

CHAPTER 2. DESCRIPTION OF ALTERNATIVES

2.1 Introduction

NEPA requires federal agencies to conduct a careful, complete and analytic study of the impacts of proposals that have the potential to affect the environment and consider alternatives to that proposal, well before any decisions are made. Federal agencies are also required to involve interested or affected members of the public in the NEPA process. The EA assists the NPS in decision-making and in the determination that the potential for significant effect does not exist and the preparation of an environmental impact statement is not required. All alternatives are consistent with the legal requirements, established standards and guidelines for the management of natural and historic resources in accordance with the mission of the NPS.

2.2 Description of Alternatives

2.2.1 Background on Alternative Development

In order to acquire the baseline data needed to develop informed and appropriate alternatives for the Mori Point Restoration and Trail Plan, the GGNRA commissioned several studies. Study maps can be found in Appendix A and other locations noted below. These studies included:

- *Trail Use Study.* A trail use study was conducted to determine the most frequently used trail segments (Appendix A). Study results indicated that most visitors used Mori Road and the trails along the coastal cliffs near the Point. The Upper Trail south of Mori Road was also used relatively frequently. Visitors to the site were also interviewed by staff as to their trail and site preferences.
- *Vegetation Mapping.* Vegetation associations (Appendix A) and vegetation alliances (Figure 13) were mapped according to standards set forth by the NPS Inventory and Monitoring Program.
- *Invasive Plant Survey.* The locations of fifteen priority non-native plant species were mapped (Appendix A).
- *Hydrological Assessment.* Natural and manipulated drainage patterns (Appendix A), natural and artificial seeps, natural and manipulated landslides, and placed fill (Appendix A) were identified and mapped.
- *Trail Assessment.* All roads and non-designated trails were mapped (Figure 6).
- *Boundary Survey.* A boundary survey was conducted to identify and demarcate GGNRA boundaries at Mori Point (boundaries indicated on all Figures).
- *Topographical Survey.* Elevation contours at 0.5-meter intervals were mapped (Appendix A).
- *Special Status Species Occurrences.* San Francisco garter snake and California red-legged frog observations were compiled and mapped, along with historic information about both species' distributions. San Francisco fork-tail damselfly potential habitat was also mapped (Figure 16).
- *Wetland Mapping.* Wetlands throughout the project site were mapped according to Cowardin wetland classification system, according to NPS standards (Figure 15). A subset of these wetlands that would potentially be impacted by the proposed project were mapped in more detail, according to US Army Corps of Engineer protocols (Figure 14).

The GGNRA also conducted meetings and site visits with hydrological experts, endangered species experts, trail planners, U.S. Fish and Wildlife Service biologists, and the Pacifica Golden Gate National Recreation Area Liaison Committee to discuss potential plans for Mori Point. Based on the information and recommendations gathered, the GGNRA created a draft trail alignment and restoration plan for Mori Point, which was open for public comment from October 7, 2005 through November 7, 2005. The draft alignment and restoration plan was revised based upon public comment and developed into the Preferred Alternative (Alternative 1).

2.3 Alternatives Considered in Detail

2.3.1 Features Common to Action Alternatives

The guiding objectives of all Action Alternatives are to protect and enhance habitat for the endangered San Francisco garter snake and the threatened California red-legged frog; preserve and restore the ecological integrity of Mori Point habitats by reducing threats to native plant communities and natural processes; and develop a safe and sustainable trail system, incorporating the California Coastal Trail, that improves recreational experiences and reduces impacts to park resources (Figure 2 – General Plan).

Each of the three Action Alternatives contains the same restoration and trail alignment proposal and differs only in trail-use designation. These actions are similar across all alternatives due to the need to provide the highest level of protection for the federally listed species on the site. The resulting opportunities for trails leave one system that best responds to user circulation needs. All trails were evaluated for suitability for uses over and above hiker-only. The Preferred Alternative (Alternative 1) (Figure 3) offers a variety of trail experiences to different user groups and provides for the best way to meet management objectives to protect and enhance natural resource values and provide public access. In the Preferred Alternative, hiker-only designations would be in effect on all segments through, or leading to, steep and erosion-prone areas. Multiple-use opportunities were identified on the California Coastal Trail (CCT) and its main connector routes, Mori Road, Upper Trail, CCT Bowl Connector, and Fairway Trail. The second alternative (Limited Multiple-use) (Figure 4) proposes that only the CCT be designated multiple-use, and that all other alignments be considered hiker only. In the third alternative (All Multiple-use) (Figure 5), all trails are designated multiple-use, with no restrictions on biking, hiking, or equestrian use. The fourth alternative is the No Action alternative (Figure 6). Dog walking will be determined through an ongoing federally-sanctioned Negotiated Rulemaking Process, and is not addressed in this document (see Section 2.4).

Actions common to all alternatives are divided into two categories: 1) Site-wide Management Actions and 2) Long-term Stewardship Actions. Site-wide Management Actions would be finite actions that occur for a discrete period of time over the course of the project. These Site Management Actions also includes restoration in specific areas, called Special Restoration Areas. Site-wide Management actions would occur throughout the entire site, with the exception of those concentrated in Special Restoration Areas. Long-term Stewardship Actions would occur in perpetuity on a regular basis. A description of these actions is described below.

FIGURE 2. MORI POINT GENERAL RESTORATION AND TRAIL PLAN

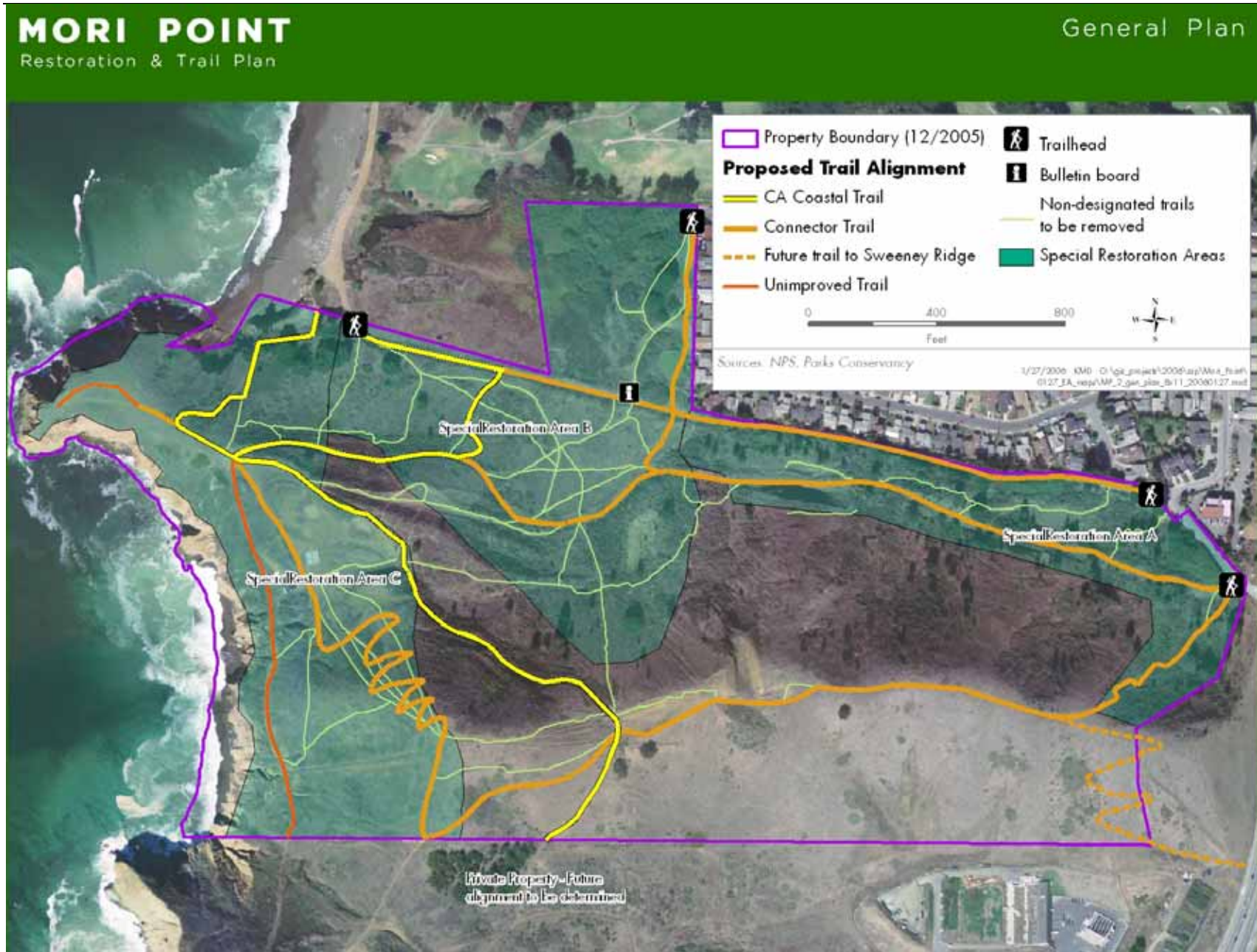


FIGURE 3. ALTERNATIVE 1: PREFERRED ALTERNATIVE.

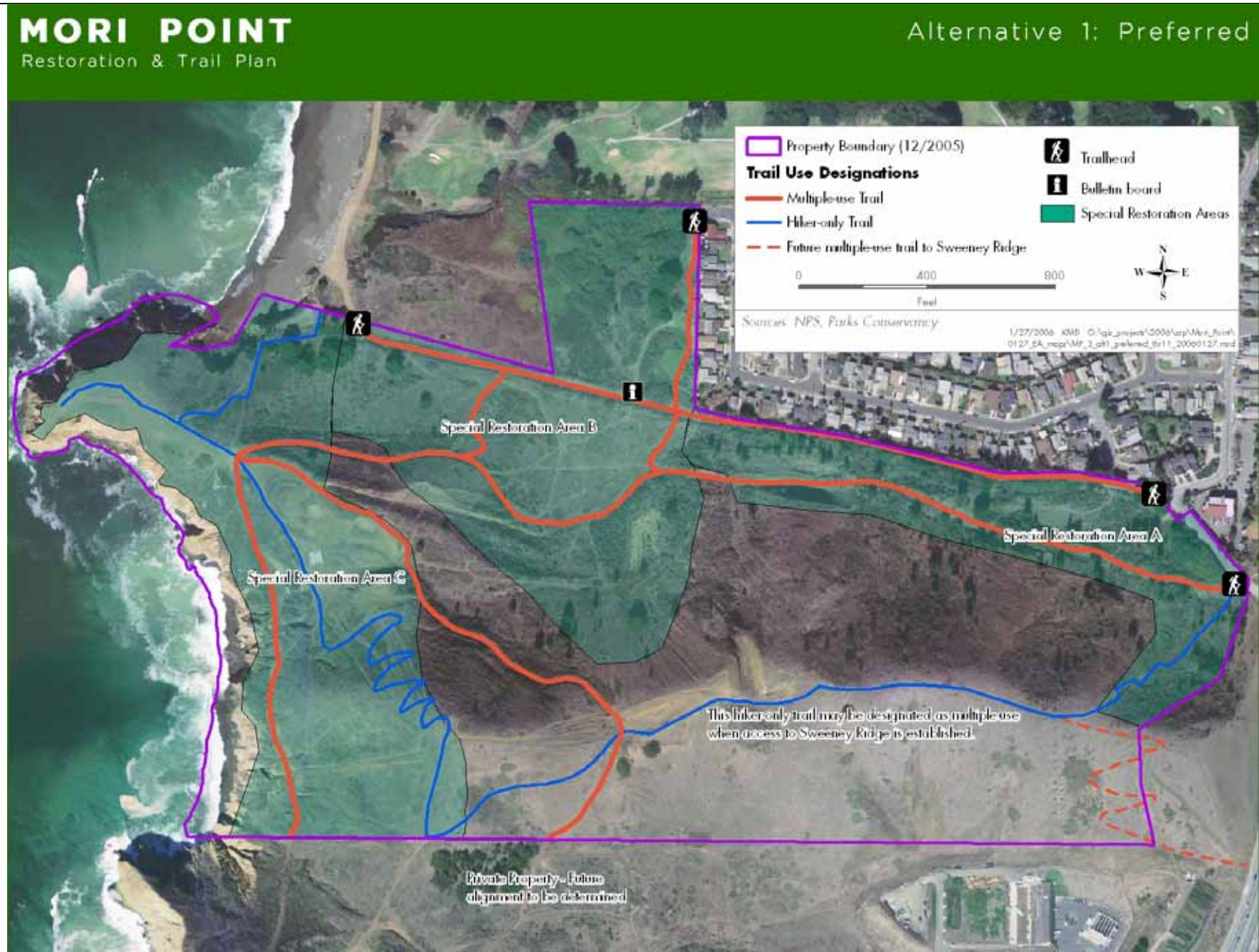


FIGURE 4. ALTERNATIVE 2: LIMITED MULTIPLE-USE

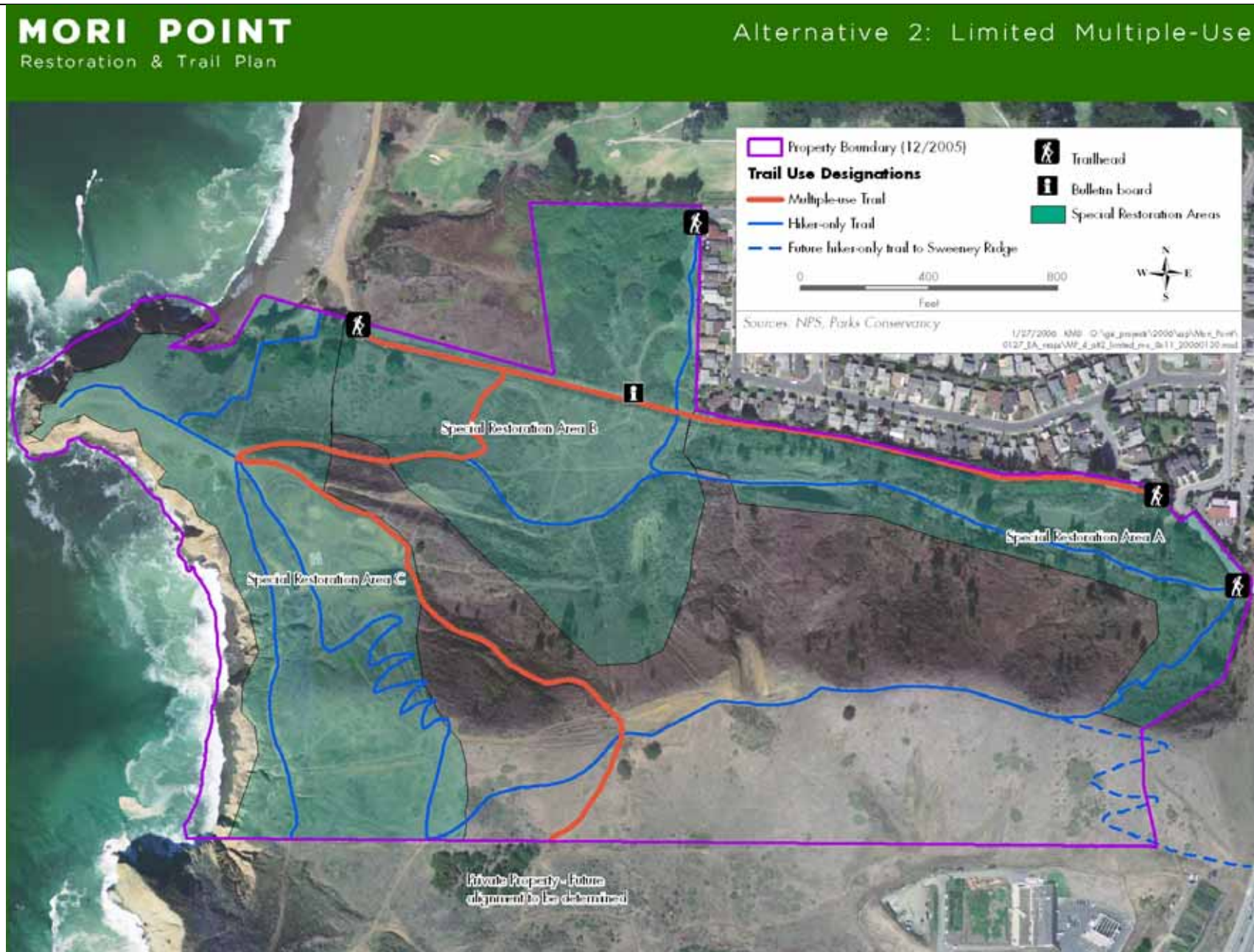


FIGURE 5. ALTERNATIVE 3: ALL MULTIPLE-USE.

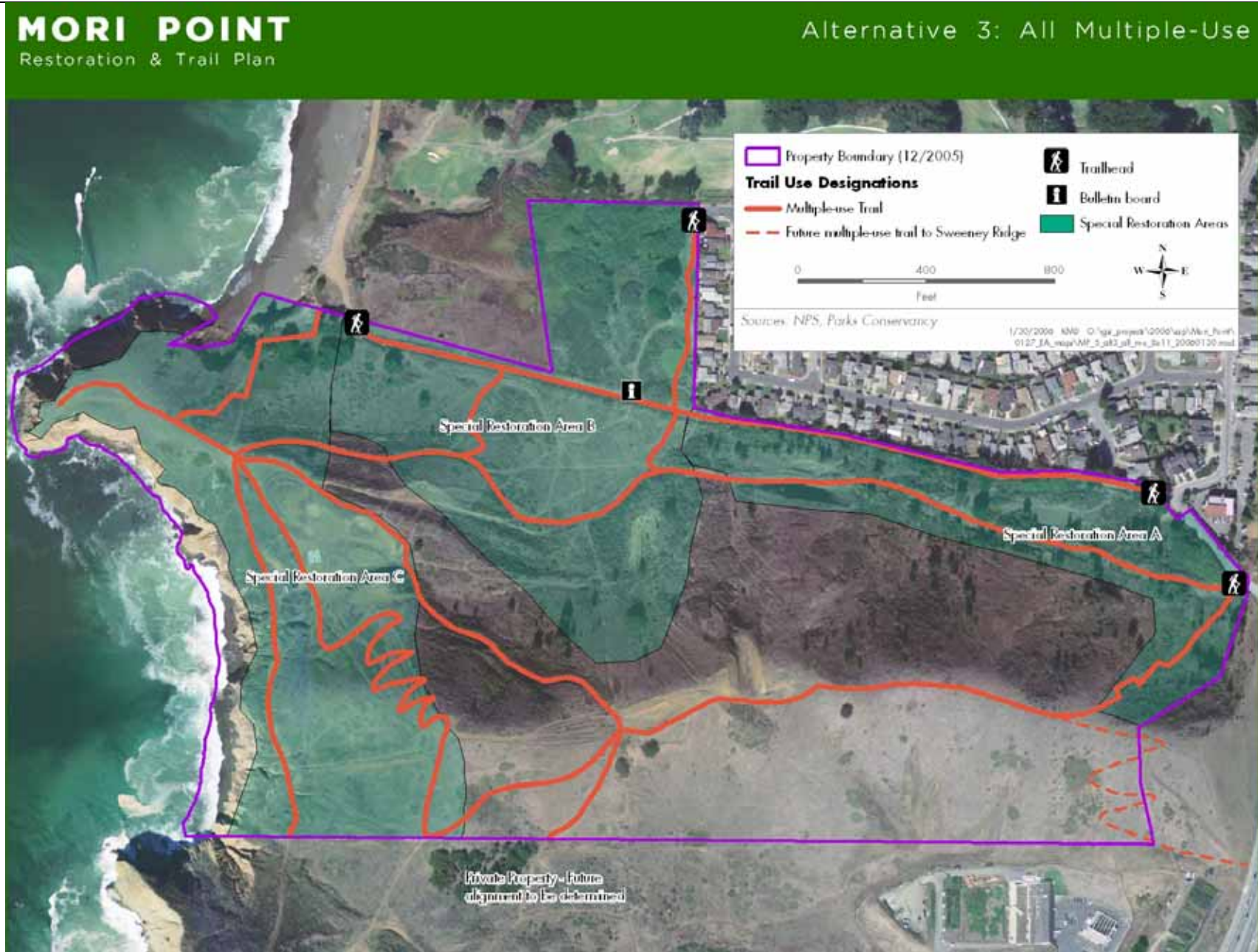


FIGURE 6. ALTERNATIVE 4 (NO ACTION ALTERNATIVE).



2.3.1.1 – Site-Wide Management Actions

Action 1: Protect San Francisco garter snakes from trampling and predation.

To protect the San Francisco garter snake from trampling due to vehicles, the GGNRA would coordinate with other agencies (GGNPC, City of San Francisco, Pacific Gas and Electric, San Mateo County Mosquito Abatement District, U.S. Coast Guard) and local landowners to minimize vehicular access to Mori Road. Further, segments of Mori Road may incorporate a boardwalk, bridge, or raised road with causeways to accommodate snake and frog movement. Exclosure fencing may be used to keep sensitive species away from areas subject to vehicular use. Heavy bicycle use in the future may pose trampling threats to reptiles that may be using trail surfaces for basking. Trail use designations along trail segments may change in response to natural resource protection needs.

The implementation of a comprehensive trail plan (discussed under Action 4 below) would meet this objective by minimizing vehicular, pedestrian, bicycle, equestrian, and dog traffic in the most sensitive San Francisco garter snake habitats, while enhancing the visitor experience by providing an upgraded trail system that would supply a variety of loop trails leading to popular destination points.

Another component of this action is to protect sensitive species from predation. Non-native introduced bullfrogs (*Rana catesbeiana*) are known to prey upon California red-legged frogs. At present, bullfrogs have not been detected at Mori Point. In order to complete their breeding cycle, bullfrogs require year-round water. To guard against establishment of this invasive predator, and subsequent decline of one of the San Francisco garter snake's major food sources, the California red-legged frog, all newly constructed ponds at Mori Point shall be designed so that they dry out for several months during the late summer. Should bullfrogs become established at Mori Point, the NPS would work with the U.S. Fish and Wildlife Service to determine a plan for controlling them.

Introduced mammals such as feral cats (*Felis domesticus*) are known to prey on small mammals, birds, and reptiles, and may pose a direct threat to the San Francisco garter snake as well as other wildlife. Any feral cats found at Mori Point would be captured live and taken to nearby humane societies.

Action 2: Restore native California plant communities including an appropriate mix of wetland, coastal grassland, and coastal scrub to support the threatened and endangered species at the site.

The implementation of a comprehensive trail plan (discussed under Action 4 below) would meet this objective by minimizing vehicular, pedestrian, bicycle, equestrian, and dog traffic in the most sensitive San Francisco garter snake habitats, while enhancing the visitor experience by providing an upgraded trail system that would supply a variety of loop trails leading to popular destination points.

In addition, the GGNRA would research the historic vegetation composition at Mori Point and

other sites known to have supported San Francisco garter snake populations. This information, in combination with NPS guidelines, would be used to create an appropriate mix of wetland, riparian, and open grassland, and coastal scrub habitats to support the threatened and endangered species at the site. This mix of habitats would be achieved by decompacting the soil in disturbed areas, planting, seeding, manipulating hydrology, or other appropriate techniques. All propagules would be collected from on site or within the watershed and would be propagated at the GGNPC nurseries, to the greatest extent practicable. Site preparation for planting may include removal of weeds and/or soil scraping, digging holes 6-12" deep and mulching with certified weed-free rice straw around outplanting sites. Follow-up maintenance may include watering or weed control as needed. See Figure 3 for proposed soil decompaction/planting areas.

Integral to the restoration of native plant communities is the control of invasive non-native plant species. Control would be prioritized based upon the species extent, invasiveness, and rate of spread. In some cases, only certain populations or life-stages may be targeted. The invasive non-native species within the project area are described in Table 4. Removal of non-native invasive trees would be limited to small trees measuring less than 8 inches in dbh (diameter at breast height) and those that directly threaten the quality of habitat for sensitive resources. All other trees will be left on site and removed only after become diseased, naturally die, topple, or pose a safety hazard. Various control methods may be employed which include, but are not limited to, manual, mechanical, and chemical techniques that would be implemented consistent with NPS Integrated Pest Management Program. These guidelines require evaluation of all available control methods and selection and use of the least toxic and effective method. Additionally, NPS would seek to coordinate control of nearby seed sources with adjacent landowners. Treatments that may be employed for controlling invasive species are described in Appendix B.

Action 3: Remove placed fills and remove trash, debris, and illegal structures after assessing San Francisco garter snake habitat value. Replace structures with functional habitat equivalent as appropriate.

On a case-by-case basis, the GGNRA would analyze the benefits of removing placed fills (non-native sand/gravel/rock, asphalt, cement, clay) (Figure 3) versus the risk of removal activities to sensitive species. Fill and structures would be removed if deemed necessary to the aesthetic and ecological integrity of the site. Removal would most likely entail the use of heavy machinery. Sites would be rehabilitated and revegetated as needed.

In order to create an environment consistent with a National Park setting, trash, debris, and illegal structures that mar the aesthetic value of the landscape would be removed, wherever possible (Figure 3). Prior to removal, all material would be assessed for habitat value to the San Francisco garter snake. Where feasible, structures that have habitat value would be replaced with natural materials such as wood and brush piles, to create functional equivalents for foraging, cover, or basking. Removal would take place by hand or by heavy machinery, where necessary.

Action 4: Implement a comprehensive trail plan that would protect and enhance native habitats as well as provide safe visitor access.

The proposed trail plan considers the location of endangered species habitat, incorporation of

popular destination points and already existing trails, creation of multiple loop routes, CCT outdoor recreation accessibility requirements, and inclusion of alternatives for north-south and east-west connector trails. To the maximum extent practicable, permanent fencing would be avoided to establish trail routes. Resource protection would be primarily achieved through methods such as fencing, signage, trail markers, re-vegetation, turnpikes, and/or boardwalk to ensure smooth flow and protect the sensitive habitats at the site. The proposed trail alignment would result in the following changes (Figure 7):

- Conversion of approximately 3.1 miles (4.1 acres) of non-designated trail to natural habitat.
- Improvement of approximately 3.5 miles (2.4 acres) of existing trail.

The trail alignment common to all Action Alternatives is described below. The trail names used below are for planning purposes only and permanent trail names may be designated in the future, with public input (Figure 8).

Trail Alignment

The northernmost entryway to Mori Point would be at Fairway Drive. Here, the Fairway Trail would run south to connect with Mori Road. This alignment would route multiple users around sensitive wetland habitats thereby protecting the San Francisco garter snake and the California red-legged frog from inadvertent trampling. The existing access trail, which begins just south of the Fairway Drive entrance and connects to Mori Road near the bulletin board would be decompacted and revegetated in order to reduce habitat fragmentation. The Fairway Drive entrance would lead into the heart of Mori Point, the intersection of the wetland habitats, and the upland “Bowl” area, at which point several trail options exist.

At the north-westernmost park entrance from the sea wall, visitors would have a choice of two California Coastal Trail (CCT) segments, each providing a north-south passage through Mori Point. The first would be the CCT Coastal Connector climbing up the coastline to allow visitors to enjoy the spectacular coastal views. This trail would follow the route of the trails that already parallel the coastline, but would be improved by the possible addition of stairs. This trail would connect with the remainder of the north-south CCT near the undesignated trail leading to Mori Point proper. An alternative trail, ideal for visitors seeking a less strenuous experience, would begin at the intersection of the sea wall and Mori Road. Visitors may follow Mori Road inland and then ascend gradually along the CCT Bowl Connector toward the south, largely along an existing road that would be narrowed to trail. This trail section, along with the rest of the CCT to the south, would meet American Disability Act outdoor recreation standards. The CCT Bowl Connector would switchback to the west via an improved existing trail where it would intersect with the Bluff Trail, the Peak Trail, and the Point Trail. The CCT would continue southeast along an improved existing trail through a stand of intact coastal scrub just north of Mori peak. Upon reaching Mori Ridge, the CCT would descend southward onto private land.

From the east, visitors may access the site through two entrances: at the junction of Mori Road close to Highway 1 or through the gate at Mori Road. The easiest route and one of the most popular, to the center of Mori Point is along Mori Road. Conversely, the trailhead closer to Highway 1 leads to the Upper Trail, which parallels Mori Road and offers a more natural experience and an alternate route to access the western part of the site. Visitors can remain on fairly level ground by using the Upper Trail, a narrower and improved version of the already

FIGURE 7. POTENTIAL IMPACT AREAS OF PROPOSED ACTIONS.

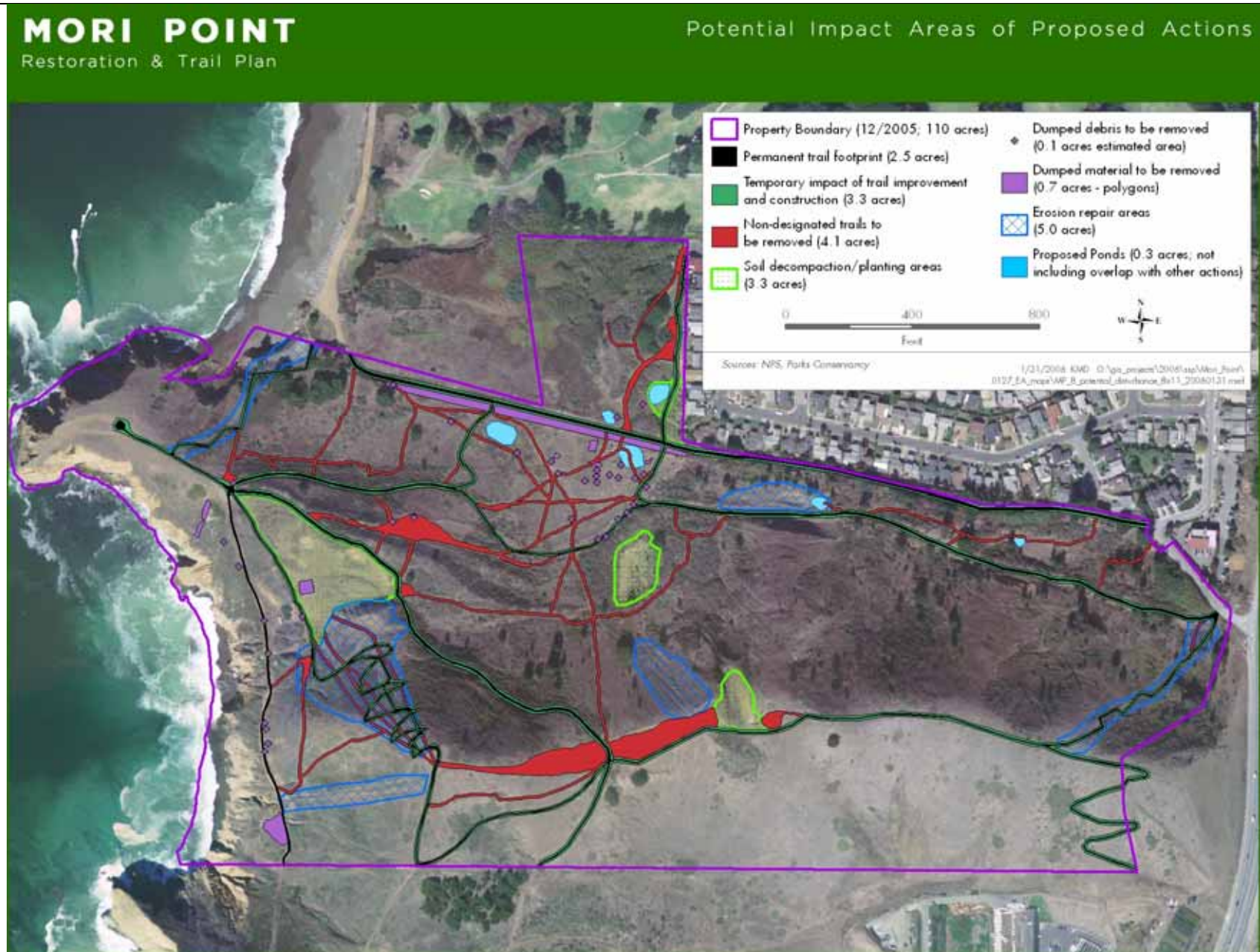


FIGURE 8. TRAIL AND AREA NAMES (FOR PLANNING PURPOSES).



extant roadway, heading west towards the Bowl. Upon reaching the Bowl, one can turn north along an improved existing trail (Bowl Trail) to reach Mori Road, or turn south along the Bowl Trail, a contour trail that skirts the perimeter of Mori's most sensitive upland habitat to connect to the CCT Bowl Connector. The Bowl Trail is comprised of improved existing trail and new trail that follows the Bowl's natural topography. The GGNRA would collaborate with the City of San Francisco, who has an easement on the road, to determine the feasibility of constructing a raised, drivable short boardwalk or bridge along this section of road that would allow for safe movement of the San Francisco garter snake and other small animals under the structure. The berm along the south side of the road would also be breached on the eastern end to allow for water flow under the boardwalk/bridge. Thus, the boardwalk/bridge would also provide a drier and more aesthetically pleasing path for visitors to walk to the seawall and adjacent trails. This boardwalk/bridge would begin near the eastern edge of the West Fairway Park housing development and end just west of the newly constructed pond. The boardwalk/bridge would remain drivable to allow for emergency and other maintenance-related vehicle access.

The tangled network of unofficial trails in the Bowl would be decompacted and restored to a more natural state for the benefit of sensitive species, ecological integrity, and the viewshed. In addition, interpretive signage near the Bowl would build awareness of San Francisco garter snake habitat and the public's role in protecting it by staying on the assigned trails. Alternatively, a more challenging and scenic route from the easternmost part of the park exists by way of a series of stairs running up to the Crest Trail where an improved existing trail would follow the ridgeline directly west to intersect with the CCT. At this intersection, one can turn north or south on the CCT, or follow the Peak Trail to climb to the summit of Mori's highest vantage point. From the summit, the Peak Trail continues downslope to connect with the Bluff and other trails.

The northern intersection of the Peak Trail and the CCT is the gateway to two of Mori Point's most popular destinations - the coastal bluffs and Mori Point proper. According to hydrologists, the Bluff Trail is badly eroding. With the expectation that it may be non-existent in 10 years, the NPS would not commit resources to construct upgrades. Similarly, trails out to the Point would remain unimproved.

All other existing trails and roadways would be restored to habitat to maximize the natural landscape experience and reduce habitat fragmentation. The GGNRA intends to minimize the use of permanent fencing, unless monitoring indicated a clear need, and may employ other methods such as signage, trail markers, revegetation, turnpikes, and/or boardwalk to ensure smooth flow and protect the sensitive habitats at the site.

Details on trail construction and deconstruction methods are in Appendix C.

Action 5. Installation of additional site improvements.

Possible site improvements may include, but are not limited to, the following: public safety, regulatory, interpretive, and wayfinding signage; accessible site furnishings (e.g. benches and picnic tables); accessible toilets; vault or other method; bicycle racks; trailhead improvements such as kiosks, waysides, or landscaping improvements; parking improvements and

definition/designation of parking spaces; and limited fencing for safety or to protect sensitive habitat. An NPS natural resources staff person or qualified biologist shall review all proposed site improvement locations prior to approval and installation. If the site improvement feature is proposed within or adjacent to a sensitive resource, the feature will be reconfigured to avoid the sensitive resource or additional environmental compliance will be completed as appropriate. If necessary, re-consultation with USFWS may be required, possibly resulting in an amendment to the Biological Opinion for the proposed project.

Action 6. Restoration of three specific areas.

Special Restoration Area A: Ensure access through Special Restoration Area A without compromising slope stability or sensitive habitat.

Two main trail corridors run through Special Restoration Area A- Mori Road and Upper Trail (Figure 9). Mori Road runs parallel to the Upper Trail, and both are considered main arteries into Mori Point. The Upper Trail is in poor condition, with heavy water pooling occurring on the trail during the winter months. Visitors using the Upper Trail during the winter months are forced to travel along the sides of the trail, thereby creating new non-designated trails. The berms and hillside surrounding the Upper Trail, in particular, support a large number of rodent holes, which may house San Francisco garter snakes that are using the burrows to pass the summer in a dormant state (aestivating).

Because of the sensitive species in the area, re-grading the slope and outsloping the trail, which is the regularly applied prescription for problems with water pooling along trails, would not be employed. Instead, a study would be conducted in association with the final trail design to outline the main drainage pathways and contributing drainage areas under existing and proposed project conditions. Recommendations and/or treatments for this slope area would be based upon study results, but a trail prescription would likely involve smoothing the trail, adding a permeable top surface, and de-watering the trail by installing drains and other devices. The GGNRA would also study the drainage patterns and culverts along the lower road, with special attention to improving conditions for adjacent residents as well as the rare San Francisco forktail damselfly that is found on-site.

Special Restoration Area B: Improve hydrologic and habitat connectivity between upland and wetland areas AND Create ponds for San Francisco garter snake foraging habitat.

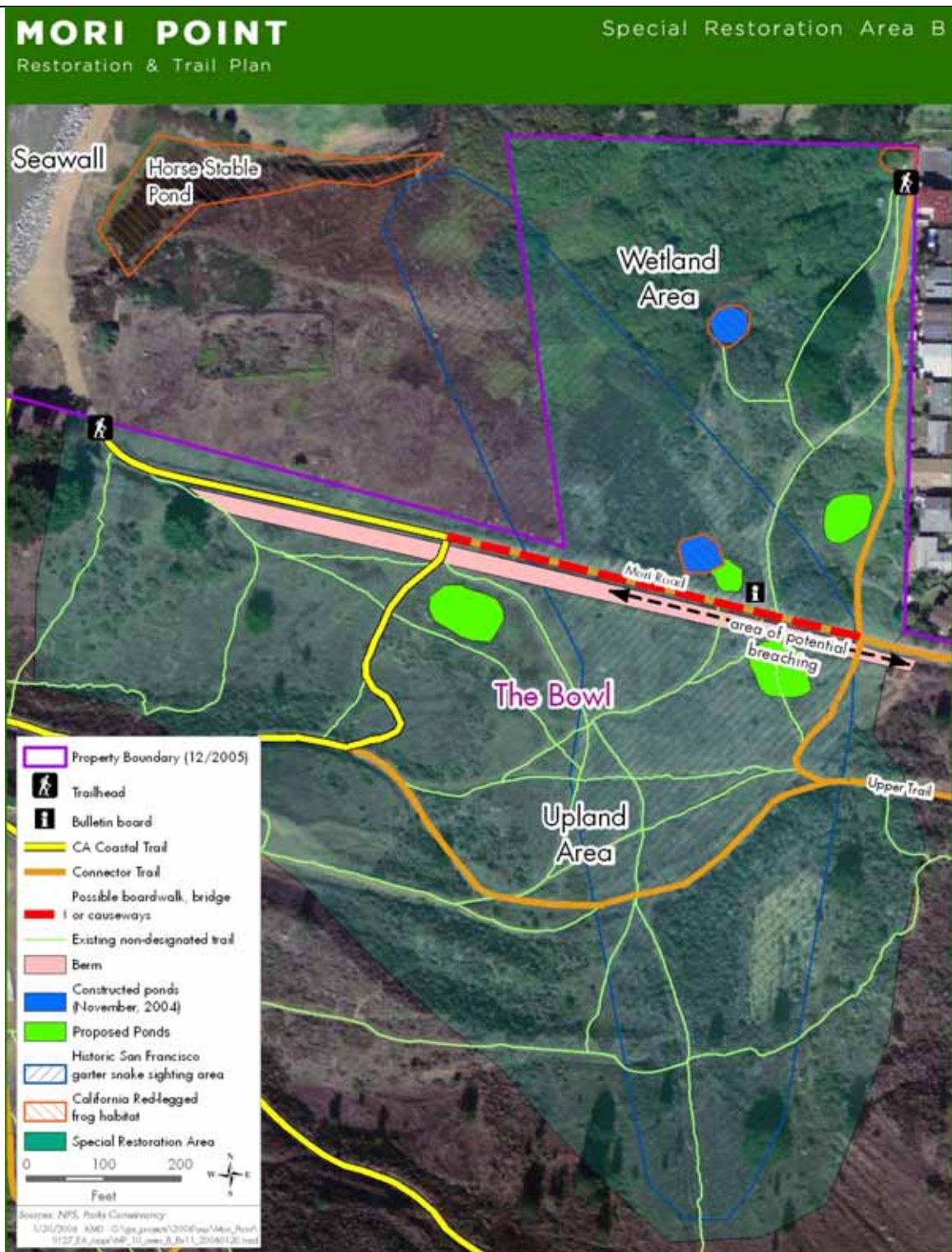
Special Restoration Area B (Figure 10) contains the wetland and adjacent Bowl, where the greatest number of San Francisco garter snake observations have been recorded. Currently, the upland and wetland habitats are separated by Mori Road and a human-constructed berm running parallel to the road on the south side. The road bisects an area that is important core habitat for both the San Francisco garter snake and the California red-legged frog, and therefore the focus of restoration measures is on improving connectivity between the upland and lower habitat areas.

Portions of the berm would be removed in order to create habitat and hydrologic connectivity. Given the sensitivity of the site, berm removal would be phased, beginning with breaching the

FIGURE 9. SPECIAL RESTORATION AREA A.



FIGURE 10. SPECIAL RESTORATION AREA B.



eastern end to allow more flow of water between the upland and lowland habitats. This water would either flow directly into the lower wetland area, or be diverted into another constructed pond, if found feasible.

The GGNRA would collaborate with the City of San Francisco to determine the feasibility of constructing a raised, drivable boardwalk or bridge along this section of road that would allow for safe movement of the San Francisco garter snake and other small animals under the structure. The berm on the south side of the road would also be breached in the vicinity of the boardwalk/bridge, allowing water to flow under it, providing for a drier and more aesthetically pleasing path for visitors to walk to the seawall and adjacent trails. This boardwalk/bridge would begin near the eastern edge of the West Fairway Park housing development and end near the western end of the newly constructed pond. It would remain drivable to allow for emergency and other maintenance-related vehicle access.

Additional seasonal ponds would be created in up to five locations both north and south of Mori Road. One design criterion for pond creation is sustained ponding into early summer, with ponds drying out by mid to late summer in order to preclude potential predators such as bullfrogs. Other design criteria would apply, include locating ponds away from trails if fencing is not used. Although further detailed study is needed to determine optimal pond location, size, and depth, five potential sites for pond creation have been identified. These potential sites are described and depicted in Appendix D.

Created ponds that receive rainfall-runoff as a water supply would also receive sediment, which, over the long-term, would fill and alter the function of the ponds. Thus, the ponds may be maintained by periodically removing sediment or by creating an upstream sediment detention basin. Sediment removal would be restricted to late summer or fall periods when the San Francisco garter snake is not using the ponds. Alternatively, ponds could be located near Sanchez Creek where water levels may be maintained by seasonally high groundwater conditions.

Special Restoration Area C: Reduce human-caused and accelerated erosion to restore natural processes.

Special Restoration Area C (Figure 11) has a coastal erosion rate that is up to 40 percent higher than the coast just north and south (Campbell, 2005). The estimated soil and sediment loss for this area exceeds twenty thousand cubic yards annually. This accelerated erosion has been and is still caused by poorly placed fills, quarrying operations, off-road vehicle use, buried debris and non-designated trails. Erosion starts near the top of the ridge and continues down toward the Pacific Ocean. This area is characterized by large soil and rock fill sites, evidence of road beds buried under five feet of fill, debris buried under as much as 20 feet of fill, broken concrete, tires, metal, and other materials. Above the Bluff Trail, erosion gullies reach up to six feet deep and below the Bluff Trail they can be more than 30 feet deep.

FIGURE 11. SPECIAL RESTORATION AREA C.



In order to reduce human-caused and accelerated erosion above the Bluff Trail, the grade would be recontoured beginning at the ridge top and continuing down the western slope within the gully areas. All topsoil from the recontoured site would be recovered and placed on scarified sites to restore original natural contours. All debris encountered during excavation would be removed from the site. Check dams would be installed in gullies over two feet in depth to erase hydrologic memory. Soil from the fill site areas would be placed in the gullies and compacted. All finished contours of a grade exceeding 15 percent would be stabilized by covering with erosion matting or certified weed free rice straw and securely fixed in place. Once natural contours and drainage patterns have been established, the site may be revegetated in order to further stabilize the soil.

2.3.1.2 – Long-term Stewardship Actions

Action 1: Maintain trails.

The GGNRA would conduct regular maintenance of the new and restored trail segments, including trimming of trailside vegetation, replacement of trail base material, and possible localized soil disturbance (such as to repair erosional features or construct water bars). Maintenance activities would also include the monitoring, repair, and/or replacement of attendant features such as fencing, signs, trail markers, turnpikes, and boardwalks.

Action 2: Continue to restore native plant communities.

The GGNRA plans to continue active restoration within selected portions of the project area; restoration actions would be conducted as described under Site-wide Management Actions, Action 2. Non-native invasive plant control actions would be conducted as described in Appendix B.

Action 3: Develop and implement a monitoring system to track progress for restoration goals.

Photo-monitoring would be conducted on a site-wide and project-specific level as necessary. Periodically invasive plant species would be surveyed to track their expansion and/or decline. Monitoring and survey work for the California red-legged frog and the San Francisco garter snake would be conducted. Monitoring efforts may include trail and road use (including off-trail use, off-leash dogs, etc.), aquatic predator presence (bullfrogs, feral animals), and erosion.

Action 4: Engage the community in the implementation of management objectives.

Community members would be invited to participate in the implementation of appropriate management activities through active outreach, education, and stewardship efforts. Volunteer programs and educational partnerships would be broadened, and regular opportunities for community participation would be offered at the site. The GGNRA would continue to cultivate relationships and coordinate its management efforts with adjacent landowners, local non-profits, other agencies and local community members.

Action 5: Build public awareness on the appropriate use of the site, and protect habitat from unauthorized and/or destructive use.

The GGNRA would make efforts to educate visitors on the appropriate use of the site, particularly in endangered species habitat, using those education activities described in Action 6, below. The GGNRA would integrate local community support in education and enforcement efforts. Educational signage and protective fencing may also be used to protect sensitive areas from disturbance.

Action 6: Build public awareness on the unique values and recreational opportunities at Mori Point.

To build public awareness, the GGNRA and/or its partners would offer educational walks and related programs on both the cultural and natural resources found at Mori Point. In addition, outreach and education materials would be developed and the existing on-site bulletin board would be maintained and updated regularly. Regular volunteer workdays would be offered for community members interested in hands-on learning and experiences. The GGNRA would also partner with other organizations to assist with public education efforts. These partners may include the Pacifica GGNRA Liaison Committee, the San Francisco Zoo, the U.S. Fish and Wildlife Service, the California Coastal Conservancy, the City of Pacifica and any regular user groups at the site. To the extent that resources become available, educational efforts would extend into the schools through presentations and on-site field trips. Opportunities to engage the media would also be pursued.

2.3.2 Alternatives

The proposed trail use designations consider appropriateness within the context of endangered species habitat, incorporation of popular destination points and already existing trails, creation of multiple loop routes, California Coastal Trail outdoor recreation accessibility requirements, and inclusion of alternatives for north-south and east-west connector trails. All trails were evaluated for suitability for uses over and above hiker-only, including biking and equestrian use.

2.3.2.1 Alternative 1 (Preferred Alternative)

In the Preferred Alternative, hiker-only designations would be in effect on all segments through, or leading to, steep and erosive areas. Multiple-use trails would include the California Coastal Trail and its main connector routes - Mori Road, the CCT Bowl Connector, Fairway Trail, Upper Trail, and the unimproved Bluff Trail.

Because of the difficulty, expense, and elevated maintenance associated with multiple-use trails on steep and eroding slopes, the CCT connector, the Crest Connector Trail, and the Peak trail were not considered for use above and beyond hiker-only.

Another consideration for trail use designation was to ensure recreational opportunities for all park users. During public scoping, the park received strong support for multiple-use trails, but also heard from community members wanting to preserve a hiker-only experience. To best accommodate all user groups, trails for separate uses were designated within the most frequented

sites at Mori Point, namely, trails centered around the western bluffs. In this area, some trails are designated hiker-only (CCT Connector, Peak trail) while others are designated multiple-use (CCT, Bluff Trail).

The importance creating loop routes to avoid dead ends was also considered as part of the process to designation trail use. At Mori Point, the flat topography of the Crest Trail is such that designation of multiple-use would be considered. The Crest Connector Trail would be unsuitable for multiple-use due to its steep topography, and following the Crest Trail toward the east would result in a dead-end situation for bikers and equestrians. Dead-ends tend to encourage the development of unauthorized, non-designated trails in order to reach destination points. Unofficial use of the Crest Connector Trail for biking and horseback riding, either on the trail or along-side the trail, would contribute to the already eroded and degraded landscape at Mori Point. In order to avoid such adverse impacts to the Crest Connector Trail, the Crest Trail would be designated hiker-only.

The GGNRA, however, is considering future construction of a multiple-use trail connecting Mori Point's Crest Trail to Sweeney Ridge by way of a highway overpass when planning for Highway 1 improvements are undertaken by the California Department of Transportation. If such a connection is constructed, the Crest Trail would no longer dead end. If and when a connection to Sweeney Ridge becomes viable, the Crest Trail would be considered for multiple-use designation.

2.3.2.2 Alternative 2 (Limited Multiple-use)

Alternative 2 differs from the Preferred Alternative only in trail-use designation. Under Alternative 2, only Mori Road and the CCT would be designated multiple-use (Figure 4). All remaining trails would be designated hiker-only. Mori Road would be multiple-use because, as a road, it is constructed to be able to support such purposes and because it is used by GGNRA and other public agencies periodically for maintenance and emergency access. The CCT would be multiple-use because the California Coastal Conservancy guidelines support the concept of multiple-use on the CCT. Thus, the CCT would be constructed wide enough to support different user groups, including those requiring more accessible conditions, to minimize conflict between user groups. All other trails would remain hiker-only to facilitate ease of construction and maintenance, as well as provide maximum protection for natural resources and a varied experience for visitors.

2.3.2.3 Alternative 3 (All Multiple-use)

Alternative 3 differs from the Preferred Alternative only in trail-use designation. Under Alternative 3, all trails would be designated multiple-use (Figure 5).

To accomplish this, trails on steep and eroding slopes would need to be constructed according to unique specifications in order to accommodate hikers, bikers, and equestrians without damage to natural resources. Trails would need to incorporate features such as bike-ramps to facilitate walking bikes up and down stairs, multiple stair sections with landings between them to discourage bike riding on steps and to allow for certain users to yield to each other (for example,

bikers yielding to pedestrians, and bikers and pedestrians yielding to equestrians).

2.3.2.4 Alternative 4 (No Action)

Under the “No Action Alternative”, the GGNRA would continue only the management practices that have been approved by the USFWS at this time (Figure 6). These include posting interpretive signs, constructing up to four artificial ponds for San Francisco garter snake breeding habitat, removing small pampas grass plants, lopping pampas grass inflorescences (flower- or seed-heads) to reduce germination of new plants, pulling French broom plants in locations without rodent burrows, and conducting limited erosion control. Trails would remain non-designated and no trail removal, trail construction, or trail improvement would occur.

2.4 - Alternatives and Actions Considered but Eliminated from Detailed Study

A variety of other alternatives and actions were suggested and considered during the scoping period. Those that were considered, but rejected from further evaluation, are presented below with the explanation for their rejection (Figure 12).

2.4.1 Trail Alignment Alternatives Eliminated from Detailed Study

These alternatives all feature trail alignments (Figure 12) that differ from the Preferred Alternative (Figure 3). They include: alignment for the Bowl Trail that bisects the Bowl instead of circumnavigating it; excluding the Bluff Trail and the coastal connector from formal trail designation; inclusion of an alternative Bluff Trail leading upslope towards the south; exclusion of the Peak Trail connecting the peak and the Bluff Trail; a contour alignment instead of the ridge alignment for the Crest Trail; and construction of a new CCT connecting the remainder of the CCT to Mori Road. Each alignment alternative is discussed below.

Bowl Trail:

This alignment was rejected because it runs directly through the most sensitive upland habitat for the San Francisco garter snake on the site. The alignment in the Preferred Alternative skirts the most sensitive habitat while providing better views of the coastal landscape. It also primarily follows previously existing trail and would thereby minimize construction-related impacts to the San Francisco garter snake.

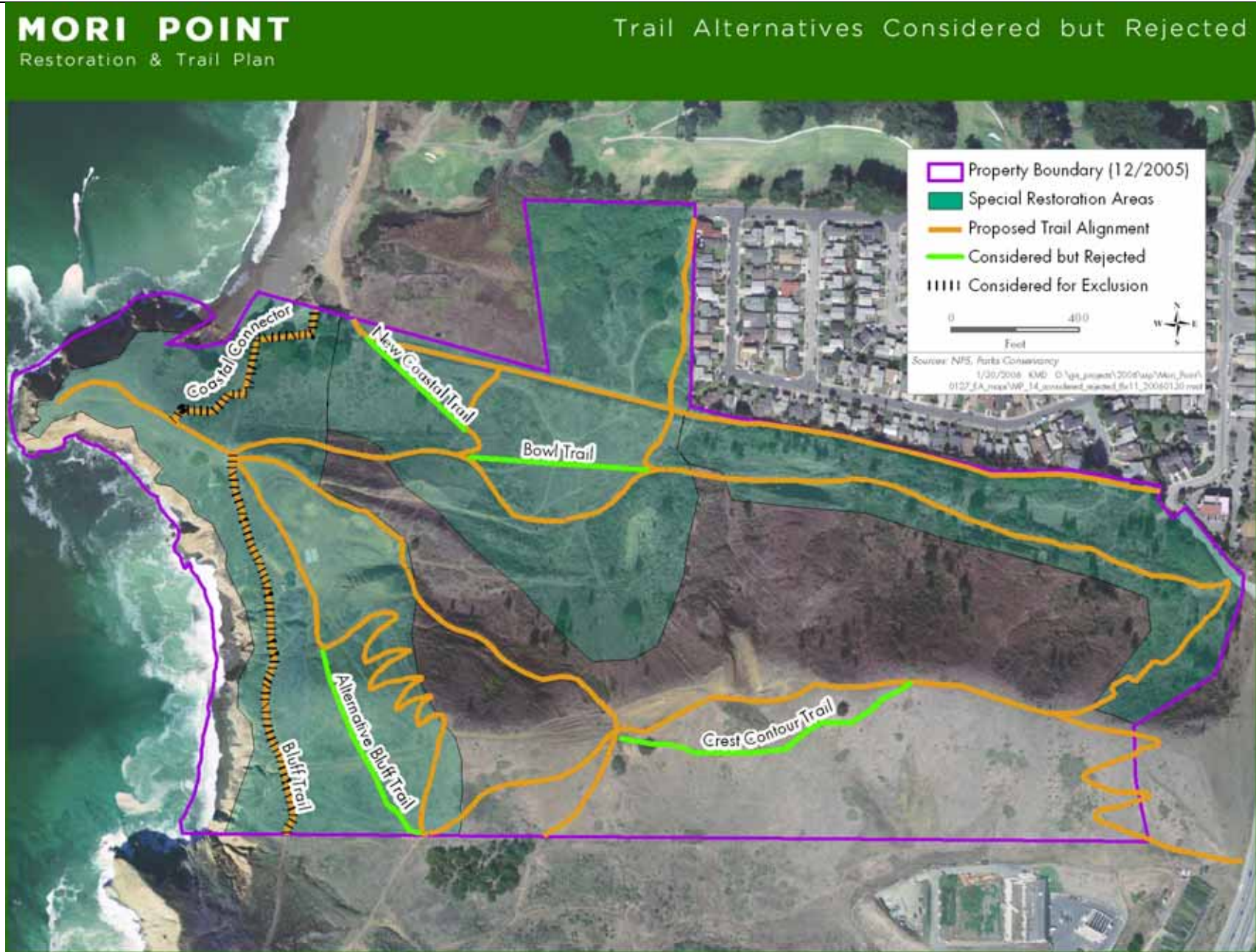
No Bluff Trail:

In this alternative, the Bluff Trail would not be included as a formal part of the trail plan. This alternative was considered because, according to hydrologists, the bluff area on which the trail is located is badly eroding and may be non-existent in 10 years. It is included in the Preferred Alternative as unimproved trail.

No CCT Coastal Connector:

The CCT Coastal Connector was excluded under the draft plan that was taken to scoping. This was due to the elevated erosion rates along the coast. However, the CCT Coastal Connector is included in the Preferred Alternative as it provides an opportunity for visitors to experience the trail close to the scenic coastline.

FIGURE 12. TRAIL ALTERNATIVES CONSIDERED BUT REJECTED.



Crest Contour Trail:

A contour trail would be constructed along the south side of Mori Ridge and the non-designated Crest Trail would be closed. Though this option presented several beneficial features, such as more sustainable trail construction and an easier, flatter route, it was dismissed for several reasons. According to the user survey, the peak near the notch is a popular destination point. Routing people away from this point would ultimately be counterproductive, as the current trail would likely be used anyway. Also, installation of a contour trail would involve cutting new trail, which would need to be mitigated for construction-related adverse impacts. The contour trail would not offer the scenic coastal views that are found toward the north, whereas the Crest Trail in the Preferred Alternative offers a 360-degree panorama.

Alternative Bluff Trail:

This trail would serve as an alternative for the Bluff Trail, which would not be formally included in the trail plan. The trail would begin just above the Bluff Trail, but then ascend toward the south to meet up with the CCT. This alignment was rejected because it would not serve as an adequate alternative to the Bluff Trail for the following reasons. The Bluff Trail is flat and wide and can be used by many regardless of physical ability. The alternative trail would be steeper and would thereby exclude some visitors. Secondly, installation would require cutting a new trail in otherwise undisturbed land and extensive mitigation for potential construction-related disturbance to the San Francisco garter snake would need to be employed.

New Coastal Trail:

This option was dismissed because it would involve cutting a new trail through relatively undisturbed land. The construction process would need to be accompanied by in-depth best management practices involving the hand excavation of rodent burrows to ensure that San Francisco garter snakes are not harmed during construction. Also, a new trail would further fragment habitat. It was decided to use existing trail to the maximum extent practicable.

2.4.2 Restoration Alternatives Eliminated from Detailed Study

Special Restoration Area A:

The unnatural earth benches would be recontoured and dewatered by removing the berms, narrowing the bench area, outsloping and filling the roads and trails, and restoring natural hydrologic flow down the slope.

Special Restoration Area C:

The bluff zone from the top of the bluff to the high water line would be recontoured and all concrete removed. This would address the loss of land due to erosion along the coast caused by poorly placed fills, quarrying operations, off road vehicle use, buried debris, and non-designated trails. The bluff zone from the top of the bluff to the high water line contains large soil and rock fill, evidence of road beds buried under debris, and buried concrete and debris.

These actions were rejected because they entail an extensive amount of soil movement using heavy machinery, which would likely result in construction-related impacts to the site's federally listed species. Since the San Francisco garter snake can be found in upland rodent burrows, extensive mitigation measures would need to be employed, including snake surveys, fencing

work areas, and hand excavating all rodent burrows that are within the project footprint. It was determined that both the risk to the San Francisco garter snake and the cost of mitigating this risk would outweigh the benefits of complete hydrological restoration.

2.4.3 Other Recreational Use Alternatives Eliminated from Detailed Study

Paragliding:

Future permitted use of the site for paragliding landing was considered but rejected based on the negative impacts to threatened and endangered species habitat.

2.5 Comparison of Alternatives

The following table (Table 1) compares the differences between the four project alternatives, particularly the differences between trail use designations.

TABLE 1. COMPARISON OF PROJECT ALTERNATIVES

	Alternative 1 - Preferred	Alternative 2 – Limited Multiple-use	Alternative 3 - All Multiple-use	Alternative 4 - No Action
Project Scope	All Site-wide Management Actions and Long –term Stewardship Actions	All Site-wide Management Actions and Long –term Stewardship Actions	All Site-wide Management Actions and Long –term Stewardship Actions	Limited invasive species removal, limited public outreach
Trail Use Designation	Multiple-use trails are: Mori Road, CCT, CCT Bowl Connector, Fairway Trail, Upper Trail, and Bluff Trail.	Multiple-use trails are: Mori Road and CCT.	All trails would be multiple-use	Trails would not be designated

2.6 Environmentally Preferred Alternative

The CEQ Regulations implementing NEPA and the NPS NEPA guidelines require that “the alternative or alternatives which were considered to be environmentally preferable” be identified (Council on Environmental Quality Regulations, Section 1505.2). Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

The Council on Environmental Quality defines the environmentally preferred alternative as “...the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act’s §101.” Section 101 of the National Environmental Policy Act states that “... it is the continuing responsibility of the Federal Government to ... (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing

surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

The National Park Service has determined that the environmentally preferred alternative for this project is Alternative 1: the Preferred Alternative. This alternative would best meet the requirements in Section 101 of NEPA and would have the greatest benefits to natural and visitor resources at the site. The project includes habitat restoration and protection for federally listed species, improving hydrologic and habitat connectivity, long-term stewardship actions while creating safe and sustainable access of the site for visitors.

2.7 Mitigation Summary

The proposed project would permanently install 2.5 acres² of trail. The majority of this construction will take place on existing non-designated trails or disturbed areas, though less than 0.3 acres of new trail will be built on areas that currently support native vegetation. The improvement and/or construction of these trails will result in temporary adverse impacts to an additional 3.3 acres. Pond construction will result in the disturbance of up to 0.4 acres of existing habitat. Despite the short-term adverse impact of pond construction, the ponds themselves will have long-term beneficial impacts to site resources. Other long-term beneficial impacts include restoration of approximately 13.3 acres of habitat resulting from 4.1 acres of non-designated trail removal, 5.0 acres of erosion repair, 3.3 acres of soil decompaction and planting, and 0.8 acres of debris and fill removal. Although restoration of these areas may have temporary adverse impacts on the site, these activities are being conducted specifically to enhance the extent, quality, protection, and connectivity on-site habitat for resident wildlife species and to promote native species diversity. This would result in an approximate mitigation ratio 5:1 of restored to impacted habitat for permanent impacts. Additionally, long-term stewardship actions, such as invasive species removal, will occur throughout the site, thereby improving habitat quality over all 110 acres.

Appendix E contains Best Management Practices that will guide project implementation and a Mitigation Table that summarizes mitigations in the EA.

² all area measurements are approximate.