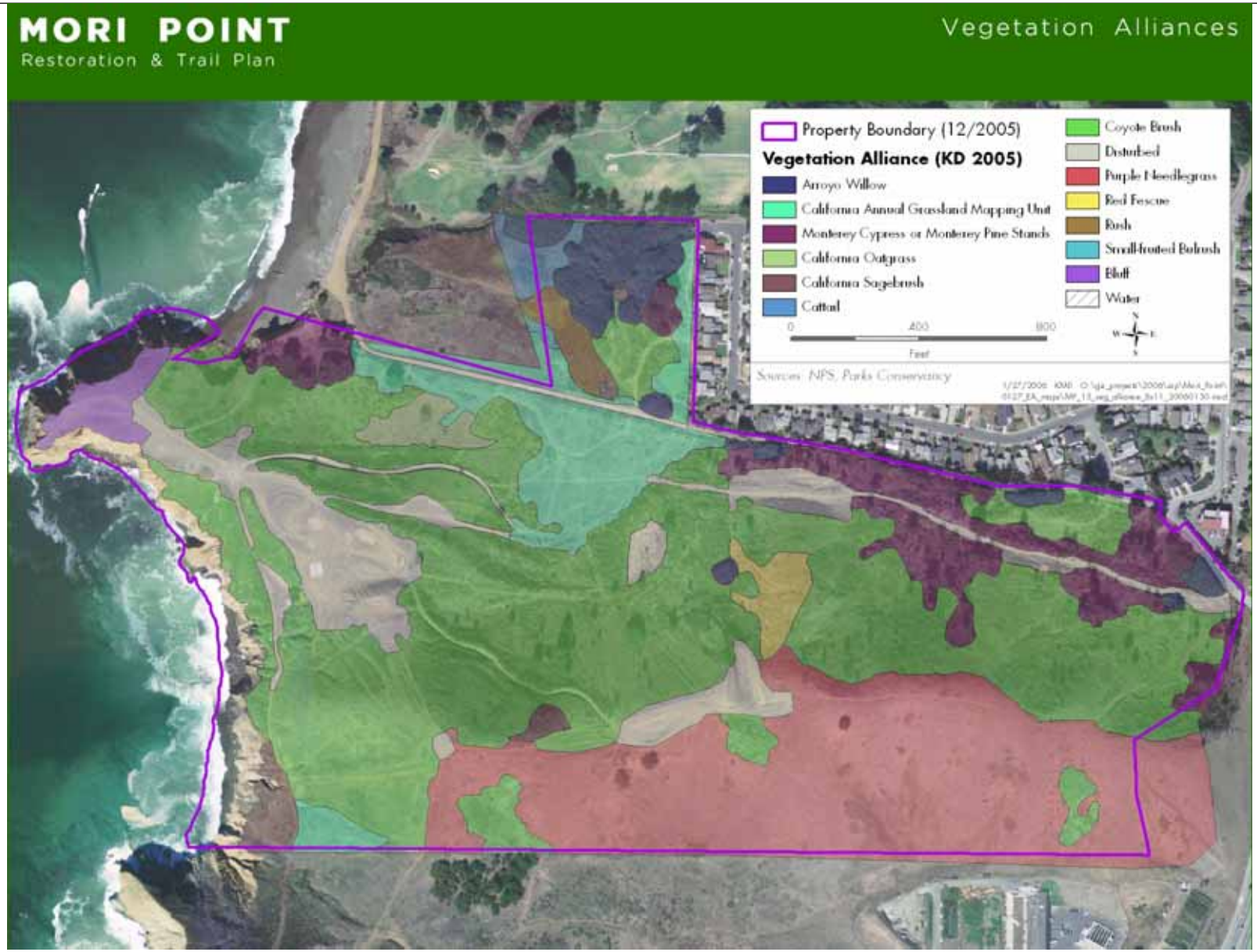


**TABLE 2: SUMMARY OF VEGETATION ALLIANCES AT MORI POINT**

| **Alliance (N=Native)** | **Approximate acreage** |
|---|---|
| Coyote Brush (N) | 47.3 |
| Purple Needlegrass (N) | 23.4 |
| Disturbed | 10.4 |
| Monterey Cypress or Monterey Pine Stands | 8.0 |
| California Annual Grassland Mapping Unit | 7.4 |
| Arroyo Willow (N) | 3.6 |
| Unable to Key (Bluff) | 1.3 |
| Red Fescue (N) | 1.1 |
| California Sagebrush (N) | 1.1 |
| California Oatgrass (N) | 1.0 |
| Rush (N) | 0.9 |
| Cattail | 0.8 |
| Small-fruited Bulrush (N) | 0.1 |
| Water | 0.1 |

**TABLE 3: SUMMARY OF VEGETATION ASSOCIATIONS AT MORI POINT**

| **Association** (-NA indicates that the alliance is listed and that there are no defined associations)**:** | **Approximate acreage** |
|---|---|
| Purple Needlegrass - *N. pulchra/Baccharis pilularis* | 23.4 |
| Coyote Brush – *B.p consanguinea/ Artemisia californica/ Toxicodendron/Monardella villosa* | 15.1 |
| Coyote Brush - *B.p. consanguinea/Nassella pulchra* | 11.8 |
| Disturbed – NA | 10.4 |
| Coyote Brush - *B.p. /Eriophyllum staechadifolium* | 9.8 |
| Monterey Cypress or Monterey Pine Stands - NA | 8.0 |
| California Annual Grassland Mapping Unit - NA | 7.4 |
| Coyote Brush - *B.p. consanguinea*/Non-native grassland Association (preliminary) | 5.9 |
| Arroyo Willow - *Salix lasiolepis*/Rubus | 2.6 |
| Coyote Brush - *B.p. consanguinea/Rubus ursinus*/Weedy | 2.1 |
| Coyote Brush – NA | 1.9 |
| Unable to Key – NA | 1.3 |
| Red Fescue – NA | 1.1 |
| California Sagebrush – NA | 1.1 |
| California Oatgrass – NA | 1.0 |
| Arroyo Willow – NA | 1.0 |
| Rush - *Juncus patens* | 0.9 |
| Typha western herbaceous vegetation | 0.8 |
| Coyote Brush - *B.p. consanguinea*/Annual Grassland Association (preliminary) | 0.4 |
| Coyote Brush - *B.p. consanguinea*/Native Grassland Association (preliminary) | 0.4 |
| Small-fruited Bulrush – NA | 0.1 |
| Water – NA | 0.1 |

management, the proportion of invasive species at Mori Point would increase. Table 4 is a partial list of invasive species that can be found on site; a map depicting the locations of some invasive non-native plant species noted at Mori Point is located in Appendix A.

**TABLE 4. INVASIVE SPECIES NOTED AT MORI POINT.**

| Common Name | Scientific Name |
|---|---|
| Bellardia | *Bellardia trixago* |
| Mustard | *Brassica spp.* |
| Iceplant | *Carpobrotus edulis* |
| Poison hemlock | *Conium maculatum* |
| Pampas grass | *Cortaderia spp.* |
| Cotoneaster | *Cotoneaster spp.* |
| Monterey cypress | *Cupressus macrocarpa* |
| Scotch broom | *Cytisus scoparius* |
| Queen Anne's lace | *Daucus carota* |
| Cape ivy | *Delairia odorata* |
| Teasel | *Dipsacus sativus* |
| Blue-gum eucalyptus | *Eucalyptus globulus* |
| Sweet fennel | *Foeniculum vulgare* |
| French broom | *Genista monspessulana* |
| Bird's-foot trefoil | *Lotus corniculatus* |
| Oxalis | *Oxalis pes-caprae* |
| Bristly ox-tongue | *Picris echioides* |
| Monterey pine | *Pinus radiata* |
| Wild radish | *Raphanus sativus* |
| Nasturtium | *Tropaeolum majus* |
| Periwinkle | *Vinca major* |

3.6.2.2 Environmental Consequences – Vegetation and Native Plant Communities

***Alternative 1 – Vegetation and Native Plant Communities Impacts***

Most project impacts would occur within disturbed areas that are largely devoid of vegetation. Site-wide Management Actions would result in short and long-term direct adverse impacts to vegetation communities at Mori Point. Over the entire site, only 9% (10.6 acres) of the native plant communities would be temporarily impacted in the short-term and only 1% (1.5 acres) would be permanently removed (Table 7). Approximately 1% (0.4 acres) of sensitive plant communities (Arroyo Willow, California Oatgrass and Purple Needlegrass) would be permanently removed, and only 4% (1.3 acres) would be temporarily disturbed (Table 7). These impacts are anticipated to be local and minor, especially considering the net beneficial impacts to vegetation and native plant communities.

Short-term indirect adverse impacts to vegetation and native plant communities may occur, such as vegetation degradation (i.e. from dust, crew trampling) during trail construction, restoration, erosion repair, non-native plant removal, planting, and monitoring. Long-term indirect adverse impacts may result from future weed encroachment in project areas after soil disturbance. These impacts would be temporary, local, and minor, especially considering the net beneficial impacts

to vegetation and native plant communities described below. To reduce weed encroachment and impacts to native vegetation communities, the following mitigation will be implemented.

***Mitigation Measures:***

- All vehicles will be brought in cleaned and free of weeds to prevent the spread and/or ntroduction of invasive plant species.
- Soils and vegetation contaminated with weed seeds would be segregated and disposed of or treated as appropriate.
- At the discretion of the project Biological Monitor, restrictions will be placed on the movement or deposition of fill, rock, or other materials containing weed seed or viable plant cuttings to areas relatively free of weeds.

Site-wide Management Actions would result in long-term direct beneficial impacts due to the restoration of more than 13.3 acres of native habitats from soil decompaction and planting, erosion repair, and non-designated trail removal. Further, up to 8 acres of non-native invasive Monterey pine and cypress trees would be removed (Table 7), creating space for native plant communities to flourish. These beneficial impacts to vegetation and native plant communities would be local and moderate to major.

Stewardship Actions would result in long-term indirect beneficial impacts over the entire 110 acre site. Vegetation and native plant communities would benefit from the control of non-native invasive plant species by improving native plant composition and diversity, and removing future threats to native plant communities from expanding weed populations. Site-wide Management Actions would also result in short-term indirect beneficial impacts to native plant communities from the reduced and controlled level of recreational use which would limit vegetation degradation due to off-trail trespass and erosion. These beneficial impacts to vegetation and native plant communities would be local to regional and moderate to major.

Conclusion

Alternative 1 would result in short and long-term, direct and indirect, local, and minor adverse impacts to vegetation and native plant communities. With the implementation of the Best Management Practices in Appendix E, adverse impacts would reduced to less-than-significant levels. In contrast, the proposed project would result in long-term, direct and indirect, local to regional, and moderate to major beneficial impacts. Although 1.5 acres may be impacted, over 13.3 acres would be directly restored resulting in a net increase of a minimum of 11.8 acres and a ratio of nearly 1:9 for impacted to restored habitat. Additionally, removal of invasive vegetation would occur over all 110 acres. Overall, the proposed project would result in a net increase to the quantity and quality of vegetation and native plant communities. Cumulative impacts would be the same as described under Alternative 1 – Wildlife.

***Alternative 2 Impacts – Vegetation and Native Plant Communities Impacts***

The majority of the proposed short-term and long-term activities for Alternative 2 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 2 would be identical to the impacts described under Alternative 1. However, the trail use designations are more limited under Alternative 2 than under the Preferred Alternative. The trail

use designations would result in 2.4 miles of trails that would be "hiker only" as compared to 1.3 miles of hiker-only trails in Alternative 1. This would likely result in less visitor traffic and reduced potential for off-trail trespass by bicycles and horses (or by hikers to avoid bicycles and horses) along the "hiker only" trail segments, thereby reducing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation. This reduction in potential impacts would be most substantial along the Bowl Trail, as this areas supports some of the most sensitive wetland and pond habitats on-site, which provide habitat for federally listed species. However, the reduction of these potential impacts under Alternative 2 is not quantifiable.

Conclusion

Differences in impacts to *Vegetation and Native Plant Communities* resources between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be the same as described under Alternative 1 – *Wildlife*.

***Alternative 3 Impacts – Vegetation and Native Plant Communities Impacts***

The majority of the proposed short-term and long-term activities for Alternative 3 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 3 would be identical to the impacts described under Alternative 1. However, these trail use designations under Alternative 3 would result approximately 3.5 miles of trails that would be designated "multiple-use" as compared to "hiker only" under Alternative 1. This increase in trail use options would likely result in increased potential for off-trail trespass by bicycles and horses (or by hikers to avoid bicycles and horses) along the Peak Trail, Point Trail, the Coastal Trail Coastal Connector Trail, and the Ridge Trail, thereby increasing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation (particularly in "Special Restoration Area C", the erosion repair site along the Peak Trail). However, the increase of these potential impacts under Alternative 3 is not quantifiable.

Conclusion

Differences in impacts to *Vegetation and Native Plant Communities* resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be the same as described under Alternative 1 – *Wildlife*.

***Alternative 4 Impacts Vegetation and Native Plant Communities Impacts***

Under the "No Action" Alternative (Alternative 4), none of the proposed actions would be implemented within the Project Area. Therefore, no trail construction, restoration, or removal would occur, no ponds would be built, no improvements would be made to improve on-site hydrologic connectivity, no invasive non-native plants would be removed, no trash or debris would be removed, no areas of erosion would be repaired, no programmatic site improvements would be implemented, no monitoring or maintenance would occur, and no community training or education would be implemented. As a result, no negative impacts would occur to biological resources from these activities from equipment, vehicle or crewmember disturbances, habitat

removal, harm, or mortality. However, impacts to biological resources from continued uncontrolled visitor use along the many non-designated trails, and especially from illegal off-road vehicle use, would continued to result in possible disturbance and mortality to wildlife and special status wildlife, and degradation (from trampling and erosion) to wildlife habitats, native plant communities and wetlands.

Wildlife habitat and native plant communities would remain unchanged initially, but because additional native plant communities might not be restored due to trash/debris removal, weed removal, and planting, no additional benefits to wildlife could be expected or ensured. Over the long-term, the distribution and species composition of wildlife habitats, vegetation and native plant communities would change due to further encroachment by invasive, non-native plant species. Active restoration activities such as soil decompaction and planting would not occur in the Disturbed habitat, and therefore, there would be no net increase in 5.4 acres of native plant communities.

Uncontrolled visitor use and the lack of active habitat restoration would result in the slow loss and degradation of suitable foraging, aestivation, upland, and wetland habitat for California red-legged frog, San Francisco garter snake, and other special status wildlife from ongoing visitor use (non-designated trail development, erosion, trash, invasive plant encroachment, illegal uses such as off-road vehicle and off-road bicycle use). There would be no net benefit to these from pond construction or hydrology connectivity improvements. In addition, without active management, the grassland habitats used for upland aestivation and dispersal for California red-legged frog and San Francisco garter snake, as well as some special status birds, would continue to be lost as converts to scrub habitat over time.

Conclusion

Alternative 4 may result in long-term, indirect, adverse, local, and minor to moderate impacts to *Vegetation and Native Plant Communities* that may be considered significant if continued non-native plant encroachment substantially changes the species composition within sensitive plant communities. Cumulative impacts would be the same as described under Alternative 4 – *Wildlife*.

### 3.6.3 Wetlands

#### 3.6.3.1 Affected Environment - Wetlands

Wetlands are defined by the CWA as "[t]hose areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." Under this definition, three criteria must be attained for classification as a jurisdictional wetland: dominance of wetland vegetation, presence of wetland hydrology (inundation or saturation for a specific period of time), and the occurrence of hydric (wetland) soils. Potential jurisdictional wetlands and other waters of the United States subject to Section 404 of the CWA in the project area may include the northern wetland north of Mori Road and west of the Fairway Drive park entrance (Special Restoration Area B), existing seeps between the CCT Bowl Connector and Mori Road (Special

Restoration Area B), and seasonal ponding in depressions located along the eastern half of the Upper Trail in Special Restoration Area A.

A second wetland definition, one reflecting the broader habitat values associated with wetlands, is used by the USFWS for their National Wetlands Inventory. The USFWS Cowardin system classifies wetlands based on vegetative life form, flooding regime, and substrate material. For the purposes of this definition, wetland features must meet one or more of three criteria. Not all wetlands classified under this system are considered jurisdictional under the USACE definition and CWA.

Jurisdictional Waters and Wetlands

In June 2004, a formal delineation of wetlands and waters considered potentially under the jurisdiction of the USACE was conducted within a 0.08 acre portion of the site (Site A; Figure 13) for the 2004 pond construction project to provide additional aquatic habitat for the San Francisco garter snake and its main food sources, the California red-legged frog and the Pacific tree frog. This 0.08 acre area was considered non-jurisdictional by the USACE (letter dated September 15, 2004).

In January 2006, a formal wetland delineation of the remaining portion of the project area was conducted in accordance with USACE methods. This delineation concluded that four additional areas (Sites B through E) exhibited wetland characteristics to be considered potentially jurisdictional by the USACE (Table 5; Figure 14). These four wetland areas total 0.13 acre; one of the delineated features also supported 479 linear feet of "other waters" as an unvegetated drainage ditch supporting perennial downstream flows. Consultation with USACE is in progress to determine the jurisdictional status of the wetland areas that may be impacted by this project.

**TABLE 5. POTENTIALLY JURISDICTIONAL USACE WETLANDS AND WATERS AT MORI POINT.**

| Site | Potential Jurisdictional Wetland (Acres) | Temporary Impacts to Potential Jurisdictional Waters (linear feet) |
|---|---|---|
| Site B | 0.02 | |
| Site C | 0.05 | 479 |
| Site D | 0.03 | |
| Site E | 0.03 | |
| **Total Wetlands and Waters** | **0.13** | **479** |

**FIGURE 14. POTENTIAL USACE JURISDICTIONAL WETLANDS AT MORI POINT.**

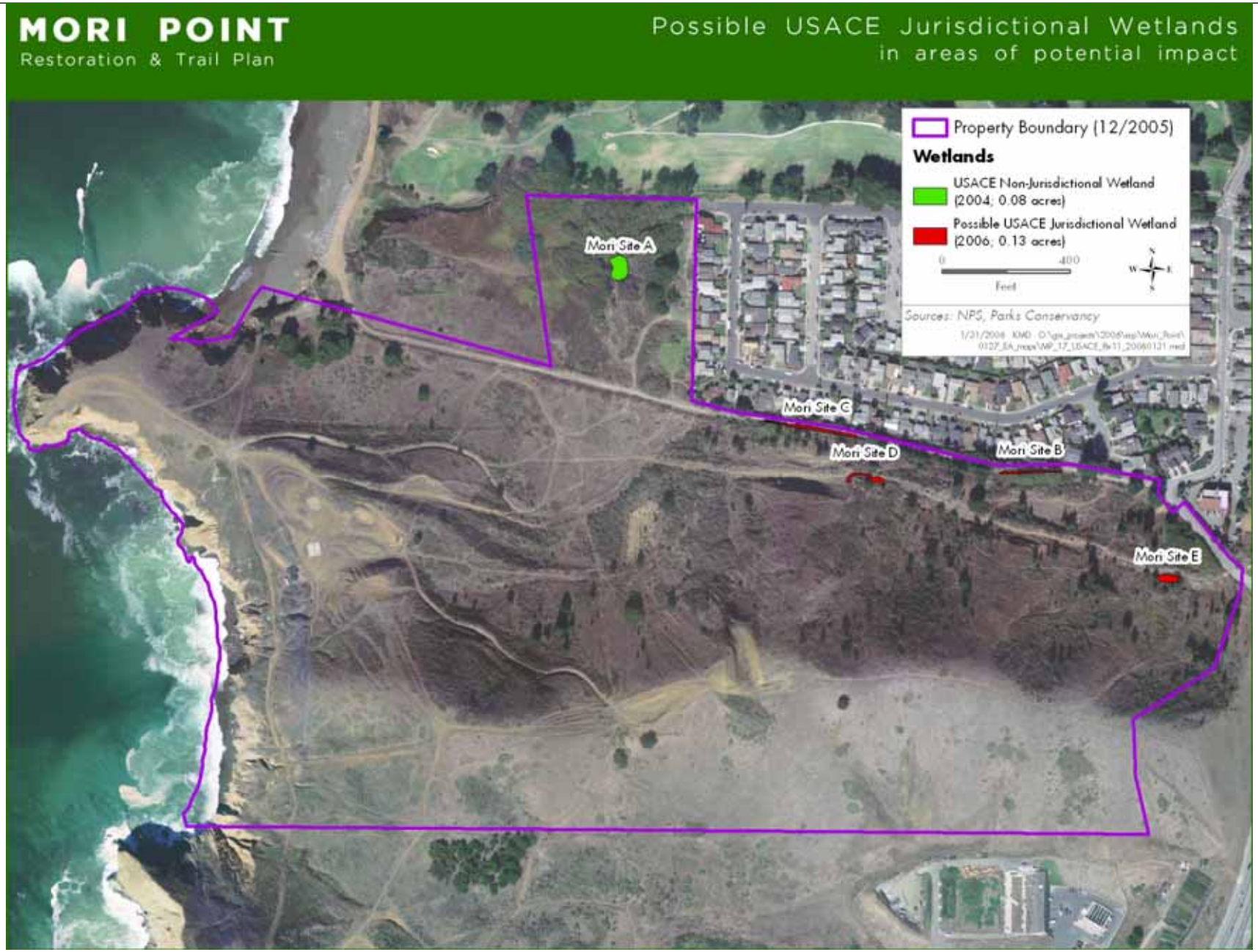
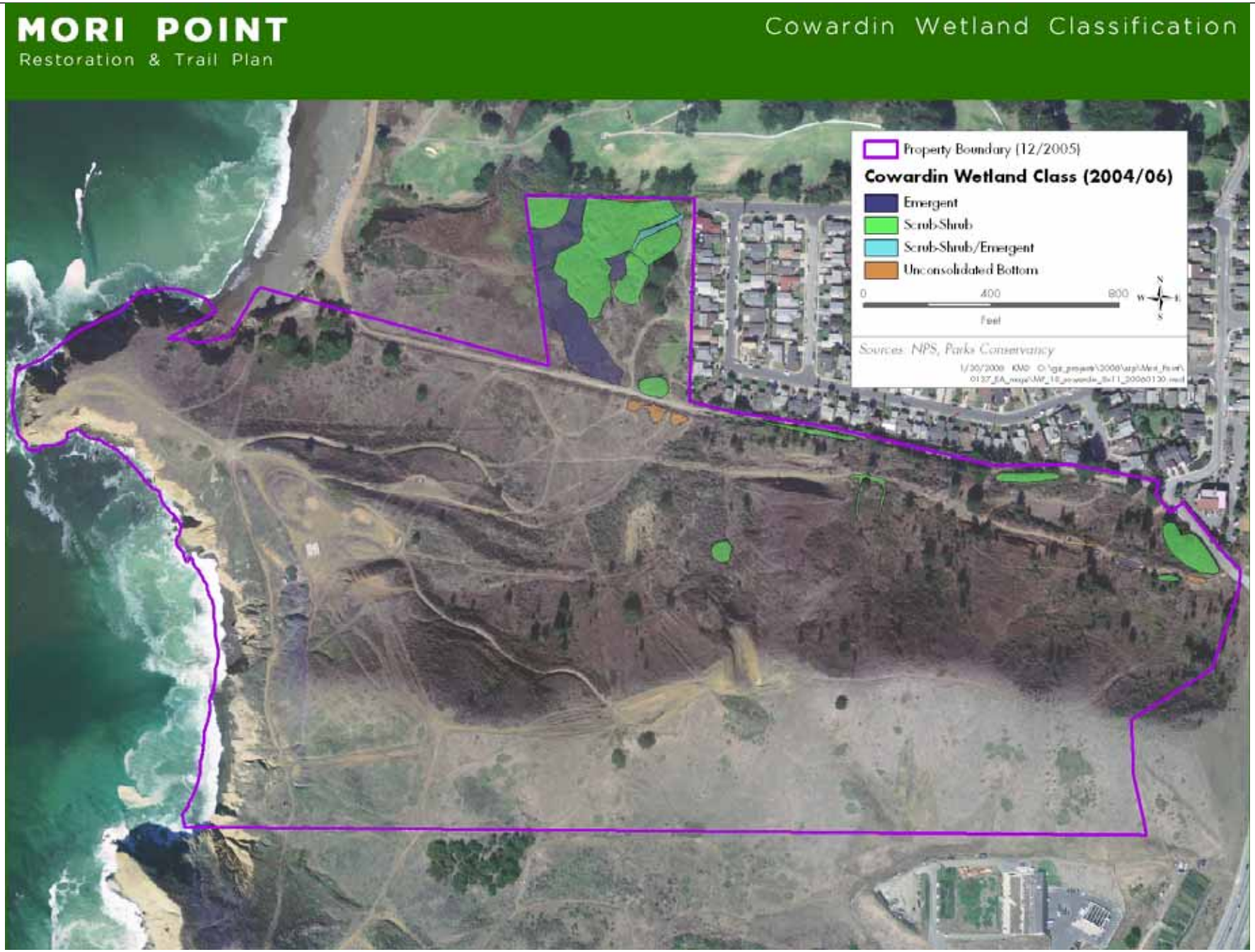


**FIGURE 15. COWARDIN CLASSIFICATION WETLANDS AT MORI POINT.**



USFWS Wetlands (According to Cowardin Classification)

Surveys for wetlands as defined by the USFWS Cowardin classification system were conducted on-site in 2004 and 2006. This definition expands wetland areas to include features such as mudflats and rocky intertidal zones, and classifies wetlands rather than delineating their specific boundaries.

Based on these surveys, 8.7 acres of wetlands have been mapped within the Project Area (Figure 15). The types of Cowardin wetlands found within the project area are presented in Table 6.

**TABLE 6. COWARDIN CLASSIFICATION WETLANDS MAPPED AT MORI POINT.**

| **Cowardin Classification Wetland** | **Acres On-site** |
|---|---|
| Emergent (palustrine) | 5.3 acres |
| Scrub-Shrub (palustrine) | 3.1 acres |
| Scrub-Shrub/Emergent (palustrine) | 0.1 acre |
| Unconsolidated Bottom (riverine) | ‹ 0.2 acre |
| *TOTAL* | *8.7 acres* |

The 0.08-acre area identified as a non-jurisdictional wetland during the June 2004 wetlands delineation of the proposed pond construction area is identified by the Cowardin classification system as an Emergent Wetland. However, a new pond was constructed in this area in November 2004 for habitat enhancement for the San Francisco garter snake and its main food sources, the California red-legged frog and the Pacific tree frog.

3.6.3.2 Environmental Consequences - Wetlands

***Alternative 1 - Wetlands Impacts***

Site-wide Management Actions would result in short-term direct adverse impacts to less than 0.18-acre of Cowardin wetlands (Table 8), and 0.04 acres of potentially jurisdictional USACE wetlands (Table 9) due to degradation or excavation from social trail removal, erosion repair, and debris removal. Site-wide Management Actions would also result in long-term direct adverse impacts to 0.05 acres of Cowardin wetlands due to excavation for pond construction or filling for new trail construction (Table 8). However, these impacts are considered local and minor, especially considering the net benefits to wetlands described below.

**TABLE 8. IMPACTS TO COWARDIN WETLANDS**

| Site-wide Management Actions | Cowardin Wetland Class | | | | TOTAL |
|---|---|---|---|---|---|
| | *Emergent* | *Scrub-Shrub* | *Scrub-Shrub/Emergent* | *Unconsolidated Bottom* | |
| Trails (permanent) | 0.01 acre | 0.02 acre | | 0.02 acre | 0.05 acre |
| Pond Construction (permanent) | | | | <0.01 acre | <0.01 acre |
| Trail Improvement/Construction (temporary) | 0.02 acre | 0.04 acre | | 0.05 acre | 0.11 acre |
| Social Trail Removal (temporary) | 0.01 acre | 0.01 acre | <0.01 acre | 0.01 acre | <0.04 acre |
| Erosion Repair (temporary) | | | | <0.01 acre | <0.01 acre |
| Debris Removal (temporary) | | | | 0.03 acre | 0.03 acre |
| **TOTAL PERMANENT IMPACTS** | **0.01 acre** | **0.02 acre** | **--** | **0.02 acre** | **0.05 acre** |
| **TOTAL TEMPORARY IMPACTS** | **0.03 acre** | **0.05 acre** | **<0.01 acre** | **0.09 acre** | **<0.18 acre** |

**TABLE 9. TEMPORARY IMPACTS TO POTENTIAL USACE JURISDICTIONAL WETLANDS**

| Site | Acres of Temporary Wetland Impact |
|---|---|
| Site B | 0.01 |
| Site C | 0.02 |
| Site D | 0.01 |
| Site E | 0.00 |
| **Total Wetlands and Waters** | **0.04** |

**TABLE 10. POTENTIAL NET GAIN OF WETLAND HABITAT FROM PROPOSED POND CREATION**

| Proposed Pond Creation | Cowardin Wetlands Permanently Impacted by all Actions | *Potential Net Gain in Wetland Habitat* | *Potential Compensation Ratio* |
|---|---|---|---|
| 0.4 acre | 0.05 acre | *0.35 acre* | *7:1* |

Site-wide Management Actions may result in short-term indirect adverse impacts to wetlands from inadvertent removal and/or degradation (i.e. from dust, crew trampling, erosion/sedimentation) during trail construction, habitat restoration, or erosion repair activities. Site-wide Management Actions may also result in long-term indirect adverse impacts to wetland hydrology due to earth moving activities (such as berm removal and pond construction). However, most of these impacts are expected to be temporary and minor, especially considering the net benefits to wetlands described below. Stewardship Actions such as invasive non-native plant removal/control, trail maintenance, planting, and monitoring may result in indirect adverse impacts to wetlands. These impacts would be infrequent, temporary, highly localized, and

negligible with implementation of the Best Management Practices (BMPs) described in the Procedural Manual for Director's Order 77-1 and listed Appendix E.

Site-wide Management Actions would result in long-term beneficial direct impacts to wetlands due to the creation of 0.4 acres of ponds beneficial impacts to wetlands would be local to regional and major. These actions would also result in long-term indirect beneficial impacts to wetlands from the removal of weeds (particularly Cape ivy), which would improve wetland function, native plant composition, and would also remove future threats to wetlands from expanding weed populations. Long-term indirect beneficial impacts would result from increased hydrologic connectivity between uplands, wetlands, and proposed ponds due to berm removal and boardwalk/bridge construction. Wetlands would also benefit from reduced and controlled levels of recreational use. These beneficial impacts to wetlands would be local and minor to moderate.

*Cumulative Impacts*

The Laguna Salada wetlands, located in the lowest reach of the watershed, can be impacted by watershed activities that affect water quality or quantity. Generally, development in the watershed has adverse affects to water quality and quantity, but data does not exist to quantify these impacts. The long-term beneficial affects to local wetlands described above will not contribute to other watershed impacts affecting the Laguna Salada wetlands.

Conclusion

Alternative 1 would result in short -term, direct and indirect, local, and minor impacts to wetlands. With implementation of the Best Management Practices in Appendix E, these adverse impacts to wetlands would be reduced to less-than significant levels. In contrast, the proposed project would result in local to regional major impacts to wetlands. Although 0.05 acres of Cowardin wetlands would be removed, 0.4 acres of ponds would be created, resulting in the net increase of 0.35 acres of Cowardin wetlands (Table 9) and an approximate ratio of 8:1 for created to removed habitat (Table 10). Overall, the proposed project is expected to result in net benefits to the quantity and quality of wetland habitat.

Consultation with USACE is underway for potentially jurisdictional wetlands; if these are determined to be jurisdictional, additional mitigation measures may be added to the Finding of No Significant Impact (FONSI) as a result of the USACE and RWQCB consultation, if necessary.

***Alternative 2 - Wetlands Impacts***

The majority of the proposed short-term and long-term activities for Alternative 2 are identical to those proposed for Alternative 1. Therefore impacts to wetlands would be identical to the impacts described under Alternative 1. Trail use designations are more limited under Alternative 2 than under the Preferred Alternative but this is not anticipated to create any additional adverse impacts to wetlands. The trail use designations would result in 2.4 miles of trails that would be "hiker only" as compared to 1.3 miles of hiker-only trails in Alternative 1. This would likely result in less visitor traffic and reduced potential for off-trail trespass by bicycles and horses (or

by hikers to avoid bicycles and horses) along the "hiker only" trail segments, thereby reducing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation. This reduction in potential impacts would be most substantial along the Bowl Trail, as this areas supports some of the most sensitive wetland and pond habitats on-site, which provide habitat for federally listed species. However, the reduction of these potential impacts under Alternative 2 is not quantifiable.

Conclusion
Differences in impacts to wetlands between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be the same as for Alternative 1. Cumulative impacts would be the same as described under Alternative 1 – *Wetlands*.

***Alternative 3 – Wetlands Impacts***

The majority of the proposed short-term and long-term activities for Alternative 3 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 3 would be identical to the impacts described under Alternative 1. Trail use designations are more limited under Alternative 2 than under the Preferred Alternative but this is not anticipated to create any additional adverse impacts to wetlands.

Conclusion
Differences in impacts to biological resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be the same as for Alternative 1. Cumulative impacts would be the same as described under Alternative 1 – *Wetlands*.

***Alternative 4 - Wetlands Impacts***

Under the "No Action" Alternative (Alternative 4), none of the proposed actions would be implemented within the Project Area. As a result, no negative impacts would occur to biological resources from these activities from equipment, vehicle or crewmember disturbances, habitat removal, harm, or mortality. However, impacts to biological resources from continued uncontrolled visitor use along the many non-designated trails, and especially from illegal off-road vehicle use, would continued to result in possible disturbance and mortality to wildlife and special status wildlife, and degradation (from trampling and erosion) to wildlife habitats, native plant communities and wetlands.

Wildlife habitat and native plant communities would remain unchanged initially, but because additional native plant communities might not be restored due to trash/debris removal, weed removal, and planting, no additional benefits to wildlife could be expected or ensured.

Uncontrolled visitor use and the lack of active habitat restoration would result in the slow loss and degradation of suitable foraging, aestivation, upland, and wetland habitat for California red-legged frog, San Francisco garter snake, and other special status wildlife from ongoing visitor use (non-designated trail development, erosion, trash, invasive plant encroachment, illegal uses

such as off-road vehicle and off-road bicycle use). There would be no net benefit to these from pond construction or hydrology connectivity improvements.

*Cumulative Impacts*

The Laguna Salada wetlands, located in the lowest reach of the watershed, can be impacted by watershed activities that affect water quality or quantity. Generally, development in the watershed has adverse affects to water quality and quantity, but data does not exist to quantify these impacts. By not doing the project, long-term beneficial affects to local wetlands would not be achieved. On-going impacts as described above would contribute to other watershed impacts affecting the Laguna Salada wetlands.

Conclusion

Alternative 4 may result in long-term, indirect, adverse, local, and minor to moderate impacts to wetlands which are anticipated to be less-than-significant.

### 3.6.4 Special Status Species

#### 3.6.4.1 Affected Environment – Special Status Species

As defined in this document, species are accorded "special status" for their recognized rarity or vulnerability to various causes of habitat loss or population decline. Some are formally listed and receive specific protection defined in federal or state endangered species legislation. Other species have no formal listing status as threatened or endangered, but have designations as "rare" or "sensitive" on the basis of adopted policies and expertise of state resource agencies or organizations with acknowledged expertise, such as the California Native Plant Society.

NPS Management Policies 2001 state that potential effects of agency actions will also be considered on state or locally listed species. The National Park Service is required to control access to critical habitat of such species, and to perpetuate the natural distribution and abundance of these species and the ecosystems upon which they depend.

State and federally listed and other sensitive species were identified through discussions with GGNRA staff, informal consultation with USFWS, and a review of State database information (California Department of Fish and Game's [CDFG] Natural Diversity Database, and the California Native Plant Society's [CNPS] On-line Electronic Inventory). A letter requesting a current list of federal threatened, endangered, and special concern species was sent to the USFWS. The response letter is provided in Appendix F. An analysis of the potential impacts to these species is included in this section in Appendix G.

*Plants*

Based on a search of the California Natural Diversity Database (CDFG 2005), the CNPS Electronic Inventory (2005), and the Sacramento Office's USFWS List (2005a), and based on an assessment of known habitat and soil types at Mori Point, 42 special status plant species were determined to have some potential to occur in habitats found on-site (Appendix G). However,

according to the 2005 Biological Opinion for the construction of ponds at Mori Point, no listed plants have been observed within the pond project area (USFWS 2005b). In addition, no special status plants were found during surveys conducted in August 2002, although *Leptosiphon rosaceus* (formerly *Linanthus rosaceus*), a CNPS List 1B plant, was observed just outside the property boundary. No rare plants have been found during site observations and vegetation alliance mapping efforts since this survey. Therefore, no special status plant species are considered to be present at Mori Point.

*Wildlife*

Based on a search of the California Natural Diversity Database (CDFG 2005), a USFWS species list (2005a), an assessment of known habitat types at Mori Point, and on previous survey efforts, two federally listed species (San Francisco garter snake and California red-legged frog) and one non-listed but sensitive invertebrate (San Francisco forktail damselfly), raptors and migratory birds are known to occur on-site (Figure 9). An additional 15 special status wildlife species (two invertebrates, two reptiles, eight birds and two mammals) were determined to have a moderate potential to occur in habitats found on-site (Appendix G).

*Federally Listed Species*

**San Francisco garter snake.** The San Francisco garter snake (*Thamnophis sirtalis tetrataenia*) was listed as endangered in 1967 (32 FR 4001), prior to the protections of the Endangered Species Act of 1973 (ESA) (16 U.S.C. 1536 [c]), and was listed as endangered by the State of California in 1971. Although habitat extent and conditions continue to decline, no Critical Habitat has been designated for the species. All of the monitored populations of the species have declined since listing. The zoo population in North America went extinct in 2003. The species continues to be held in zoos and private collections in Europe, although the European zoos continue to have problems with inbreeding depression. In 2005, six San Francisco garter snakes were procured from the Netherlands and currently reside in the San Francisco and San Diego Zoos.

The 1985 Recovery Plan identified threats to the species as loss of habitat from agricultural, commercial and urban development, and collection by reptile fanciers and breeders (FWS 1985). The historical threats to the species remain, but there are now additional threats to the species, such as: (1) The California red-legged frog, the primary prey for the San Francisco garter snake, is in decline, was listed as threatened in 1996 (61 FR 25813) and faces an additional threat (post-listing) from chytrid fungus (*Batrachochytrium dendrobatidis*), (2) introduction of bullfrogs (*Rana catesbeiana*) which prey on both the San Francisco garter snake and California red-legged frog; (3) hybridization and outcrossing; (4) inbreeding depression resulting from low numbers, as evidenced by the low fecundity and thriftiness of the European zoo population; (5) record-low numbers of the species in the wild; (5) parasites [Larsen 1994, Cover and Boyer and 1986 (*in litt*.)]; (6) aquatic habitat removal for flood control; and (7) seral succession of the remaining non-breeding habitat to the level that much of it has become unsuitable for the species.

There are two important components to San Francisco garter snake habitat: ponds that support the California red-legged frog and Pacific treefrog and the surrounding upland that supports the

California pocket gopher (*Thomomys bottae navus*) and Western vole (*Microtus californicus*).

Adult snakes feed primarily on California red-legged frogs and Pacific treefrogs. Adult San Francisco garter snakes are known to gorge on tadpoles of both species, when ponds dry prior to metamorphosis (McGinnis 1989). Newborn and juvenile San Francisco garter snakes depend heavily upon juvenile Pacific treefrogs as prey. If newly metamorphosed Pacific treefrogs are not available, the young snakes may not survive, although small earthworms and young-of-year slender salamanders, which are found in leaf litter and decomposing vegetation, may provide a temporary food source (McGinnis 1989, Larsen 1994). Female San Francisco garter snakes exhibit a high level of site fidelity (McGinnis *et al*. 1987, McGinnis 1989, Keel et al. 1991), particularly the burrow they use for aestivation and hibernation. Females can be found daily at the entrance to their burrow, and travel to the wetland one to two times per day (Paul Keel, pers. comm.) San Francisco garter snake females are larger than males (up to 36 inches, as opposed to up to 28 inches). Females are easily distinguished from males by their shorter tails, relative to overall body length.

Laguna Salada is a managed waterbody within the Sharp Park Golf Course north of Mori Point, which supports the California red-legged frog and the northernmost population of the San Francisco garter snake. The Laguna Salada and Mori Point areas are considered as a sub-population of the Pacifica population complex. Although the historical records for Laguna Salada and Mori Point treat these areas as two separate populations of the species, the only feature that distinguishes them is a property line. The treatment of Laguna Salada and Mori Point as a single sub-population is consistent with habitat usage in the "saddle area" between Mori Road and the Bottoms' Mitigation Pond (now owned by the Peebles Atlantic Development Corporation), as illustrated in the *Laguna Salada Resource Enhancement Plan* (PWA *et al.,* 1992).

The north side of Mori Point is within the Sanchez Creek watershed, which is a mixture of urban uses such as residences, roads and a golf course while open space areas such as Sweeney Ridge are under NPS management. The Sanchez Creek corridor is the most likely connection between this sub-population and the nearest adjacent population on San Francisco Water Department lands. The corridor between these two populations may be compromised, or at least constrained, by ongoing development.

Breeding habitat for the San Francisco garter snake within the privately owned quarry lands south of Mori Point was filled and dozed on two separate occasions in the 1980s. The property was recently acquired by the Peebles Atlantic Development Corporation. Foraging habitat at Laguna Salada was compromised several times in the 1970s and 1980s, due to breaching of the dunes during winter-storm events and subsequent inundation by seawater. Breeding habitat and hibernacula on the Laguna Salada side of Mori Point has been seriously compromised by dumping of debris, off-road vehicle use, and non-designated trails—this is most serious in the Bowl area, where the highest numbers of San Francisco garter snakes were recorded in 1979.

Many of the sub-populations of the Pacifica population have been extirpated due to residential development. Zero to low detections, even with intensive surveying and trapping in 1984 and 1988, indicate that this population was extirpated in the mid 1980s, and again by 1990, and is

being recolonized. There was a report of a sighting at Mori Point in 2000 and the latest survey information of the Laguna Salada Mori Point sub-population has produced seven San Francisco garter snakes (K. Swaim, *in litt.,* 2004). Other historical sightings of the species have been documented at Mori Point (Figure 16).

The construction of additional ponds designed to provide aquatic habitat for San Francisco garter snake and California red-legged frog (pictured below) was authorized in 2004 by the USFWS (USFWS 2005b); two ponds were constructed in 2004. Since construction of the ponds no snake surveys have been conducted on site.

**California red-legged frog.** The California red-legged frog (*Rana aurora draytonii*) was federally listed as threatened on May 23, 1996, (61 FR 25813), effective June 24, 1996. Factors contributing to the threatened status of the species include: urban encroachment, construction of reservoirs and water diversions, contaminants, agriculture. These activities can destroy, degrade, and fragment habitat. The introduction of non-native predators, competitors, and disease are additional factors that continue to threaten the viability of many California red-legged frog populations.

Habitat loss and alteration, over-exploitation, and introduction of exotic predators were important factors in the species' decline in the early to mid-1900s. Reservoir construction, expansion of introduced predators, inappropriate grazing and prolonged drought fragmented and eliminated many of the Sierra Nevada foothill populations. California red-legged frogs are currently threatened by human activities, many of which operate synergistically and cumulatively with each other and with natural disturbances (*i.e.*, droughts and floods). Current factors associated with declining populations of the red-legged frog include degradation and loss of its habitat through agriculture, urbanization, mining, overgrazing, recreation, timber harvesting, non-native plants, impoundments, water diversions, degraded water quality, and introduced predators. These factors have resulted in the isolation and fragmentation of habitats within many watersheds, often precluding dispersal between sub-populations and jeopardizing the viability of metapopulations (broadly defined as multiple subpopulations that occasionally exchange individuals through dispersal, and are capable of colonizing or "rescuing" extinct habitat patches). The fragmentation of existing habitat and the continued colonization of existing habitat by nonnative species may represent the most important current threats to California red-legged frogs. California red-legged frog populations are usually threatened by more than one factor.

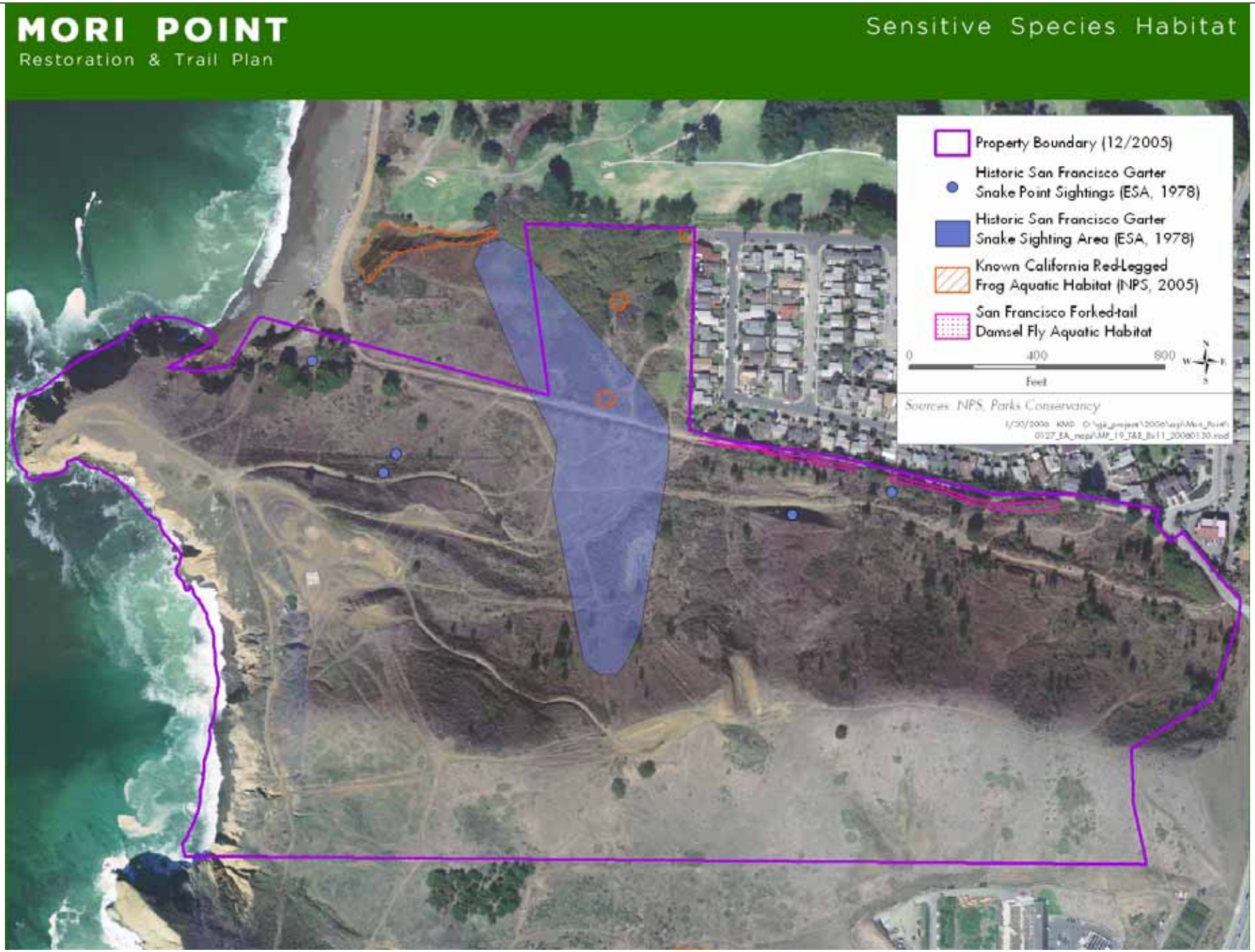
Establishment of bullfrogs has a notably destructive effect on California red-legged frog populations, because they impact California red-legged frogs during all life stages and in multiple ways. Cook (*in litt*. 2000) documented bullfrog predation of a large adult red-legged frog. Larval bullfrogs enter their carnivorous stage during the spring, concurrent with the early stages of red-legged frog larval development, at a time when California red-legged frog larvae are small and non-carnivorous. In addition to predation, bullfrogs have a competitive advantage over red-legged frogs: bullfrogs are larger, possess more generalized food habits (Bury and Whelan 1984), possess an extended breeding season (Storer 1933) where an individual female can produce as many as 20,000 eggs during a breeding season (Emlen 1977), and larvae are unpalatable to predatory fish (Kruse and Francis 1977). In addition to competition, bullfrogs also interfere with California red-legged frog reproduction. Both California and northern red-legged frogs have been observed mounted on male and female bullfrogs (Jennings and Hayes 1990, Twedt 1993, USFWS Files). Thus, bullfrogs are able to prey upon and out-compete California red-legged frogs.

Many pesticides and fertilizers have been shown to have deleterious effects on both California red-legged frogs and Pacific treefrogs. Runoff of pesticides from golf courses (Odanaka *et al.* 1994, Ryals *et al.* 1998, Suzuki *et al*. 1998) may suppress California red-legged frogs by substantially eliminating their prey base and by direct, reduced fitness to individual frogs. Additional threats to the California red-legged frog are *chytrid* fungus and *trematode* infestations. Parasitic infection from the trematode, *Ribeiroia ondatrae*, has been shown to result in limb deformations in the northern red-legged frog and in the Pacific treefrog.

California red-legged frogs breed from November through March with earlier breeding records occurring in southern localities (Storer 1925). Egg masses are typically attached to vertical emergent vegetation, such as bulrushes or cattails (Jennings *et al.* 1992), but can be attached to the substrate of ponds (Swaim, pers. comm. 2004). California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Eggs hatch in six to 14 days (Jennings 1988). Breeding sites include streams, creeks, ponds, marshes, sag ponds, deep pools and backwaters within streams and creeks, dune ponds, lagoons, estuaries, and artificial impoundments, such as stock ponds. California red-legged frogs often successfully breed in artificial ponds with little or no emergent vegetation, as well as ponds with emergent vegetation, and have been observed to successfully breed and inhabit stream reaches that are not cloaked in riparian vegetation, as well as closed-canopy creeks and streams; therefore, factors other than cover are more likely to influence the suitability of aquatic breeding sites, such as the general lack of introduced aquatic predators.

California red-legged frogs often disperse from their breeding habitat to utilize various aquatic, riparian, and upland habitats as summer habitat. This could include ponds, streams, marshes, boulders or rocks and organic debris such as downed trees or logs; industrial debris; and agricultural features, such as drains, watering troughs, or spring boxes. California red-legged frogs can also use small mammal burrows and moist leaf litter (Jennings and Hayes 1994), and ravines that have "at least some surface flow during most of the year" (Bulger *et al.* 2003).

**FIGURE 16. SPECIAL STATUS SPECIES OCCURRENCES KNOWN WITHIN THE PROJECT AREA.**



The historic range of the California red-legged frog extended coastally from the vicinity of Point Reyes National Seashore, Marin County, California, and inland from the vicinity of Redding, Shasta County, California, southward to northwestern Baja California, Mexico (Jennings and Hayes 1985). California red-legged frogs were historically documented with 46 counties but the taxon now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (USFWS 2000). Red-legged frogs are still locally abundant within portions of the San Francisco Bay Area and the Central Coast. Within the remaining distribution of the species, only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular ranges, but is still present in Baja California, Mexico (CDFG 1998).

California red-legged frogs are breeding in and around Mori Point, primarily in three locations: (1) in the Mitigation Pond (adjacent to the City of Pacifica's tertiary water treatment facility at Calera Creek, south of Mori Point), (2) at Horse Stable Pond (owned and managed by the City of San Francisco Department of Recreation and Parks), and (3) in the newly created ponds on NPS lands. Although the Mitigation Pond adjacent to Calera Creek was intended as California red-legged frog breeding habitat, it is sedimenting in; consequently, survivorship is expected to be good, but in decline. Survivorship may be impacted at Horse Stable Pond, by pond pumping which has exposed California red-legged frog eggs to desiccation. The construction of additional ponds designed to provide aquatic habitat for California red-legged frog and San Francisco garter snake was authorized in 2004 by the USFWS (USFWS 2005b); two ponds were constructed in 2004 and are referred to as the northern and southern ponds, respectively.

The successful breeding within Mori Point, undisrupted by saltwater intrusion, marine overwash, or desiccation from pumping, is most likely to occur in Sanchez and Calera creeks and the newly created ponds at Mori Point.

Breeding surveys conducted during the winters of 2003 – 2006 by the GGNRA identified egg masses of California red-legged frog along the shoreline of Horse Stable Pond (outside of the GGNRA boundary). Additional surveys identified California red-legged frog egg masses at b both ponds constructed by the NPS in winter 2006. Surveys of other seasonal wetlands within Mori Point did not find any California red-legged frog egg masses, although these sites were used by Pacific tree frogs for breeding. Later site visits identified the use of the emergent marsh habitats in the project site by adult California red-legged frogs when water is present. Known aquatic habitat for the species on-site is shown in Figure 16.

*Non-listed Species*

**San Francisco forktail damselfly, Tomales isopod, Ricksecker's water scavenger beetle, and Leech's skyline diving beetle..** The San Francisco forktail damselfly (*Ischnura gemina*) is considered sensitive by CDFG as it has both a global and state ranking of 2 (6-20 known occurrences or 1,000-3,000 individuals). This species is endemic to the San Francisco Bay Area and inhabits small, marshy ponds and ditches with emergent and floating aquatic vegetation (CDFG 2005). At Mori Point, the locally rare San Francisco forktail damselfly's larva occurs in a drainage ditch along the Mori Road (Figure 16). This species also has potential to occur in

other ponded habitats on-site.

The Tomales isopod (*Caecidotea tomalensis*) is considered sensitive by CDFG as it has both a global and state ranking of 2. This species inhabits localized fresh-water ponds or streams with still or near-still water in several Bay Area counties (CDFG 2005). Ricksecker's water scavenger beetle (*Hydrochara rickseckeri*) is also has both a global and state ranking of 2; this species inhabits various water bodies and is known from the San Francisco Bay Area (CDFG 2005). Leech's skyline diving beetle (*Hydroporus leechi*) has a questionable global and state ranking of 1 (less than 6 known occurrences, or less than 1,000 individuals); this species inhabits aquatic habitats. These species have potential to occur in ponded habitats on-site.

**Western pond turtle.** The Western pond turtle (*Clemmys marmorata*) is a CDFG species of special concern. This species inhabits ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation; it needs basking sites and suitable (sandy banks or grassy open fields) upland habitat for egg laying (CDFG 2005). This species also has the potential to occur in and around the on-site ponds.

**California horned lizard.** The California horned lizard (*Phrynosoma coronatum frontale*) is a federal and CDFG species of concern and frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes; this species needs open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects. This species has the potential to occur in grassland and shrub habitats on-site.

**Raptors and other special status birds (including migratory birds).** The majority of vertebrates recorded at Mori Point are resident and migratory birds (115 species) (Nericcio, 2004) The abundance of species observed indicates the important role that Mori Point plays within the migratory flight path for many raptors and songbirds. During bird migration, many species utilize Mori Point and other large fragmented areas along the San Francisco Peninsula as a place to shelter and hunt. White-tailed kites (*Elanus leucurus*), red-tailed hawks (*Buteo jamaicensis*), and red-shouldered hawks (*Buteo lineatus*) can often be seen stalking small prey, such as California voles, deer mice, and young brush rabbits, which provide a valuable food source for them. In addition to many birds of prey, Mori Point offers a rocky coastline where shore birds and marine birds feed. According to the database searches (CNDDB 2005), the site also provides potential habitat for Ferruginous hawk (*Buteo regalis*), American peregrine falcon (*Falco peregrinus anatum* - non-breeding habitat), and other non-listed migratory birds (Marbled godwit [*Limosa fedoa*], Long-billed curlew [*Numenius americanus*], Rufous hummingbird [*Selasphorus rufus*], Allen's hummingbird [*Selasphorus sasin*]) (Appendix A). The Monterey pine, Monterey cypress, and eucalyptus groves on-site provide potential nesting habitat for raptors, while most of the other on-site habitats provide potential nesting or foraging habitat for the other migratory bird species.

**San Francisco dusky-footed woodrat.** The San Francisco dusky-footed woodrat (*Neotoma fuscipes annectens*) is a federal species of concern and inhabits forest habitats of moderate canopy and moderate to dense understory; it also occurs in chaparral habitats. It constructs nests of shredded grass, leaves, sticks, and other material. This species may be limited by the availability of nest-building materials. This species also has the potential to occur in the

Monterey pine and Monterey cypress groves on-site.

**American badger.** The American badger (*Taxidea taxus*) is a CDFG species of special concern and is most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils and open uncultivated ground. It preys on burrowing rodents and digs burrows in the ground. This species has the potential to occur in most on-site upland habitats.

3.6.4.2 Environmental Consequences - Special Status Species

***Alternative 1 – Special Status Species Impacts***

*Plants*

No special status plant species are present, or are expected to be present, within the project area; therefore, no impacts are anticipated. Special status plant monitoring would be conducted according to GGNRA protocols as part of long-term management. If rare plant species are found on-site, appropriate protection measures would be developed, in coordination with the GGNRA Vegetation Ecologist, to avoid or minimize adverse impacts to these plants or populations.

*Wildlife*

*Federally listed species*

**San Francisco Garter Snake**. Since this species is federally endangered, the following environmental consequences analysis will address NEPA standards (significant "impacts") as well as ESA Section 7 Biological Assessment standards (i.e. "effects"). For the purposes of this section, the term "impacts" refers to both NEPA significant impacts and ESA effects.

Site-wide Management Actions, including trail and pond construction, erosion repair, hydrology improvement, weed and debris removal, site improvement installation, and habitat restoration, may result in short-term direct adverse impacts to the San Francisco garter snake due to snake fatalities or disturbance to essential behaviors such as feeding[4], dispersing, and breeding. Vehicles, equipment, or crewmembers could crush individuals or their burrows or cause harassment due to noise or vibration. The removal of non-native invasive plants may disturb and/or harm snakes sheltering within these plants. Project activities may cause snakes to move out of their resident habitat making them susceptible to injury or mortality due to predation or increased competition for food and living space with snakes in adjacent areas. Active removal of San Francisco garter snakes from the project footprint is expected to protect individual snakes from being crushed or cut up by heavy equipment; however, these activities may inadvertently result in harassment, harm or mortality to the relocated individuals. Upland habitat around the existing ponds will be protected to the maximum extent possible to allow for refugia for San Francisco garter snakes during construction.

[4] Additionally, because California red-legged frogs are an important prey item for this species, effects on red-legged frogs from project activities may also have indirect effects on the snake's foraging potential (effects to California red-legged frog are described separately below).

Trail construction may result in short-term indirect adverse impacts (such as degradation, damage, or dust) to 3.3 acres of potential San Francisco garter snake habitat within a 12-15-foot buffer of trails. The restoration of more than 13.3 acres of habitat may result in similar short-term indirect adverse impacts to habitat. However, these actions would be temporary, phased, local, and minor.

Adverse impacts may be local to regional, moderate to major, and "may affect / is likely to adversely affect" the San Francisco garter snake. The following measures will be implemented to minimize and/or avoid "take" of San Francisco garter snake and California red-legged frog during implementation of Site-wide Management Actions.

***Mitigation Measures:***

- No earthmoving or soil disturbing work shall occur in the vicinity of the "Bowl" or existing ponds or wetlands between November 15 and April 15, the breeding season for California red-legged frog and the season when San Francisco garter snake are inactive in their winter burrows.
- Vegetation in all construction areas will be progressively cleared by hand equipment to a height of 4 inches and checked for presence of snakes prior to ground-disturbance and construction equipment or vehicles entering the sites. Once vegetation is cleared, a pre-construction survey for the San Francisco garter snake will be conducted in the impact area.
- Prior to construction near wetlands or ponds, exclusion fencing will be constructed and all rodent burrows in the construction area will be hand excavated until the burrows terminates or until a maximum depth of 30 centimeters in areas where soil or fill will be removed or placed.
- Speed limits of 10 miles per hour will be posted on all access roads.
- A Biological Monitor will inspect for snakes and frogs underneath any vehicle that is parked for 30 minutes or more, immediately prior to moving the vehicle.
- Exclusion fencing gates will be closely monitored throughout construction to ensure no snakes enter the area.
- Personnel who detect any suspected San Francisco garter snake or California red-legged frog on-site will immediately report their finding to a Biological Monitor for positive identification. Non-permitted personnel will not attempt to capture or move any snake or frog detected. If the Biological Monitor determines that the animal is not a San Francisco garter snake or California red-legged frog, the Biological Monitor may hand capture and move the animal to suitable habitat outside the construction area. If the Biological Monitor determines that the detected animal is a San Francisco garter snake or a California red-legged frog, or is unable to positively identify the animal, then the Biological Monitor will notify the permitted biologist for appropriate action.
- A biologist holding a valid Scientific Collection Permit from the U.S. Fish and Wildlife Service will be on call or on-site to handle any San Francisco garter snakes or California red-legged frogs encountered during pre-construction and construction activities. Only a holder of a valid Scientific Collection Permit from the USFWS will handle San Francisco garter snakes. California red-legged frogs will only be handled

by a holder of a valid Scientific Collection Permit from the USFWS or a USFWS-approved Monitor.

- All excavated holes and trenches will be either covered at the end of the workday, ramped or escape boards will be placed in trench to allow the animals to escape. Trenches will be inspected each morning and late afternoon by the Biological Monitor as well as before the trench is filled. The permitted biologist will relocate any San Francisco garter snake or California red-legged frog individuals found.

To reduce daytime noise and potential disturbance to wildlife species due to construction, construction contractors should muffle or control noise from construction equipment through implementation of the following measures:

***Mitigation Measures:***

- Equipment and trucks used for construction should utilize the best available noise control techniques (e.g., improved mufflers, equipment redesign, use of intake silencers, ducts, engine enclosures and acoustically-attenuating shields or shrouds, and installation of sound blanket around the project site, wherever feasible and necessary). Construction vehicles should be properly maintained and equipped with exhaust mufflers that meet state standards.
- Impact tools used for construction should be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust should be used. External jackets on the tools themselves and quieter procedures should be used wherever feasible.
- Invasive non-native plant removal would be conducted as follows so that any San Francisco garter snakes that may be hiding in vegetation can escape unharmed. First, search each clump or patch thoroughly for snakes. If a San Francisco garter snake is found, disturbing it is likely to make it hide more deeply in the vegetation, therefore, leave the clump or patch alone and check it again on a later day. If no San Francisco garter snake is found, cut the vegetation manually 1 to 2 feet above ground level and search it again (carefully). If no San Francisco garter snake is found, the remainder of the clump or patch can be removed.

Long-term indirect adverse impacts to the San Francisco garter snake may also result from ongoing trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. However, prior to removal of vegetation, the site will be surveyed for underground burrows. In those areas where no burrows are found, the plant will be removed by hand or by hand using a weed-wrench or other digging tool. Non-native vegetation with large root balls that could cause ground disturbance would be cut instead of pulled. Prior to any mechanical control of vegetation, such as brushcutting, sites will be walked through and visually inspected. The implementation of the below mitigation measure would further reduce adverse impacts and would be implemented to minimize and/or avoid "take" of San Francisco Garter Snake and California Red Legged Frog during implementation of Stewardship Actions These adverse impacts would occur infrequently, and would be local and minor.

***Mitigation Measures:***

- Current sterilization protocols will be followed for all wetland sampling and monitoring at Mori Point, to protect against chytrid and trematode infestation.
- Wetlands will be monitored for invasive aquatic species and removal will be conducted if found.
- During invasive non-native plant removal, if physical removal or destruction is planned, conduct the work as follows so that any San Francisco garter snakes that may be hiding in the grass can escape unharmed. First, search each clump or patch thoroughly for snakes. This should be done with caution, since there is some potential for rattlesnakes to be present. If a garter snake is found, disturbing it is likely to make it hide more deeply in the vegetation, therefore, leave the clump or patch alone and check it again on a later day. If no garter snake is found, cut the vegetation manually 1 to 2 feet above ground level and search it again (carefully). If no garter snake is found, the remainder of the clump or patch can be removed.

Beneficial impacts to the San Francisco garter snake will be long-term. The construction of up to five new ponds (0.4 acres) providing aquatic habitat for the San Francisco garter snake and its main food sources, the California red-legged frog and the Pacific tree frog would result in long-term, direct, beneficial impacts. The created ponds are expected to increase and stabilize the prey base for the San Francisco garter snake, thereby increasing San Francisco garter snake numbers. An increase in San Francisco garter snake numbers would allow for more breeding opportunities, which could result in greater population-level genetic diversity. Long-term beneficial impacts to the species would also result from improved hydrologic connections between wetlands, uplands, and ponds. This connectivity would help to stabilize aquatic resources that have historically been fragmented by stochastic events, development, and motorized vehicle recreation. In addition, the proposed raised boardwalk/bridge along the road in Special Restoration Area B would allow for undisturbed migration between wetland and upland areas, reducing the potential for mortality due to vehicle crushing or visitor encounters along the road. These beneficial impacts to aquatic habitat are anticipated to be local to regional and moderate to major.

Site-wide Management Actions would also result in long-term direct beneficial impacts and effects to San Francisco garter snake upland dispersal and aestivation habitat by restoring 13.3 acres of upland habitats. Composting plant materials after invasive plant removal would increase slender salamander populations (USFWS 2004). This increase would provide an alternate food source for the San Francisco garter snake in years when saltwater intrusion or seasonal weather fluctuations cause the Pacific treefrog or California red-legged frog reproductive effort to fail. Long-term indirect beneficial impacts to the San Francisco garter snake would result from improvements in native habitat and species diversity and function from on-going weed control, revegetation, and monitoring; reductions in threats from toxic materials, entrapment, and predators; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails; and reductions in erosion and associated degradation of habitats from well-maintained trails and erosion repair. These beneficial impacts would occur over the entire 110 acre site. These beneficial impacts are anticipated to be local to regional and moderate to major.

In addition, implementation of the Site-wide Management and Stewardship Actions would partially satisfy the following Conservation Recommendations outlined in the 2005 USFWS Biological Opinion for the construction of ponds at Mori Point:

1. Restore the "bowl" at Mori Point to its historical condition of annual and perennial grassland, with an herbaceous understory, by realigning the trail away from San Francisco garter snake breeding habitat and hibernacula and by introducing a natural ecological process--such as sporadic grazing. Work closely with the USFWS in the design and implementation of this action.

3. Restore the riparian area adjacent to Sanchez Creek by removing rubble, debris, non-designated trails, and encampments in the willow thickets and Monterey cypress overstory.

4. Work with the local residents to establish a reporting procedure for monitoring vandalism, illegal dumping, and camping, and install additional surveillance equipment along Sanchez Creek.

Conclusion

Alternative 1 would result in short and long-term, direct and indirect, local and regional, and minor to major adverse impacts to the San Francisco garter snake. With the implementation of the mitigation measures and the Best Management Practices in Appendix E, the proposed project actions will ultimately result in less-than-significant impacts to the species.

Overall, the proposed project "may affect/ is likely to adversely affect" the San Francisco garter snake, according to the federal Endangered Species Act (ESA). This is because the implementation of the mitigation measures and the Best Management Practices in Appendix E would reduce and minimize impacts to the species, adverse effects such as harassment, harm, or mortality of individuals may still occur during trail work, pond construction, erosion repair, or relocation of individuals from work areas.

However, impacts considered potentially major and actions that would potentially result in a "may affect/likely to adversely affect" determination would be short-term and construction related, and offset by the long-term benefits to the species as described below.

In contrast, the proposed project is expected to result in long-term, local to regional, direct and indirect, minor to major beneficial impacts. Although .05 acres of wetland habitat would be permanently impacted, up to 0.4 acres of pond habitat would be constructed for a net increase of 0.35 acres of aquatic habitat and an approximate ratio of 8:1 for created to impacted aquatic habitat. Similarly, although 2.7 acres of upland habitat would be impacted, over 13.3 acres would be restored, resulting in a net increase of 10.6 acres and an approximate ratio of 5:1 for restored to impacted habitats. Overall, the project is expected to result in a net increase in the quantity and quality of aquatic and upland habitats for the San Francisco garter snake. Cumulative impacts would be the same as described under Alternative 1 - *Wildlife*.

**California red-legged frog**

Since this species is federally threatened, the following environmental consequences analysis will address NEPA standards (significant "impacts") as well as FESA Section 7 Biological Assessment standards (i.e. "effects"). In this section, the term "impacts" will be inclusive of both NEPA impacts and ESA effects.

Site-wide Management Actions, including trail and pond construction, erosion repair, hydrology improvement, weed and debris removal, site improvement installation, and habitat restoration, may result in short-term direct adverse impacts to the California red-legged frog due to fatalities or disturbance to essential behaviors such as feeding[5], dispersing, and breeding. Vehicles, equipment, or crewmembers could crush individuals (particularly during the first heavy rains of the season when they are dispersing) or cause harassment due to noise or vibration. The removal of non-native invasive plants may disturb and/or harm any California red-legged frogs sheltering within these plants. Project activities may cause frogs to move out of their resident habitat making them susceptible to injury or mortality due to predation or increased competition for food and living space with frogs in adjacent areas. During project activities, California red-legged frogs may disperse into upland habitat or staging areas for cover making them vulnerable to crushing when equipment is moved. However, the likelihood of this occurring is low because there is higher-quality cover along Sanchez Creek and around Laguna Salada.

In addition, California red-legged frogs may be adversely impacted by increased sedimentation caused by runoff associated with project activities. If heavy sedimentation occurs in pools where California red-legged frogs breed, their egg masses could suffocate. However, erosion and sedimentation control measures, such as rice straw mulch, sediment traps, check dams, geofabrics, drainage swales, sand bag dikes and/or straw wattles would be installed wherever deemed appropriate to eliminate the potential for sediment discharge into storm water and into wetlands and creeks from project construction. Erosion control structures will be installed concurrently with construction so that run-off will be deflected away from sensitive habitats. The implementation of the mitigation measures listed for the San Francisco garter snake would reduce adverse impacts. Active removal of California red-legged frogs from the project footprint is expected to protect individual frogs from being crushed or cut up by heavy equipment; however, these activities may inadvertently result in harassment, harm or mortality to the relocated individuals[6]. Adverse impacts may be local to regional, moderate to major, and "may affect / is likely to adversely affect" the California red-legged frog.

Trail construction may result in short-term indirect adverse impacts (such as degradation, damage, or dust) to 3.3 acres of potential California red-legged frog habitat adjacent to trails. The restoration of 13.3 acres of habitat may result in similar short-term indirect adverse impacts

[5] Additionally, because California red-legged frogs are an important prey item for this species, effects on red-legged frogs from project activities may also have indirect effects on the snake's foraging potential (effects to California red-legged frog are described separately below).

[6] Harm or mortality may be caused by the inadvertent transmission of *Chytridiomyosis* and *trematode* infection; however, the protocols used by the NPS and contractors holding 10(a)(1)(A) permits are sufficiently rigorous that they would not be the source of these threats.

to habitat. However, these actions would be temporary, local, minor, and phased, and have a net beneficial impact to California red-legged frog.

Long-term indirect adverse impacts to the California red-legged frog may result from ongoing trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. The implementation of the above mitigation measures listed for the San Francisco garter snake would help to reduce adverse impacts. These impacts are anticipated to occur infrequently, and would be local and minor.

Beneficial impacts to the California red-legged frog will be long-term. The construction of up to 5 new ponds (0.4-acres) and improvements to hydrologic connectivity of on-site wetlands would result in improved aquatic habitat quality, quantity, and connectivity for the species. The created ponds and the improvements to hydrologic connections between wetlands and ponds would result in similar localized major beneficial impacts as described under the San Francisco garter snake.

Site-wide Management Actions would also result in long-term direct beneficial impacts and effects to California red-legged frog upland habitat by restoring 13.3 acres of on-site habitats. Stewardship Actions and Site-wide Management Actions would result a long-term indirect beneficial impacts to the California red-legged frog over the entire 110 acre site due to continued improvements in native habitat species diversity and function from on-going weed control, revegetation, and monitoring; reductions in threats from toxic materials, entrapment, and predators; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails; and reductions in erosion and associated degradation of habitats from well-maintained trails and erosion repair sites. These beneficial impacts are anticipated to be local to regional and moderate.

In addition, implementation of the proposed project would partially satisfy the following Conservation Recommendations outlined in the 2005 USFWS Biological Opinion for the construction of ponds at Mori Point as described for the San Francisco garter snake.

Conclusion

Alternative 1 would result in short and long-term, direct and indirect, local to regional, and minor to major adverse impacts to the California red-legged frog. With the implementation of the mitigation measures and the Best Management Practices in Appendix E, which would reduce and/or minimize potential adverse impacts to California red-legged frog, the proposed actions will ultimately result in less-than-significant impacts to the species.

Overall, the proposed project "may affect/ is likely to adversely affect" the California red-legged frog, according to the ESA. This is due to the fact that although the implementation of the mitigation measures and the Best Management Practices in Appendix E would reduce and minimize impacts to the species, adverse effects such as harassment, harm, or mortality of individuals may still occur during trail work, pond construction, erosion repair, or relocation of individuals from work areas.

However, impacts considered potentially major and actions that would potentially result in a

"may affect/likely to adversely affect" determination would be short-term and construction related, and offset by the long-term benefits to the species as described below.

In contrast, the proposed project would result in long-term, local to regional, direct and indirect, minor to major beneficial impacts to the California red-legged frog. Although 0.05 acres of wetland habitat will be impacted, the construction of up to 5 new ponds (0.4 acres) would result in a net increase of 0.35 acres of aquatic habitat and an approximate ratio of 8:1 for restored to impacted habitat. Similarly, although 2.7 acres of upland habitat will be impacted, the proposed project will restore over 13.3 acres of upland habitat resulting in a net increase in 10.6 acres and a ratio of 5:1 for restored to impacted habitat. Overall, the proposed project is expected to result in net increases to the quantity, quality, and connectivity of aquatic and upland habitats. Cumulative impacts would be the same as described under Alternative 1 - *Wildlife*.

*Non-listed species*

**Western Pond Turtle.** This species is not known to occur on-site; however, it has the potential to occur in and around the existing ponds on-site.

Pond and trail construction could permanently impact 0.05 acres of Cowardin wetland habitats. However, this adverse impact would be local and minor and mitigations listed under the Biological Resources section would reduce impacts to this species.

Site-wide Management Activities are not anticipated to adversely impact existing ponds; however, they may impact habitat adjacent to ponds. Indirect impacts may include short-term disturbance/degradation, increased sedimentation, spills from equipment or vehicles, disruption of hydrologic processes providing ponded conditions, and harassment, harm or mortality of individuals, if present. Stewardship Actions may result in long-term indirect adverse impacts to the western pond turtle, if present, from ongoing activities including trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. These impacts are anticipated to be local, short-term, and minor, especially when considering the net benefits as described under below.

Site-wide Management Actions would result in short and long-term direct beneficial impacts to the western pond turtle, if present, from the construction of up to five new ponds, resulting in the creation of 0.4 acres of pond habitat. Hydrology improvements in Special Restoration Areas A and B would allow for greater connectivity between wetland and ponded habitats. These beneficial impacts are expected to be local and major.

Trail improvements would reduce trespass and associated harassment in pond areas and would reduce sedimentation caused by run-off from non-designated trails. Invasive species removal in the vicinity of ponds would also improve native wetland habitats. These beneficial impacts are anticipated to be local and minor to moderate.

<u>Conclusion</u>
If the Western pond turtle is present at Mori Point, Alternative 1 may result in short and long-term, direct and indirect, local, and minor adverse impacts. With implementation of the Best

Management Practices in Appendix E and mitigation measures, potential adverse impacts would be reduced to less-than significant levels. In contrast, the proposed project would result in local, direct and indirect, major beneficial impacts to the Western pond turtle. Although 0.05 acres of Cowardin wetlands would be permanently impacted, the proposed project would create up to 0.4 acres of ponds resulting in a net increase of 0.35 acres of pond habitat and an approximate mitigation ratio of 8:1 for permanently restored to impacted habitats. Overall, the project would improve the quantity and quality of habitat for the Western pond turtle. Cumulative impacts would be the same as described under Alternative 1 - *Wildlife*.

**California Horned Lizard.** This species is not known to occur on-site. However, it has the potential to occur in the following habitats: Disturbed, California Sagebrush, and Coyote Brush.

Trail and pond construction may result in long-term direct adverse impacts to the California horned lizard, if present, from the permanent loss of approximately 1.9 acres of potential habitat (Table 7). This impact would be local and minor, especially considering the net benefits to described under "beneficial impacts" below.

Trail construction may result in short-term indirect adverse impacts to this species, if present, within a 12- to 15-foot buffer of trail work. As a result, approximately two additional acres of potential habitat could be temporarily degraded from dust, crew movement, or trampling. Temporary disturbance may also result from the installation of site improvements, erosion repair, debris removal, or invasive plant removal. However, these impacts are expected to be local and minor, allowing for most individuals to relocate during project activities.

Site-wide Management Actions and Stewardship Actions may result in long-term indirect adverse impacts to the California horned lizard, if present, from ongoing trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. However, these impacts are anticipated to occur infrequently, and would be local and minor, especially when considering the net benefits to the species described below. Mitigations listed under the Biological Resources section would reduce impacts to this species.

Site-wide Management Actions would result in long-term direct beneficial impacts to the California horned lizard, if present, through the restoration of 6.9 acres of habitat. This would result in a long-term, local and minor to moderate beneficial impact to the species, if present on-site.

Stewardship Actions and Site-wide Management Actions would result a long-term indirect beneficial impacts the California horned lizard over all 110 acres due to continued improvements to native habitat species diversity and function from on-going weed control, revegetation, and monitoring; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails; and reductions in erosion and associated degradation of habitats from well-maintained trails and erosion repair sites. These beneficial impacts are anticipated to be local and minor.

<u>Conclusion</u>
If the California horned lizard is present at Mori Point, alternative 1 may result in short and long-

term, direct and indirect, local, and minor adverse impacts. With implementation of the Best Management Practices in Appendix E and mitigation measures, potential adverse impacts to California horned lizard would be reduced to less-than significant levels. In contrast, the proposed project would result in long-term, local, and minor to moderate benefits to the species. Although 1.9 acres of habitat would be removed, over 6.9 acres would be restored resulting in a ratio of more than 3:1 for restored to removed upland habitat. Overall, the proposed project is expected to result in net increases to the quantity and quality of habitats that could support the California horned lizard. Cumulative impacts would be the same as described under Alternative 1 - *Wildlife*.

**San Francisco Forktail Damselfly, Tomales Isopod, Ricksecker's Water Scavenger Beetle and Leech's Skyline Diving Beetle.** Only one of these four species is known to occur on-site, the San Francisco forktail damselfly. However, all have some potential to occur in ponded areas, including ditches on-site.

Site-wide Management Activities may result in long-term direct adverse impacts to these sensitive aquatic invertebrates. Trail construction and deconstruction would permanently remove 0.05 acre of wetlands and temporarily impact less than 0.18 acre of wetlands. In particular, improvements to Mori Road and the ponded roadside ditches in Special Restoration Area A may result in temporary impacts to the aquatic habitat within the roadside ditches, which provide habitat for the San Francisco forktail damselfly. However, these adverse impacts are anticipated to be local and minor, especially when considering the net benefits to aquatic invertebrates as described below.

Site-wide Management Actions may include short-term, indirect impacts to adjacent existing ponds and wetland habitat from increased sedimentation, spills from equipment or vehicles, or disruption of hydrologic processes providing ponded conditions. Long-term indirect adverse impacts may occur from ongoing activities including trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring.

There would be long-term direct beneficial impacts from the construction of up to five new ponds, totaling 0.4-acres of new aquatic habitat. In addition, hydrology improvements in Special Restoration Areas A and B allowing for greater connectivity between wetland and ponded habitats, and trail improvements reducing trespass into wetlands and sedimentation from non-designated trails would greatly enhance the on-site habitat, resulting in a net benefit for these species. These beneficial impacts are anticipated to be local and minor to moderate.

Stewardship and Site-wide Management Actions would result a long-term indirect beneficial impacts to special status aquatic invertebrates due to continued improvements in native habitat species diversity and function from on-going weed control, revegetation, and monitoring; reductions in threats from toxic materials; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails; and reductions in erosion and associated degradation of habitats from well-maintained trails and erosion repair sites. These beneficial impacts are anticipated to be local and minor to moderate.

Conclusion

Alternative 1 would result in short and long-term, direct and indirect, local, and minor adverse impacts to special-status aquatic invertebrates. With the implementation of the Best Management Practices in Appendix E and mitigation measures, impacts would be less-than-significant. In contrast, the proposed project would result in long-term, direct and indirect, local, and minor to moderate beneficial impacts. Although 0.05 acres of habitat would be removed, 0.4 acres would be created resulting in an approximate ratio of 8:1 for created to removed habitat. Overall, the proposed project is expected to result in a net increase to the quantity and quality of habitat for special-status aquatic invertebrates. Cumulative impacts would be the same as described under Alternative 1 - *Wildlife*.

**Raptors and Other Special Status Birds (Including Migratory Birds)**

Site-wide Management Actions such as invasive non-native plant removal would result in direct adverse impacts to raptors from the permanent removal of small trees less than 8 inches dbh (diameter at breast height). Trees greater than 8 inches dbh will be left on site and removed only after become diseased, naturally die, topple, or pose a safety hazard. This impact is considered local and minor, because all large trees will be left standing, and many other potential breeding habitats exist within in the project area vicinity.

Site-wide Management Actions such as trail construction, restoration and removal, pond construction, erosion repair, and weed and debris removal may result in short-term indirect adverse impacts to raptors and other special status birds protected under the MBTA. Equipment and vehicle noise and vibration, crew movement, and other disturbances from project activities have the potential to cause nest abandonment and death of young or loss of reproductive potential at active nests that may be located within or near the project site. Stewardship Actions may result in long-term indirect adverse impacts from ongoing activities including trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. However, these impacts are anticipated to occur infrequently, and would be local and minor. Bird species that only utilize the site for foraging or other non-breeding activities may be temporarily disturbed by project activities; however, these temporary indirect impacts are negligible. Implementation of mitigation measures (below) would reduce these impacts to less-than-significant.

The following measures will be implemented to minimize and/or avoid disturbance to raptors and other special status birds during implementation of Site-Wide Management Actions.

***Mitigation Measures*:**

- Project activities including vegetation removal, grading, earth movement, or other activities involving mechanized equipment shall not be conducted during the bird-nesting season, from March 1 through July 31st, unless a qualified biologist conducts a pre-project survey for nesting birds and determines that birds are not nesting within the project area. All pre-project surveys would be coordinated with the GGNRA Wildlife Ecologist. To the greatest extent possible, these activities will be planned and conducted outside bird-nesting season. If work is necessary during the bird-nesting season, vegetation shall be removed to a height of less than 8 inches prior to

the nesting season (March 1st through July 31st) and throughout project activities to discourage the nesting of ground-dwelling bird species.

- In order to protect nesting raptors, trees shall not be removed between January 1st and July 31st unless qualified personnel conduct a pre-project survey for nesting birds and determine that birds are not nesting within the project area. If nesting raptors are detected, a qualified biologist will delineate a suitable buffer.

Beneficial impacts to raptors and migratory birds are expected to be indirect. Site-wide Management Actions, including restoration and non-native plant removal, would result in long-term indirect beneficial impacts to raptors and other special status birds from the restoration of on-site habitats, which would provide improved foraging and/or nesting opportunities. Long-term stewardship actions, including invasive species removal would further increase the quality of native plant communities for foraging and breeding habitat throughout the 110 acre site. These beneficial impacts are anticipated to be local and regional and moderate.

*Cumulative Impacts*

Cumulative impacts would be as described under wildlife, except for the following: One possible minor adverse cumulative impact may result from proposed project actions to potential raptor nesting habitat due to the removal of small non-native, invasive trees less than 8 inches dbh. In addition, approximately 20% of the eucalyptus trees within the Sharp Park Natural Area are proposed for removal, along with the probable removal of other trees from future development projects. However, this cumulative impact is considered minor, as available habitat exists on-site and in the surrounding area.

Conclusion

Alternative 1 would result in short and long-term, direct and indirect, local, and minor adverse impacts to raptors and migratory birds. With the implementation of the Best Management Practices in Appendix E and mitigation measures, impacts would be less-than-significant. In contrast, the proposed project would result in long-term, direct and indirect, local and regional, and moderate beneficial impacts. Overall, the proposed would result in a net increase to the quantity and quality of foraging habitat for certain raptors and breeding and foraging habitat for other raptors and migratory birds. In addition, large trees would remain on-site providing breeding habitat for raptors requiring large trees.

**San Francisco Dusky-footed Woodrat.** Although this species has not been reported within the Project Area, potential habitat for the San Francisco dusky-footed woodrat exists within the Monterey pine and cypress groves on-site.

Site-wide Management Actions such as invasive non-native plant removal may result in long-term direct adverse impacts to San Francisco dusky-footed woodrat, if present, from the removal of non-native invasive trees (only small trees less than 8 inches dbh will be removed) which could provide potential nesting habitat for the species. Trees greater than 8 inches dbh will be left on site and removed only after become diseased, naturally die, topple, or pose a safety hazard. However, this impact is considered local and minor the incorporation of mitigation measure (below) such as pre-construction surveys and nest protection or management (Appendix E).

***Mitigation Measure*:** Prior to implementation of proposed project activities, conduct visual surveys within the Monterey pine and cypress groves on-site to determine the presence or absence of woodrat nests. If woodrat nests are located during this survey, avoid the nest(s) and establish a minimum protection buffer of 50 feet around each nest. Project activities requiring grading, mechanized equipment or vehicles, or large crews within the 25-foot protective buffer should only occur during the non-breeding season (October-November) to avoid noise impacts to any breeding woodrats that may occupy the nest from December through September. If project activities cannot avoid impacting or removing the nest, then the nest(s) should be dismantled by hand prior to grading or vegetation removal activities. The nest dismantling shall occur during the non-breeding season (October-November) and shall be conducted so that the nest material is removed starting on the side where most impacts will occur and ending on the side where the most habitat will be undisturbed, which will allow for any woodrats in the nest to escape into adjacent undisturbed habitat. If young are encountered during nest dismantling, the dismantling activity should be stopped and the material replaced back on the nest and the nest should be left alone and rechecked in 2-3 weeks to see if the young are out of the nest or capable of being out on their own (as determined by a qualified biologist); once the young can fend for themselves, the nest dismantling can continue.

Site-wide Management Action may also result in short-term indirect adverse impacts to the species, if present, from tree removal activities (such as physical vegetation removal, tree felling, use of loud equipment and vehicles) which may temporarily impact the species or its nests. Other Site-wide Management Actions, such as trail construction/restoration and removal, pond construction, erosion repair, and debris removal may also impact the species, if present, due to noise, vibration, crew movement and similar disturbances if such activities occur in close proximity to nests. However, these indirect impacts are expected to be short-term, local and minor, due to timing restrictions on construction and non-native tree removal activities, pre-construction surveys and nest protection or management, as given in the Best Management Practices in Appendix E.

Site-wide Management and Stewardship Actions may result in long-term indirect adverse impacts to San Francisco dusky-footed woodrat, if present, from ongoing activities including trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring. However, these impacts are anticipated to occur infrequently, and would be local and minor, especially considering the beneficial impacts described below.

Stewardship and Site-wide Management Actions would result in long-term indirect beneficial impacts to the dusky-footed woodrat due to continued improvements in native habitat species diversity and function from on-going weed control, revegetation, and monitoring; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails; and reductions in erosion and associated degradation of habitats from well-maintained trails and erosion repair sites. These Long-term Stewardship actions would occur over all 110 acres at Mori Point. These beneficial impacts are anticipated to be local and minor.

*Cumulative Impacts*

Cumulative impacts would be as described under wildlife, except for the following: One possible adverse cumulative impact may result from proposed project actions to potential dusky-footed woodrat nesting habitat due to the removal of invasive non-native trees (only small trees less than 8 inches dbh will be removed). In addition, approximately 20% of the eucalyptus trees within the Sharp Park Natural Area are proposed for removal, along with the probable removal of other trees from future development projects. However, this cumulative impact is considered minor, as available habitat exist on-site and in the surrounding area.

Conclusion

If the San Francisco woodrat is present at Mori Point, alternative 1 would result in short and long-term, direct and indirect, local, and minor adverse impacts. In contrast, the proposed project would result in long-term, direct and indirect, local, and minor beneficial impacts. With the implementation of the Best Management Practices in Appendix E and mitigation measures, impacts would be less-than-significant .

**American Badger.** Although this species has not been reported within the Project Area, potential habitat for the American badger occurs within most on-site habitats.

Site-wide Management Actions may result in long-term direct adverse impacts to American badger, if present, from trail construction and habitat restoration, resulting in the permanent loss of 2.7 acres of shrub, forest and herbaceous potential habitat (Table 7). These restoration activities may also result in short-term direct adverse impacts to potential habitat; however, these impacts would be temporary, local and minor, especially when considering the net benefits to the species described in "beneficial impacts" below.

Site-wide Management Actions may result in short-term indirect adverse impacts to this species, if present, during trail construction and habitat restoration resulting in temporary disturbance due to habitat degradation from dust, crew movement and trampling. These impacts may also result from installation of site improvements, erosion repair activities, debris removal or invasive plant removal activities. Ongoing activities, including trail use and maintenance, invasive species removal, revegetation, trash removal, or monitoring, may result in long-term indirect adverse impacts to American badger. All adverse impacts are expected to be local, minor, temporary, and less-than-significant with the implementation of the mitigation measure below.

> ***Mitigation Measure:*** Prior to implementation of proposed project activities, conduct visual surveys on-site to determine the presence or absence of suitably sized burrows for badgers. If potential badger burrows are located on-site, surveys will be conducted at each burrow to determine the presence or absence of badgers. If badgers are determined to be present, a qualified biologist will be consulted to determine appropriate buffer distances from each occupied burrow to maintain during project activities, and possible project timing restrictions to avoid impacts to birthing individuals (most young are born in March and April[7]. If avoidance of impacts to occupied burrows is not feasible, then a

[7] Long 1973 (Long, C. A. 1973. Taxidea taxus. Mammal. Species. No. 26. 4pp.), "California's Wildlife, Mammals, Badger. California Wildlife Habitat Relationships System, California Dept. of Fish and Game, 1983."

qualified biologist shall implement a pre-construction program during the non-birthing season (Summer through Winter) to exclude badgers from their burrows by closing each burrow once the badger has emerged.

Site-wide Management Actions would result in a long-term direct beneficial impact to American badger, if present, through the restoration of more than 13.3 acres of potential habitat. These beneficial impacts to the American badger, if present on-site, are expected to be local and minor to moderate.

Stewardship and Site-wide Management Actions would result long-term indirect beneficial impacts to the American badger, if present, due to continued improvements in native habitat species diversity and function from on-going weed control, revegetation, and monitoring; reductions in off-trail trespass and disturbance from visitors due to well-maintained, marked and signed trails; and reductions in erosion and associated degradation of habitats from well-maintained trails and erosion repair sites. Long-term Stewardship actions would occur over all 110 acres at Mori Point. These beneficial impacts are anticipated to be local and minor to moderate.

Conclusion

If the American badger is present at Mori Point, alternative 1 may result in short and long-term, local, direct and indirect, minor adverse impacts. With implementation of the Best Management Practices in Appendix E and mitigation measures, potential adverse impacts to California American badger would be reduced to less-than significant levels. In contrast, the proposed project is expected to result in short and long-term, local, direct and indirect, minor to moderate beneficial impacts. Although 2.7 acres of potential habitat is being impacted, 13.3 acres would be restored resulting in an approximate ratio of more than 4:1 for restored to removed habitat. Overall, the project is expected to result in net increases to the quantity and quality of habitat for the American badger. Cumulative impacts would be the same as described under Alternative 1 - *Wildlife*.

***Alternative 2 – Special Status Species Impacts***

No Special Status Plants exist at the site; impacts would be the same as described under Alternative 1.

The majority of the proposed short-term and long-term activities for Alternative 2 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 2 would be identical to the impacts described under Alternative 1. However, the trail use designations are more limited under Alternative 2 than under the Preferred Alternative. The trail use designations would result in 2.4 miles of trails that would be "hiker only" as compared to 1.3 miles of hiker-only trails in Alternative 1. This would likely result in less visitor traffic and reduced potential for off-trail trespass by bicycles and horses (or by hikers to avoid bicycles and horses) along the "hiker only" trail segments, thereby reducing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation. This reduction in potential impacts would be most substantial along the Bowl Trail, as this areas supports some of the most sensitive wetland and pond habitats on-site, which provide habitat for federally listed

species. However, the reduction of these potential impacts under Alternative 2 is not quantifiable.

Conclusion
Differences in impacts to biological resources between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be the same as described under Alternative 1 – *Wildlife* and *Special Status Species.*

***Alternative 3 – Special Status Species Impacts***

No Special Status Plants exist at the site; impacts would be the same as described under Alternative 1.

The majority of the proposed short-term and long-term activities for Alternative 3 are identical to those proposed for Alternative 1. Therefore impacts from these activities under Alternative 3 would be identical to the impacts described under Alternative 1. However, these trail use designations under Alternative 3 would result approximately 3.5 miles of trails that would be designated "multiple-use" as compared to "hiker only" under Alternative 1. This increase in trail use options would likely result in increased potential for off-trail trespass by bicycles and horses (or by hikers to avoid bicycles and horses) along the Peak Trail, Point Trail, the Coastal Trail Coastal Connector Trail, and the Ridge Trail, thereby increasing the potential for habitat/vegetation trampling, wildlife disturbance, and erosion/sedimentation (particularly in "Special Restoration Area C", the erosion repair site along the Peak Trail). However, the increase of these potential impacts under Alternative 3 is not quantifiable.

Conclusion
Differences in impacts to biological resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be the same as described under Alternative 1 – *Wildlife* and *Special Status Species.*

***Alternative 4 – Special Status Species Impacts***

No Special Status Plants exist at the site; impacts would be the same as described under Alternative 1.

Under the No Action Alternative (Alternative 4), none of the proposed actions would be implemented within the Project Area. Therefore, no trail construction, restoration, or removal would occur, no ponds would be built, no improvements would be made to improve on-site hydrologic connectivity, no invasive non-native plants would be removed, no trash or debris would be removed, no areas of erosion would be repaired, no programmatic site improvements would be implemented, no monitoring or maintenance would occur, and no community training or education would be implemented. As a result, no negative impacts would occur to biological resources from these activities from equipment, vehicle or crewmember disturbances, habitat removal, harm, or mortality. However, impacts to biological resources from continued

uncontrolled visitor use along the many non-designated trails, and especially from illegal off-road vehicle use, would continued to result in possible disturbance and mortality to wildlife and special status wildlife, and degradation (from trampling and erosion) to wildlife habitats, native plant communities and wetlands.

Wildlife habitat and native plant communities would remain unchanged initially, but because additional native plant communities might not be restored due to trash/debris removal, weed removal, and planting, no additional benefits to wildlife could be expected or ensured. Over the long-term, the distribution and species composition of wildlife habitats, vegetation and native plant communities would change due to further encroachment by invasive, non-native plant species. Active restoration activities such as soil decompaction and planting would not occur in the Disturbed habitat, and therefore, there would be no net increase in 5.4 acres of native plant communities.

Uncontrolled visitor use and the lack of active habitat restoration would result in the slow loss and degradation of suitable foraging, aestivation, upland, and wetland habitat for California red-legged frog, San Francisco garter snake, and other special status wildlife from ongoing visitor use (non-designated trail development, erosion, trash, invasive plant encroachment, illegal uses such as off-road vehicle and off-road bicycle use). There would be no net benefit to these from pond construction or hydrology connectivity improvements. In addition, without active management, the grassland habitats used for upland aestivation and dispersal for California red-legged frog and San Francisco garter snake, as well as some special status birds, would continue to be lost as converts to scrub habitat over time.

Conclusion

Alternative 4 is not anticipated to result in impacts to special status plants. Alternative 4 may result in long-term, adverse, indirect, minor to major, local to regional impacts to special status wildlife species, including the San Francisco garter snake, the California red-legged frog, the Western pond turtle, the California horned lizard, special status invertebrates, raptors and migratory birds, the San Francisco dusky-footed woodrat, and the American badger. These impacts may be considered significant if the lack of active site management, the continued encroachment of non-native plants, and continued illegal site activities allow on-site habitats for these species to become uninhabitable and/or severely degraded.

Overall, Alternative 4 "may affect/ is likely to adversely affect" the San Francisco garter snake and California red-legged frog, according to the federal Endangered Species Act, as continued illegal activities would continue to threaten these species through habitat degradation and possible harm, harassment or mortality. Cumulative impacts would be the same as described under Alternative 4 – *Wildlife* and *Special Status Species.*

**TABLE 7. ACRES OF VEGETATION ALLIANCES WITHIN THE PROPOSED ACTION AREA, AND ESTIMATED ACRES OF IMPACTS FROM THE PROPOSED PROJECT ACTIONS.**

| Vegetation Alliance (N=Native) | Total On-Site (acres) | Permanent Trail Footprint | Temporary Trail Impacts | Social Trail Removal | Erosion Repair | Pond Building | Debris/ Trash Removal | Habitat Restoration | Acres of Permanent Removal | *% of Total On-site* | Acres of Temporary Impact | *% of Total On-site* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Disturbed | 10.4 | 1.2 | 1.2 | 1.2 | 1.3 | <0.1 | 0.1 | 2.9 | 1.2 | *12%* | 6.6[8] | *63%* |
| Arroyo Willow (N) | 3.6 | <0.1 | <0.1 | <0.1 | <0.1 | | | | <0.1 | *≤1%* | 0.1 | *≤1%* |
| California Annual Grassland | 7.4 | 0.1 | 0.3 | 0.7 | | | 0.5 | 0.2 | 0.3 | *3%* | 1.8 | *26%* |
| California Oatgrass (N) | 1.0 | <0.1 | <0.1 | <0.1 | <0.1 | | | | <0.1 | *≤1%* | 0.1 | *≤1%* |
| California Sagebrush (N) | 1.1 | <0.1 | | | | | 0.1 | | <0.1 | *≤1%* | 0.1 | *9%* |
| Cattail | 0.7 | | | | | | | | | *0%* | | *0%* |
| Coyote Brush (N) | 47.3 | 0.6 | 0.8 | 1.7 | 3.3 | 0.1 | 0.1 | 0.2 | 0.7 | *1%* | 6.1 | *13%* |
| Monterey Cypress/Pine | 8.0 | 0.1 | 0.2 | 0.2 | 0.4 | | | | 0.1 | *1%* | 0.7 | *10%* |
| Purple Needlegrass (N) | 23.4 | 0.4 | 0.7 | 0.3 | 0.1 | | | <0.1 | 0.4 | *2%* | 1.1 | *5%* |
| Red Fescue (N) | 1.1 | | | | | | | | | *0%* | | *0%* |
| Rush (N) | 0.9 | | | | | | | | | *0%* | | *0%* |
| Small-fruited Bulrush (N) | 0.1 | | | | | | | | | *0%* | | *0%* |
| Bluffs | 1.3 | <0.1 | <0.1 | | | | | | <0.1 | *≤1%* | <0.1 | *≤1%* |
| Water (built ponds) | 0.1 | | | | | <0.1 | | | | *≤1%* | | *0%* |
| Totals | 106.5 | 2.5 | 3.3 | 4.1 | 5.0 | 0.3 | 0.8 | 3.3 | 2.7 | *2%* | 16.6 | *15%* |

[8] The 6.5 acres of temporary impact for the Disturbed alliance would actually be restored to native habitats during and/or following project implementation.

*3.6.5 Impairment – Biologic Resources*

The proposed project is not expected to produce major, adverse impacts to a resource or value whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation of the GGNRA; 2) key to natural or cultural integrity of the park; or 3) identified as a goal in GGNRA's General Management Plan or other relevant National Park Service planning documents. Therefore, there would be no impairment on the area's biological resources.

## 3.7 Cultural Resources

3.7.1 Affected Environment

*3.7.1.1 Historic Context*

In this section, the property boundary is considered the Area of Potential Effect (APE).

The Calera Creek watershed to the south of Mori Point has seen a broader range of historic activity than the Laguna Salada watershed to the north. Noteworthy historic properties in the vicinity of parklands include the possible location of the Ohlone village of *Timigtac*. Near this site colonial Spanish rediscovered limestone quarries developed during the pre-contact period.

In about 1786 the Spanish mission of *San Francisco de Asis* established an *asistencia*, or agricultural outpost, called *San Pedro y San Pablo* in the San Pedro Valley, presumably at the indigenous village of *Pruristac*. Barley, corn and beans were among the crops produced for the mission here, and by the 1790s as many as 6,000 head of cattle were stationed in the area (Chavez, Dietz, and Jackson 1974:6-11). A serious epidemic befell the mission and outpost in the mid 1790s, and by 1817 the *asistencia* for San Francisco had been moved to San Rafael. There is some indication that the site was still occupied by Ohlone in 1828 (Chavez, Dietz, and Jackson 1974:11).

In 1838 the land around Mori Point was granted to Francisco Sanchez as Rancho San Pedro. The map showing the land grant also notes a *calera* [limepit or quarry] on Mori Point just outside the southern property boundary. Limestone was used for creating whitewash for the adobe buildings of the Spanish and Mexican periods, and reputedly was used on the first structures at the Presidio of San Francisco in 1776, and at the San Francisco Mission, its outpost *San Pedro y San Pablo*, and other residences including the Sanchez adobe nearby (cf. Clark 2002:7; also Azevedo 1997, San Mateo County 1980, and Quarry Products 1976). Francisco Sanchez owned the *calera* at Mori Point until at least 1868 (Clark 2002). An 1838 map of the location also identifies the coastal lagoon of *Laguna Salada* whose drainage defines the parklands north of Mori Point.

Within the APE, portions of Mori Road have existed since at least 1869. In 1899 USGS maps show the road extending east to the coast from the county road that paralleled the coast at that time. The northern side of Mori Point is within the historic watershed of the coastal lagoon of Laguna Salada. The watershed was also known historically as Salt Lake Valley, and then Salt Valley since 1896.

The Stefano Mori family, for whom the land is now named, emigrated from Italy and settled in Pacifica in the 1870's. The Mori's purchased the property in the 1880's and built a farmhouse at the then end of Mori Road. Although the Mori family started as farmers, growing brussel sprouts, cabbage and artichokes and raising cattle and horses, they constructed a roadhouse and inn at the start of the 20th century (GGNPC 2005). Jack Mori is believed to have constructed the roadhouse and inn on what was then called Salada Beach (http://www.smccd.net/accounts/case/sweeneyridge/mori.html).

The date of construction of the Mori Inn is uncertain, but there appears to have been an extension to the Mori Road between 1899 and 1939, which alludes to its origin. Maps do not formally show the structure until 1949. Only three residences are shown within the APE before 1915. None of these are in the location of the Mori Point Inn. It is possible that the Mori Inn either already existed or emerged around 1910 from activities of the grounds keeper of Laguna Salada, Steve Mori, who was in charge of the location when he shot and killed a barber from San Francisco for trespassing (Colma Record 1910). He was discharged by a hung jury a month later (Colma Record 1911). Regardless of origin, the secluded location may evince some of the nature of its historic function, as does the alleged raid during the prohibition in 1923, which resulted in the confiscation of 23,000 bottles of whiskey by federal agents.

Construction of the Ocean Shore Railroad between San Francisco and Santa Cruz began in 1905 and provided rail support for coastal farm produce, and for the quarried stone of Mori Point as noted by a specialized rail spur to the quarries on Calera Creek. Economic speculation associated with the railroad resulted in efforts to develop a resort named after Laguna Salada. A promenade, bandstand, hotels, casinos, and cafes were envisioned, but the ruins of a dance pavilion in the lagoon and some bath houses were all that remained following the closure of the railroad in 1920 (Wagner 1974). In the 1920s and 1930s the quarry caused quite a bit of local consternation with its blasting, until use of explosives was halted by court order (Hunter 1997:13).

The Sharp Park Golf Course, adjacent to Mori Point lands on the north side of Salt Valley, opened in 1931. It was originally designed by architect Alister Mackenzie and landscaped by John McLaren. Construction of Highway 1 began in about 1919 and the highway was formally opened in 1938. Within the APE, it followed the course of the Ocean Shore Railroad crossing the same saddle of Mori Ridge that had at least been used by the coastal road since the 1830s. By 1939 a secondary road existed between the location of the Mori Point Inn and Sharp Park. At that time Laguna Salada extended south to the lowland below the Mori Inn.

Some time after 1942, the Rockaway Quarry, Inc. established a rock quarry at the historic limestone quarry on the Calera Creek side of Mori Point (Logan 1947). Quarrying operations were eventually extended to the north and west portions of Mori Point. An aerial photo from 1943 shows that the majority of Mori Point was without roads and improvements other than fences for range purposes. No roads appear on the slopes of Mori Point until about 1949; a dirt spur road extends off Mori Road and meanders onto the ~100 foot contour above the cove just north of the Mori Point Inn. This road is the first instance of quarrying operations on the north and west sides of Mori Point.

By 1956, a completely separate road parallel to Mori Road had been built to access the extensive gravel quarries of the Rockaway Quarry Company on the north side of Mori Point. By this time quarry operations covered much of the north and west facing sides of Mori Point. Nonetheless, vestiges of the southern end of Laguna Salada were still visible, and may have been used as a swimming or fishing pond as evidenced by a road to the location from the Mori Inn site. The West Fairway Park subdivision was completed in 1958.

The Mori Inn burned to the ground in 1966, and just a few years later the main quarry operations on the north side of Mori were gone. Some of the gravel dredging seems to have continued on the western side of the Point. By the 1970s the majority of quarrying returned to the Calera Creek side of the area, where it continued until the close of operations in the 1980s under Quarry Products, Inc (Clark 2002).

*3.7.1.2 Archaeological Sites*

The following information regarding archaeological research within the APE was taken from existing sources and acquired through the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University.

This information, and archaeological surveys of the Mori Point APE, resulted in the identification of many modern features, mainly associated with quarrying operations at the Point within the last 60 years. These properties are considered historically insignificant and ineligible for listing on the National Register of Historic Places (NRHP.) No important historic or prehistoric sites were found that would be impacted by the Mori Point project.

*Archaeological Sites within the APE*

CA-SMA-114

Only one archaeological property has been documented within the Mori Point lands acquired by the National Park Service in 2002. This site, listed by CHRIS as CA-SMA-114 (P-41-000116), was recorded in 1969, but was not found in subsequent surveys in 1978 (Flynn), 1986 (Holman), 2002 (Clark), and 2005 (Barker). It was described as a sandy shell midden approximately 2-3' in depth that was exposed on the ground over an approximately 10 square yard area. The site contained unspecified bone, chert debitage from tool manufacturing, fire fractured rock, but also historic bottle glass and other unidentified historic materials. The site was also noted as extremely disturbed from both erosion and building construction associated with the Mori Inn. This feature was entered into the GGNRA Archaeological Resources Geographic Information System (ARGIS) for project monitoring and planning.

3.7.2 Environmental Consequences

*3.7.2.1 Alternative 1*

Currently, no known archeological resources exist within the APE of the Mori Point Project and the project will not impact any historic resources. Therefore, no adverse impacts to cultural resources are anticipated, though the GGNRA will continue to monitor areas of previous historic

significance during ground disturbing activities.

Long-term beneficial impacts to cultural resources will result from the interpretation of ethnohistoric, indigenous, colonial Spanish, Mexican, and more recent uses of Mori Point, via public programs. Beneficial impacts are expected to be local and regional, and minor.

*Cumulative Impacts*

Since the proposed project would not have any adverse impacts to archaeological or historic resources, the proposed project would not contribute cumulatively to any adverse impacts that have occurred to cultural resources from other regional projects.

Conclusion
Adverse impacts to cultural resources are not anticipated. The preferred alternative would result in regional, long-term, minor, and indirect beneficial impacts to cultural resources.

*3.7.2.2 Alternative 2*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 2; however, trail use designations under Alternative 2 would be more limited than under Alternative 1 (more "hiker only" trail segments). Therefore, impacts to cultural and archaeological resources are not anticipated to differ from those described under Alternative 1.

Conclusion
Differences in impacts to cultural resources between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be as described under the Preferred Alternative.

*3.7.2.3 Alternative 3*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 3; however, trail use designations under Alternative 3 would be less limited than under Alternative 1 (all trails would be "multiple-use). Therefore, impacts to archaeological resources are not anticipated to differ from those described under Alternative 1.

Conclusion
Differences in impacts to cultural resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be as described under the Preferred Alternative.

*3.7.2.4 Alternative 4 (No Action Alternative)*

The No Action Alternative would mean that no proposed project actions would occur on-site; therefore, this alternative would not result in any impacts to archaeological resources.

Conclusion
Under the No Action Alternative, no adverse impacts to cultural resources are anticipated. Similarly, no beneficial impacts are anticipated. Cumulative impacts would be as described under the Preferred Alternative.

*3.7.2.5 Impairment*

The proposed project is not expected to produce major, adverse impacts to a resource or value whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation of the GGNRA; 2) key to natural or cultural integrity of the park; or 3) identified as a goal in GGNRA's General Management Plan or other relevant National Park Service planning documents. Therefore, no impairment to archaeological resources would occur.

## 3.8. Public Safety

*3.8.1 Affected Environment*

The protection of human life will take precedence over all other management actions as the NPS strives to protect human life and provide for injury free visits. The NPS will reduce or remove known hazards and apply appropriate measures to provide a healthful and safe environment for visitors (NPS Management Policies Chapter 8.2). Currently, the public uses the Project Area for recreational purposes including, dog walking, hiking, bicycling, equestrian, and illegal off-road vehicle use. Currently, existing trails and roads are not actively managed. Mori Road is available for emergency vehicle access. Two constructed ponds exist on-site which may provide habitat for mosquitoes.

3.8.2 Environmental Consequences

*3.8.2.1 Alternative 1*

Mosquito Control. The enhancement of habitat for the endangered San Francisco garter snake and the threatened California red-legged frog is one of the main goals for restoration at Mori Point. Central to meeting this goal is the creation and expansion of ponds on the site to provide more habitat for frogs and more food resources for the San Francisco snake. However, the construction of additional ponds may result in increased breeding habitat for mosquitoes, which may result in impacts to public safety due to possible increased transmission of diseases to humans.

GGNRA staff has met with representatives from the San Mateo County Mosquito Abatement District (SMCMAD) to discuss measures to minimize mosquito production related to the creation of new frog ponds, consistent with Recovery task 11.8 from the *Recovery Plan for the California Red-Legged Frog* (FWS 2002). The SMCMAD has indicated that the contribution of the small frog ponds would be minor compared to the overall production of mosquitoes from the Laguna Salada, Horse Stable Pond, and creek/wetland complex. Based on adult trapping conducted in 2004, they have had high mosquito production from this area. They have recommended monitoring mosquito larvae and possible application of a short-lived (active 24-

hours) biological control agent (*Bacillus thuringensis*) on all wetlands at the Mori Point area.

Representatives of the SMCMAD have also recommended habitat design measures to minimize mosquito production; however, these conflict with the ability of the created habitat to provide value for amphibians since aquatic vegetation is used as an egg attachment substrate and provides cover. To reduce impacts from creation of the ponds, the following mitigation will be employed.

> ***Mitigation Measure*:** As per recommendation from the SMCMAD, mosquito populations would be monitored and if necessary, application of *Bacillus thuringensis* would be implemented.

Emergency Vehicular Access. No adverse impacts to Public Safety are anticipated from the proposed project regarding emergency vehicular access to the site. The GGNRA Chief of Visitor and Resource Protection reviewed all of the trail alternatives for consideration of vehicle access in an emergency event. Mori Road and the "sea wall road" meet all basic emergency access needs, as they provide access in the event of a law enforcement-related incident, emergency medical or search and rescue incident, or a wildland fire. In the event of a crisis event along the Point or southern coastal edge, emergency vehicles would access the site using the main artery of the California Coastal Trail along the City of Pacifica's sea wall.

Visitor Safety. The proposed project activities may temporarily increase potential impacts to visitor safety during trail work, erosion repair, pond construction, hydrology improvements, or debris and weed removal. The proposed project would result in a net benefit to visitor safety, as the final trails would be constructed to GGNRA trail standards and would include signs to promote safe trail use. Furthermore, the removal of non-designated trails, the stabilization of erosion areas, and the removal of debris would reduce overall potential hazards to visitors.

> **Mitigation Measure:** Advanced notification of construction work, detour signage, and construction fencing will be implemented to restrict visitors from hazardous areas during construction.

*Cumulative Impacts*

The cumulative impacts of this project on the mosquito population is small given the size of the ponds to the size of the adjacent creek, pool and wetland complex. Given that the pools would likely be treated with *Bacillus thuringensis* to minimize mosquito production, the cumulative impact is negligible.

Conclusion

Adverse impacts to public safety are negligible and less-than significant. The preferred alternative would result in local, long-term, moderate, and direct beneficial impacts to visitor safety.

*3.8.2.2 Alternative 2*

Alternative 2 may provide a more beneficial impact to visitor safety as compared to Alternative 1 due to the reduced potential for collisions or encounters between hikers, bicyclists and equestrians on the more numerous hiker only trails.

Conclusion
With implementation of the above mitigation measures, adverse impacts to public safety are not anticipated and would be less-than significant. The preferred alternative would result in local, long-term, moderate, and direct beneficial impacts to visitor safety. Cumulative impacts would be as described under the Preferred Alternative.

*3.8.2.3 Alternative 3*

The potential impacts to public safety under Alternative 3 may be more as compared to Alternative 1 regarding visitor safety due to the increased potential for collisions or encounters between hikers, bicyclists and equestrians on the more numerous multiple-use trails.

Conclusion
With implementation of the above mitigation measures, adverse impacts to public safety are not anticipated and would be less-than significant. Alternative 3 would result in local, long-term, moderate, and direct beneficial impacts to visitor safety. Cumulative impacts would be as described under the Preferred Alternative.

*3.8.2.4 Alternative 4 (No Action Alternative)*

If the proposed project is not implemented, there would be no potential increase in mosquitoes due to the construction of additional ponds; however, visitor safety hazards would remain unchanged due to the continued presence of unimproved trails, non-designated trails, erosion areas, debris/trash, and off-road vehicle use.

*Cumulative Impacts*

This alternative is not expected to result in any cumulative impacts.

Conclusion
Under Alternative 4, safety hazards would remain as described in the affected environment section. These impacts are considered to be local, long-term, direct and indirect, and minor to major. The No Action alternative would not result in beneficial impacts to visitor safety.

## 3.9 Air Quality

### 3.9.1 Affected Environment

The California Air Resources Board establishes air quality and emission standards and rules for Air Quality Management Districts (AQMDs) based on EPA guidelines under the Clean Air Act.

AQMDs are responsible for implementing local air quality controls and issuing permits for modifications or for new sources of air pollution. The project is located within the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). The Bay Area is in attainment for all national standards set forth in the Clean Air Act, but is in non-attainment (i.e. currently experiences violations) for California standards for two pollutants with respect to state and national ambient air quality standards for ozone, as well as state standards for respirable particulate matter ($PM^{10}$).

Mori Point's location allows for excellent air circulation due to prevailing westerly winds. Because there are no large pollution sources near Mori Point, the air moving into the area is of a very high quality. $PM^{10}$ levels reflect dust from soil disturbance and along paved and unpaved roads, smoke from wood fires, and aerosol from ocean spray. Internal combustion engines and vehicular use are also contributors.

### 3.9.2 Environmental Consequences

#### *3.9.2.1 Alternative 1*

The implementation of the preferred alternative would not generate new long-term air emissions and would not require permitting through the BAAQMD. It would not affect or increase traffic and would not change existing vehicle emissions.

Construction of a short boardwalk/bridge on Mori Road in the "bowl" area and re-graded trails may generate dust from fugitive sources, which could have minor, temporary effects on air quality. Fugitive sources are those emissions, such as vehicle travel over unpaved surfaces, which are released through means other than through a stack or tailpipe, and lesser amounts of other criteria air pollutants primarily from operation of heavy equipment. With respect to emissions sources other than fugitive dust, the related emissions are generally included in the emissions inventory that is the basis for regional air quality plans. These would not be expected to impede attainment or maintenance of ozone and carbon monoxide standards in the Bay Area (BAAQMD 2000). Fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. To reduce construction-generated particulate matter ($PM^{10}$) emissions, the NPS would implement as appropriate the BAAQMD's recommended control measures for emissions of dust during construction (see Fugitive Dust Control Measures under Air Quality BMP in Appendix E). Implementation of these measures would result in construction impacts on air quality that would be considered negligible.

*Cumulative Impacts*

Construction activities related to the cumulative projects could contribute cumulatively to dust and other emissions, which would have minor, temporary effects on air quality within the Air Basin. Since the BAAQMD requires implementation of various control actions to minimize these effects, the cumulative projects' contribution to basin-wide construction emissions would not be collectively significant.

Conclusion
The preferred alternative would have negligible, short-term adverse effects on air quality.

*3.9.2.2 Alternative 2*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 2. Therefore, impacts to air quality are not anticipated to differ from those described under Alternative 1.

Conclusion
Differences in impacts to air quality between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be as described under the Preferred Alternative.

*3.9.2.3 Alternative 3*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 3. Therefore, impacts to air quality are not anticipated to differ from those described under Alternative 1.

Conclusion
Differences in impacts to air quality between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be as described under the Preferred Alternative.

*3.9.2.4 Alternative 4 (No Action Alternative)*

Under the No Action Alternative, there would be no construction-related dust impacts, and Bay Area Air Quality Management District (BAAQMD) recommended control measures for emissions of dust would not be required.

*Cumulative Impacts*
There would be no cumulative impacts associated with the No Action Alternative.

Conclusion
No adverse or beneficial impacts to air quality are expected from the No Action Alternative.

*3.9.2.5 Impairment*

The proposed project is not expected to produce major, adverse impacts to a resource or value whose conservation is: 1) necessary to fulfill specific purposes identified in the establishing legislation of the GGNRA; 2) key to natural or cultural integrity of the park; or 3) identified as a goal in GGNRA's General Management Plan or other relevant National Park Service planning documents. Therefore, no impairment to air quality would occur.

## 3.10 Visitor Use and Recreation

### 3.10.1 Affected Environment

Pacifica residents have enjoyed access to the 110-acre Mori Point property for decades prior to, and since, the inclusion of the site into the GGNRA. Recreational uses have included walking, hiking, bicycling, jogging, dog walking, off-road vehicle riding, and observing the spectacular views of the Pacific Ocean and coastal landmarks to the north and south.

Visitors to the site can enter from the north via the existing Coastal Trail alignment along the seawall or from three existing entry points near the adjacent subdivision and the Moose Lodge. A network of 6.0 miles of undesignated trail exists on the property stemming from the site's historic quarrying operations and years of unregulated visitor use; these trails are not maintained and are not part of the NPS official trail system. All uses at the site are currently unmanaged and unregulated, which in some cases has negatively impacted the site's trail conditions, habitat value and other natural resources. Current trail conditions are inconsistent, with unstable slopes, deep ruts, and impassable sections during wet seasons.

### 3.10.2 Environmental Consequences

#### 3.10.2.1 *Alternative 1*

Site-wide Management Actions may result in short-term, direct and indirect impacts to the recreational resources at Mori Point. Possible adverse impacts related to short-term construction and associated noise could temporarily detract from the visitor experience. Access through Mori Road to the beach would be re-routed during possible construction of a boardwalk or bridge in the "bowl" area. Construction of timber steps as part of the hiker-only segment of the Coastal Trail would also require a temporary re-route. Temporary fencing and signage would discourage access through restoration areas. Public use of the site will be redirected to specific marked and designated areas for the purposes of trail and habitat restoration. The NPS would work to educate the community on the rationale behind trail closures, and encourage frequent visitors to use new access routes.

Stewardship Actions with the goal of restoring habitat areas may result in long-term indirect impacts such as limiting access to specific sites determined critical for endangered species recovery. The designation of certain trails as hiker-only may result in adverse impacts to the recreational experiences of other user groups including bikers and equestrians. However, alternative loop routes accessing the same destination points would be available to all user groups. Adverse impacts are expected to be local and minor. Site Stewardship work would occur one Saturday per month; no heavy machinery would be used during this work. Adverse impacts are expected to be short-term, local and minor but will be offset after implementation of mitigation.

> ***Mitigation Measure***: Construction will be limited and restricted between the hours of 8:00 p.m. until 7:00 a.m., would not occur on weekends, and established trails will be rerouted during construction.

The preferred alternative would result in many long-term beneficial impacts. Trail conditions would significantly improve with regular maintenance; proposed restoration actions would modify rates of erosion that have contributed to rutting and other hazards. The plan retains some existing trails and eliminates those that are redundant or that have an adverse effect on overriding resource values, such as unstable slopes or endangered species habitat. Trails determined to cause erosion or adversely impact endangered species habitat would be closed. The plan creates trailheads at existing entry points near the subdivision and the Moose Lodge, and ensures access to popular destination points, including along the coast and to the point, the Coastal Trail to the north, and east-west connectors near the "bowl." The Preferred Alternative includes two alignments for the Coastal Trail that provides two different experiences for users – both hiker-only and multiple-use. Under this use designation, segments of the Mori Point trail system would reflect the interest expressed by the public for diverse recreational experiences, including hiker-only trails. Trail use designations are intended to provide a balanced experience for hikers, bicyclists, equestrians and users of all ages and to reduce the potential for conflicts. The designations also aim to work within the context of the natural topography and sensitive habitat resources on the site. Long-term actions would also result in net indirect benefit to visitors due to improvements in native habitat species diversity. Visitors would enjoy well-maintained, marked and signed trails which would result in increased overall public awareness and support for conservation. Public safety would be improved by the prohibition of off-road vehicles and other unauthorized uses. Beneficial impacts are expected to be local and major.

*Cumulative Impacts*

This project, in addition to the resource enhancement activities approved by the USFWS in 2005 (for pond building, site stewardship and public outreach, and mosquito control) and the implementation of the City of San Francisco's Significant Natural Resource Management Plan for the Sharp Park Golf Course and the Laguna Salada Resource Enhancement Plan would have a beneficial cumulative impact on visitor resources. The project ensures safe and enjoyable access to a trail system, including the CCT, along the coast. Aesthetic improvements that accompany these plans would benefit the visitor experience and provide opportunities for conservation education.

Conclusion

Potential adverse impacts to recreation would be local, short and long-term, minor, direct and indirect, and reduced to less-than significant levels. The Preferred Alternative would result in local, long-term, major, direct and indirect beneficial impacts to recreation.

*3.10.2.2 Alternative 2*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 2. Alternative 2 differs from Alternative 1 in that in Alternative 2, additional trails are designated as hiker-only. Therefore, short-term impacts to visitor resources from trail construction and restoration are not anticipated to differ from those described under Alternative 1. However, the designation of additional trails (1.1 miles) as hiker-only may result in adverse impacts to the recreational experiences of other user groups including bikers and equestrians. Under this trail-

use designation, Mori Point Road and the California Coastal Trail would allow multiple-users to reach main destination points, which include the ocean and the vista from near Mori Peak. Adverse impacts are expected to be local and minor.
Under this use designation, segments of the Mori Point trail system would reflect the interest expressed by the public for diverse recreational experiences, including hiker-only trails. Trail use designations are intended to provide a balanced experience for hikers, bicyclists, equestrians and users of all ages and to reduce the potential for conflicts. Beneficial impacts are expected to be local and major.

Conclusion

Potential adverse impacts to recreation would be local, short and long-term, moderate, direct and indirect, and reduced to less-than significant levels. Alternative 2 would result in local, short and long-term, major, direct and indirect beneficial impacts to recreation. Cumulative impacts would be as described under the Preferred Alternative.

*3.10.2.3 Alternative 3*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 3. Alternative 3 differs from Alternative 1 in that in Alternative 3, all trails are designated as multiple-use. Therefore, short-term impacts to visitor resources from trail construction and restoration are not anticipated to differ from those described under Alternative 1. However, the designation of all trails as multiple-use may result in adverse impacts to visitors who expressed the desire for hiker-only trails. Opening all trails to all users also has the potential to create conflict among different users of the same trail. Under this trail-use designation, all users would have access to the same destination points via the same trails. Adverse impacts are expected to be local and minor.

Under this use designation, the entire Mori Point trail system would reflect the interest expressed by the public for diverse recreational experiences. Beneficial impacts are expected to be local and major.

Conclusion
Potential adverse impacts to recreation would be local, short-term, minor, direct and indirect, and reduced to less-than significant levels. Alternative 3 would result in local, short and long-term, major, direct and indirect beneficial impacts to recreation. Cumulative impacts would be as described under the Preferred Alternative.

*3.10.2.4 Alternative 4 (No Action Alternative)*

Under the No Action Alternative, no improvements to the trail system would occur, therefore no adverse impacts from project implementation would occur. However, the problems currently hindering recreational use, such as unregulated use, unmaintained trails, unstable slopes, deep ruts, and impassible sections during wet seasons, as well as degraded visual landscape would continue and would not be remedied. No action to correct these problems would constitute adverse impacts to recreation and visitor use at Mori Point. If the project were not implemented,

preexisting conditions are expected to continue to have local and major adverse impacts.

*Cumulative Impacts*

No cumulative impacts are anticipated with the No Action Alternative.

Conclusion
Alternative 4 would result in local, short and long-term, major, direct, adverse impacts. Alternative 4 would not result in beneficial impacts to recreational use.

## 3.11 Noise

### 3.11.1 Affected Environment

The Mori Point property is located on the Pacific Coast and adjacent to a suburban subdivision, public golf course, and public beach. The noise environment of the coastal area is influenced by human activity: noise levels are higher near heavily traveled roads and are sporadic near open space and parkland. On the whole, the low density of development and use makes the area relatively quiet. Within the project site, noise would be limited to that generated by the ocean surf, recreational users, occasional aircraft over flights or adjacent homeowners. The natural soundscape, the ocean surf, is viewed as a resource, as having value for its presence, and as a value to be appreciated by visitors.

Both the amount of noise and the length of time you are exposed to the noise determine its ability to damage your hearing. Noise levels are measured in decibels (dB). The higher the decibel level, the louder the noise. Certain types of land uses are considered to be more sensitive to ambient noise levels than others, due to the amount of noise exposure (in terms of both exposure time and intensity) and the types of activities typically involved with these land uses. Noise-sensitive receptors usually include residences, schools, libraries, churches, hospitals, nursing homes, parks, and outdoor recreation areas.

### 3.11.2 Environmental Consequences

#### *3.11.2.1 Alternative 1*

The preferred alternative does not propose installation or operation of new stationary noise sources. The alternative would not locate sensitive noise receptors close to an existing significant noise source. However, construction activities associated with the restoration and trail work could result in short-term, direct, and minor increases to noise levels to neighboring residents and public visiting Mori Point. Construction noise levels would fluctuate depending on the particular type, number, and duration of use of various types of construction equipment. This noise could result from the use of excavators, bobcats, and posthole drillers. From a distance of 50 feet, these noise levels would sound slightly louder than common everyday noises (Table 11). Long-term impacts to ambient noise levels are not anticipated.

**TABLE 11. TYPICAL NOISE LEVELS**

| Typical Noise Sources at a Given Distance from Noise Source (at a distance a person would typically be from the source) | | Typical Construction Equipment Noise Levels at 50 feet | |
|---|---|---|---|
| **Noise** | **dBA** | **Noise** | **dBA** |
| Rock Music Day | 110-150 | Jack hammers | 130 |
| Leaf blower, lawnmower | 90-105 | Chain saw | 100 |
| Ambulance siren | 100 | Front Loaders/excavators | 80-90 |
| Air Compressor | 90 | Scrapers/Pavers | 89 |
| Hair Dryer | 80-95 | Bulldozers | 85 |
| Vacuum cleaner | 84-89 | Generators | 81 |
| Light Traffic | 50 | Backhoes | 80-85 |
| Threshold of Hearing | 10 | Pumps | 76 |

Acoustical Engineers and U.S. Environmental Protection Agency, *Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances*, December 1971, Noise Pollution Clearinghouse (www.nonoise.org)

To mitigate potential impacts due to noise, the following will be employed:

***Mitigation Measures:***

- Use of powered construction equipment will comply with the City of Pacifica Municipal Code, Sec. 5-10.03. Enumerated, which prohibits construction noise at night from 8:00 p.m. until 7:00 a.m. Neighbors would also be given notice prior to any construction activities.
- Construction vehicles and equipment will not idle when not in use.
- Noise generated by the construction equipment will be reduced by proper muffling of machinery.

Restricting access to recreational use of motorized vehicles would result in a long-term, indirect, beneficial impacts due to a reduction of noise levels to neighboring residents and public visiting Mori Point. Beneficial impacts are expected to be local and minor.

*Cumulative Impacts*

Noise is a localized issue limited to the geographic area adjacent to or in the vicinity of a project or activity. Noise can be short-term, during construction, or ongoing, as with noise from a highway. Short-term cumulative impacts could occur if concurrent construction was to occur adjacent to the project area, but these impacts would not be collectively significant

Conclusion

With the mitigation measures described above, adverse impacts to the soundscape would be local, short-term, minor, direct, and reduced to less-than significant levels. Alternative 1 would result in local, long-term, moderate, indirect beneficial impacts to the soundscape.

*3.11.2.2 Alternative 2*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 2. Therefore, impacts due to noise are not anticipated to differ from those described under Alternative 1.

Conclusion
Differences in impacts to noise between Alternative 2 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 2. Cumulative impacts would be as described under the Preferred Alternative.

*3.11.2.3 Alternative 3*

All of the proposed actions under Alternative 1 would also be conducted under Alternative 3. Therefore, impacts due to noise are not anticipated to differ from those described under Alternative 1.

Conclusion
Differences in impacts to noise quality between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be as described under the Preferred Alternative.

*3.11.2.4 Alternative 4 (No Action Alternative)*

Under the No Action Alternative, restoration and trail modifications would not be implemented. Therefore, no construction-related noise impacts would occur. However, without the implementation of a trail plan, occasional off-road vehicles may use the site for recreation, resulting in adverse impacts to the soundscape.

*Cumulative Impacts*

There would be no cumulative impacts as a result of the No Action Alternative.

Conclusion
Under the No action alternative, no construction-related adverse impacts to the soundscape would occur. However, occasional short-term, local, direct adverse effects may result from off-road vehicle use. Alternative 4 would result in no beneficial impacts to the soundscape.

## 3.12 Visual Resources

3.12.1 Affected Environment

Mori Point is located on the Pacific Coast on a promontory above the City of Pacifica with sweeping views from Point Reyes to the Pedro Point Headlands. It sits between Sharp Park beach, Sharp Park golf course and Laguna Salada wetland to the north and private currently undeveloped land to the south. In spring, the point blooms with a brilliant display of

wildflowers. The majority of the site is comprised of a patchwork of coastal scrub vegetation and grasses intersected by a random assortment of unmaintained paths that crisscross the site. These paths contribute to erosion site-wide, resulting in a visually scarred and damaged landscape.

*The point covered in wildflowers, photo by Alan Grinberg*

*Denuded landscape with concrete pad*

No structures are located on the property except for a concrete pad with I-beams and three-sided concrete structure on the south side of the site, and a concrete pad on the northwest side of the site. The site contains significant garbage and debris generated from past uses on the site and illegal dumping.

### 3.12.2 Environmental Consequences

#### *3.12.2.1 Alternative 1*

Construction due to restoration and trail improvements would result in short-term, local, minor adverse impacts to visual resources. Crews would be working onsite with excavators, bobcats, and posthole drillers and temporary construction fences, detour signs, and other construction equipment would imposed on the viewshed. Development of the new trail alignments would occur gradually in phases, so construction-related impacts would be localized to specific areas around Mori Point. Impacts would be minor to moderate.

The project will have numerous beneficial impacts to visual resources. The replacement of the haphazard network of social trails throughout Mori Point with carefully planned and designed hiker and multiple-use trail corridors would improve resource conditions and enhance views within the site. Trail conditions would significantly improve with regular maintenance. Proposed restoration actions would reduce rutting and damage to the landscape, native vegetation will be planted, and garbage and debris will be removed from the site. Removal and revegetation of the majority of undesignated trails would have a beneficial effect on the visual quality in the park as the areas will be returned to a natural state. The decrease in the linear miles of these trails would constitute an improvement and beneficial impact to visual resources at the site. Approximately 3.1 miles of trail that will be converted to habitat, reducing the amount

of human disturbance in the viewshed.

Many of the existing trails and roads that will be retained will be converted to appropriately smaller-sized trails, which do not detract from the natural setting. Trail widths will vary but generally multiple-use trail will be 6-8 feet in width and hiker only trails will be 3-5 feet in width. In addition, the new trails would be designed and constructed to visually blend with the existing surroundings to the maximum extent feasible.

Access to views of and from the coast will not be adversely impacted. Non-native invasive trees may be removed, which would open up the view of the beach and ocean. The removal of trees would constitute noticeable visual change, but would not alter the value of Mori Point as a scenic resource or substantially alter the visual character of the site.

The trail alignments selected offer a range of visual experiences. Visitors will continue to have access to popular view points from Mori Point: the Bluff Trail will remain open along the coast and a spur trail to the point will provide spectacular views of the Pacific Ocean, and coastal landmarks to the north such as Mt. Tamalpais and the Marin Headlands, Pedro Point to the south, and Sweeney and Milagra Ridges to the east. In addition, the point is blanketed with colorful wildflowers in the spring.

Fences may be installed in order to protect sensitive habitat, and site improvements such as benches, trashcans, signs, and kiosks may be installed. These items will comply with the GGNRA Parkwide Site Furnishings Guidelines and will be located in a manner that does not interfere with the important viewsheds at the site.

*Cumulative Impacts*

Cumulative projects that would have a net local, long-term, beneficial cumulative effect on visual resources include those that would improve the general health of ecosystems visible from or within Mori Point, including ongoing NPS and GGNPC Site Stewardship activities, pond building, and the implementation of the City of San Francisco's Significant Natural Resource Management Plan for the Sharp Park Golf Course and the Laguna Salada Resource Enhancement Plan. The Site Stewardship program would restore native plant communities at the site in an attempt to restore historic viewsheds. Actions in the City of San Francisco's Significant Natural Resource Management Plan would protect and enhance natural resources and increase the quality of wetlands in the area. Short-term construction related activities associated with these projects could temporarily affect visual resources. However, these impacts would be incremental, localized, and not collectively significant.

Conclusion

Alternative 1 will result in short-term, local, minor adverse impacts to visual resources due to construction at the site but these potential adverse impacts would be less-than significant. This alternative will also result in many long-term, local, direct, moderate to major beneficial impacts to visual resources at Mori Point. The project will also have long-term regional beneficial impacts, as the view of Mori Point from surrounding lands and/or from adjacent communities would be improved.

*3.12.2.2 Alternative 2*

The majority of actions under Alternative 1 would also be conducted under Alternative 2. However, in this alternative, only the CCT would be designated multiple-use, and all other alignments would be considered hiker only. Since this alternative would have the fewest multiple-use trails, which have a wider cross section, the trails would have less adverse impact on visual resources compared to the other action alternatives. However, regardless of size, most trails in the new trail system would be substantially reduced from the existing condition, resulting in major beneficial impacts to visual resources. Cumulative impacts would be as described under Alternative 1.

Conclusion
Differences in impacts to visual resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be as described under the Preferred Alternative.

*3.12.2.3 Alternative 3*

Under this alternative, trails would be designed to accommodate multiple-use, including a possible increase in width. These trails would expand the area of visible presence of improvements at the site. However, regardless of size, most trails in the new trail system would be substantially reduced from the existing condition, resulting in major beneficial impacts to visual resources.

Conclusion
Differences in impacts to visual resources between Alternative 3 and the Preferred Alternative are negligible therefore the conclusions drawn for the Preferred Alternative also apply to Alternative 3. Cumulative impacts would be as described under the Preferred Alternative.

*3.12.2.4 Alternative 4 (No Action Alternative)*

Under the No Action Alternative, the current trail alignments would remain in their present condition and restoration outside of ongoing NPS and GGNPC Site Stewardship activities, would not occur. The proliferation of unofficial and unmaintained trails would continue to have adverse effects on visual resources. While these unofficial trails provide access to scenic vistas, as landscape features they appear as a haphazard network of compacted dirt pathways that detract from the otherwise scenic surroundings.

*Cumulative Impacts*

No cumulative impacts are anticipated with the No Action Alternative.

Conclusion
The No Action alternative would result in long-term, local and regional, major, direct adverse impacts to visual resources. No beneficial impacts would occur.

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