National Park Service • US Department of the Interior

Point Reyes National Seashore

Tomales Point Area Plan
Environmental Assessment

May 2024

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Chapter 1: Purpose and Need

PROJECT BACKGROUND

Introduction

The National Park Service (NPS) is developing a Tomales Point Area Plan (TPAP) to update the management guidance for Tomales Point, including management of the tule elk (*Cervus canadensis nannodes*) herd within the northern portion of Point Reyes National Seashore. The TPAP includes management strategies focused on wildlife, vegetation communities, wilderness character, wetlands and water resources, cultural resources, and visitor use and experience. This environmental assessment (EA) includes resource and site-specific analysis of the actions that will be implemented in the management of Tomales Point. The EA is intended to describe the targeted resources within Tomales Point, define proposed actions to be undertaken to manage these resources, assess potential impacts of these actions, and explore alternatives to the proposed actions in compliance with relevant policies and regulations.

This chapter describes the reasons the NPS is proposing to take action at this time. The 2,900-acre planning area for the TPAP includes all lands within the Seashore north of, and including, the elk fence (figure 1). However, resources outside the planning area may be described if any of the proposed alternatives could potentially affect them.

Figure 1: TPAP Planning Area

PROJECT LOCATION AND SETTING

Point Reyes National Seashore (Seashore), located in Marin County, California, encompasses a unique diversity of landscapes and land uses across 71,000 acres, including more than 32,730 acres of land and water in the Phillip Burton Wilderness. Tomales Point is located within the northern peninsula of the Seashore. More than 85 percent of the planning area for this EA is part of the Phillip Burton Wilderness. The remaining portion of the planning area includes facilities that support public access and recreation, the historic Pierce Ranch, and interpretive exhibits.

An aerial view of Tomales Point. (NPS)

The lands in the Seashore, including those within the planning area, are the ancestral territory of the Federated Indians of Graton Rancheria (FIGR or Tribe), a sovereign nation and federally recognized Indian Tribe. In 2021, the FIGR and the NPS entered into a General Agreement for Government-to-Government Partnership (General Agreement) in the management and stewardship of resources within the Seashore.

The Seashore Legislation authorized the establishment of the Seashore on September 13, 1962 (Public Law 87-657), to preserve "a portion of the diminishing seashore of the United States that remains undeveloped" (NPS 2020a). The Seashore's purpose statement lays the foundation for understanding what is most important about the Seashore:

> *"Established for public benefit, recreation, and inspiration, Point Reyes National Seashore preserves a rugged and wild coastal peninsula and surrounding waters, connecting native ecosystems, enduring human history, and interpretive, scientific, and educational opportunities." (NPS 2020a)*

The Seashore supports internationally recognized biodiversity due to its dynamic geology, mosaic of terrestrial and marine environments, and location at one of the four major coastal upwelling zones in the world. The park protects thousands of plant and animal species, many of which are threatened or endangered. With its proximity to the San Francisco Bay metropolitan area, the undeveloped scenic coastal landscapes and rich biodiversity of the Seashore offer opportunities to visitors from around the world for inspiration, recreation, education, and research.

PURPOSE AND NEED FOR TOMALES POINT AREA PLAN

Purpose of the Plan

The purpose of this plan is to establish the management direction at Tomales Point for protecting natural resources, preserving cultural resources that include Tribal resources and values, preserving wilderness character, and improving visitor experiences. Key components of the proposed plan include tule elk management, wilderness management, visitor use at the historic Pierce Ranch, and co-stewardship with the FIGR.

Need for the Plan

The need for this plan is rooted in these key topics:

- Two historic droughts during the last decade have adversely affected habitat conditions for tule elk confined to Tomales Point since their reintroduction to the Seashore in 1978.
- Updated management of the Pierce Ranch area and the Tomales Point unit of the Phillip Burton Wilderness is needed to address changing climate conditions and visitor use patterns.
- The NPS has a General Agreement with the FIGR that established a partnership between the Tribe and the NPS for natural and cultural resource protection and stewardship, use of traditional ecological knowledge (TEK), education, research, revitalization of community and tradition, and the overall stewardship of Seashore lands and places.

Goals and Objectives

The goal of the TPAP is to develop a new framework for wilderness management and tule elk herd management at Tomales Point. The TPAP will revise and replace the 1980 *General Management Plan* and the 1998 *Tule Elk Management Plan* for the Tomales Point area of the Seashore. The objectives of the TPAP are to address the following management concerns:

- maintenance and/or removal of the tule elk fence
- population monitoring and management of the Tomales Point elk herd
- wildlife and vegetation community monitoring and management
- preservation of wilderness character
- management of visitor uses and experiences
- infrastructure management and adaptive reuse of Pierce Ranch
- preservation of cultural, historical, and archeological resources
- preservation of Tribal resources and values and the incorporation of TEK in the management framework for Tomales Point consistent with the General Agreement

General Management Planning Process

The TPAP was developed in accordance with NPS Management Policies (2006) and Director's Order #2 *Park Planning*, 2021, which instituted a transition from the traditional stand-alone general management plan (GMP) framework to a more responsive and flexible framework that fulfills park planning needs and policy requirements (NPS 2006a, NPS 2021b). NPS general management plans are required to include (1) measures for the preservation of park resources, (2) indications of type and general intensities of development associated with public enjoyment and use of the area, (3) identification and implementation of commitments for visitor carrying capacity, and (4) indications of potential modifications to the external boundaries of the NPS unit and the reasons for modifications. The planning area for the TPAP is entirely internal to the Seashore and the TPAP does not propose any external boundary adjustments.

Preservation of Park Resources

The foundational purpose of the national park system as established by the Organic Act and General Authorities Act begins with a mandate to conserve park resources and values. NPS park managers are required to continuously seek ways to avoid, or minimize to the greatest extent possible, adverse impacts to park resources and values. However, discretion is given to park managers to allow impacts, when necessary and appropriate, as long as impacts do not constitute an impairment to the affected resources and values.

The general management planning process and planning documents should identify measures required to preserve the Seashore's fundamental resources and values. Guidance for the preservation of fundamental resources should be developed through an assessment of planning and data needs found within the Seashore's foundational document, resource stewardship strategies that identify resources goals and management activities, and implementation plans or treatment documents for specific resources topics including, but not limited to, wildlife management plans, vegetation management plans, historic structure reports, or cultural landscape reports.

Identifying measures to preserve the Seashore's resources and values is an essential part of this plan. (NPS)

Strategies for the preservation of park resources often include tribal partnership and tribal cooperation. As outlined in NPS Policy Memorandum 22-03, and in accordance with the Presidential Memorandum of January 26, 2021, and Executive Order 13175, the National Park Service is required to maintain government-to-government relationships with federally recognized tribal governments to facilitate cooperation and consultation for plans or activities that have the potential to directly or indirectly affect tribal interests, practices, or traditional use areas and sacred sites. Tribal consultation is required to reflect tribal sovereignty and respect the need for privacy and confidentiality of tribal information (NPS 2022).

The August 2021 General Agreement between the NPS and the FIGR set forth the basis for the working relationship between the NPS and the Tribe. The agreement covers the protection and stewardship of natural and cultural resources, the use of TEK, education, research, and the restoration of community and tradition. The agreement acknowledges that the Tribe holds specialized knowledge stemming from their long history and experience with their ancestral lands and the resources therein. Likewise, the way the Tribe understands and values these resources differs from the park resources and values defined by the NPS. Where appropriate, this planning document discusses Tribal resources and values within the discussion of the approximate corresponding NPS resource categories. However, this plan does not enumerate or detail those Tribal resources and values within the planning area out of respect for the Tribe's need for privacy and confidentiality. Tribal resources and values are considered within this planning document through the cooperation of and consultation with FIGR. Consistent with NPS policy, culturally sensitive information is recorded only to the extent necessary to support sound management decisions and in consultation with Tribal representatives.

Type and Intensity of Development

Types and general intensities of development within a park, including visitor circulation, transportation patterns, systems, and modes associated with public use and enjoyment, are required to be addressed within the planning framework. Flexibility is given to park managers to select from a range of planning tools that most adequately suits the need to meet this requirement. This can include development concept plans and site plans, zoning plans, transportation plans, visitor use management plans, and trail management plans. These planning documents should provide a realistic vision for future development that considers the environmental and fiscal sustainability of proposed facilities and operational programs.

Zoning

NPS Management Policies (2006) requires an approved management plan to include delineated management zones, or districts, that directly correspond to specified desired resource and visitor use conditions for various areas within a park. A management zone is a defined area for which management directions or prescriptions have been specifically developed to guide what can and cannot occur in terms of resource management, visitor use, access, facilities or development, and park operations (Landres, Barns and Dennis, et al. 2008). Zone-based management allows the NPS to specify desired conditions, standards, indicators, measures, and management actions between different regions of a park that may serve distinct purposes. Management zoning is meant to be a prescriptive process, identifying an ideal state while considering the unique qualities associated with specific resources (NPS 2014). Management zones should be consistent between various general management plans, area plans, and wilderness stewardship plans that may exist for a particular park (NPS 2014). The proposed action revises and replaces the management zoning for the Tomales Point planning area.

Visitor Capacity and Use Management

Visitor capacity, or visitor carrying capacity, identifies the maximum levels and types of visitor use that a park, or zone within a park, can accommodate without degrading desired resource conditions or visitor experience. General management or area plans should assess current levels of visitor use and baseline resource and experience conditions to include qualitative statements regarding accommodation levels, sustainment of resources, and quality of experience. Direction on visitor capacity within implementation commitments and/or area plans should be consistent with the general guidance found within the GMP.

Impact Topics Retained For Analysis

The NPS limited the range of issues and impact topics evaluated in this EA because the project scope includes only lands within, and activities that occur on, Tomales Point. Ranching operations are excluded from evaluation as they occur outside of the planning area. Several impact topics were also eliminated from further consideration. Those dismissed from detailed analysis, including the dismissal rationale, are provided in appendix B. Issues carried forward for detailed analysis fall under the following impact topics:

- Vegetation Communities
- Tule Elk and Black-tailed Deer
- Wilderness Character
- Water Resources and Wetlands
- Visitor Use and Experience
- Cultural Resources, including Tribal Resources and Values

DESIRED CONDITIONS

The TPAP articulates desired conditions for natural and cultural resource conditions and visitor experiences to be achieved and maintained over time, consistent with NPS *Management Policies 2006*. Desired conditions provide the broadest level of programmatic direction for management and help fulfill the statutory requirements of a management plan. The desired conditions presented below are based on service-wide laws and policies that guide management of the NPS as well as the park's enabling legislation.

The desired conditions to be adopted for the planning area are organized around five key topics: preservation of ecological function, preservation of native species including threatened and endangered species, management of invasive/non-native species, preservation of cultural resources, and preservation of wilderness character.

Desired Conditions for Preservation of Ecological Function

- Ecological function, connectivity, and processes persist and thrive in communities, including wetland, grassland, scrub, and beach communities.
- Sources of air, water, noise, and light pollution are limited.

Desired Conditions for Preservation of Native Species, Including Threatened and Endangered Species

- Habitats and populations of threatened and endangered species, special-status, and rare species persist and are improved.
- Native plant and animal communities persist and thrive.
- Tribal resources and values as they relate to native plant and animal communities are protected and preserved.

Desired Conditions for Management of Invasive/Non-Native Species

- Populations and extent of invasive, non-native species are limited such that they do not, or only minimally, affect ecosystem processes and/or function.

Desired Conditions for Preservation of Cultural Resources

- Historic properties (properties listed or eligible for listing in the National Register of Historic Places [NRHP]) are preserved in a manner that maintains their integrity. Unevaluated cultural resources associated with the history of Tomales Point are similarly preserved.
- Tribal resources and values, and as they relate to cultural resources in the planning area, are protected and preserved.

Desired Conditions for Preservation of Wilderness Character

- Management actions within and on lands adjacent to Phillip Burton Wilderness protect and enhance wilderness character and values.

A complete list of management strategies proposed to achieve these desired conditions can be found in table 2 in chapter 2.

Chapter 2: Alternatives

INTRODUCTION

National Environmental Policy Act (NEPA) regulations require that EAs address a range of reasonable and feasible alternatives that would achieve the project's purpose and need while avoiding or minimizing adverse effects to the affected environment. This chapter presents the no-action alternative, which represents the continuation of current management practices, and two action alternatives. This chapter will briefly discuss strategies and actions common to all alternatives, provide a detailed description of the no-action alternative and two action alternatives, and discuss alternatives that were considered but dismissed from further consideration. Specific proposed management strategies and actions within each alternative will align with planning and management guidelines established for the NPS.

ALTERNATIVE A: CONTINUE CURRENT MANAGEMENT (NO ACTION)

The NPS NEPA Handbook requires that EAs address a range of alternatives including the no action alternative, unless there is determination that there are no unresolved conflicts about the proposed action with respect to alternative uses of available resources (43 CFR 46.310(b)). The no action alternative provides decisionmakers with a basis of comparison to estimates of environmental effects of the action alternatives, and in many cases is a viable alternative for selection. However, the no action alternative need not be a reasonable or feasible way to achieve the purpose and need for taking action in order the be carried forward for detailed analysis.

The no-action alternative would be a continuation of current management at Tomales Point and would not include updates to management zones or land management guidance. The tule elk would continue to be managed as a confined herd consistent with the State's original requirements of reintroduction and the 1998 *Tule Elk Management Plan*. The elk enclosure fence would remain in place and would be maintained as needed. Supplemental water systems and mineral licks would remain in place and be operated as needed, while natural water sources would continue to be monitored at current frequency.

Limited management of invasive plant species would continue using integrated pest management (IPM). IPM is a decision-making strategy to manage pests with minimal harm to people, resources, and the environment. It uses knowledge of pest biology and the site conditions to choose the best methods to prevent, avoid, monitor, and suppress pests.

Pierce Ranch, which is located at the terminus of Pierce Point Road and adjacent to the Tomales Point trailhead, is a historic-era dairy ranch that consists of a collection of domestic and agricultural buildings and landscape features that are maintained by the NPS. Within the Pierce Ranch core area, preservation treatments would continue, and the site would remain open to the public as a passive outdoor exhibit with wayside interpretive signs. The main house would continue to be used for Seashore staff housing.

Tomales Point Trail takes visitors past historical structures associated with the Pierce Ranch, such as this hay barn. (NPS)

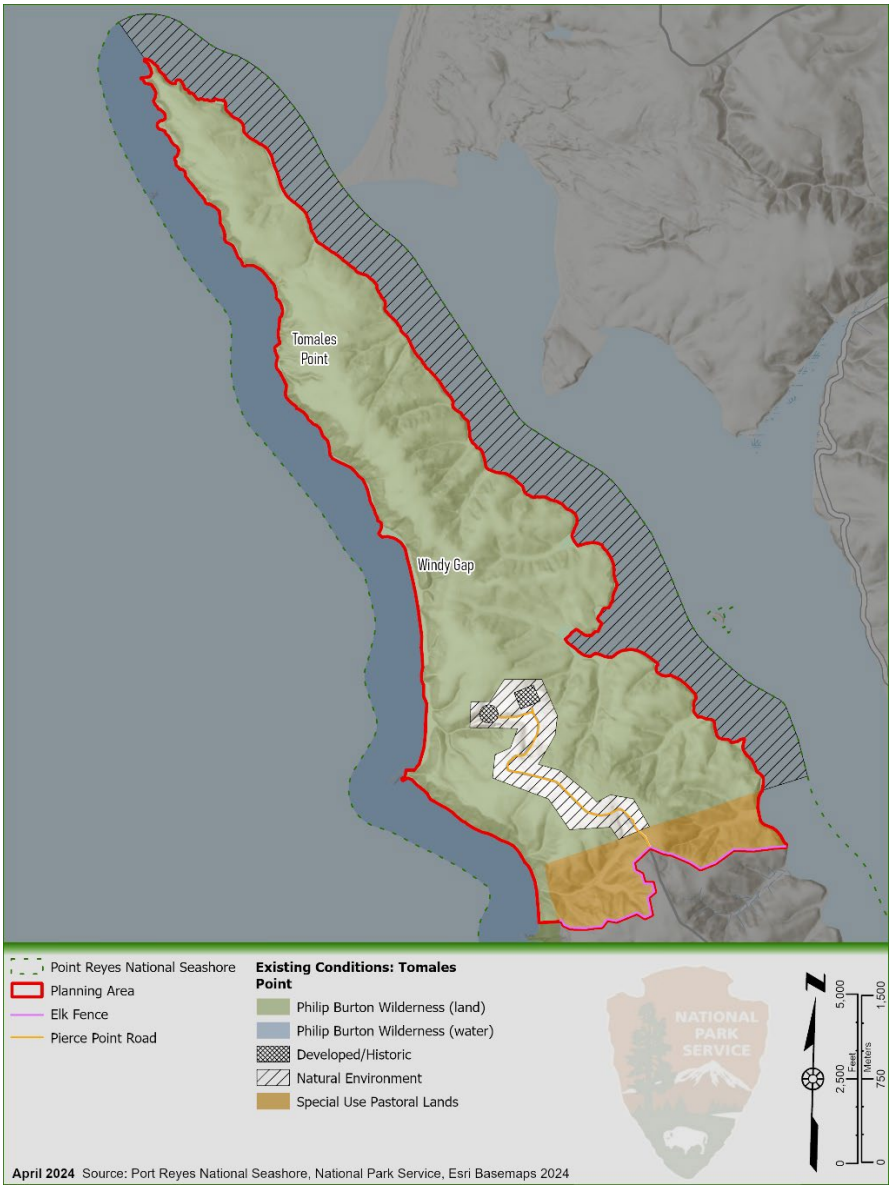
Trail maintenance of Tomales Point and McClure Beach trails would continue in accordance with NPS

standards and with wilderness requirements where applicable. The Tomales Point Trail, north of Lower Pierce, would remain unmaintained.

NPS would continue the current system to issue overnight permits for boat-in camping on the western shore of Tomales Bay within the planning area (for the areas from the Elk Fence North Beach and north). This permit system authorizes dispersed minimum impact camping within 75 feet of the mean high tide level. Day use of the beaches and coves on the western shore of Tomales Bay would continue.

Management zones within Tomales Point would remain in place as established in the 1980 *General Management Plan* (see figure 2). Designated Wilderness within the planning area would continue to be managed in accordance with wilderness policy. All other lands within the planning area would remain designated as part of the Natural Environment Zone.

Figure 2: 1980 General Management Plan Zones



STRATEGIES COMMON TO BOTH ACTION ALTERNATIVES

In addition to the no action alternative (alternative A), two action alternatives (alternatives B and C) are presented in this document. These action alternatives propose different approaches the NPS could take to meet the purpose and need for the proposed action. While different, the two action alternatives do have some elements in common, which are described below. Additional details about the action alternatives are provided in subsequent sections.

Preservation of Park Resources

Tribal Coordination and Co-Stewardship

The General Agreement between the NPS and FIGR will guide the implementation of the strategies identified for each of the action alternatives to help preserve and protect Tribal resources and values, to use TEK in implementation as appropriate, to represent Coast Miwok histories and stories in interpretation and education, and to help maintain and restore the Tribe's continued engagement with their ancestral territory.

Continued Tule Elk Herd Monitoring and Disease Surveillance

Tule elk herd monitoring and disease surveillance would continue as a routine activity. Ongoing monitoring and surveillance would be conducted to understand the condition of elk at Tomales Point, their interactions with the environment, and response to management activities. These data help to evaluate how the environment affects the elk and how populations change over time.

Elk monitoring strategies within the planning area would be similar to those currently carried out on the elk herds at Point Reyes and may include counts and observations of herd composition, global positioning system (GPS) collar monitoring, and biological sampling to test for disease and overall health of individual animals (National Park Service 2021a). Monitoring would also include maintaining awareness of elk management research and activities that other jurisdictions and California Department of Fish and Wildlife (CDFW) conduct, including research on reproductive control (National Park Service 2021a).

Under alternatives B and C, the tule elk herds would continue to be monitored for population health. (NPS)

Emergency Supplemental Actions for Tule Elk

Emergency actions to supplement water and mineral resources for tule elk would be discontinued, and the system of water tanks and troughs would be removed. Activities associated with this action include one-time access to the seven locations (three locations adjacent to Pierce Point Road corridor and four locations within wilderness) to remove the tanks and troughs. While most of the piping for these systems is on the surface, minimal ground disturbance adjacent to the troughs would occur where the last segments of the pipe were buried to prevent damage.

Invasive Plant Management

Invasive plant species would continue to be inventoried, monitored, and managed at current levels, and using IPM methods, which may include the use of herbicides and manual removal.

Prescribed Fire

The use of prescribed fire to meet desired conditions of native plant communities would be conducted according to the Seashore's Operational Strategy for the Fire Management Plan. Actions identified and considered under the plan include potential implementation of small research burns associated with efforts to restore native species richness and density and community response by plant species of special concern, as well as response of host plant for Myrtle's silverspot butterfly. Based on results, prescribed burning may be expanded to increase habitat and forage for tule elk. These efforts would be planned and coordinated with FIGR to ensure TEK is incorporated in planning and to enhance Tribal resources and values.

Trails

The NPS would maintain Tomales Point and McClure's Beach trails to meet the desired conditions related to visitor experience, and resource protection. This would include adaptive management of Tomales Point Trail, including minor trail reroute and treatments to address documented erosion and sedimentation from the trail tread. These activities may require treatment and restoration of trail segments that were established originally as roads. These efforts would be planned and coordinated with FIGR as contemplated in the 2021 General Agreement.

McClures Beach Trail is in a highly dynamic location. Maintenance of the trail has been affected by stream erosion and periodic slope failures from the adjacent valley slopes. These conditions are expected to continue in the future and could be exacerbated by climate change. The NPS monitors trail conditions and could limit access, as needed, for visitor safety. The NPS would endeavor to maintain access using wilderness-compliant activities.

A new spur trail leading to a new Tomales Bay overlook on the eastern edge of the Pierce Ranch complex would be developed.

Preservation of the Historic Pierce Ranch

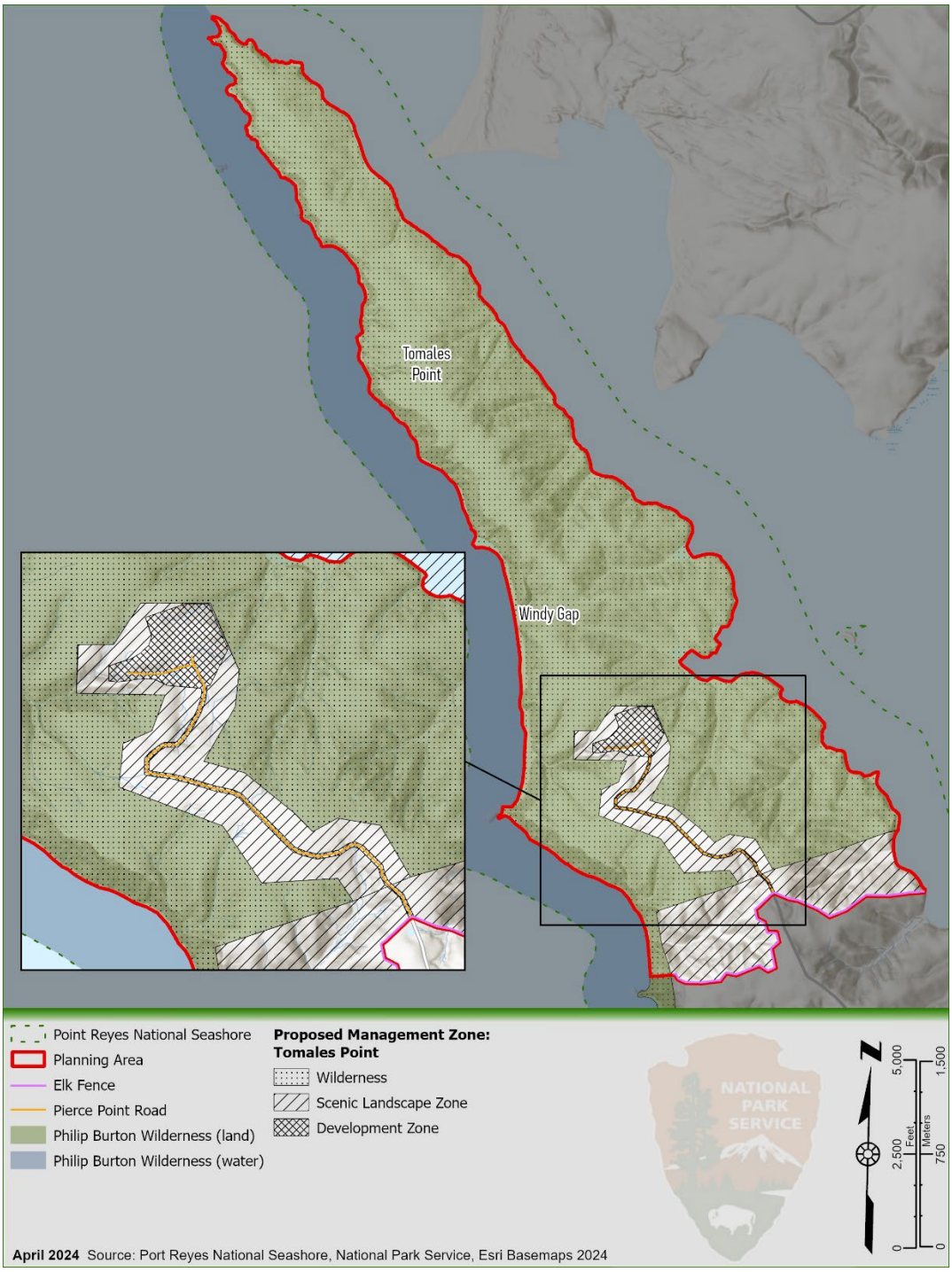
The NPS would implement rehabilitation treatments and consider adaptive reuse opportunities for facilities at Pierce Ranch to enhance its function as a core location for visitor use at Tomales Point. Circulation patterns within the developed areas of Pierce Ranch and McClures Beach Trailhead would be revised to bring more visitors through the historic site.

Zoning to Manage the Type and Intensity of Development

Management zones are intended to highlight desired conditions for different geographic areas within the planning areas. Zones are used to manage visitor experience and resource conditions and to identify allowable management actions (Landres, Barns and Dennis, et al. 2008). Under both action alternatives, the NPS would update management zoning within the planning area, which

would allow for more effective management of resources within the planning area. The Wilderness Zone would remain consistent with the wilderness zone designated in the 1980 GMP. The zoning for non-wilderness areas between the elk fence and the wilderness boundary would be amended from the 1980 GMP designated "Special Use-Pastoral Zone" to Scenic Landscape Zone. Additionally, the zoning for all other undeveloped lands within the planning area would be amended from the 1980 GMP designated "Natural Zone" to Scenic Landscape Zone. See figure 3 below.

Figure 3: Proposed Management Zones for the Planning Area



The Wilderness Zone is an area substantially free from modern human manipulation, where ecological systems are primarily affected by the forces of nature. The Wilderness Zone lacks many of the permanent improvements and human-made structures found in other areas of the Seashore. Its isolation from the San Francisco Bay area provides visitors with outstanding opportunities for quiet solitude and encourages the contemplation of significant ecological, geologic, scenic, and cultural resources.

The Development Zone would include the developed areas of the Pierce Ranch, as well as areas developed for visitor use and access including Pierce Point Road and Pierce Ranch Parking area, and McClure Beach access road, parking lot, and comfort station. The Development Zone includes both the historic development areas as well as areas designated to provide essential visitor service and park administrative facilities. Features within the Development Zone include buildings, roads, parking areas, visitor centers and contact stations, trailheads, and restrooms.

The Scenic Landscape Zone would include all other undeveloped lands within the planning area not previously designated within the Phillip Burton Wilderness. Areas in the Scenic Landscape Zone would be managed to maintain their natural appearance while allowing for compatible visitor use and providing a transition between human-made features, such as roads and other development, and wilderness. This zone would include features and activities to support visitor use such as trails, as well as to meet park management priorities. Activities compatible within the Scenic Landscape Zone include trail maintenance and enhancement, habitat enhancement and restoration, preservation and protection of resources, and prescribed fire.

Visitor Capacity and Use Management

Both action alternatives would serve to better manage existing levels of visitor capacity, use, and access on the Seashore, and are not intended to increase visitor use or capacity. There are two primary means of visitor access to the Tomales Point Planning Area. Pierce Point Road provides vehicle access to the Pierce Ranch/Tomales Point Trail and McClures Beach Trail. Overnight camping and day use activities on some Tomales Bay beaches are allowed only via water access (e.g., via boat or kayak).

Visitor capacity and visitor use management at Pierce Ranch and the Tomales Point trail network would be addressed through better-organized parking and improvements to restroom facilities. The NPS would pursue efforts to identify an appropriate location for new accessible vault toilets at the Pierce Ranch area and to protect resources and enhance parking capacity through formal designation of unofficial parking areas.

The NPS would adaptively reuse facilities at Pierce Ranch to enhance its function as a core location for visitor use at Tomales Point, and circulation patterns within the developed areas of Pierce Ranch and McClures Beach Trailhead would be revised to bring more visitors through the historic site. Visitation levels would remain within capacity limits, as current use is below capacity.

A new location-based reservation system would be established for authorized Tomales Bay beach camping locations within the planning area to improve visitor wayfinding and to protect natural and cultural resources. This would be incorporated into the current reservation system to require use of specific assigned locations or other similar options.

ALTERNATIVE B: UNCONFINED ELK HERD, IMPROVED VISITOR AMENITIES, AND EXPLORE ADAPTIVE REUSE OF PIERCE RANCH CORE AREA (NPS PREFERRED ALTERNATIVE)

Alternative B would implement strategies focused on the preservation of park resources, management of the type and intensity of development, and management of visitor capacity and use.

Preservation of Park Resources

Actions and strategies focused on preserving park resources would include the following:

- Removal of the existing elk enclosure fence and the construction of a new wildlife-friendly fence to prevent cattle from entering the planning area. Activities associated with this action would include access and removal or modification of posts and wire fencing using mechanized equipment for the nearly three-mile length of the fence.
- Upon removal of the elk fence, the tule elk from Tomales Point would be a free-range elk population. Tule elk that leave the Tomales Point planning area after the fence is removed will be managed in a manner consistent with the Limantour herd, as described in the GMPA ROD.
- Cultural landscape features outside of the Pierce Ranch core area would be retained. However, historic-era stock ponds that are determined to be a hazard to wildlife may be modified to minimize the potential hazard. The NPS would make a determination whether features pose a resource impact or hazard in the event of a documented issue.
- As part of a long-term invasive plant species management effort, the NPS would endeavor to contain or remove invasive plant populations from the planning area.
- Twelve elk exclosures within the wilderness zone (see figure 4) previously used for vegetation monitoring projects would be removed, and vegetation research independent of these exclosures would be encouraged. Activities associated with this action include one-time access and removal of the posts and wire fencing from these locations.

Type and Intensity of Development

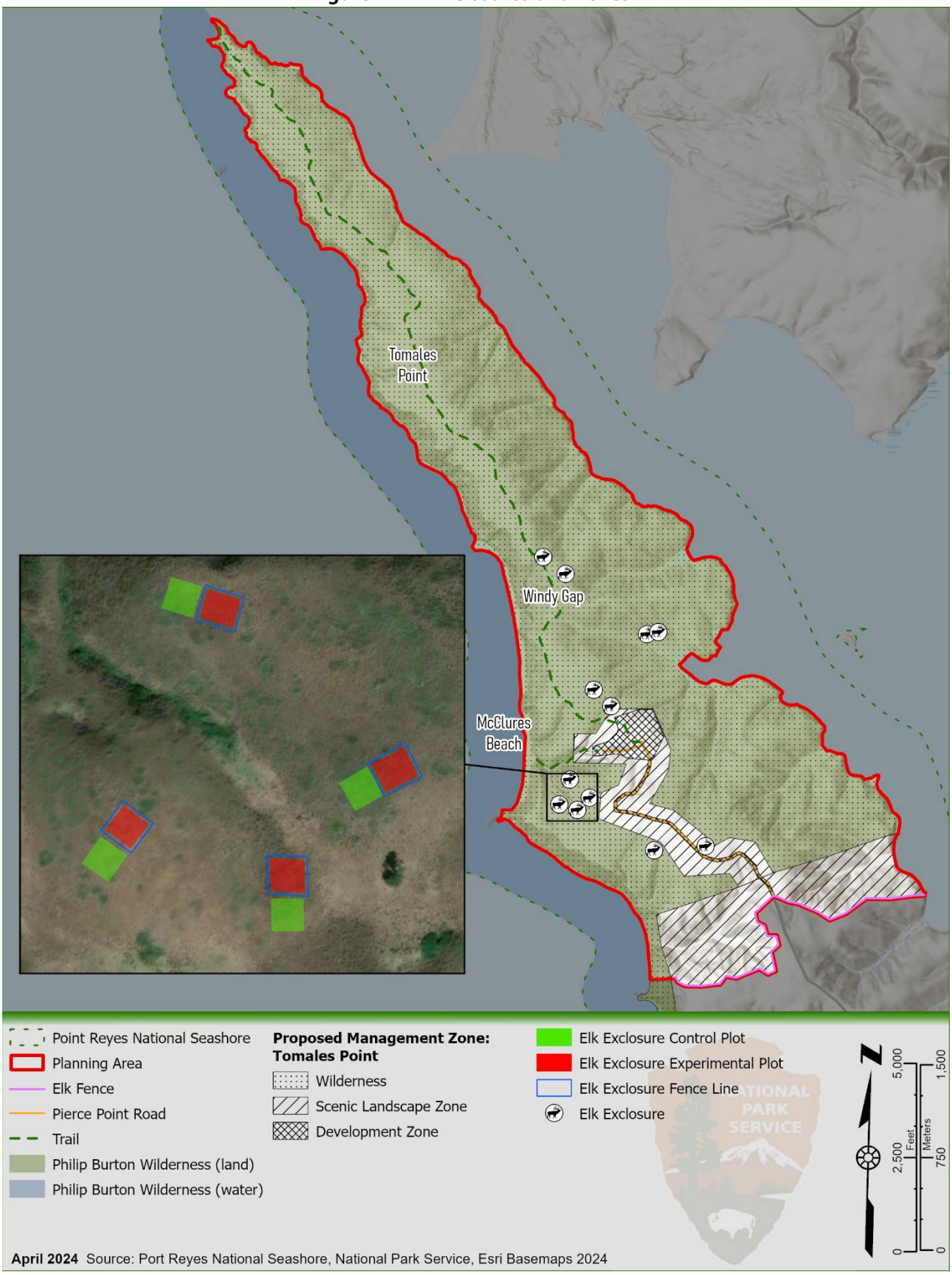
In addition to the actions described under the "Actions Common to Both Action Alternatives" section, the following actions intended to manage the type and intensity of development within the planning area are evaluated at the programmatic level and will require future site-specific planning and compliance:

- The NPS would adapt current management of Tomales Point Trail by relocating the trailhead and implementing other minor trail reroutes to address documented erosion and sedimentation from the trail tread.

Visitor Capacity and Visitor Use Management

Visitor capacity and visitor use management at Pierce Ranch and the Tomales Point trail network would be addressed through improvements to the parking and restroom facilities mentioned previously. Additionally, a location-based reservation system would be established for authorized Tomales Bay beach camping within the planning area. This would be incorporated into the current reservation system to require use of specific assigned locations.

Figure 4: Elk Exclosures and Fence



ALTERNATIVE C: MAINTAIN ELK FENCE, ACTIVELY MANAGE ELK POPULATIONS, AND IMPROVE VISITOR AMENITIES

Alternative C would include many of the same management recommendations articulated in alternative B with a few key differences, primarily the retention of the elk enclosure fence, population controls for the confined tule elk herd that would include lethal methods, and the enhancement of natural springs and seeps (see table 1 for a comparison of the alternatives). Like alternative B, alternative C would also implement strategies focused on the preservation of park resources, management of the type and intensity of development, and management of visitor capacity and visitor use.

Preservation of Park Resources

Actions and strategies focused on preserving park resources would include the following:

- The existing elk enclosure fence would remain in place and would be maintained as needed. Activities associated with this action would include periodic assessment of enclosure fence conditions and maintenance of wire and posts using hand tools and mechanized equipment.
- The confined Tomales Point elk herd would continue to be managed separately from the free-range herds. The Tomales Point elk herd would be managed using multiple techniques, including active elk population controls such as lethal removal. A population threshold would be established to help determine when active population controls would be used to reduce the size of the elk population and lessen or prevent dramatic declines due to overpopulation. This alternative would allow for better management of a confined tule elk herd than currently exists, with clearer management responsibilities for NPS staff.
- As many as eight naturally occurring water sources such as seeps and springs would be enhanced to increase capacity for wildlife usage and to mitigate safety hazards to elk and deer associated with the deep mud surrounding surface waters or hazards in the event of documented issues. The work would be done with hand tools to remove mud and make the water sources more accessible for elk. They would be maintained regularly to prevent them from filling in with sediment.
- As part of a long-term invasive species management efforts, the NPS will endeavor to prioritize invasive plant species treatments based upon species type, location, and impacts to park resources.
- Twelve elk exclosures within the wilderness zone used for vegetation monitoring projects would be retained and monitoring of elk effects on vegetation communities would continue.

Type and Intensity of Development

Refer to the actions described under the “Actions Common to Both Action Alternatives” section for any proposed actions common to alternative C.

Visitor Capacity and Visitor Use Management

As under alternative B, visitor capacity and visitor use management at Pierce Ranch, including adaptive reuse of existing facilities, and the Tomales Point trail network would be addressed through better organized parking and improvements to restroom facilities. Additionally, a new location-based reservation system would be established for authorized Tomales Bay beach camping within the planning area.

ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED

Alternatives and actions considered but dismissed from further assessment are in appendix A.

SUMMARY OF ALTERNATIVES

Table 1 below summarizes the proposed management actions covered by one or more of the alternatives discussed within chapter 2. Actions that are marked by an "x" would occur should that alternative be implemented.

TABLE 1: ALTERNATIVES SUMMARY

Proposed Management Action	Alternative A: No Action	Alternative B: Preferred Alternative	Alternative C
Update management zoning		x	x
Continue tule elk herd monitoring and disease surveillance	x	x	x
Remove elk enclosure fence and add wildlife friendly livestock fence		x	
Discontinue water/mineral supplementation and remove non-historic water features		x	x
Control elk population through lethal removal			x
Enhance naturally occurring seeps and springs			x
Preserve historic Pierce Ranch	x	x	x
Manage invasive plant species, to include IPM	x	x	x
Evaluate use of prescribed fire to meet desired conditions of native plant communities		x	x
Remove vegetation monitoring elk exclosures		x	
Continue limited vegetation monitoring/research	x	x	x
Continue Tribal coordination and co-stewardship	x	x	x
Adaptively reuse facilities at Pierce Ranch to include bathrooms, parking, and trail spur		x	x
Maintain existing trails	x	x	x
Adaptively maintain and monitor conditions on Tomales Point and McClures Beach trails		x	x
Continue to issue non-site/cove-specific overnight permits for boat-in access to beaches along Tomales Bay	x		
Develop new location-based reservation system for beach and cove camping		x	x

PRESERVATION AND MANAGEMENT STRATEGIES

The NPS would implement strategies to meet the desired conditions described in chapter 1 that are focused on the preservation of park resources, management of the type and intensity of development, and management of visitor capacity and use. Desired conditions will be uniform across the planning area, but specific strategies used to achieve desired conditions will be based upon planning constraints associated with the existing wilderness boundary and proposed Scenic Landscape and Development Zones described and shown previously in figure 2.

Table 2 outlines these detailed management strategies that the NPS would adopt to achieve the desired conditions related to the preservation of park resources in the planning area, although this is not an exhaustive list, and other strategies may be implemented in the future to best manage for the desired conditions. For each desired condition, the table outlines management strategies specific to wilderness or scenic landscape/development zones, as well as those common to all zones.

TABLE 2: STRATEGIES FOR THE PRESERVATION OF AREA RESOURCES

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Developed Zones
Preservation strategies for ecological function		
Desired Condition: Ecological function, connectivity, and processes persist and thrive in communities, including wetlands, grassland, scrub, and beach communities.		
Identify community types, ecological sites, and their extent and distribution. Periodically evaluate for large-scale changes. Research and evaluate connectivity of ecosystems and flexibility of species niches. Conduct management actions that promote habitat heterogeneity, connectivity, and species considered ecosystem engineers. Identify previously damaged or degraded natural systems and restore them where possible. Identify and implement practices that protect soil health and minimize soil erosion. Continue to seek funding and partnerships to restore structure and process to habitat types such as creeks and wetlands. Implement the Point Reyes Fire Management Plan, including the use of prescribed burns to manage vegetation, and update the plan as necessary, consistent with federal law and departmental management policies. Locate and design visitor use improvements to minimize impacts on ecological functions. Coordinate with the Federated Indians of Graton Rancheria (FIGR) to incorporate Traditional Ecological Knowledge (TEK) into NPS habitat monitoring and management efforts within the planning area.	Time restoration activities so that they have a minimal impact on visitors' opportunities for solitude. Favor methods for preserving or improving ecological function that minimize modern developments and the use of motorized or mechanized tools. Prioritize restoration projects that address primarily human caused ecological degradation, have clear achievable outcomes, and are sustainable. Prioritize restoration activities that enhance wilderness character.	Conduct habitat restoration in identified areas such as wetlands. Identify disturbance regimes that may need to be maintained by management.

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Development Zones
Desired Condition: Sources of air, water, noise, and light pollution are limited.		
Follow US Environmental Protection Agency (USEPA), state, and San Francisco Bay Regional Water Quality Control Board (RWQCB) guidelines and regulations to protect water quality. **Continue to monitor and evaluate water quality in the planning area as appropriate.** **Follow strategies and practices established by NPS Night Sky and Natural Sounds and Air Quality program guidance.** **Locate and design visitor use improvements to minimize contributions to air, water, and noise pollution.** **Monitor and minimize noise/unnatural sounds that adversely affect planning area resources or values or visitors' enjoyment of them.** **Consider noise pollution in the procurement and use of equipment.** **Conduct operations in compliance with federal, state, and local air quality regulations and minimize air quality pollution emissions associated with operations in the planning area.**	**Encourage visitors to follow minimum impact guidelines related to party size, location selection, and sanitation to reduce noise and water pollution.** **Prioritize the use of traditional hand tools. Use motorized and mechanized equipment only when they are the minimum tool necessary for the administration of the area as wilderness.**	**Reduce and shield artificial light sources to protect natural night skies and minimize human-caused intrusions to natural soundscapes.** **Consider the impacts (e.g., light and noise pollution) to visitors' opportunities for solitude within the wilderness zone when deciding how to reuse the facilities in the development subzone.**

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Development Zones
Preservation Strategies for Native Species, Including Threatened and Endangered Species		
Desired Condition: Habitats and populations of threatened and endangered species, special-status, and rare species persist and are improved.		
Prioritize inventory and monitoring of rare and special concern species based on species rankings and/or perceived level of threat using existing data. Inventory and monitoring could help identify population trends, distributions, associations, and ecological functions/connectivity. Targeted monitoring related to proposed activities will also occur to determine effects of proposed actions. **Conduct habitat restoration and management, including the removal of non-native plant species where appropriate as defined by the strategies above. If monitoring data indicates threats to sensitive species by invasive plant species encroachment, visitor use, barriers to dispersal or other means, take appropriate actions to protect these species. Non-native species management is addressed further below under the desired conditions of maintaining and enhancing native plant and animal communities and limiting invasive, non-native species. Generally, IPM and prescribed burns are two potential management actions.** **Continue to seek funding and partnerships to monitor these species and restore habitats.**	**Prioritize the use of traditional hand tools. Use motorized and mechanized equipment only when they are the minimum tool necessary for the administration of the area as wilderness.**	

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Development Zones
Desired Condition: Native plant and animal communities persist and thrive.		
Prioritize inventory and monitoring of animal and plant communities or populations based on achieving desired conditions. Monitoring could help identify species diversity, changes in native species populations or community structure, and to develop ecological models to inform management. Long-term declines in native animal and plant communities or populations could trigger management action. **Coordinate with the Tribe and the California Department of Fish and Wildlife (CDFW) to inform tule elk management efforts within the planning area.** **Prioritize monitoring tule elk as a species of management concern to identify population trends, movement patterns, and habitat use. Monitoring data will be used to determine population thresholds and identify management actions such as habitat improvement.** **Restore native species populations that have been severely reduced or extirpated where feasible.** **Continue to provide interpretive and educational programs developed with and presented in partnership with FIGR to promote the preservation of native species.** **Implement management actions such as prescribed burns and IPM, as appropriate.**	**Prioritize the use of traditional hand tools. Use mechanized and motorized equipment only when they are the minimum tool necessary for the administration of the area as wilderness.**	**Identify disturbance regimes that may need to be maintained by management.**

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Development Zones
Desired Condition: Tribal resources and values as they relate to native plant and animal communities are protected and preserved.		
Comply with all laws, statues, and Executive Orders regarding Tribal resources protection and be respectful of tribal sovereignty. **Continue the partnership with the FIGR under the General Agreement including collaboration in natural resource management activities that support the health and vitality of plant and animal communities within the planning area.** **Coordinate with the tribe to incorporate TEK into planning, management and stewardship activities.** **Provide opportunities for interpretation, education, and community engagement to the public with enhanced consultation with the FIGR while meeting goals and objectives of the General Agreement.** **Maintain confidentiality of Tribal resources and TEK to the extent permitted by law and consistent with the General Agreement.** **Coordinate with the Tribe to identify and prioritize natural resources within the planning area in need of preservation and/or protection measures.** **In partnership with the Tribe, monitor Tule Elk and other culturally significant plant and animal species.**		**Use interpretive signage and programming, developed in coordination, and presented in partnership with the Tribe, to educate visitors about the importance of Tribal resources within the Seashore.**

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Development Zones
Management Strategies for Invasive/Non-Native Species		
Desired Condition: Populations and extent of invasive, non-native species are limited such that they do not, or only minimally, affect ecosystem processes and/or function.		
Use Early Detection and Rapid Response to prevent introductions of invasive, non-native species. NPS monitoring will be used to detect and eradicate new infestations of invasive, non-native species before they become widespread. **Prioritize invasive species for management based on level of threat to park resources and ability to control.** **Use IPM to control invasive species and promote long-term prevention through a combination of monitoring and control methods.** **Chemical control will generally be used only in combination with other control methods, selected and applied in a manner that minimizes risks to human health, non-target organisms, and the environment.** **Monitoring will be conducted to identify damage and pests and determine what, if any, management is needed. Monitoring will also be used to determine effectiveness and inform adaptive management.** **The NPS and its employees will not intentionally introduce non-native species to the planning area, except where needed to maintain cultural landscape features.** **Use prescribed burns to manage vegetation, particularly invasive/non-native species in coordination and partnership with the Tribe.**	**Time activities so they have a minimal impact on visitors' opportunities for solitude.** **Prioritize the use of traditional hand tools. Use motorized and mechanized equipment only when they are the minimum tool necessary for the administration of the area as wilderness.**	

Management Strategies on All Lands in the Planning Area	Additional Management Strategies in the Wilderness Zone	Additional Management Strategies in the Scenic Landscape and Development Zones
Preservation Strategies for Cultural Resources		
Desired Condition: Historic properties, (properties listed or eligible for listing in the National Register of Historic Places) are preserved in a manner that maintains their integrity. Unevaluated cultural resources associated with the history of Tomales Point are similarly preserved unless they conflict with other natural, cultural, or wilderness resources.		
Explore interpretation and educational opportunities that foster an appreciation of cultural resources and help build long-term support for their preservation. With the exception of microgrid considerations to support operational needs at Pierce Ranch, do not permit large-scale telecommunications and utility infrastructure, commercial windmills, and other energy infrastructure in the planning area whenever possible because they are inconsistent with the historic district. Monitor the conditions of NRHP properties and their contributing resources and implement management and maintenance strategies, as required.	Consider allowing historic structures and installations to molder if preservation conflicts with the protection of wilderness character.	Conform to the Secretary of the Interior's Standards for the Treatment of Historic Properties for work done by the NPS. Pursue adaptive reuse of historic buildings and structures, and management strategies to preserve the historic landscape features comprising this district. Pursue adaptive reuse of historic buildings to support visitor activities and/or park operations.
Desired Condition: Tribal resources and values as they relate to cultural resources in the planning area are protected and preserved.		
Coordinate with the Tribe to incorporate TEK in the planning, management, and stewardship of cultural resources within the planning area. Coordinate and partner with the Tribe to identify and prioritize cultural resources within the planning area in need of preservation and/or protection measures. Ensure that visitor uses do not conflict with, or negatively impact, Tribal resources.		Use interpretive signage and programming, developed in coordination, and presented in partnership with the Tribe, to educate visitors about the importance of the Tribe's history and resources within the Seashore, including ways to connect visitors to the cultural stories of Tomales Point.
Preservation Strategies for Wilderness Character		
Desired Condition: Management actions within and on lands adjacent to Phillip Burton Wilderness protect and enhance wilderness character and values.		
Interpretation and education include discussion of wilderness values and identify measures to enhance wilderness character at trailheads, visitor centers, and other contact locations. Prioritize solutions that occur outside of wilderness over those that occur within the wilderness zone.	Time activities so that they have a minimal impact on visitors' opportunities for solitude. Prioritize the use of traditional hand tools. Use motorized and mechanized equipment only when they are the minimum tool necessary for the administration of the area as wilderness.	Minimize night-time lighting to meet dark night sky criteria and support wilderness values. When conducting paving or other infrastructure investments, evaluate feasibility of quiet asphalt technology to reduce sound effects. Consider the impacts (e.g., light and noise pollution) to visitors' opportunities for solitude within the wilderness zone when deciding how to reuse the facilities within the development zone.

Chapter 3: Affected Environment and Environmental Consequences

INTRODUCTION

This chapter includes both the "affected environment," which describes existing conditions in the planning area for those elements of the natural and cultural environments that could be affected by implementing the alternatives considered in this EA, and the "environmental consequences," which analyzes the beneficial and adverse impacts that would result from implementing any of the alternatives. As required by the Council on Environmental Quality (CEQ) regulations implementing NEPA, this chapter provides a comparison of the environmental consequences for each alternative.

GENERAL METHODOLOGY FOR ASSESSING IMPACTS

The following analysis evaluates direct, indirect, and cumulative impacts on the human environment (i.e., physical, natural, and cultural resources) from the EA alternatives. The approach includes the following:

- focusing the analysis on management changes and associated issues that could have meaningful impacts on the resources or values being evaluated, to the greatest extent possible
- using analysis methods and assumptions from CEQ and U.S. Department of the Interior regulations and guidance

The potential for significant impacts from actions being considered in the alternatives is assessed and described in each resource topic, as applicable.

CUMULATIVE IMPACTS

CEQ NEPA regulations require the assessment of cumulative impacts in the decision-making process for federal projects. A cumulative impact is defined by 40 CFR 1508.1 as "effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time." A cumulative impact analysis must consider the overall effects of the direct and indirect impacts of the proposed action, when added to the impacts of past, present, and reasonably foreseeable actions on a given resource. All alternatives, including the no-action alternative, consider cumulative impacts.

Cumulative impacts were determined by combining the impacts of each alternative with the impacts of other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other past, ongoing, or reasonably foreseeable future projects and plans within the planning area that would affect the same resources that could be impacted by direct and indirect impacts of the alternatives. Past actions are those actions that have occurred or have ongoing impacts that are occurring. Past actions that no longer have ongoing impacts are captured in the description of the existing condition within this chapter. Reasonably foreseeable future projects are those that are not yet undertaken but are sufficiently likely to occur in the future. Following the CEQ guidance, past actions were included "to the extent that they are relevant and useful in analyzing whether the reasonably foreseeable effects of the agency proposal for the actions and its alternatives may have a continuing, additive, and significant relationship to those effects" (Council on Environmental

Quality 2005). Past, present, and reasonably foreseeable actions that could contribute to cumulative impacts on the alternatives are provided in table 3 below, followed by a full description of each project.

TABLE 3: CUMULATIVE PROJECTS

Cumulative Project	Resources Affected
General Management Plan Amendment for Management of Ranched Lands in Point Reyes National Seashore and North District Golden Gate National Recreation Area	Vegetation Communities, Wildlife, Visitor Use and Experience, Cultural Resources
Pierce Point Road Rehabilitation	Vegetation Communities, Wildlife, Visitor Use and Experience, Cultural Resources
Trail Master Planning	Vegetation Communities, Wildlife, Wilderness, Wetlands and Water Resources, Visitor Use and Experience, Cultural Resources
Fire Management Program	Vegetation Communities, Wildlife, Wilderness, Wetlands and Water Resources, Visitor Use and Experience, Cultural Resources
Pacific Gas & Electric (PG&E) Special Use Permit and Operations and Maintenance Plan	Vegetation Communities, Wildlife, Wilderness, Wetlands and Water Resources, Cultural Resources
Response to Emergency Actions Within Designated Wilderness	Vegetation Communities, Wilderness, Wildlife, Wetlands and Water Resources, Visitor Use and Experience, Cultural Resources

CUMULATIVE PROJECT DESCRIPTIONS

General Management Plan Amendment for Management of Ranched Lands in Point Reyes National Seashore and North District Golden Gate National Recreation Area

In September 2020, the NPS issued the General Management Plan Amendment (GMPA) and Final Environmental Impact Statement (EIS) for the Point Reyes National Seashore and North District of Golden Gate National Recreation Area. The GMPA covered more than 28,000 acres of NPS land managed by the Seashore, including all lands leased for beef and dairy ranching. The purpose of the GMPA was to establish guidance for the preservation of natural and cultural resources and the management of infrastructure and visitor use in the planning area for the GMPA (which immediately abuts the planning area for the TPAP). The EIS presented six alternatives that considered the future management of lands leased for beef and dairy ranching and tule elk in the GMPA planning area. The NPS selected Alternative B in the GMPA EIS, with modifications, which amended the 1980 GMP by adopting a new zoning framework and new programmatic management direction for the GMPA planning area. It allowed for continued ranching with terms of up to 20 years and identified a management approach for free-range tule elk within the area covered by the GMPA. Several parties challenged the GMPA by filing a lawsuit in January 2022; all parties are currently in a mediated settlement process.

Pierce Point Road Rehabilitation

Pierce Point Road is severely deteriorated due to lack of a sufficient sub-base, with ongoing pavement failures. The County of Marin and Federal Highways Administration (FHWA) have prioritized funding for the rehabilitation of Pierce Point Road to the Pierce Ranch under the Federal Lands Access Program (FLAP). The NPS is working closely with the state and federal lead agencies on the planning and design of the project. FHWA is the lead agency for NEPA and National Historic Preservation Act (NHPA) Section 106 consultation. The County of Marin is the lead agency for the California Environmental Quality Act. The project is currently in design and compliance, with

planned implementation in Federal Fiscal Year 2027. The project will upgrade and rehabilitate the 9.2-mile road to current standards, of which the northernmost 1.5 miles is within the planning area.

Under the proposed FHWA-FLAP project, the road will be reconstructed with a suitable structure and widened to 24-foot paved surface, to improve access and provide safe passage for park visitors. The project also includes repair or replacement of 36 culverts and crossings. Pierce Point Road is considered a Rural Minor Collector with rolling terrain. FHWA has identified the 2017 and 2037 Average Daily Traffic values at 611 and 900, respectively. Traffic counts were taken from Marin County data, and a two percent growth rate was assumed for the design Average Daily Traffic (Federal Highway Administration 2017).

Trail Master Planning

The NPS, in collaboration with FIGR and the Point Reyes National Seashore Association, is beginning a master planning process for trails in the Seashore, with the goal of completing the initiative within the next two to three years. The project will standardize park trailhead signs and exhibits, trail design, and trail maintenance (including for wilderness trails) for the Seashore and will include specific design elements that will be incorporated into any NPS projects for Tomales Point and McClure Trail, as well as the proposed accessible spur trail at Pierce Ranch.

Fire Management Program

In July 2004, the NPS completed a *Fire Management Plan and Environmental Impact Statement for Point Reyes National Seashore and for the Northern District of Golden Gate National Recreation Area* (NPS 2004). The plan provides a framework for all fire management activities within the parks, including suppression of unplanned ignitions, prescribed fire, and mechanical fuels treatments. In accordance with NPS policy, the plan is responsive to the parks' natural and cultural resource objectives, reduces risk of fire to developed facilities and adjacent communities, and provides for public and staff safety. Up to 3,500 acres annually could be burned or mechanically treated over the plan's lifetime. The Tomales Point Fire Management Unit identified in the plan covers the TPAP planning area. Prescribed burning could occur in the future in the planning area for resource management (e.g., invasive species control).

In August 2006, the NPS developed an *Operational Strategy for the Fire Management Plan for Point Reyes National Seashore and Northern Lands of Golden Gate National Recreation Area* (NPS 2006b). This document presents the current strategies and tactics for the range of actions assigned to the Seashore's Fire Management Division and provides a framework for all fire management activities and the management of wildland fire and prescribed fire as a tool to safely accomplish protection and resource management objectives on NPS lands. The operations that are addressed include preparedness, prevention, suppression, fuels management, rehabilitation, fire education and information, monitoring, and fire and fuels research (NPS 2006b).

In 2018, the NPS signed an agreement with Marin County to transfer most wildland fire operations and response actions to the county. Under this agreement, Marin County will continue to implement mechanical treatments and maintain defensible space to reduce the risk in the wildland urban interface consistent with the *Fire Management Plan*.

The 2021 General Agreement between the NPS and the FIGR acknowledges that the Tribe holds TEK that is critical for a comprehensive understanding of park lands and resources. This includes TEK related to the use and effects of fire on this landscape. The NPS will coordinate and consult with FIGR about fire management activities to ensure that Tribal views and TEK are considered.

Pacific Gas & Electric (PG&E) Special Use Permit and Operations and Maintenance Plan

PG&E manages a one-mile-long power distribution line corridor extending from the southern end of the planning area to Pierce Ranch. PG&E maintenance activities on transmission and distribution lines in the Seashore are conducted under a Special Use Permit. This Special Use Permit is reviewed and updated annually for PG&E operations in the Seashore and the North District of Golden Gate National Recreation Area. PG&E is responsible for identifying maintenance needs and project activities and coordinating with NPS staff to avoid or minimize impacts. Implementation activities include extensive monitoring and access maintenance, pole and equipment replacement, and vegetation management around the line and for access to poles. Review of proposed activities are coordinated by NPS staff. The NPS has documented effects of regular access along these corridors, including ground disturbance and invasive vegetation. Under the proposed Operation and Maintenance Plan for management of PG&E infrastructure within the Seashore, the NPS will work with PG&E to identify the potential for an alternate means of providing power at the Pierce Ranch complex, including potential microgrid or undergrounding opportunities.

Response to Emergency Actions Within Designated Wilderness

NPS staff are prepared to address a variety of potential emergencies, including vessels grounding on the shores of Tomales Point, search and rescue activities, and other emergency actions that could occur in the designated wilderness. Rapid response activities may include assessment, monitoring, and removal of potentially hazardous substances such as boat oil and fuel, which often requires the use of vehicles and equipment that are considered "prohibited uses" under Section 4(c) of the Wilderness Act. In the past, removal work has included the use of helicopters, ATVs, heavy machinery (front loaders), and chainsaws and other power tools. Staging for vessel removal and search and rescue helicopter operations has been in the development zone adjacent to Pierce Ranch. The NPS will continue to work with area first responders, the Tribe, and other agencies to plan for potential emergency actions that could affect park resources and designated wilderness and minimize these impacts as much as possible.

VEGETATION COMMUNITIES

Vegetation communities are groups of plant species that inhabit areas of the landscape. The locations of particular communities are driven by many environmental and temporal factors such as soil type, topography, availability of water sources, presence of grazing animals, temperature, sun exposure, and others. The effects of long-term factors, such as geology and climate, combine with short-term influences such as wildfires and flooding to produce distinct vegetation communities that may grow, shrink, or transition to other communities over time (Parsons, et al. 2023).

For example, climate conditions at the Seashore, including average temperatures and precipitation patterns, have already shifted in the last century, and are projected to change more drastically in the coming decades. According to the 2020 California Water Resilience Portfolio, some expected climatic changes for the San Francisco Water Region include increased extreme dry and wet conditions and more intense and frequent winter storms (e.g., 20-year storms occurring every seven or less years), with warming temperatures increasing drought severity statewide. A paper on anthropogenic climate change in the Seashore published by the University of California, Berkeley reports since 1895, temperatures have increase at just under one degree Celsius (Gonzalez 2016) and by 2100 the average annual temperature is projected to increase by 3.7 +/- 0.8℃ and the total annual precipitation is projected to increase by 7 +/- 17 percent (although the region might become more arid with rising temperatures) under the Intergovernmental Panel on Climate Change's Representative Concentration Pathways highest emission scenario, RCP8.5 (Biu 2023, California

Natural Resources Agency 2020). These changes would be expected to impact vegetation communities at Tomales Point.

The vegetation in an area impacts the types of wildlife that may inhabit the landscape, while the wildlife that interacts with the vegetation communities can influence which plant species thrive and which species die back.

Affected Environment

Multi-agency vegetation mapping and classification efforts conducted in 2018 identified 10 vegetation cover types at Tomales Point, including freshwater wetlands, herbaceous cover, mudflats, native forests, native shrubland, non-native forest, non-native herbaceous cover, shrub fragment, forest fragment, and tidal wetlands, as well as barren land, developed land, and water. Of these vegetation types, shrubland and grassland/herbaceous cover comprise the greatest acreage of Tomales Point (Golden Gate National Parks Conservancy; Tukman Geospatial; Aerial Information Systems 2021).

The following sections describe the historic vegetation conditions at the Seashore and the current conditions for the vegetation communities within the planning area. Key groups, such as rare species and non-native plants, are also discussed.

Historic Vegetation Conditions

The vegetation communities at the Seashore have experienced natural and anthropogenic changes for centuries. The Seashore's three general vegetation groups, including grassland, shrubland, and forests, have undergone changes in extent and composition driven by periods of climatic warming and cooling since the Pleistocene Era, roughly 14,000 years ago. Generally, grasslands expanded during drier periods while forests and shrublands expanded during wetter periods. The Coast Miwok tribe is known to have used burning to manage the grasslands. Euro-American settlement in the region is associated with many ecological disturbances, including clearing, logging, the introduction of livestock and non-native species, and the elimination of the Coast Miwok's prescribed burns. The first non-native plant species were identified in the pollen record between 1840 and 1860 (Parsons, et al. 2023).

While California was experiencing intense urbanization throughout the early to mid-1900s, the establishment of the Seashore in 1962 protected this area from development. The lands within the planning area were acquired by the NPS in the early 1970s with most of the area was designated as Wilderness in 1976. An analysis of aerial imagery of the Seashore from the 1940s, 1960s, 1990s, and 2018 identified changes in the acreage of the vegetation communities. The degree of change of each area varied over the decades studied and often corresponded to various disturbance events and changes in land use and management activities. From the 1940s to the 1960s, the study found that the amount of dense coastal scrub at Tomales Point decreased by roughly one percent, grassland increased by nearly one percent, and open scrub/grassland increased by nearly five percent. Between the 1960s and the 1990s, dense coastal scrub increased by nearly two percent, grassland decreased by 25 percent, and open scrub/grassland increased by 23 percent. From the 1990s to 2018, the acreage of dense coastal scrub increased by six percent, grassland remained stable, and open scrub/grassland decreased by roughly three percent (Parsons, et al. 2023).

Given the uncertainty of climate change models, particularly for this section of the Pacific Coast, it is uncertain how the Seashore's vegetation communities will change in the coming years. It was found that the regional impacts of climate change do influence the conversion of some vegetation communities (such as grassland converting to shrubland, or vice versa), particularly when localized

areas in that region were already approaching a threshold (such as temperature or moisture levels) that would cause conversion of the community. Additionally, biotic and abiotic factors such as soil type, slope, species competition, and the order and timing of species movement also affect habitat conversion as a result of climate change (Parsons, et al. 2023).

Communities

In 2018, a multi-agency, county-wide detailed mapping effort was conducted to delineate vegetation communities across Marin County. The sampling for Point Reyes was performed by the NPS (Golden Gate National Parks Conservancy; Tukman Geospatial; Aerial Information Systems 2021). At Tomales Point, the mapping identified two predominant groups of vegetation cover by area, consisting of shrubland and grasslands/herbaceous cover.

Shrubland

The shrubland at Tomales Point includes a variety of species associations and alliances. Predominant shrub species within these groups include coyote brush (*Baccharis pilularis*), yellow bush lupine, (*Lupinus arboreus*), California blackberry (*Rubus ursinus*), and Pacific poison oak (*Toxicodendron diversilobum*). In some locations, herbaceous vegetation grows alongside these shrubs. Common herbaceous species in shrublands include ripgut brome (*Bromus diandrus*), common velvet grass (*Holcus lanatus*), perennial ryegrass (*Lolium perenne*), and brome fescue (*Vulpia bromoides*) (Golden Gate National Parks Conservancy; Tukman Geospatial; Aerial Information Systems 2021)).

Shrublands can be classified by the density of the shrub cover (NPS 2020b). Dense conditions are characterized by a shrub cover of greater than 60 percent (Parsons, et al. 2023). In dense conditions, shrubs including coffeeberry (*Frangula californica*), thimbleberry (*Rubus parviflorus*), California blackberry (*Rubus ursinus*), and California sagebrush (*Artemisia californica)* tend to grow alongside coyote brush, creating thick patches of shrubby vegetation (NPS 2020b). The less-dense conditions observed in open scrub/grassland communities have a shrub cover of 10 to 60 percent (Parsons, et al. 2023). In less dense conditions, this community tends to be dominated by coyote brush and may include native and non-native grasses, as described above (NPS 2020b).

Yellow bush lupine is one species within the shrubland community. (NPS)

Grasslands/Herbaceous Cover

Grasslands are characterized by a shrub cover of less than 10 percent of the area (Parsons, et al. 2023). The herbaceous vegetation at Tomales Point predominantly includes the Californian Annual and Perennial Grassland Macrogroup and, to a lesser degree, the Californian Cliff, Scree, and Rock Vegetation Group. The Cliff, Scree, and Rock Vegetation Group is characterized by moss and lichens growing on rocky soil, gravel, and barrens. The Annual and Perennial Grassland Macrogroup consists of several diverse subgroups of native and non-native grass and forb species. The variation between the grassland subgroups is driven by environmental conditions including the landscape position, soils, moisture, disturbance regimes, and other factors. Grass species in this subgroup include redtop

(*Agrostis gigantea*), Pacific reedgrass (*Calamagrostis nutkaensis*), common velvet grass, and tall fescue (*Festuca arundinacea*). Forb species include poison hemlock (*Conium maculatum*), eagle fern (*Pteridium aquilinum*), and California goldenbanner (*Thermopsis californica*) (Golden Gate National Parks Conservancy; Tukman Geospatial; Aerial Information Systems 2021)).

The control of woody vegetation is a key management concern for the Seashore's grasslands when grazing or fires do not occur. Without grazing or a fire regime, grasslands can be overtaken by coyote brush in 15 to 25 years (NPS 2020b). At the Seashore, tule elk grazing has been found to reduce shrub cover, particularly in open grasslands (Johnson and Cushman 2007).

Elk grazing also impacts the biomass and overall abundance of herbaceous vegetation found in the Seashore's grasslands. While minimal impacts were observed on the abundance of native and non-native perennials, the biomass of both native and non-native perennials decreased when grazed by elk. Conversely, native and non-native annual species increased in abundance and biomass in areas that experienced elk grazing. Annual species may benefit from the trampling of tall vegetation and the reduction of thatch, which accumulates on the ground in the grasslands (Johnson and Cushman 2007).

Key Vegetation Groups

Non-Native Plants

Non-native plants are defined by the NPS as, "plant species that occur in a given location as a result of direct, indirect, deliberate, or accidental actions by humans" (NPS 2022a). Invasive plants are a subset of non-native plants that share those qualities while also exhibiting aggressive establishment patterns, disrupting the habitats they invade, and causing potential harm to the economy, to the environment, and/or to human health (U.S. Forest Service n.d.). Roughly a third of the 900 plant species at Point Reyes are non-native, and only 10 percent of the non-native species that threaten the Seashore's ecosystems are able to be controlled under the current management regime (NPS 2022a).

Grasslands are particularly prone to the impacts of annual and perennial non-native species. Non-native annual grasses dominate much of the area with a lack of native annual grasses having been observed in the project area. Common non-native annual grasses include brome fescue (*Festuca bromoides*), silver hairgrass (*Aira caryophyllea* L.), soft brome (*Bromus hordeaceus* L.), and annual dogtail (*Cynosurus echinatus* L.). Common non-native perennials include perennial ryegrass (*Lolium perenne* L.) and common velvet grass (Johnson and Cushman 2007). Common velvet grass has previously been documented as particularly abundant in *Baccharis* grasslands, where it grew underneath shrub canopies and shrub-free areas, and, less commonly, in open and *Lupinus* grassland types. Additionally, false dandelion (*Hypochaeris radicata* L.) and English plantain (*Plantago lanceolata* L.) seven, two non-native perennial dicots, have also been documented as abundant throughout the project area (Johnson and Cushman 2007). A 2022 rare plant survey of Tomales Point noted that wild radish (*Raphanus sativus*) dominated the coastal grassland in the area near Pierce Point Road and Tomales Point Trail (Baxter 2022).

Currently, the NPS seeks to manage or eliminate invasive species that threaten natural features and native plants and animals in the parks when management or elimination of the invasive species is feasible (NPS 2019). Invasive species are prioritized based on their threat to endangered species, habitat, wildlife, and their ability to be eradicated, particularly while the population is still small (NPS 2022a). Starting in 2002, Seashore staff identified standard operating procedures for documenting and managing invasive species with full implementation of the program in 2009. Watersheds throughout the Seashore are surveyed for invasive species on a regular basis between every one to

five years, depending on each watershed's priority level. Invasive species treatments are conducted in coordination with the San Francisco Bay Area Network Early Detection Program and the Habitat Restoration Program (NPS 2019). The NPS maintains a priority invasive species management list for the Seashore, based on species identified through the Early Detection Program, visitor reporting, and other means. Invasive species treatment activities are implemented at locations where priority species have been identified. Although no priority invasive species are currently being targeted at Tomales Point, treatment could take place at any time if a priority species is discovered there in the future. For example, cape ivy (*Delairea odorata*) has been treated at Tomales Point on one occasion in the past.

Some non-native species provide benefits to wildlife at the Seashore. Italian thistle (*Cardus pycnocephalus*) and milk thistle (*Silybum marianum*) have been noted as nectar sources for Myrtle's silverspot butterfly (*Speyeria zerene myrtleae*), an endangered species found in this area. Additionally, common velvet grass and harding grass (*Phalaris aquatica*) are nonnative grasses present in the planning area. Tule elk consume these grasses as forage early in the spring before the native vegetation produces sufficient forage (NPS 1998). Elk grazing has been found to reduce the biomass of both native and non-native perennial vegetation, including common velvet grass. Although elk grazing reduces the prevalence of perennials, grazing tends to increase the abundance and biomass of annual species, including native and non-native groups (Johnson and Cushman 2007).

Rare Plants

More than 900 species of flowering plants have been identified at Point Reyes (Williams 2009). The Seashore has identified 55 species of rare plants, as published on their website, *Threatened, Rare, and Endangered Plants of Point Reyes*, last updated in 2012 (NPS 2012). There are no federal or state-listed threatened and endangered plant species at Tomales Point, but some rare species have been found. The California Native Plant Society uses a ranking system to determine rare plant species in the state. This ranking system is based on the condition of plants in the state and surrounding areas as well as the urgency of threats to these species (California Native Plant Society 2012).

In April and May of 2022, an inventory of rare plants was conducted in the grasslands, scrubland, and near the seeps and springs of Tomales Point. The following rare plants were documented in the planning area, particularly around rock outcroppings:

- Point Reyes rock cress (*Arabis blepharophylla* ssp. *macrantha*)
- Point Reyes blennosperma (*Blennosperma nanum* var. *robustus*)
- coastal spineflower (*Chorizanthe cuspidata* var. *villosa*)
- Franciscan thistle (*Cirsium andrewsii*)
- coast fritillary (*Fritillaria lanceolata* var. *tristulis*)
- harlequin lotus (*Hosacikia gracilis*)
- perennial goldfields (*Lasenthia californica ssp. macrantha*)
- San Francisco owl's clover (*Triphysaria floribunda*)

Evidence of elk browsing was noted on most of the coast fritillary observed in this study. A new patch of San Franciso owl's clover was discovered to be well-established near a sandstone seep (Baxter 2022).

In addition to the rare plants documented during the 2022 survey, park records ranging from the 1980s through 2022 have identified several other rare species, including:

- pink sand verbena (*Abronia umbellata* ssp. *breviflora*)
- coastal bluff morning glory (*Calystegia purpurata* ssp. *Saxicola*)
- Point Reyes ceanothus (*Ceanothus gloriosus* var. *gloriosus*)
- Mt. Vision ceanothus (*Ceanothus gloriosus* var. *porrectus*)
- Point Reyes bird's beak (*Chloropyron maritimum* ssp. *palustre*)
- supple daisy (*Erigeron supplex*)
- curly wallflower (*Erysimum concinnum*)
- coastal gumweed (*Grindelia hirsutula* var. *maritima*)
- rose linanthus (*Leptosiphon rosaceus*)
- Marin knotweed (*Polygonum marinense*)
- beach chickweed (*Stellaria littoralis*)

Western dog violet (*Viola adunca*), while not a threatened, rare, or endangered plant, is identified as an important plant on Tomales Point as it is a host species for the endangered Myrtle's silverspot butterfly (NPS 1998). The western dog violet grows in coastal areas including scrublands and grasslands. In grasslands, the growth of the western dog violet requires regular disturbance to reduce thatch and shade levels, which enables the establishment of the violet's seeds (Adams, Smick and Lewis 2009). The 2022 rare plant survey identified small western dog violet populations near areas where Point Reyes rock cress was growing on rock outcrops (Baxter 2022). In addition to the host plant, several native species provide nectar sources, including coastal sand verbena (*Abronia latifolia*), beach aster (*Erigeron glaucus*), gumweed (*Grindelia sp*.), curlyleaf monardella (*Monardella undulata*), and mule's ears (*Wyethia sp.)* (Adams, Smick and Lewis 2009).

In a 2003 study of Myrtle's silverspot butterfly habitat, western dog violet plots were established in grasslands grazed by cattle or grasslands protected from cattle but grazed by elk. The violet plots established in Tomales Point, which were grazed by elk, were found to have the highest density of violets per square meter. The study also examined nectar sources for the butterfly using transects in dunes and grasslands that were either grazed or ungrazed by cattle. The butterfly's nectar sources include flowering species such as yarrow (*Achillea millefollium*) and Pacific gumplant (*Grindelia stricta*), but not the western dog violet. Although the western dog violet was most dense in the plots in the Tomales Point grasslands, it was found that the butterfly's nectar sources tend to be denser in dunes and areas grazed by cattle, when compared to grasslands that are not grazed by cattle (Adams, Smick and Lewis 2009).

Environmental Consequences

Alternative A

Under alternative A, the no-action alternative, the current, limited management of high-priority invasive species would continue. To a limited extent, this action supports the desired condition of managing invasive species. The existing park and wilderness trails would continue to be maintained using the current management strategies. Short-term impacts to vegetation immediately adjacent to the trails would continue to occur during trail maintenance work.

There would be no changes to the management practices for the tule elk herd, and the elk exclosures would remain in place, providing continued opportunities to study the impacts of elk grazing on vegetation at the Seashore. Under alternative A, the elks' grazing habits would not be expected to undergo any substantial changes. However, without limits on the growth of the elk population, the numbers of elk would grow when conditions are favorable, which would then cause an increase in the grazing pressure on the existing vegetation. Maintenance of a confined elk herd would

exacerbate localized impacts to vegetation during periods of population spikes. If this were to occur, it would be expected that the elk populations would subsequently crash due to reduced forage availability or the onset of drought conditions. Following these crashes in the elk population, the vegetation would be expected to recover over time. The impacts resulting from the expected elk population fluctuations under alternative A would not support the desired conditions for the ecological function and processes for vegetation communities in the planning area. Furthermore, there may be long-term impacts to vegetation species occurrences and vegetation community distribution resulting from grazing impacts from elk under alternative A, which could be further exasperated by impacts from climate change.

Non-Native Plants

As previously described under the strategies common to both action alternatives, the NPS uses IPM to manage high-priority invasive species throughout the Seashore. The planning area does not contain any priority treatment areas at this time. The use of IPM would enable adaptability to changing vegetation conditions, and invasive species treatment areas would be identified in the planning area in the future under alternative A, if needed. However, given the current limited nature of invasive species treatments at the Seashore, adapting to sudden or particularly aggressive infestations would be challenging. Long-term impacts would only be expected to affect the invasive species if treatment areas were identified in the planning area in the future. The invasive species management actions under alternative A would support the desired conditions for invasive species control to a limited extent.

Rare Plants

Under alternative A, rare plants that are commonly grazed by elk, such as the coast fritillary, would be susceptible to overgrazing during elk population spikes. During periods of elk population stability, rare plants in the planning area would also be vulnerable to crowding by invasive plant species and climate change impacts. Under the no-action alternative, the monitoring of rare species and the removal of invasive species would continue at current frequency levels, but no additional management activities would be implemented. Because rare species are particularly vulnerable to habitat changes, the lack of additional specific support or management programs for these species under alternative A would result in ongoing, limited negative impacts from increased invasive species presence and climate change influences over the long term. The lack of targeted support for rare plants under alternative A would not support the desired conditions for the persistence of and improvement to rare species habitats and populations.

Alternative A Cumulative Impacts

A number of present and planned actions have an influence on the vegetation communities at Tomales Point or on similar vegetation communities elsewhere in the Seashore. As summarized in the Cumulative Projects section of chapter 2, the GMPA, Pierce Point Road rehabilitation, trail master planning, fire management program, and management of the PG&E power line would continue to influence vegetation communities at Point Reyes.

Under the GMPA, the Seashore would implement actions in the GMPA planning area that restore degraded habitats, improve habitat connectivity, increase heterogeneity, reduce non-native species through IPM, and restore native species, as well as prioritize the inventory of rare and special concern species and the early detection of and rapid response to non-native species on lands in the GMPA planning area. The Pierce Point Road rehabilitation involves work along a 9.4-mile section of road corridor including approximately two miles within the planning area to Pierce Ranch and McClures Beach trailhead. The area of potential impact for the road is anticipated to be roughly 20

feet from its centerline. The trail master planning effort will result in the development of park-level trail management, maintenance, and interpretive approaches for trails in the park and wilderness. Management and maintenance approaches identified in the planning area would be adapted to be consistent with those established through the trail master plan process. The PG&E power line that crosses the planning area is inconsistent with the park's desired conditions. Under PG&E's current Special Use Permit, access and maintenance to the distribution line is evaluated to ensure that the actions minimize the impact to vegetation and soil resources in the planning area. The fire management program, implemented under agreement with the County of Marin since 2018, includes the potential for small, prescribed burns within the planning area. No prescribed burns have occurred in the planning area since the fire management plan was completed in 2004, but these management activities could occur at Tomales Point in the future, with supportive research efforts into the impacts of prescribed burns on wildlife species and coastal grasslands (NPS 2006b).

The activities discussed under alternative A, the no-action alternative, would have some interactions with other projects and initiatives occurring within the planning area. The current, limited monitoring and treatment of high-priority invasive species would continue to be applied in locations where these species have been identified, although there are no treatment areas identified in the planning area at this time.

The activities associated with the Pierce Point Road rehabilitation and the PG&E power line maintenance would create short-term disturbances to soil and vegetation adjacent to the work areas, which would create opportunities for invasive species to become established. However, this work would comply with the applicable regulations for soil and vegetation management during and after implementation, so no long-term impacts would be expected. The no-action alternative would not provide any additional support for native or rare species that may be disturbed during these activities.

The existing trails would continue to be maintained according to the current trail management practices under the no-action alternative. While these practices may be updated during the Trail Master Planning process, present and reasonably foreseeable future trail maintenance practices would only be expected to cause short-term impacts to vegetation and the effects would be limited to areas immediately adjacent to trails.

Under the no-action alternative, prescribed burns would not be evaluated for use in native plant community restoration. However, such activities may take place if separately deemed beneficial or necessary under the 2004 fire management program. Actions prescribed under the fire management program would provide long-term benefits to the planning area that would otherwise not be possible due to the lack of prescribed fire provisions under alternative A.

NPS staff would continue to respond to emergency actions within designated wilderness as they arise. These response actions would have the potential to cause short-term impacts to vegetation through the use of mechanized equipment and vehicles, but their effects would be limited in scale and duration. Overall, given the nature of the no-action alternative, limited impacts would be expected in combination with the existing and planned projects occurring at Tomales Point.

Alternative B

Alternative B includes the removal of the elk fencing and the elk exclosures, adaptive reuse of the Pierce Ranch core areas, trail management and minor reroutes, and additional management activities across the planning area that may impact vegetation. These management actions include the continued monitoring of vegetation communities, ecological sites, connectivity, and rare species;

restoring important habitat and rare species, when feasible; and applying IPM, TEK, and prescribed burns to the overall management strategy. The alternative also includes consideration for improved parking in existing impact areas, including unmarked paved and gravel lots as well as other areas adjacent to the Pierce Ranch core area.

Under this alternative, the Seashore's vegetation would likely receive several benefits. Additional management activities, including IPM, prescribed burns, ecological restoration, and invasive species control would improve the conditions for native vegetation, particularly over the long term. These management activities support the desired conditions for ecological function, native and rare species, and non-native species. Under this alternative, the removal of the elk fence would allow elk to roam free and would likely reduce the potential grazing impacts from a confined and concentrated population during periods of drought or during a population rise. Short-term increased ground disturbance would likely occur from the removal of the elk fencing, elk exclosures, and emergency water troughs and tanks. However, this will occur within a limited corridor of the planning area, as well as in the areas where emergency water troughs and tanks are located. The NPS would follow applicable policies and regulations to manage exposed soils and reduce impacts to existing vegetation from these activities.

Trail maintenance activities would continue under alternative B, with similar impacts as described under alternative A. Alternative B also includes additional trail activities such as minor reroutes to address erosion and sedimentation issues, which can impact habitat, soil, and water quality, and establishment of a new accessible spur trail in the immediate vicinity of Pierce Ranch to provide alternate public access to known vistas. Where trail rerouting occurs, and as part of the establishment of a limited spur trail, there would be short-term impacts to vegetation within and immediately adjacent to the trail alignment. However, there would be long-term ecological benefits by reducing the impacts of erosion and sedimentation. The NPS would comply with the applicable requirements for managing soils and vegetation while identifying reroute locations and during implementation.

Non-Native Plants

Under alternative B, the removal of the elk fence and exclosures would enable the elk to expand their range within and beyond the planning area. Elk grazing has been found to increase the biomass and abundance of non-native (and native) annuals while decreasing the biomass of non-native (and native) perennials (Johnson and Cushman 2007). Trampling of vegetation in grasslands by ungulates like tule elk has been shown to create opportunities for annual and invasive species to become established. However, in open grassland, elk grazing reduced the abundance of velvet grass (Johnson and Cushman 2007), which is the most common invasive perennial grass at the Seashore (NPS 2020b). The response of the elk immediately following the removal of the fencing is not fully understood. However, it is anticipated that some elk will expand their range, thus reducing potential for overgrazing during drought, and diluting the general effects of elk grazing across a broader area.

The use of TEK, IPM, and prescribed burns under alternative B will enhance the invasive species management program and will allow NPS staff to respond to changes in the abundance or composition of invasive species in the planning area. These actions strongly support the desired conditions for invasive species management. Treatment of individual invasive species will provide long-term benefits to the vegetation communities on Tomales Point.

Rare Plants

Under alternative B, the Seashore's rare plants would experience benefits resulting from ecological restoration efforts, a reduction in the prevalence of invasive species, and the use of natural disturbance regimes such as fire. The removal of the elk fencing would allow the tule elk to roam more freely, potentially distributing their impacts across a broader area by decreasing the elk's density in the long term. The grazing pressure on rare plants, such as the coast fritillary, would be reduced compared to the current conditions by enabling the elk to disperse across a larger area. In the short term, the grazing behaviors would likely be the same as at present and would continue to provide a natural and beneficial source of disturbance through elk and black-tailed deer grazing.

Although the western dog violet is not considered a rare plant, its function as a host species for the endangered Myrtle's silverspot butterfly warrants special consideration. As previously described, the establishment of the western dog violet depends on the regular disturbance of grasslands to reduce shade and thatch, which otherwise inhibit its growth. Because elk grazing has been found to reduce thatch accumulation (Johnson and Cushman 2007), the removal of the elk fencing and the expansion of the elk grazing range could potentially encourage the establishment of the violet in new locations. However, because elk grazing pressure would be reduced after the removal of the fence, the overall reduction of thatch would be expected to decrease, and there may be limited opportunities for new violet populations to become established.

Point Reyes blennosperma, a rare species, has been documented adjacent to road shoulders and areas impacted by vehicle parking. Under this alternative, the enhancement of existing parking lots near the Pierce Ranch core area would be considered. Formalizing parking in established areas could reduce the instances of visitors parking on road shoulders, thus benefiting the Point Reyes blennosperma and other species that grow alongside the roads in the planning area.

The benefits to rare plants under alternative B support the desired conditions for native plant communities.

Alternative B Cumulative Impacts

As described under alternative A cumulative impacts, several current and planned projects and initiatives may affect vegetation communities in the planning area under alternative B.

Under alternative B, the management of invasive species and restoration of native habitats complement similar actions in the rest of the Seashore. Additionally, although no prescribed burns have been administered in the planning area under the fire management program to date, coordination with FIGR and consideration of TEK for management of lands in the planning area would increase the potential for use of prescribed burns for native plant habitat restoration and reintroduction of cultural practices to the planning area. Prescribed fire activities conducted under alternative B would be coordinated with the County of Marin and the fire management program to ensure that native vegetation communities benefit from this management action. These benefits would be further supported by the removal of the elk fence, which would reduce the impacts on vegetation resulting from herd's confinement. By enabling the herd to roam freely, the benefits of grazing would be distributed to areas outside of the planning area, and the chances of overgrazing due to population spikes would be minimized. The combined benefits of increased invasive species management, potential use of prescribed fire, and the removal of the elk fence under alternative B are expected to provide long-term benefits to the vegetation communities.

The removal of the elk fence and elk exclosures may influence some of the Seashore's vegetation monitoring and management activities. Redistribution and expansion of free-ranging elk would

reduce the grazing pressure that is likely exerted by elk under a closed-herd scenario. To best address potential impacts from elk grazing, the existing vegetation monitoring programs may identify a need for additional observations to understand the changing conditions. The cumulative impacts of a broader elk grazing range and prescribed burns would promote a natural disturbance regime at Tomales Point.

The impacts resulting from the Pierce Point Road rehabilitation, trail master planning and trail maintenance activities, PG&E power line management, and response to emergency actions within designated wilderness would be expected to be short-term, localized disturbances similar to the impacts identified under the cumulative impacts of alternative A. Any trail reroute activities, as well as establishment of an accessible spur trail in close proximity of the Pierce Ranch core area under alternative B, would need to be considered during the development of a trail master plan in coordination and partnership with the Tribe. The targeted treatment of priority invasive plant species would help prevent the establishment of these species resulting from vegetation disturbance associated with the Pierce Point Road rehabilitation, trail master planning, and the PG&E power line maintenance activities. Benefits to native vegetation communities, improved invasive species management, and potential adjustments to monitoring activities would be expected as cumulative impacts of alternative B.

Alternative C

Alternative C includes the maintenance of the existing elk fence, exclosures, and overall elk population. The impacts resulting from these actions are similar to alternative A (the no-action alternative), except that the tule elk population would be managed to prevent large variations in numbers. Managing the tule elk population would reduce the chances of overgrazing native vegetation that could result from a larger herd size. Maintenance of the existing elk fence would continue to contain the elks' range within its current limits, and the elk exclosures would still be available for vegetation research opportunities.

Additionally, alternative C proposes removing artificial water sources in favor of enhancing naturally occurring water sources such as springs or seeps. Impacts to vegetation would include limited removal of vegetation and soils in specific locations to create small open water areas to enhance wildlife access. As these springs are already known of and frequented by wildlife, the vegetation in those locations is more disturbed than in other areas. The water source enhancement is not anticipated to change the vegetation condition or the level of wildlife use in these areas, as it will only increase the ease of access to the existing water sources.

The trail management actions and minor trail reroutes described under alternative B are also applicable to alternative C. Short-term impacts to vegetation would be expected during maintenance and reroute activities. Long-term ecological benefits would be expected if erosion and sedimentation were reduced through trail route modifications.

Similar to alternative B, alternative C includes management actions that may benefit native vegetation, including the continued assessment of ecological conditions, limited management of invasive species, and the potential implementation of a prescribed fire regime. Restoration and management activities are expected to benefit native species by improving their habitat and reducing competition with invasive species, thus supporting the desired conditions for these resources. Overall, the impacts to vegetation communities under alternative C would be similar to those described under the no-action alternative (alternative A).

Non-Native Plants

Recommended actions under alternative C are expected to have long-term impacts on the non-native and invasive plant species in the planning area. As previously stated, elk grazing has been associated with increases in non-native annual vegetation. By limiting the population of elk, overgrazing is less likely to occur, which would reduce the opportunities for invasive species to become established in grazed areas. The limited invasive species management would result in similar impacts to alternative A, but a prescribed fire regime would provide another means of controlling invasive species. These actions support the desired management condition for non-native species.

Rare Plants

Managing the size of the tule elk herds under alternative C would reduce the occurrence of large population swings, thereby limiting the chances of overgrazing in the elk range. The management of the elk population may benefit rare species in the long term.

A patch of San Franciso owl's clover, a rare species, was documented in a sandstone seep habitat in the planning area in 2022. When selecting seeps for enhancement and when implementing the improvements, special consideration will be given to locations where the San Francisco owl's clover or other rare species have been discovered to minimize or avoid impacts to these species. Any impacts to rare species during the improvement activities would occur in the short term during implementation, and growing conditions would be expected to return to normal in the long term.

As previously noted, the western dog violet is not considered to be a rare species, but it hosts the Myrtle's silverspot butterfly. In locations where the western dog violet occurs, invasive species removal and native habitat management would be expected to have a long-term benefit for this species. Managing the population size of the elk herd may also prevent potential conditions that could lead to overgrazing as described under alternative A. Native habitat restoration and invasive species removal promote the desired conditions for native and rare species in the planning area.

Considerations associated with improved parking arrangements would be similar to those described in alternative B.

Alternative C Cumulative Impacts

There are several current and planned projects and initiatives in the planning area that influence vegetation under alternative C. These existing activities are described in more detail as part of alternative A cumulative impacts.

The vegetation management actions under alternative C, including the potential use of prescribed burns, would provide similar benefits to the existing programs as described under alternative B cumulative impacts. Prescribed burns would be coordinated with Marin County and the fire management plan. The management of the elk population to an established level would reduce the chances of overgrazing, which further supports the native species in the planning area.

The Pierce Point Road rehabilitation, trail master planning efforts, PG&E power line management activities, and response to emergency actions within designated wilderness are expected to have similar effects under alternative C as they would under alternative B. These impacts have been described under alternative B cumulative impacts.

The enhancement of natural seeps and springs under alternative C will benefit the elk by improving access to existing water sources within their range. However, given the limited, short-term impacts to

vegetation expected with this work, minimal interactions would be expected between this work and the existing activities at Tomales Point.

The proposed actions under alternative C and the existing and planned activities within the planning area are expected to provide long-term benefits to vegetation.

Conclusion

Under alternative A, the no-action alternative, no long-term impacts would be expected to affect the vegetation communities in the planning area, except during large elk population swings. If the elk population numbers undergo large changes, vegetation communities would be impacted by overgrazing. Although these conditions would be expected to improve as the elk population returns to the carrying capacity, they would create impacts to vegetation communities in the planning area. In addition, the limited management of invasive species and the lack of targeted management activities for native and rare species under alternative A would not support the desired conditions for these resources. The actions under alternative B would result in short-term impacts to vegetation during the removal of elk exclosures, fencing, and emergency water troughs, but long-term benefits to vegetation would be expected once the elk are able to roam, due to the dilution of the elk population across a broader range. Expansion of the elk range would also provide a source of natural grassland disturbance to the planning area through the elks' grazing behaviors. The increased invasive species management activities, including the use of IPM, TEK, and prescribed burns, would reduce the prevalence of non-native species and benefit native and rare species in the long term. Alternative C would have similar impacts to the no-action alternative, but long-term benefits associated with elk population control and short-term impacts from water source enhancement efforts would be expected.

TULE ELK AND BLACK-TAILED DEER

This EA examines effects on native populations of Tule elk and black-tailed deer and their habitats, which is defined as the resources and conditions present in an area that support the species. Brief discussions on other wildlife are included in appendix B.

Affected Environment

The following discussions provide a description of the existing conditions for tule elk and black-tailed deer within the planning area.

Tule Elk

Tule elk are mixed grazers and browsers, meaning that they feed on a variety of plants including ground-levels grasses and herbs, as well as woody shrubs and trees. Point Reyes tule elk favor open grassland and coastal shrub habitats over forested areas. Important forage includes grasses (*Poaceae* spp.), coyote brush (*Baccharis pilularis*), willows (*Salix* spp.), bush lupine (*Lupinus excubitus*), plantain (*Plantago* spp.), and miner's lettuce (*Claytonia perfoliate*) (NPS 2021b, Bernot and Press 2018).

Tule elk are indigenous to California, including the Point Reyes peninsula. They have been identified as a species of cultural significance to FIGR, and the NPS is committed to work with the tribe to undertake specific projects and programs related to the management of the elk (NPS 2021).

Due to hunting and habitat loss, the state's tule elk population was nearly eliminated by the mid-1800s. In 1873, California passed legislation to provide full protection to tule elk. In 1874, a small

herd of fewer than 10 animals was discovered on a ranch near Bakersfield, which was the only known tule elk population remaining through the early 1900s.

A tule elk bull grazes grasses on Tomales Point. (NPS)

In 1971, the state of California enacted legislation that allowed for the relocation of tule elk and provided protection from hunting, with the aim of increasing the statewide population to 2,000. In the same year, a management plan was created that identified Tomales Point as a potential relocation area. The 1976 *Public Law 94-389 Preservation of Tule Elk – California* allowed for cooperation between federal agencies, including the Department of the Interior, and the State of California to protect tule elk. This legislation coincided with the acquisition of Tomales Point by the NPS in December 1972 and the designation of Point Reyes Wilderness in 1976. These events collectively led to the reintroduction of tule elk to Tomales Point. In 1978, the NPS, in collaboration with the State of California, introduced two male and eight female tule elk to Tomales Point. As part of the 1978 introduction, the State required the NPS to build an elk fence to contain the herd in the Tomales Point area. Cattle grazing continued at Tomales Point after the NPS acquisition and eventually ended in 1980.

The primary reason for the initial construction and maintenance of the existing elk fencing is to prevent the Tomales Point herd from interacting with existing cattle operations at Point Reyes National Seashore and to prevent impacts to private lands adjacent to the park. An additional concern later arose when the recently re-introduced elk at Tomales Point tested positive for Johne's disease in 1980. Johne's disease had previously been identified to occur on the Point Reyes peninsula (Riemann, et al. 1979) and is a common concern for dairy herds across the United States with an estimated 68 percent of dairy herds containing at least one cow that tests positive for Johne's disease (Animal and Plant Health Inspection Service 2023). However, much less is known about Johne's disease in wild animals and previous studies have struggled to estimate what percentage of tule elk in Point Reyes contain the parasite that causes the disease. Previous estimates have ranged from less than one in twenty tested animals testing positive for the disease up to nearly half of a herd (Cook, et al. 1997, Manning, et al. 2003, Cobb 2010). Small numbers of tule elk at the Seashore have tested positive for Johne's Disease over the past 30 years. However, little is known regarding the disease's impact on the tule elk population or how contagious the disease is to cattle that interface with free ranging tule elk (Manning, et al. 2003, Cobb 2010). Initially, the tule elk herd at Tomales Point struggled, but by 1990, the population had surpassed 140 animals, leading to concerns about overpopulation. In 1993, a scientific advisory committee recommended that the elk at Tomales Point be "permitted to self-regulate" and that "the long-range goal of elk management at the seashore should be the re-establishment of free-ranging elk throughout the seashore." In 1998, the NPS completed the *Tule Elk Management Plan*, which recommended retaining the elk fence and managing elk at Tomales Point with "as little population management as possible," and allowed for the establishment of a free-ranging herd. After translocation from Tomales Point and a 6-month disease monitoring quarantine, 28 elk were released to the Limantour area in 1999 as the free-ranging herd. Within the first months of the elk being released, two female elk from the Limantour herd

established themselves in the Drakes Beach area, moved back and forth between the two areas, and were joined by a bull in 2001, forming the beginning of the Drakes Beach herd (NPS 2020b).

Since the reintroduction of tule elk at Tomales Point, the population has fluctuated, as anticipated. However, in 2012-2013 and 2019-2020, there were two substantial population spikes and declines. Elk numbers decreased from 540 to 286 between 2012–2014 and from 445 to 221 between 2019–2021. These population losses coincided with significant drought conditions; however, it is believed that the existing population surpassing the carrying capacity and poor forage quality, in combination with an existing chronic lack of copper and selenium at Tomales Point, were the underlying causes. A lack of drinking water was not found to be a contributing factor; however, continued droughts in the area eventually led to the NPS providing supplemental water and minerals through water troughs and mineral licks to the Tomales Point herd. This program, initiated in 2021, remains in place and is implemented as needed.

There are currently three distinct herds of tule elk at Point Reyes: the Tomales Point herd, the Drakes Beach herd, and the Limantour herd. The Tomales Point herd had a minimum population size of 315 elk in late 2023, a 20.2 percent increase from 2022. The Drakes Beach herd had a minimum population size of 188 elk, a 10.6 percent increase from 2022. The Limantour herd was unable to be surveyed during the 2022 elk census (NPS 2023b). The most recent population count for the Limantour herd, taken in early 2024, was 199 elk. Unlike the Tomales Point herd, the Drakes Beach and Limantour herds are not intentionally confined by fencing.

Black-tailed Deer

Columbian black-tailed deer (*Odocoileus hemionus columbianus*) are a sub-species of mule deer (*Odocoileus hemionus*) and are common throughout the Seashore and the region but occur at very low densities within Tomales Point. There have been limited censuses of the black-tailed deer population within the project area, but very few have been observed incidentally during other natural resource surveys or management efforts. A maximum of 28 black-tailed deer in a single day were observed during annual elk censuses in the project area over the past five years (2019-2023). This estimate would equate to 2.7 deer per square kilometer. These low estimates are supported by surveys by the CDFW from 2015-2016, which estimated a black-tailed deer density of fewer than 15 deer per square kilometer for most of the project area (Furnas, et al. 2020). Black-tailed deer are considered a keystone species in the California coastal ecosystem due to the wide range of effects that changes to their population have on surrounding ecosystems. Black-tailed deer eat a variety of plants including grasses, forbs, and woody plants such as shrubs and small trees (Sierra Club BC 2024, NPS 2018b). They are also known to use a variety of different habitats including dense forest, thickets, more open habitats such as meadows or agricultural fields, and recently disturbed areas such as clearcuts or recently burned areas (Dugger, et al. 2022, Washington Department of Fish and Wildlife 2024). This may cause them to compete with native and domestic ungulate species including tule elk and domestic cattle.

A black-tailed doe runs down a coastal hillside. (NPS)

Black-tailed deer are potential carriers of Johne's disease; however, a previous estimate indicated that the upper limit of Johne's disease prevalence was 6.2 percent in the Seashore population.

Previous surveys have not indicated that Johne's disease has had a significant effect on native cervid populations at the Seashore (NPS 2006c).

As described in the Vegetation Communities section, climate conditions at the Seashore are currently changing and are projected to change more drastically in the coming decades. These changes would be expected to impact many resources on Tomales Point, specifically altering water and forage availability for native ungulates.

Environmental Consequences

This analysis focuses on tule elk and black-tailed deer and their habitat. The potential for short- and long-term effects is considered.

Alternative A

Tule Elk

The existing elk enclosure fence prevents the Tomales Point tule elk herd from accessing additional habitat and has likely been a factor in this herd experiencing periods of rapid growth followed by periods of significant decline indicative of a contained population regularly exceeding the carrying capacity. Existing fencing has also likely exacerbated the effects of drought and a subsequent lack of forage, contributing to recent die-offs. Under the no-action alternative A, these population cycles would be expected to continue.

Additionally, under the no-action alternative A, invasive species management would continue to be limited and prescribed fire would not be used within the project area. These actions would limit natural resource managers' ability to promote a diversity of tule elk habitat within the project area and to conserve this habitat while limiting the spread of invasive species.

Black-tailed Deer

Black-tailed deer are known to occur in and outside of the project area at different densities, and their movement is severely impeded by the existing elk fencing. The existing elk enclosure fence lessens the Tomales Point black-tailed deer population's ability to access habitat and other black-tailed deer outside of the project area and may impact population trends. Additionally, under the no-action alternative A, invasive species management would continue to be limited and prescribed fire would continue to not be used in the project area. These actions would limit natural resource managers' ability to promote a diversity of black-tailed deer habitat including within the project area and to conserve this habitat while limiting the spread of invasive species.

Alternative A Cumulative Impacts

Multiple existing or planned programs or projects have the potential to impact tule elk and black-tailed deer populations (see "Cumulative Impacts" section). The GMPA, fire management program, Pierce Point Road rehabilitation, PG&E Power Line, trail master planning, and NPS response to emergency actions within designated wilderness have the potential to have cumulative impacts in combination with the potential impacts described under each alternative.

The NPS currently supports the two free-range elk herds at Drakes Beach and Limantour, which are managed, in part, by the GMPA. Under the no action alternative, the Tomales Point elk herd would continue to be managed as a confined herd, separate from the free-range herds.

Very limited, or no cumulative impacts would be expected from implementation of alternative A with the other listed programs and ongoing actions.

Alternative B

Tule Elk

The effects to tule elk under alternative B are those directly associated with fence removal. The removal of the fence would benefit the Tomales Point tule elk by allowing the elk to access additional habitat, increasing population resilience during drought, and thereby promoting more natural population cycles. It is likely that as the current and future sub-herds use additional habitat outside of the Tomales Point area, they would eventually have increased exposure to the Drakes Beach and Limantour herds, allowing for mixing of the herds that could increase genetic variability within each population. The current boom and bust population pattern experienced by the elk in the project area reduces the overall health of the herd, potentially increases habitat and vegetation impacts, and does not reflect natural population trends.

Allowing the Tomales Point elk herd to interact with the Drakes Beach and Limantour herds would significantly reduce anthropogenic limitations on the Tomales Point herd while allowing for more natural processes. This change would provide multiple ecological benefits for tule elk in the planning area including supporting more natural ecological processes and would be expected to support healthier elk herds due to greater access to additional habitats and preferable population dynamics. Access to additional habitats would be expected to lessen the impacts of droughts and subsequent lack of forage, reducing population die-offs.

It is expected that most of the individuals within the Tomales Point tule elk herd would continue to use habitat at Tomales Point. However, elk within the southern portion of the planning area are expected to readily occupy habitat outside of the planning area, including pasturelands that are commonly grazed during ranching operations. Competition with grazing livestock would not be expected to limit elk survival or productivity because grazing resources are not currently a limiting factor for the Limantour or Drakes Beach herds, which often use pasture that is actively used for ranching operations. Potential impacts to socioeconomics and ranching operations are discussed in appendix B. Tomales Point elk that leave the planning area would be managed in a manner as identified for the Limantour herd in the GMPA ROD.

Elk population modeling developed by the NPS Biological Resources Division and separately by Cobb et al. (2020) estimated that, without population control, the free-range elk population could potentially expand to 2,800 animals in 20 years. In the GMPA EIS, the NPS concluded that, given the absence of predators and the need to keep elk within the Seashore, population management would be needed at some point in the future, likely beyond the 20-year range (NPS 2020b).

The removal of the tule elk fencing may have a beneficial effect to tribal cultural resources as the elk are a significant cultural resource to the FIGR, who value the elks' use of their natural range. Although no prescribed burns have been administered in the planning area under the fire management program to date, the coordination with FIGR and consideration of TEK for management of lands in the planning area would increase the potential for use of prescribed burns for native plant habitat restoration and would be expected to have a positive impact on all ungulate species in the project area, including the tule elk. The use of prescribed fire would better allow natural resource managers to imitate natural patterns and promote native habitat including increased forage for tule elk. Additionally, by better controlling invasive species, prescribed fire would also be expected to help protect existing and future high-quality habitat.

The removal of the existing elk fencing is not expected to increase the spread of Johne’s disease among tule elk despite the Tomales Point tule elk potentially being exposed to infected animals

outside of the current Tomales Point enclosure. Johne's disease is known to occur in the Tomales Point tule elk herd but has not been observed to significantly impact the population as evidenced by the population continuing to exceed the carrying capacity despite being infected by the disease (Manning, et al. 2003). Johne's disease is also known to occur in Point Reyes cattle herds and at low densities in the tule elk population at Drakes Beach (Riemann, et al. 1979). The Tomales Point tule elk herd would be expected to experience similar conditions to the Drakes Beach elk herd, which already directly interact with potentially infected cattle and have not been observed to experience Johne's disease at a high rate. Additionally, it is not anticipated that removal of the elk fence will alter how elk congregate in a meaningful way, limiting the potential impact of removing the fence on the spread of Johne's disease. The NPS currently monitors Johne's disease in the tule elk population and would continue to do so under alternative B.

The removal of supplementary water tanks and mineral licks would not be expected to significantly impact tule elk or their habitat. While the existing water troughs have been operated by the NPS, overall use of these systems by elk was limited. Additional actions under alternative B that may affect development or visitor use in the project area would not be expected to have a significant impact on tule elk. Frequent interactions between visitors and the free-range elk at Limantour and Drakes Beach have not led to observable adverse effects on those elk populations. Therefore, the changes in visitor use and development in the area are not anticipated to have significant effects on Tomales Point elk, although they may increase contact between visitors and elk in the area.

Black-tailed Deer

Effects on black-tailed deer from Alternative B are likely to be mixed, but of limited consequence. Tule elk and black-tailed deer use many of the same food resources (NPS 2006c). By removing the elk enclosure, the black-tailed deer population currently in the enclosure may experience greater intraspecies competition from additional black-tailed deer entering the project area. However, for deer inside the enclosure, this potential increase in competition would likely be offset by increased habitat access outside of the project area. In general, the removal of the enclosure is expected to reduce population variability for deer and elk on Tomales Point and therefore reduce overall habitat competition for Tomales Point black-tailed deer.

Although the Point Reyes black-tailed deer population has been shown to be vulnerable to competition from other ungulates, the unfenced Drakes Beach and Limantour tule elk herds have not been shown to have a significantly negative impact on the existing black-tailed deer populations outside of the project area (NPS 2006c, Furnas, et al. 2020). Additionally, unlike previous competition from fallow deer and axis deer, tule elk are a native species, so it is expected that the project area would support healthy free-ranging populations of both species similar to the rest of the Seashore.

The removal of the existing fencing is not expected to increase the spread of Johne's disease among native ungulates, including black-tailed deer. Johne's disease is known to occur in tule elk at Tomales Point and black-tailed deer are suspected to be carriers of the disease. The disease is also known to occur in cattle herds and free-ranging elk herds outside of Tomales Point. Black-tailed deer populations outside of Tomales Point directly interact with potentially infected cattle and free-ranging elk but have not been observed to be limited by disease. It is expected that black-tailed deer within the project area would experience similar effects if the elk fencing were removed. Additionally, the NPS currently monitors Johne's disease in wild ungulates and would continue to do so under alternative B.

The introduction of prescribed fire in the project area would be expected to have a positive impact on all ungulate species in the project area, including the black-tailed deer. The use of prescribed fire would better approximate natural patterns and promote native habitat, including increased forage for the black-tailed deer. Additionally, by better controlling invasive species, prescribed fire would also be expected to help protect existing and future high-quality habitat.

The additional actions under this alternative focused on preserving park resources, including the removal of supplementary water and mineral resources, would not be expected to significantly impact black-tailed deer or their habitat. While the existing water troughs have been used by black-tailed deer, a lack of water availability has not been shown to be an issue for the species. Additionally, by removing the existing elk fence, the black-tailed deer would be able to access water sources in and out of Tomales Point. This would allow for natural ecosystem function including natural animal movement patterns and natural population cycles.

Additional actions under alternative B that may affect development or visitor use in the project area would not be expected to have a significant impact on black-tailed deer. The Seashore already supports a healthy black-tailed deer population in other areas exposed to increased visitor use. Therefore, changes in visitor use and development in the project area are not expected to have significant effects on black-tailed deer despite a potential increase in contact between visitors and black-tailed deer in the area.

Alternative B Cumulative Impacts

Multiple existing or planned programs or projects have the potential to impact tule elk and black-tailed deer populations (see "Cumulative Impacts" section). The GMPA, fire management program, Pierce Point Road rehabilitation, PG&E power line, trail master planning, and NPS response to emergency actions within designated wilderness have the potential to have cumulative impacts in combination with the potential impacts described under alternative B.

The Seashore has two free-range elk herds at Drakes Beach and Limantour, which are managed, in part, under the GMPA. The preferred alternative (implementation of alternative B) would allow the Tomales Point herd to become free ranging and it is expected that the three herds would eventually integrate, resulting in the Seashore supporting a free-range population of more than 700 elk. Once the fence is removed, any elk migrating from Tomales Point would be managed in the same manner as the Limantour herd. While the Tomales Point elk would be free ranging, not all are expected to leave the Tomales Point area. While many elk in the south are present around the fence and are known to use areas outside the fence, the elk that are present in areas north of the Pierce Ranch complex are unlikely to disperse from these areas. As such, the potential impact of the removal of the fence on the rest of the Seashore would be anticipated to be similar to those of the existing free-range herds, which have not been found to significantly impact other resources, including historic ranching operations.

Alternative B would include actions that work to restore degraded habitats, improve habitat connectivity, increase heterogeneity, and restore native species, while prioritizing the inventory of rare species and species of concern, similar to the actions within the GMPA planning area, allowing for more complementary management actions between different zones of the Seashore. The fire management program provides a framework for all fire management activities within the Seashore and helps to ensure that the NPS' goals of suppression of unplanned ignitions, prescribed fire, and mechanical fuel treatments are met. The expanded coordination with FIGR and consideration of TEK for management of lands in the planning area would include increased potential for use of

prescribed burns under the Seashore's fire management program and would support the protection and creation of high value habitat for elk and deer.

Very limited or no cumulative impacts would be expected from implementation of alternative B with the other listed programs and ongoing actions.

Alternative C

Tule Elk

Alternative C includes the maintenance of the existing elk fence, exclosures, and increased direct management of the Tomales Point tule elk population. The impacts resulting from these actions are similar to alternative A (the no-action alternative), except that the tule elk population would be more actively managed to prevent large variations in numbers and prevent the tule elk population from exceeding the carrying capacity. Elk management under this alternative would limit natural ecosystem processes and result in an increase in management intensity for the Tomales Point elk herd.

If the elk fencing is kept in place, as proposed under alternative C, the Tomales Point tule elk herd would continue to be confined to Tomales Point and would be unable to use habitat outside of the project area. Additionally, tule elk at Tomales Point will continue to be unable to mix with the other herds of tule elk on the Seashore, limiting genetic diversity and herd health and decreasing overall natural ecosystem function.

Similar to alternative B, alternative C includes increased habitat management actions that may benefit tule elk, including the continued assessment of ecological conditions, potential for increased management of invasive species, and the possible implementation of a prescribed fire regime. Additionally, naturally occurring seeps and springs in the project area would be enhanced under alternative C.

The increased use of lethal population control for the Tomales Point tule elk herd would likely have a positive effect on the overall health of this herd and the repeated cycle of population growth followed by population crash would be reduced or eliminated through lethal control. By limiting the tule elk population to the carrying capacity, intraspecific competition between tule elk would be limited to more natural levels and may better reflect a natural ecosystem function than current management actions provide despite increasing the intensity of elk herd management. Although lethal control would keep elk within the carrying capacity, this increase in management intensity would not involve a free-ranging herd and would adversely affect the untrammeled quality of wilderness.

The Tomales Point tule elk use numerous natural water sources including seeps and springs. The enhancement of these water sources under alternative C would be expected to benefit tule elk in the project area. However, there has been no evidence that a lack of available water has had a negative impact on the tule elk population. The enhancement of natural water sources in the Tomales Point area would also mitigate any impacts from the NPS no longer providing supplementary water troughs and mineral licks during periods of drought.

Black-tailed Deer

The impacts to black-tailed deer under alternative C are similar to alternative A (the no-action alternative), except that the tule elk population would be more actively managed to prevent large variations in numbers and prevent the tule elk population from exceeding the carrying capacity. With the elk fencing remaining in place under this alternative, black-tailed deer in the project area

would continue to be confined to Tomales Point and would be unable to use habitat outside of the project area. Additionally, the black-tailed deer at Tomales Point would continue to be unable to mix with other black-tailed deer populations, limiting genetic diversity within the population and decreasing overall natural ecosystem function.

The use of lethal population control for the Tomales Point tule elk herd may be beneficial for black-tailed deer in the project area. By limiting the tule elk population to the carrying capacity, interspecies competition between tule elk and black-tailed deer would be limited to more natural levels and may better reflect a natural ecosystem function between the two species than current management actions provide. However, due to the existing elk fencing continuing to limit the movement of deer onto the peninsula, the potential benefits of reducing competition from elk may not be realized by black-tailed deer in the project area.

Similar to alternative B, alternative C includes increased habitat management actions that may benefit black-tailed deer, including the continued assessment of ecological conditions, increased management of invasive species, and the implementation of a prescribed fire regime. Additionally, naturally occurring seeps and springs in the project area would be enhanced under alternative C.

The black-tailed deer at Tomales Point use numerous natural water sources including seeps and springs. The enhancement of these water sources under alternative C would be expected to benefit black-tailed deer in the project area. However, there has been no evidence that a lack of available water has had a negative impact on the population.

Alternative C Cumulative Impacts

Multiple existing or planned programs or projects have the potential to have cumulative impacts on tule elk and black-tailed deer populations (see "Cumulative Impacts" section) in combination with the potential impacts described under alternative C.

The Seashore has two free-range elk herds at Drakes Beach and Limantour, which are managed, in part, under the GMPA. Under alternative C, the Tomales Point elk herd would continue to be managed as a confined herd, separate from the free-range herds.

Alternative C would include actions that work to restore degraded habitats, improve habitat connectivity, increase heterogeneity, restore native species, while prioritizing the inventory of rare species and species of concern, similar to the actions within the GMPA planning area, allowing for more complementary management actions among different zones of the Seashore.

The fire management program provides a framework for all fire management activities within the Seashore and helps to ensure that the NPS' goals of suppression of unplanned ignitions, prescribed fire, and mechanical fuel treatments are met. While the expanded coordination with FIGR and consideration of TEK for management of lands in the planning area would include increased potential for use of prescribed burns under the Seashore's fire management program at Tomales Point, additional consideration would be necessary with respect to the effect of prescribed fire activities to wildlife within the fenced area.

Very limited, or no cumulative impacts would be expected from implementation of alternative C with the other listed programs and ongoing actions.

Conclusion

Alternative B, the preferred alternative, would be expected to provide multiple benefits for tule elk and black-tailed deer in the planning area. These potential benefits include increased genetic

diversity, supporting natural population cycles, better habitat management including the potential use of prescribed fire, and other benefits associated with free-ranging elk herds. As noted previously, any elk migrating from Tomales Point would be managed in the same manner as the Limantour herd.

There are no expected short-term impacts from alternative A, however multiple potential long-term impacts are discussed including a lack of genetic diversity, unnatural population cycles including extensive population die off, and a lack of habitat management. Alternative C would increase the intensity of management and use lethal removal to artificially control population levels within the project area. Many of the potential impacts of alternative C are identical to those under alternative A with the exceptions of the tule elk population being limited to a specific carrying capacity through lethal removal and increased habitat management through the potential use of prescribed fire and the enhancement of specific seeps and springs within the project area.

Alternative B would most align with creating the desired conditions for the project area and would best support current and future tule elk and black-tailed deer resources.

WILDERNESS CHARACTER

Affected Environment

The 1964 Wilderness Act mandates the preservation of wilderness character; however, the Wilderness Act does not clearly define wilderness character. *Keeping It Wild in the National Park Service* is the NPS Director's Order 41 guidance handbook that specifies how to integrate wilderness character into park planning, management, and monitoring. This guidance document is based on the interagency wilderness character strategy *Keeping it Wild* (Landres, Barns and Dennis, et al. 2008) and the updated version, *Keeping it Wild 2* (Landres, Barns and Boutcher, et al. 2015). This framework describes wilderness character as "the combination of biophysical, experiential, and symbolic ideals that distinguishes wilderness from other lands. These ideals combine to form a complex and subtle set of relationships among the land, its management, its users, and the meanings people associate with wilderness." The five tangible qualities that contribute to wilderness character are untrammeled, natural, undeveloped, opportunities for solitude or a primitive and unconfined type of recreation, and other features of value.

People visit the Philip Burton Wilderness to experience the undeveloped nature of the area and the opportunities for solitude and unconfined recreation. (NPS)

The Phillip Burton Wilderness comprises nearly 33,000 acres of land and water, roughly one-third of the lands administered by the Seashore. It is the only federally designated wilderness in the San Francisco Bay Area and includes one of only two marine wilderness areas in the national park system (NPS 2020a). Within the 2,900-acre project area, approximately 2,400 acres (or 85%) are a part of the Phillip Burton Wilderness; the planning area does not include any marine waters. The natural environment in this portion of the Phillip Burton Wilderness includes grasslands, shrublands, streams, wetlands, and a diverse array of wildlife, providing opportunities to experience the untrammeled, natural, and undeveloped qualities that contribute to wilderness character. Vegetation includes 10 cover types but is largely grasslands and shrublands (see the "Vegetation Communities" section). As previously noted, the grasslands are dominated by non-native species with a lack of native annual grasses having been observed in the project area. The Seashore is home to the "greatest avian diversity of any national park unit in the United States and nearly half of the bird species of North America" (NPS 2020b). The Seashore has many other types of wildlife, including mammals, reptiles, amphibians, and invertebrates (NPS 2020b). Tomales Point is also home to the indigenous Tule elk. This portion of the Phillip Burton Wilderness provides access to outstanding opportunities for solitude and inspired recreation in untrammeled terrestrial environments adjacent to a large urban area (NPS 2020a).

Currently, this portion of the wilderness contains several modern structures and installations, including a small segment of the elk fence, 12 elk exclosures used for vegetation monitoring, four supplemental watering systems, and a section of power line owned and maintained by PG&E. The post-and-wire elk fence at the southern end of the project area (see figure 2) is located primarily outside of the wilderness boundary; however, approximately 200 yards along the western coastal bluffs are within wilderness. Twelve post-and-wire elk exclosures were established to study vegetation growth in the absence of tule elk grazing. These exclosures were constructed in the winter of 1997–1998 and remain today. The project area also contains seven supplemental watering systems for the elk, four of which are in wilderness (White Gulch, the Plateau, Lower Pierce Ranch, and near Avalis Beach). These systems each consist of a water tank connected to a large gravity-fed water trough, connected by plastic water lines that are partially buried near the troughs to prevent damage from elk coming to drink. The systems at White Gulch, the Plateau, and Lower Pierce Ranch have water tanks with 1,200-gallon capacity and 250-gallon troughs; these sites are accessed for refilling and maintenance by pickup truck. The system at Avalis Beach is accessed by boat and consists of a trough with smaller tanks. When deemed necessary, mineral blocks are placed at the trough locations within rubber livestock feed pans. The power line provides electricity to the house at Pierce Ranch. Approximately 1,200 feet of the 1-mile power line crosses into the wilderness area in the southern end of the planning area.

Environmental Consequences

Alternative A

Under the no-action alternative, the NPS would maintain the elk fence, elk exclosures, and supplemental watering systems located within wilderness. This would result in negative long-term impacts to the area's wilderness character.

The continued provision of supplemental water and minerals under this alternative would degrade the *untrammeled* quality of wilderness character, as these are intentional actions of modern human manipulation.

The continued confinement of the elk and deer would negatively impact the *natural* quality of wilderness character by causing abnormal population fluctuations. The confinement of the elk and

deer also adds to the grazing pressure on native vegetation communities within the project area, increasing impacts on vegetation communities during periods of elk population spikes and drought.

Although alternative A would retain existing infrastructure within wilderness, it does not propose new structures or installations. Therefore, the *undeveloped* quality of wilderness character would remain relatively unchanged. However, under this alternative, Seashore staff would continue to service the water and mineral stations via motor vehicles (e.g., pickup trucks) when necessary. These actions would result in additional negative impacts to the undeveloped quality.

The *opportunities for solitude or primitive and unconfined recreation* quality remain unchanged under this alternative.

Alternative A Cumulative Impacts

Past, ongoing, and reasonably foreseeable actions within the Phillip Burton Wilderness (as described in the "Cumulative Impacts" section) have resulted in both adverse and beneficial impacts on wilderness character. Human modification and manipulation of the environment from trail master planning and maintenance, fire management, PG&E powerline operations, and NPS response to emergency actions in the wilderness have the potential for impacts on wilderness. Park management activities that have the potential for use of motorized tools, such as trail maintenance, impact the undeveloped quality but also benefit the opportunities for solitude and primitive and unconfined recreation quality. Fire management and invasive species treatment, which influence ecological systems, have adverse impacts on the natural and untrammeled qualities; however, these activities provide beneficial impacts by reducing risks from wildfire and reducing competition for native plant communities. Emergency actions in the wilderness, such as search and rescue efforts, could involve the use of helicopters, as well as motorized vehicles like boats and ATVs, and tools. Similarly, PG&E's maintenance of its powerline may require the use of mechanized vehicles and mechanized tools. These actions have adverse impacts on the undeveloped and opportunities for solitude or primitive and unconfined recreation qualities of wilderness. However, these activities are all periodic and of short duration, hence these adverse impacts are temporary, not permanent. These activities have the potential to recur as needed, therefore the potential for adverse impacts will continue but the adverse impacts should be limited to the duration of the identified activities.

As described in the "Cumulative Impacts" section, there are activities that would create new impacts under the no-action alternative, however, these cumulative impacts on wilderness character would be minor and infrequent in nature.

Alternative B

Alternative B would update zoning within the project area to include a wilderness, scenic landscape, and development zone. It would remove the elk exclosures, supplemental water and mineral resources, and the small portion of elk fence that is within the wilderness boundary. Alternative B would also include invasive plant management and the use of prescribed fire to meet desired conditions of native plant communities. The NPS would complete a Minimum Requirements Analysis (MRA) to determine which tools would be required for removal activities, invasive plant management, and prescribed fire. A location-based reservation system would also be established for Tomales Bay beach camping.

Removal of the elk exclosures, supplemental water and mineral systems (and associated signs), and a small portion of the elk fence would have short-term adverse but long-term beneficial effects on wilderness character. These actions would be singular in nature and involve workers accessing sites, disassembling installations, and removing infrastructure from the wilderness. If the MRA deems the

use of motor vehicles, motorized equipment, or mechanical transport necessary, these actions would have a temporary adverse impact on the *undeveloped* quality of wilderness character.

Invasive plant management would have periodic short-term adverse but long-term beneficial effects on wilderness character. These actions would occur as needed and involve workers using herbicides and manual techniques to manage invasive plants. Use of prescribed fire would similarly have short-term adverse but long-term beneficial effects on wilderness character. Prescribed fire would occur as needed to achieve desired conditions for native plant communities and according to the Seashore's Operational Strategy for the Fire Management Plan. If the MRA deems the use of motor vehicles, motorized equipment, or mechanical transport necessary, these actions would have a temporary adverse impact on the *undeveloped* quality of wilderness character.

Under alternative B, the *untrammeled*, *natural*, and *undeveloped* qualities of wilderness character would be meaningfully improved. The removal of the elk fence, elk exclosures, and supplemental water and mineral systems would eliminate the trammeling impacts associated with the continued provision of water and minerals to elk, end the artificial confinement of elk to Tomales Point, and greatly reduce the presence of modern infrastructure within the wilderness. Allowing the elk and deer to roam without confinement would enhance their ability to seek new areas in times of drought or stressed resources. Please refer to the "Tule Elk and Black-tailed Deer" section for a more detailed discussion of adverse and beneficial impacts on these species. Invasive plant management and use of prescribed fire would cause trammeling impacts during implementation but both actions would enhance the native plant communities over the long term.

The *opportunities for solitude* or *primitive and unconfined recreation* quality would be slightly degraded under this alternative. A location-based reservation system would be implemented for Tomales Bay beach camping. Although this action would protect natural and cultural resources found within the planning area, it would reduce visitors' opportunities for unconfined recreation by increasing management restrictions on their behavior. Visitors' opportunities for solitude would also be temporarily impacted under this alternative due to the increased presence of workers while infrastructure is being removed.

Although alternative B would improve the trailheads, parking lot, and restroom facilities within the planning area, these improvements would not increase visitor capacity and would therefore not have an impact on visitors' opportunities for solitude or primitive and unconfined recreation.

Alternative B Cumulative Impacts

Alternative B would result in long-term beneficial impacts to wilderness character by removing developments, eliminating the trammels associated with active management of the elk herd, ending the artificial confinement of elk and deer, and managing invasive plant species. It would also reduce the need for maintenance activities in the wilderness as maintenance for the supplemental water and mineral systems would no longer be needed. As described for alternative A, past, ongoing, and reasonably foreseeable actions within the Phillip Burton Wilderness (as described in the "Cumulative Impacts" section) have resulted in both adverse and beneficial impacts on wilderness character. When the effects of alternative B are combined with other present and reasonably foreseeable future actions, the cumulative impacts on wilderness character would be beneficial. The potential for periodic short-term temporary impacts associated with maintenance and the response to emergency operations would continue, but these would be lessened with the removal of the supplemental water and mineral systems. The incremental beneficial impacts of alternative B would reduce the adverse impacts that are already occurring.

Alternative C

Under alternative C, the elk fence and exclosures would be maintained, the elk population would be actively managed, supplemental water and mineral systems would be removed, and naturally occurring water sources would be enhanced. Alternative C would also include invasive plant management and the use of prescribed fire to meet desired conditions of native plant communities. A location-based reservation system would also be established for Tomales Bay beach camping.

The *untrammeled*, *natural*, and *undeveloped* qualities would be similar to those described under the no-action alternative, as the elk fence and exclosures would remain. Elk and deer would continue to be artificially confined and modern infrastructure would be retained and actively maintained. However, under alternative C, the NPS would rely on unnatural means (lethal removal) to manage the elk population. This would require regular (likely annual) actions within the wilderness. Control of the elk population in this manner would degrade the *natural* and *untrammeled* qualities of wilderness character. The enhancement of up to eight naturally occurring water sources under this alternative would also have an adverse impact on the natural and *untrammeled* qualities due to the manipulation and regular maintenance of naturally occurring water sources.

Alternative C would result in improvements to the *untrammeled* and *undeveloped* qualities of wilderness character due to the removal of the supplemental water and mineral systems and enhancement of the vegetation communities through invasive species management and prescribed fire. As described for alternative B, the removal activities would result in temporary impacts but long-term beneficial effects to the *untrammeled* and *undeveloped* qualities.

The opportunities for solitude or primitive and unconfined recreation quality would be slightly degraded during supplemental water system removal and during the enhancement of the natural water sources, but improved once the systems are removed. This quality would be intermittently but regularly degraded in association with population management and natural water source maintenance activities. A location-based reservation system would be implemented for Tomales Bay beach camping. Although this action would protect natural and cultural resources found within the planning area, it would reduce visitors' opportunities for unconfined recreation by increasing management restrictions on their behavior.

Alternative C Cumulative Impacts

Alternative C would result in long-term beneficial impacts on the *untrammeled* and *undeveloped* qualities of wilderness character from the removal of the supplemental water and mineral systems and the elimination of needed maintenance of these features. However, this alternative would also have long-term adverse impacts on the *natural* and *untrammeled* qualities of wilderness from the need for regular elk population management via lethal removal and the continued maintenance of up to eight natural water features. When these effects are combined with other present and reasonably foreseeable future actions (see "Cumulative Impacts" section), the cumulative impacts on wilderness character would be beneficial. The incremental impacts of alternative C would reduce the impacts that are already occurring.

Conclusion

Under alternative A, wilderness character would continue to be degraded by the ongoing management of a confined elk herd as well as the presence and maintenance of associated installations.

Under alternative B, modern installations, including the elk exclosures, supplemental water and mineral systems, and a small portion of the elk fence would be removed from the Phillip Burton

Wilderness. Removal of these installations would impact not just the tule elk, but also visitors to the Seashore who would then have a more natural wilderness experience. Additionally, park staff would continue invasive plant management and implement prescribed fires. Although removal and vegetation management actions would cause negative impacts on the *undeveloped* and *opportunities for solitude* or *primitive and unconfined recreation* qualities of wilderness character, from staff presence in wilderness, the use of a variety of tools, and habitat disturbance, these impacts would be short-term in nature. The creation of a location-based reservation system for Tomales Bay beach camping would negatively impact visitors' opportunities for unconfined recreation. Overall, alternative B would result in long-term beneficial impacts on wilderness character by removing infrastructure, ending active management of the elk herd, reducing the use of 4(c) prohibited tools, returning elk to a natural, unconfined state, and supporting native vegetation communities.

Under alternative C, the short-term adverse and long-term beneficial impacts on the *untrammeled* and *undeveloped* qualities wilderness character would be the same as alternative B from the removal of supplemental water and mineral systems and vegetation maintenance activities. However, the elk fence and exclosures would not be removed and would continue to have adverse impacts on the *natural* and *undeveloped* qualities. Seashore staff would have to actively manage the elk herd via regular (likely annual) lethal removal. They would also enhance and regularly maintain some naturally occurring water resources. Both of these regularly re-occurring actions would adversely affect the *natural* and *untrammeled* qualities of wilderness. The creation of a location-based reservation system for Tomales Bay beach camping would negatively impact visitors' opportunities for unconfined recreation.

WATER RESOURCES AND WETLANDS

Affected Environment

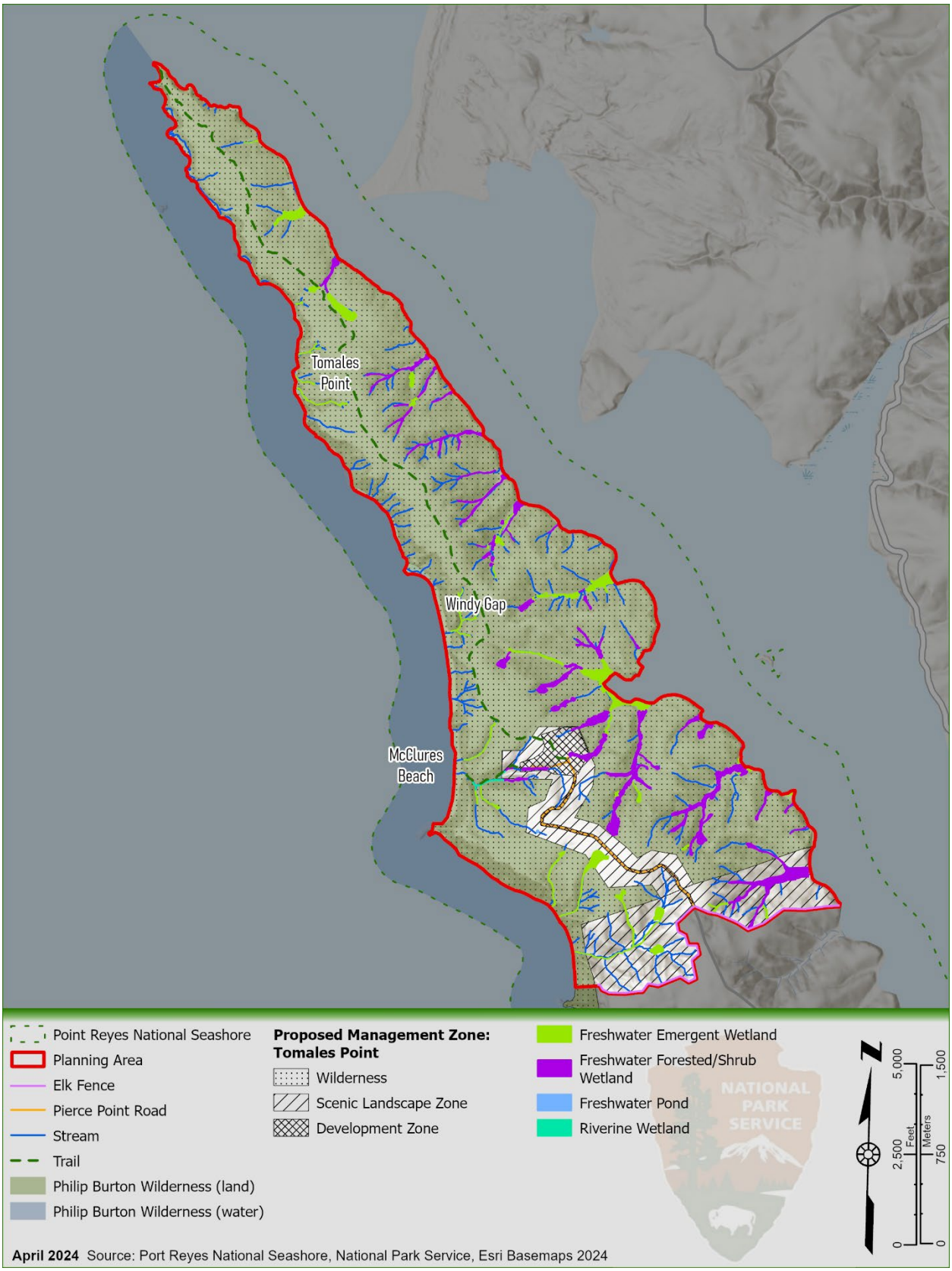
The project area contains a series of seeps, springs, streams, and ponds. Figure 5 shows the water resources present in the project area. McClures Creek runs down to the beach and ponds up in a large area. McClures Beach trail, a moderately steep 0.4-mile trail, runs parallel to the creek and is eroding. Water resources are limited on Tomales Point and elk have trampled existing water resources including McClures Creek in their efforts to reach water, especially during drought periods.

The NPS manages wetlands in accordance with Executive Order 11990, "Protection of Wetlands," the Clean Water Act, the Rivers and Harbors Appropriation Act of 1899, and the procedures described in NPS Director's Order 77-1: *Wetland Protection* (NPS 2002). The project area contains more than 130 acres of wetlands (excluding coastal and deepwater wetlands), which fall into several distinct wetland types—beach, depressional, seep/swale, estuarine, and riverine wetlands. Almost all of the wetlands occur within the Phillip Burton Wilderness. These wetlands support a variety of vegetation species that are integral to wetland health and function.

California's wetlands have high ecological diversity and provide a wide variety of ecosystem services. Since European settlement, wetlands have been greatly reduced and altered by agricultural conversion, urban development, and other land use activities (Duffy, et al. 2016, Grewell, Callaway and Ferren, Jr. 2007).

As was described in the "Vegetation Communities" section, climate conditions at the Seashore are currently changing and are projected to change more drastically in the coming decades. These changes would be expected to impact many resources on Tomales Point, including water and wetland resources.

Figure 5. Location of Water Resources in the Planning Area



Environmental Consequences

Alternative A

Under alternative A, the no-action alternative, the current management of water resources and wetlands would continue. There would be no changes to the management practices for the tule elk herd and the supplemental water efforts would continue. Supplemental water would continue to be provided when needed but would likely not prevent the trampling of natural water sources by elk given the importance of water to the elk herd. Under alternative A, trampling of water seeps and wetlands would increase if the elk population increased beyond its current levels. Otherwise, no additional long-term impact to water seeps and wetlands would be expected under the no-action alternative.

Alternative A Cumulative Impacts

Past, ongoing, and reasonably foreseeable actions within Tomales Point (see the "Cumulative Impacts" section) have resulted in adverse impacts on water resources and wetlands. Trail maintenance, especially for McClures Beach Trail, has the potential to increase sedimentation of the nearby stream. McClures Beach Trail is a narrow trail that descends to the beach and is immediately adjacent to McClures Creek. The trail is subject to active erosion from natural processes including rainfall and wildlife accessing the creek for water. Trail maintenance for McClures Beach Trail has required the use of heavy machinery to regrade the trail resulting in sedimentation of the adjacent McClures Creek. Future maintenance of McClures Beach Trail would not include heavy machinery so similar impacts would not occur in the future. Other past, ongoing, and reasonably foreseeable actions (fire management, PG&E powerline operations, and NPS response to emergency actions) could adversely affect water resources and wetlands through trampling, erosion, and sedimentation; however, the potential for impacts would be low unless actions occur in or adjacent to water resources or wetlands.

As previously described, no new impacts would occur under the no-action alternative, thus no new cumulative impacts on water resources and wetlands would occur.

Alternative B

Alternative B would include the removal of human-made elements, such as the elk fence, exclosures, and supplemental water and mineral systems. Without the fence under alternative B, tule elk and black-tailed deer would be able to roam freely to graze and drink both inside and outside the project area. This would reduce grazing pressure and trampling near naturally occurring water sources, especially during times of population spikes and drought. Alternative B would also include invasive plant management using herbicides and manual treatments in compliance with the IPM plan. The IPM plan includes provisions to protect park resources including a required buffer around all water resources (including wetlands) to avoid impacts to these resources.

Alternative B Cumulative Impacts

Under alternative B, the removal of the elk fence would be expected to lessen the reliance of the elk herd of water resources within Tomales Point, resulting in less trampling of seeps and wetlands by elk seeking water, which would be beneficial. The impacts on water resources and wetlands of other past, present, and reasonably foreseeable future actions would be the same as described for alternative A above. The cumulative impacts on water resources and wetlands would be beneficial when compared to existing conditions.

Alternative C

Alternative C would also include the removal of some human-made elements including the exclosures and supplemental water and mineral systems. The removal of these elements would allow for natural processes to occur. Alternative C would retain the elk fence, but the elk population would be managed by the NPS to avoid extreme population spikes, thus reducing the pressures on the natural ecosystem, especially the water resources and wetlands, when compared to current conditions. Additionally, the enhancement of up to eight naturally occurring water sources (e.g., seeps and springs) would increase the capacity of these water sources for use and access by wildlife. Maintenance of the water sources would have adverse impact on a limited number of wetland resources for the benefit of wildlife.

Alternative C Cumulative Impacts

Alternative C would retain the elk fence, limiting the herd to Tomales Point and would remove the supplemental water systems. Regular elk population maintenance via lethal removal would maintain the herd at a level commensurate with available water resources. The enhancement of natural water features would enhance the availability of water. The impacts on water resources and wetlands of other present and reasonably foreseeable future actions would be the same as described for alternative A, above. The cumulative impacts on water resources and wetlands would be beneficial when compared to existing conditions.

Conclusion

Under alternative A, impacts on water resources and wetlands would continue (i.e., trampling of natural water sources by elk unnaturally confined by the fence) and would worsen if the population were to spike.

Generally, the action alternatives would result in long-term beneficial impact on wetlands from removal of human-made elements, such as the elk fence (alternative B only), exclosures, and supplemental water and mineral systems. Without the fence under alternative B, tule elk and black-tailed deer would be able to roam freely to graze and drink both inside and outside the project area. This would reduce grazing pressure and trampling of naturally occurring water sources, especially during times of population spikes and drought.

Alternative C would retain the fence, but the elk population would be managed by the NPS to avoid extreme population spikes, thus reducing the pressures on the natural ecosystem when compared to current conditions. Further, the NPS would enhance naturally occurring water resources, which would have limited, re-occurring adverse impact on a small number of wetland resources for the benefit of wildlife.

VISITOR USE AND EXPERIENCE

Affected Environment

The Seashore is located within 40 miles of the San Francisco metropolitan area, a major urban population. The Seashore offers abundant recreational opportunities including more than 80 miles of undeveloped coastline, 147 miles of hiking trails, backcountry campgrounds, and many beautiful beaches (NPS 2020a). According to visitor surveys conducted by Sonoma State University (Ferry and LaFayette 1997), most Seashore visitors spend two to four hours engaging in a variety of activities. Common activities include hiking, going to the beach, sightseeing, whale watching, and bird watching (Ferry and LaFayette 1997). The Seashore hosts more than two million visitors annually (NPS 2024a) with over 100,000 people visiting Tomales Bay specifically in 2023 (NPS 2024b). The

Tomales Point area is a popular destination for visitors wishing to view tule elk, birds, and wildflowers. Visitors are also able to visit Pierce Ranch, hike on designated trails, visit the beach, and camp.

The only official trails in the Tomales Point area are the McClures Beach Trail and Tomales Point Trail (NPS 2023c). The McClures Beach Trail is a short, moderately steep 0.4-mile trail that leads down to the beach in a small cove. This area of beach has dramatic sights and sounds of the surf crashing on the rocks at either end of the beach (NPS 2023c). The Tomales Point Trail offers panoramic views of the Pacific Ocean, Bodega Head, and Tomales Bay, as well as opportunities to view tule elk that may be gathered at water sources. The trail runs from the parking area to the northern tip of the Peninsula, offering a 9.4-mile round-trip hike. The first 3.7 miles of this trail are maintained and follows the route of an old ranch road as it travels along the crest of the ridge. Beyond Lower Pierce, the trail is no longer maintained and becomes sandy (NPS 2023c).

Parking at Tomales Point is limited. The Tomales Point parking lot is a gravel lot at the north end of Pierce Point Road and entrance to Pierce Ranch that can accommodate approximately 20 vehicles. The road shoulders of Pierce Point Road south of the parking lot are also used for informal parking. Some visitors park their horse trailers in the gravel lot or on the adjacent road shoulder to take their horses from Pierce Ranch to the Tomales Point Trail, as there is no designated horse trailer parking.

The McClures Beach Trailhead parking lot is a paved lot that can accommodate approximately 35 vehicles. It is at the west end of a spur road heading downhill and to the west from the Tomales Point Trailhead/Pierce Point Ranch parking lot. Two vault toilets are located at the northeast corner of the lot (NPS 2023c). This is the only public restroom facility at Tomales Point. Due to the relatively small number of spaces, parking can often fill up on holidays, weekends, and optimal weather days.

Boat-in camping takes place on seven beaches within the planning area. (NPS)

The Seashore offers year-round boat-in camping on the west shore of Tomales Bay north of Tomales Bay State Park (NPS 2024c). Within the project area, seven beaches are identified for boat-in camping beginning at Elk Fence Beach North. These beaches are tidally influenced and generally are small sandy coves backed against steep cliffs (NPS 2023d). Visitors to these boat-in sites must use a kayak, canoe, small motorboat, small sailboat, or other small vessel. Personal watercraft are prohibited on Tomales Bay (NPS 2024c). Visitors who plan to camp at Tomales Point must obtain a camping permit online via Recreation.gov. Reservations can be obtained three months in advance and visitors often obtain permits as soon as the reservations are open. Twenty permits are available each day — nine for parties of 1 to 6 people, eight for parties of 7 to 14, and three for parties of 15 to 25 [it is noted that the group size of 15 to 25 is limited to Tomales Beach or Marshall Beach - outside of the planning area].

The historic Pierce Ranch offers a glimpse into the early dairy ranching days on the peninsula. There are many ranches on the Point Reyes peninsula and in the nearby Olema Valley, but Pierce Ranch is probably the least altered, least modernized, physical complex of ranch buildings in the area. Part of the ranch's main house dates to 1856, making it the oldest surviving ranch house in the Point Reyes region (NPS 2023c). Pierce Ranch was added to the NRHP in 1985 and was subsequently opened to

the public as an interpretive site. Visitors are welcome to walk through the ranch complex, where interpretive signs describe the history and function of the various buildings (NPS 2023c). The "Cultural Resources" section has additional details of the Pierce Ranch and the Pierce Ranch Historic District. The main house is a park residential unit.

Environmental Consequences

Alternative A

Under the no-action alternative, visitor use and experience would remain as described in the affected environment section above. Current adverse impacts on visitor experience, including congestion at the parking lots, limited camping permits, retention of developed elements and unnaturally confined wildlife in wilderness would continue to occur and degrade the experience.

Alternative A Cumulative Impacts

Past, ongoing, and reasonably foreseeable actions within the Phillip Burton Wilderness have resulted in both adverse and beneficial impacts on visitor use and experience. Park management activities, such as implementation of the GMPA, Pierce Road rehabilitation, trail planning, and fire management, would have adverse impacts on visitor experience during construction or implementation of the actions due to temporary closures or delays and increased noise from use of vehicles and equipment. Over the long term, these actions would be beneficial for visitors, as they would prove a wider range of recreational and educational opportunities in parts of the Seashore, safer road, and trail conditions with better wayfinding signs, and reducing risks from wildfire. Response to emergency actions can also adversely affect visitor experience due to the use of helicopters, vehicles, and equipment.

No new impacts would occur under the no-action alternative, thus no cumulative impacts on visitor use and experience would occur.

Alternative B

Alternative B would work to enhance the visitor experience through maintenance and improvements of existing facilities, but management of recreational opportunities would be balanced with protection of natural, cultural, and wilderness resources.

Parking

Alternative B would improve parking in the project area to formalize parking spaces and better manage informal parking areas along the shoulders of Pierce Point Road south of the parking lot. These actions would not be intended to expand parking beyond the current level of use; rather, it would delineate parking spaces to avoid confusion and improper parking and more efficiently utilize the space available for parking while protecting resources. The NPS would develop accessible restroom facilities in the Pierce Ranch area in a manner that is consistent with or adaptively reuses one of the historic structures. These changes would improve visitor experience. It is anticipated that parking availability would continue to be limited on good weather days, weekends and holidays, continuing to affect visitor experience.

Trails and Trail Maintenance

Under alternative B, the NPS would change the management of the two designated trails in the project area. The Tomales Point Trail and McClures Beach Trail would be managed to address erosion and sedimentation. This could include rerouting segments of Tomales Point Trail and maintaining the McClures Beach Trail, which is subject to changes from stream erosion and slope failures. Treatments or modifications to these trails could require temporary closures or delays for visitors while Seashore staff is performing work. Ultimately, trail maintenance and management would be performed to retain access to these trails and the recreational opportunities, resulting in a long-term benefit to visitor experience. Due to the dynamic location of McClures Beach Trail, it is possible that conditions could progress to the point that the trail is no longer safe for visitors to use. If this were to occur, the NPS would close this trail to protect visitors, resulting in a permanent impact on visitor experience.

McClures Beach Trail is a popular access point to the Pacific Ocean, but erosion and slope failure make it challenging to maintain. (NPS)

The NPS would design and develop an accessible spur trail originating at the Pierce Ranch and providing access to vistas of Tomales Bay. The spur trail would be within the non-wilderness corridor and adjacent to the Pierce Ranch amenities.

Camping

Alternative B would change the boat-in camping reservation policy from a system that allows visitors with a permit to select nearly any shoreline location to set up camp (exceptions are closed areas and group camp site requirements), to one that is location-specific to protect natural and cultural resources. This change could slightly affect the camping experience, depending on the perspective of the visitors. Those that enjoy the freedom to select their own camping location may feel that this system hinders their recreational opportunities, while others that prefer the confirmation of an assigned site, appropriate for the size of their party, may see this change as a benefit. Alternative B would also begin to evaluate day use beach activities to understand potential impacts on natural and cultural resources.

Adaptive Reuse of Pierce Ranch

The NPS would enhance Pierce Ranch to attract visitors to the site as a core location at Tomales Point. The facilities would be adaptively reused, the circulation patterns would be revised, and a new spur trail and overlook on the eastern side of the complex would be added. All historic features outside of the NRHP would be retained for interpretation purposes unless they are deemed incompatible with natural resources and/or wilderness character. These enhancements would improve the experience of visiting the historic ranch site.

Wilderness Experience

For visitors that travel to Tomales Point for a wilderness experience, the removal of development in designated wilderness would greatly enhance the experience. Removing the elk fence, exclosures, supplemental water and mineral system, and signs from wilderness would provide a more authentic experience.

The *opportunities for solitude or primitive and unconfined recreation* quality would be slightly degraded under this alternative. A location-based reservation system would be implemented for Tomales Bay beach camping. Although this action would protect natural and cultural resources found within the planning area, it would reduce visitors' opportunities for unconfined recreation by increasing management restrictions on their behavior. Visitors' opportunities for solitude would also be negatively impacted under this alternative due to the increased presence of workers while infrastructure is being removed.

As discussed in the "Wilderness" section, although there would be short-term adverse impacts from the removal actions, there would be permanent beneficial effects from removal of these features, reduction of maintenance activities by Seashore staff, and elimination of the unnatural confinement of the elk herd.

Alternative B Cumulative Impacts

Alternative B would result in largely beneficial impacts on visitor experience from trail and parking improvements, removal of intrusions in wilderness, and enhancements of Pierce Ranch. The change to a location-based reservation system for camping and potential limitations for day use beach areas could represent adverse impacts for some visitors while enhancing the experience for others. The impacts on visitor use and experience of other past, present, and reasonably foreseeable future actions would be the same as described for alternative A above. The cumulative impacts of alternative B are not expected to significantly change the visitor experience within Tomales Point. The incremental impacts of alternative B would contribute to, but not substantially change, the impacts that are already occurring.

Alternative C

Alternative C would include the same action as alternative B for parking, trails, Pierce Ranch, and camping; therefore, the impacts would be the same as those described for alternative B. Alternative C would differ for the wilderness experience, as the elk fence and exclosures would remain under this alternative, keeping some human-built features in wilderness. These features would require occasional maintenance, which means Seashore staff potentially using motorized vehicles and equipment in wilderness. Additionally, since the elk herd would remain confined, the Seashore would have to enhance some of the naturally occurring water resources and perform regular population maintenance, which could include lethal removal. Localized areas may be temporarily closed to visitors during elk removal actions. These actions would degrade the wilderness experience.

Alternative C Cumulative Impacts

Alternative C would result in beneficial and adverse impacts on visitor experience, similar to alternative B; however, alternative C would have added adverse impacts from elk herd management via lethal removal. The impacts on visitor use and experience of other past, present, and reasonably foreseeable future actions would be the same as described for alternative A above. The cumulative impacts of alternative C are not expected to significantly change the visitor experience within Tomales Point. The incremental impacts of alternative C would contribute to, but not substantially change, the impacts that are already occurring.

Conclusion

Under alternative A, no notable changes to visitor experience would occur. Visitors would continue to be able to recreate freely at Tomales Point but would continue to be affected by crowded parking areas and interruptions related to Seashore management activities.

Under alternative B, recreational opportunities would be generally improved through changes to trail maintenance, management of Pierce Ranch, enhancements to the parking and restroom facilities, and removal of human-made elk management features (i.e., containment fence, exclosures, and supplemental water/mineral systems). Some visitors would be adversely affected by the change in campsite reservation to a location-based system while others may benefit from being provided location and access information specific to their reservation.

Alternative C would have the same impacts as alternative B, except that the elk fence would not be removed, and the elk herd would be managed via lethal removal. Although retention of the fence would not be a change from current conditions, the lethal removal would be an added adverse impact that would be expected to recur on a regular basis (annual). Portions of Tomales Point may have to be closed to visitors during removal activities and some visitors may not agree with this practice.

CULTURAL RESOURCES

"Historic properties," as defined by the implementing regulations of the NHPA (36 CFR 800), are a prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places. This term includes artifacts, records, and the remains that are related to and located within such properties, as well as traditional and culturally significant Native American sites and historic landscapes. The term "eligible for inclusion in the National Register" includes both properties formally determined eligible and all other properties that meet National Register listing criteria.

The significance of historic properties is generally judged against a property's ability to meet, at a minimum, one of the four criteria for inclusion on the National Register (36 CFR 60):

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or
B. that are associated with the lives of persons significant in our past; or
C. that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D. that have yielded, or may be likely to yield, information important in prehistory or history.

Properties may be eligible for the National Register for contributions at the national, state, or local level. Ordinarily, properties achieving significance within the last 50 years are not considered eligible unless they are integral parts of historic districts or they are of exceptional importance. Additionally, for a property to be listed in the National Register, it must possess sufficient integrity to convey its significance (i.e., location, design, setting, workmanship, materials, feeling and association).

Affected Environment

Cultural resources within the 2,900-acre planning area include the Historic Pierce Ranch, the Point Reyes Peninsula Indigenous Archeological District, and a number of unevaluated cultural resources associated with the varied history of Tomales Point.

Pierce Ranch Historic District

The Pierce Ranch Historic District is an approximately 220-acre historic district centered on the ranch core of the Pierce Ranch, which was developed between 1856 and 1933. The historic district was listed in the National Register of Historic Places in 1985 as a significant example of a mid-nineteenth and early twentieth century Pacific Coast dairy ranch with a high degree of integrity

represented in its historic buildings and landscape features (Chappell, Kelly and Cox 1985). The district is comprised of a large number of historic buildings associated with milking and dairy production, residential use, and ranch operations that served the operation of the Pierce Ranch for over a century. Historic roads, windbreaks, and remnant features documented as archeological resources are also contributing resources of the district. The current use of the Pierce Ranch is as an interpretive site of ranch history and the region's historically significant dairy industry. The site is open to the public for self-guided tours with interpretive signage, and the main ranch house is in use as an NPS residence.

The Pierce Ranch Historic District encompasses 220 acres of Tomales Point and is a significant example of a mid-nineteenth century dairy ranch. (NPS)

Point Reyes Peninsula Indigenous Archeological District

The Point Reyes Peninsula Indigenous Archeological District covers several thousand acres on the peninsula and is significant for its precolonial and historic archeological sites, information potential, and its association with the Coast Miwok. Consistent with the 2021 General Agreement with the FIGR and federal laws, such as Section 304 of the *National Historic Preservation Act* (NHPA), information regarding this district is undisclosed to the public to protect it from physical damage, both accidental and deliberate.

Unevaluated Cultural Resources

In addition to the two historic districts described above, the planning area includes a variety of other cultural resources that have been documented by the NPS but have yet to be evaluated for their eligibility for listing in the NRHP. These cultural resources include remnant landscape features associated with the former pasture lands of the Pierce Ranch including the site of the former Lower Pierce Ranch, and a variety of archeological resources reflecting a range of historical themes identified in the *Tomales Bay Environmental History and Historic Resource Study.*

Environmental Consequences

Alternative A

Pierce Ranch Historic District

The no-action alternative would continue current preservation practices for maintaining the buildings, structures, and landscape features associated with Pierce Ranch. To date, these preservation treatments and existing uses of the Pierce Ranch have maintained its contributing resources in good to fair condition and maintained the integrity of the historic district overall.

Point Reyes Peninsula Indigenous Archeological District

Under the no-action alternative, some contributing resources of the Point Reyes Peninsula Indigenous Archeological District may be at risk of incidental impacts associated with the existing system of permitted overnight camping on Tomales Bay. The current system of overnight camping within the planning area does not designate individual locations for overnight camping but rather authorizes permitted camping anywhere on NPS beaches on the western shore of Tomales Bay within 75 feet of the mean high water mark. This system makes it difficult for the NPS to monitor and enforce visitor compliance with camping program rules and requirements, provide effective wayfinding to visitors, and monitor the effects of the camping program on park resources. Activities associated with overnight camping with potential to result in impacts to archeological resources include: the construction and burning of wood fires or cooking features, improper disposal of human waste, and trammeling of surface vegetation and soils in the establishment of social trails and tent pads. Archeological resources that become exposed are also more likely at risk of improper removal of artifacts or damage from looting.

In addition to damaging the archeological value of these resources, the same activities have potential to negatively impact or disrespect the broader Tribal values for these resources. Under the no-action alternative the NPS and FIGR would continue to coordinate in monitoring effects to Tribal resources and implement adaptive management measures to further protect sensitive resources.

Over the long-term, the no action alternative would likely result in a moderate level of negative impacts to the Point Reyes Peninsula Indigenous Archeological District and the related Tribal resources and values associated with these resources from episodic impacts incidental to the overnight camping activities authorized on the western shore of Tomales Bay.

Unevaluated Cultural Resources

Under the no-action alternative, the various unevaluated cultural resources distributed across the Tomales Point planning area would continue to be preserved and monitored consistent with NPS management policies. Although no future management actions beyond preservation are anticipated for these features, the NPS would work toward determining the eligibility of these resources for the National Register of Historic Places consistent with Section 110 of the NHPA and NPS management policies. There would be no impacts to the unevaluated cultural resources.

Alternative A Cumulative Impacts

Past, ongoing, and reasonably foreseeable actions within Tomales Point planning area have the potential to impact cultural resources (see "Cumulative Impacts" section). The GMPA, fire management program, Pierce Point Road rehabilitation, PG&E Power Line, trail master planning, and NPS response to emergency actions within designated wilderness have the potential to have cumulative impacts in combination with the potential impacts described under each alternative. All these actions have the potential to adversely affect archeological resources through ground disturbance including excavation and laydown areas. In addition, TEK significant to the FIGR may be adversely affected by various activities within tribal use areas without proper consultation such as the use of heavy equipment for emergency responses and actions for prescribed burns and road improvements. Implementation of these activities in the Wilderness and Historic Districts must be consulted with the California State Historic Preservation Office (SHPO) and the FIGR (and/or other appropriate parties) prior to implementation.

By meeting its stewardship requirements for cultural resources under Sections 106 and 110 of the NHPA, among other laws and regulations, the NPS works to identify, avoid, minimize, and/or

mitigate any potential impacts on cultural resources when implementing individual projects. In addition, the National Park Service follows *Director's Order #28: Cultural Resource Management Guidelines* (NPS 2002) and *Director's Order #28A: Archeology* (U.S. Department of the Interior 2004), which provide NPS-guidelines and are a reference and a planning tool for management and preserving cultural resources while maintaining the mission of the Seashore.

Very limited, or no cumulative impacts would be expected from implementation of alternative A with the other listed programs and ongoing actions.

Alternative B

Pierce Ranch Historic District

Under alternative B, the various tule elk fencing and non-historic supplementary water systems would be removed. The removal of these non-historic features, including two elk exclosures within the bounds of the Pierce Ranch Historic District, would have no effect on the district.

Adaptive reuse of historic ranch buildings would be proposed and implemented under this alternative. The *Secretary of the Interior's Standards for the Treatment of Historic Properties* would be used in the treatment of all historic resources proposed for rehabilitation and adaptive reuse. The historic character of the buildings would be retained and if additions or alterations are necessary requirements for a proposed new use, the addition would follow these standards. The building's historic character, form, significant materials, and features would be preserved; the size, scale, and design of the additions and/or alterations would be compatible while also differentiating from the historic building. Finally, any alterations to the ranch resources would require further review and compliance under Section 106 of the NHPA and consultation with the California SHPO and FIGR as the specific design proposal is developed. By following the Secretary of the Interior's Standards and consulting with the SHPO, the Seashore would minimize the potential for adverse impacts.

Under alternative B, revisions to the circulation network through the ranch are proposed to integrate the Tomales Point Trailhead within the historic ranch and formalize viewpoints sought out by park visitors. The goal of these modifications is to better engage park visitors in the history and cultural landscape of the Pierce Ranch. The existing interpretive trail within the ranch is not a contributing resource of the district but is considered to be compatible with the cultural landscape of the Pierce Ranch (CLI part 3b p.2 of 10). Similar to the existing interpretive trail, the proposed revisions to the trail system within the historic ranch would work within the constraints of the existing network of fences and gates and their design would be distinct from the roads that are contributing resources of the district. Based on this, negative impacts to the Pierce Ranch Historic District from the revisions to the circulation network for visitor use within the ranch would be limited and would not constitute an adverse effect under Section 106 of the NHPA. However, further compliance under Section 106 of the NHPA would be required as the specific design proposal is developed.

Point Reyes Peninsula Indigenous Archeological District

The implementation of a location-based reservation system for overnight camping within the planning area would have a beneficial effect on the Point Reyes Peninsula Indigenous Archeological District by further minimizing the potential for camping related activities to cause incidental impacts to its contributing resources. The Seashore would be better able to focus monitoring and enforcement efforts and identify non-compliance.

Similarly, the establishment of a location-based reservation system would be more protective of the broader Tribal resources and values that relate to this district. Under alternative B, the designation of

camping locations would be formalized in consultation with FIGR, and NPS and FIGR would continue to collaborate in the monitoring of Tribal resources. This alternative would result in a beneficial impact to the Point Reyes Peninsula Indigenous Archeological District and the related Tribal resources and values. By working within the requirements of Section 106 and Director's Order #28, the NPS would continue to avoid, minimize, or mitigate adverse effects and avoid cumulative adverse impacts.

Unevaluated Cultural Resources

In general, the various unevaluated cultural resources distributed across the Tomales Point planning area would continue to be preserved and monitored consistent with NPS management policies under alternative B. However, this alternative would also consider the modification of historic-era stock ponds if they are determined to be a hazard to Tule Elk or other wildlife. These treatments would be to minimize the hazard posed by the feature rather than to remove the physical evidence of the structure and return it to an earlier condition. Therefore, it is anticipated that the overall form and structure of the remnant stock ponds would be retained, and the overall level of impact would be low to moderate. Prior to the treatment of historic-era stock ponds that are determined to be hazardous, further consultation under Section 106 of the NHPA would be required as the specific design proposal is developed.

Alternative B Cumulative Impacts

As noted for alternative A, the NPS follows a series of rules and regulations, as well as initiates consultations with the SHPO, Tribe, and other identified consulting parties to identify, avoid, minimize, and/or mitigate any potential impacts on cultural resources. The impacts on cultural resources of other past, present, and reasonably foreseeable future actions would be the same as described for alternative A above. The cumulative impacts of alternative B are not expected to significantly affect cultural resources within Tomales Point. The incremental impacts of alternative B would contribute to, but not substantially change, the impacts that are already occurring.

Alternative C

Pierce Ranch Historic District

Effects under alternative C to Pierce Ranch Historic District would be similar as under alternative B. There would be no effects from the removal of the supplemental water systems within the planning area. By following the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, and by consulting with the SHPO and Tribe, there would be no adverse effects to the Pierce Ranch Historic District from proposed adaptive reuse of the ranch buildings. There would be no adverse effects to the Pierce Ranch Historic District from the proposed revisions to the circulation network for visitor use; however, the Seashore would consult with the SHPO and Tribe as the specific design proposal is developed.

Point Reyes Peninsula Indigenous Archeological District

Effects under alternative C to the Point Reyes Peninsula Indigenous Archeological District would be similar as under alternative B. There would be beneficial effects from the implementation of a location-based reservation system for overnight camping. The camping locations would be established in consultation with FIGR and would avoid sensitive resource areas. The NPS and FIGR would continue to collaborate on monitoring of Tribal resources, which would have a beneficial impact to Tribal resources and values.

Unevaluated Cultural Resources

Affects under alternative C to unevaluated cultural resources would be similar as under alternative B. These resources would continue to be preserved and monitored consistent with NPS management policies. If the NPS determined a historic stock pond became a hazard to wildlife, it would initiate a specific project at that time to address the observed concerns. There would be consultation with the SHPO under Section 106 of the NHPA as the specific design proposal is developed for any modifications to these cultural resources. The overall level of impact to these unevaluated cultural resources would be low to moderate.

Alternative C Cumulative Impacts

As noted for alternative A, the NPS follows a series of rules and regulations, as well as initiates consultations with the SHPO, Tribes, and other identified consulting parties to identify, avoid, minimize, and/or mitigate any potential impacts on cultural resources. The impacts on cultural resources of other past, present, and reasonably foreseeable future actions would be the same as described for alternative A above. The cumulative impacts of alternative C are not expected to significantly affect cultural resources within Tomales Point. The incremental impacts of alternative C would contribute to, but not substantially change, the impacts that are already occurring.

Conclusion

Under the no-action alternative, alternative A, there would be no impacts to the Pierce Ranch Historic District and no impacts to unevaluated cultural resources. There would continue to be low to moderate levels of impacts to the Point Reyes Indigenous Archeological District due to incidental impacts associated with the existing system of overnight camping.

The preferred alternative, alternative B, would have beneficial impacts to the Point Reyes Indigenous Archeological District by establishing, in consultation and coordination with FIGR, a location-based reservation system for overnight camping on Tomales Bay. This would minimize the potential for incidental impacts from overnight camping to contributing resources of the district. In addition, alternative B would adaptively reuse some of the resources at Pierce Ranch Historic District that are currently underutilized. New designs and uses would follow the Secretary of the Interior's Standards for the Treatment of Historic Properties, which would also be consulted on with the SHPO. Additionally, new circulation patterns within the Historic District to integrate a new trailhead would be done using existing network of fences and gates, which would be distinct from the contributing resources of the district. There would be no adverse effects to the Pierce Ranch Historic District under alternative B. Under alternative B, there would be low to moderate levels of impacts to unevaluated cultural resources due to actions taken to minimize hazards to wildlife from historic stock ponds in the planning area.

Alternative C would have similar impacts to the Pierce Ranch Historic District, the Point Reyes Indigenous Archeological District, and unevaluated cultural resources as alternative B.

Alternatives B and C would most align with the desired conditions for cultural resources across the planning area.

Chapter 4: Consultation and Coordination

Consultation is the early involvement of federal and state agencies and tribal governments that may be affected by the federal action. Similar to the public scoping process, this allows affected agencies or tribal governments to comment and contribute early in the decision-making process and helps the NPS to identify key issues or requirements to be considered in the NEPA process. During development of the EA, the NPS had discussions with the regulatory and consulting agencies listed below regarding their recommendations for streamlining regulatory requirements related to the actions being considered in this EA:

Tribes

Federated Indians of Graton Rancheria (FIGR)

Government Agencies

California Department of Fish and Wildlife (CDFW)

U.S. Fish and Wildlife Service

PUBLIC PARTICIPATION

The public participation process for this EA was initiated on August 25, 2023. Preliminary information regarding the EA was provided to the public and other interested parties through a press release and a project newsletter. During the public comment period, the NPS hosted one virtual public meeting on September 7, 2023. The public was encouraged to submit their comments electronically through the NPS *Planning, Environment, and Public Comment* (PEPC) website; they could also submit public comments in writing via mail and email. The NPS received more than 25,115 pieces of correspondence. These comments were considered when developing the alternatives and completing the impact analysis documented in this EA.

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Acronyms and Abbreviations

CDFW	**California Department of Fish and Wildlife**
CEQ	**Council on Environmental Quality**
EA	**environmental assessment**
EIS	**environmental impact statement**
FHWA	**Federal Highway Administration**
FIGR	**Federated Indians of Graton Rancheria**
FONSI	**Finding of No Significant Impact**
General Agreement	***General Agreement for Government-to-Government Partnership***
GHG	**greenhouse gas**
GMP	**General Management Plan**
GMPA	***2020 Golden Gate National Recreation Area and Muir Woods National Monument General Management Plan Amendment and EIS***
GPS	**Global Positioning System**
IPM	**integrated pest management**
MRA	**Minimum Requirements Analysis**
NEPA	**National Environmental Policy Act**
NHPA	**National Historic Preservation Act**
NPS	**National Park Service**
NRA	**National Recreation Area**
NRHP	**National Register of Historic Places**
PEPC	**NPS *Planning, Environment, and Public Comment* website**
PG&E	**Pacific Gas & Electric**
SHPO	**State Historic Preservation Office**
TPAP	**Tomales Point Area Plan**
TEK	**traditional ecological knowledge**
USEPA	**United States Environmental Protection Agency**

Appendix A: Alternatives Considered but Dismissed from Detailed Analysis

The following alternatives were considered but dismissed from further analysis for reasons explained below.

VEGETATION MANAGEMENT

Eliminate Pesticides in the Seashore, Especially in the Wilderness

This alternative would eliminate the use of pesticides for invasive vegetation and pest management in the Seashore, particularly in the wilderness zone, due to concerns expressed by commenters about the ability of herbicides and pesticides to enter the food chain, contaminate groundwater, and harm wildlife.

In accordance with the Federal Insecticide, Fungicide, and Rodenticide Act, the NPS uses integrated pest management (IPM) to address invasive species. IPM is an 11-step decision-making process based on scientific evidence for the most efficient and cost-effective methods to reduce pest populations. In this context, a pest is any plant or animal, including native and non-native species, which threatens safety or impacts the Seashore's mission (NPS 2022b). At Point Reyes, Seashore staff follow IPM guidance issued by the NPS. In accordance with this guidance, several management methods may be used, including manual removal, heavy equipment, fire, and herbicide, depending upon which methods are the most cost-effective and successful. Management methods are selected with the intent to minimize return trips to the site, and herbicide is only used as a last resort (NPS 2022a). Usage of herbicides to treat areas of non-native, invasive plant species can improve the natural quality of the landscape. By treating and removing invasive species, resilience and ecological function within native plant communities can be improved. The NPS understands the required tradeoffs between natural, untrammeled qualities of wilderness areas and the need for active invasive species management. These actions are taken with great care to provide the greatest benefit while mitigating impacts to the landscape. Effective invasive species management on Tomales Point would not be possible without the use of pesticides. Therefore, this alternative was dismissed from further consideration.

TULE ELK MANAGEMENT

Complete a Park-Wide Tule Elk Management Plan

During public scoping, recommendations were made to expand the scope of analysis for this EA to include a comprehensive tule elk management plan for the entire Seashore, rather than preparing an elk management plan specific to Tomales Point, to address elk management as it relates to ranching and environmental issues across the entire park.

Management of tule elk outside the existing fenceline is outside the planning area and covered by the GMPA ROD and the 1998 Tule Elk Management Plan for areas outside of the GMPA planning area (e.g., Limantour area). Any tule elk that leave would leave the planning area would be managed as the Limantour herd is managed currently. The NPS considered expanding the scope of the planning effort to include a park-wide plan. However, it was determined that more time would be needed to monitor the tule elk once the elk fence is removed, if the Preferred Alternative is selected, to study any potential impacts – both beneficial and adverse. The NPS will consider developing a park-wide tule elk management plan once more data is available. Therefore, this alternative was dismissed from further consideration.

Cease Lethal Control of Elk Population

This alternative would end the option of any lethal controls to manage the tule elk population on Tomales Point. During scoping, commenters expressed concern for lethal controls and harassment of elk, requesting that these measures not be permitted. The NPS manages wildlife such as tule elk, as needed, in alignment with NPS policies and the General Agreement with FIGR, which may speak to wildlife management. The NPS will retain its authority and ability under 36 CFR, NPS management policies, and the General Agreement to conduct lethal removal to achieve specific management goals. Therefore, this alternative was dismissed from further analysis within the EA.

Recreational Hunting

This alternative would allow recreational hunting to occur on Tomales Point. However, public hunting is prohibited in most national park units. Hunting could be allowed in Point Reyes based on language contained in the Point Reyes enabling legislation that states: "The Secretary may permit hunting and fishing on lands and waters under his jurisdiction within the seashore in such areas and under such regulations as he may prescribe during open seasons prescribed by applicable local, State, and Federal law" (16 U.S.C. Sec. 459c-6(b)). The NPS would need to complete a rulemaking process to allow hunting in Point Reyes. Hunting is an activity administered by state wildlife agencies through licenses and involves fair chase and the taking of meat by the individual hunter.

As established by 36 CFR 2.2(b)(2) "Hunting may be allowed in park areas where such activity is specifically authorized as a discretionary activity under Federal statutory law if the superintendent determines that such activity is consistent with public safety and enjoyment, and sound resource management principles". More than two million people per year visit the Seashore. The planning area is a narrow peninsula with dispersed visitor use. Although some areas could be temporarily closed during hunting efforts, visitor access would be impossible to entirely control given the open terrain of the area. Hunting therefore has inherent safety risks that cannot be mitigated and was thus not carried forward for further analysis.

Translocation

This alternative would encourage more research into the genetic diversity of the tule elk population on Tomales Point to assess its long-term viability and determine if translocation of elk from other populations is warranted, in response to comments received during public scoping. At present, CDFW does not allow for translocation of tule elk to areas outside of the Seashore and vice versa due to concerns about the spread of diseases such as Johne's disease and chronic wasting disease. The CDFW also identifies short- and long-term costs, risk to staff and contractors, and risks to animals as the main barriers to a viable translocation program, as noted in their comment letter addressing the subject within the draft GMPA, dated September 23, 2019. Translocation efforts may be capable of overcoming these barriers in the future; therefore, the NPS will continue to work with state officials to evaluate potential efforts for the long-term. However, at this time translocation was not considered as viable for further analysis.

Contraception

This alternative would use contraceptives as a management tool to restrict the growth of the tule elk population. The USEPA (the regulatory agency that oversees contraceptive pesticides in free-ranging wildlife) has not approved any product for fertility control in elk. Any application would be in an experimental context. Point Reyes National Seashore has previously engaged in elk fertility control research projects. In conjunction with UC Davis, the NPS conducted a research project to investigate the efficacy of pellucida immunocontraception and fecal steroid monitoring techniques

in elk at Tomales Point (Shideler, et al. 2002). One of the main problems with treating elk consistently was animal accessibility and the ability to re-treat enough animals on a yearly basis (this problem would persist regardless of the product available). After this experience, park management decided that because of the topography of the park, accessibility of animals, and availability of vaccines that last one to two years at best (Powers, et al. 2014, Carey, et al. 2019), the use of contraceptive vaccines did not have sufficient efficacy to justify the effort to deliver the product (NPS 2015a). Because of these issues, and the fact there are no fertility control products registered for use in elk, this alternative was dismissed.

In the future, a contraceptive agent for use in elk may be approved that would not have adverse behavioral effects, would be effective for many years, and would be able to be administered in a logistically feasible manner; however, until that occurs, contraception is not being considered for use on the Seashore.

Surgical Sterilization

This alternative would use surgical sterilization as a management tool to limit tule elk population growth. Surgical sterilization is an invasive procedure that requires a veterinarian to remove the ovaries/testes or to conduct tubal ligation or castration. Facilities appropriate for surgery are not available on the Seashore, and while a temporary or mobile field station or chute system could be set up in the field, the stress of capture and surgery outweighs the benefits of permanent sterility. Sterilization would also have high labor costs because of the substantial number of animals that would need to be treated to meet population goals. For example, one bull can impregnate multiple females. Furthermore, tule elk are native to Point Reyes and having a breeding population that can respond to influences of natural selection is a desirable outcome. For these reasons, surgical sterilization was not considered as a viable option and was dismissed from further analysis.

Introduce Natural Predators

In response to comments received during public scoping, the NPS considered this alternative to introduce natural predators such as the gray wolf and mountain lion to Tomales Point to control an expanding tule elk population, bringing more natural balance to the ecosystem. Gray wolf populations are not known to have ever existed in the San Francisco Bay Area (CDFW 2011; Kovacs, et al. 2016). Introducing a non-native predator is contrary to NPS Management Policies 2006 (NPS 2006a), would likely create an imbalance of predators and prey in the park (Kovacs, et al. 2016), and would be a threat to ranch animals. The introduction of other large carnivores that once occurred in the planning area (i.e., black and grizzly bears) was also dismissed because other threats to their existence, such as human development, would remain on lands surrounding the park. Additionally, while bears may prey opportunistically on elk, they would not serve as a tool for population management, would not meet the goals for elk management, and would introduce novel issues into the planning area. Mountain lions already exist in the Seashore. For these reasons, the option of introducing predators into the Seashore for elk management was dismissed from further analysis.

Study Impacts of Free-ranging Elk on Rare and Special Status Plants

This alternative would expand the analysis of the impacts of tule elk on rare and special status plants under all proposed alternatives, particularly in relation to any anticipated changes to plant populations based on elk grazing, given potential changes in size, location, and movement of the herd. The NPS follows practices outlined within NPS policies and regulations to protect rare and special status species. Researchers are already studying the impacts of tule elk on vegetation via a series of elk exclosures, and this research would continue under alternatives A and C. It is beyond

the scope of this project to expand research by NPS staff on particular species and/or habitats at this time; therefore, this alternative has been dismissed.

OTHER WILDLIFE MANAGEMENT

Enhance and Restore Habitat for Rare, Threatened, and Endangered Wildlife

This alternative would expand efforts to enhance and restore habitat for rare, threatened, and endangered species on Tomales Point. The NPS manages natural resources, including those that support rare, threatened, and endangered species, in accordance with a variety of plans, including the GMPA, and all applicable laws, regulations, and policies. In addition, any management activities that take place within the Philp Burton Wilderness are subject to, and consistent with, the Wilderness Act and an MRA. The proposed action and many of the elements within alternatives B and C would enhance habitat for these special status species directly and indirectly without the need for formal restoration efforts that are outside the scope of this EA. This alternative was therefore dismissed from further consideration.

Study How Removal of the Elk Fence Could Benefit Other Wildlife Species

This alternative would advance a study on how the removal of the tule elk fence under alternative B would potentially benefit other wildlife species, like the American badger, as suggested during the public scoping period. As noted previously, elements within alternatives B and C would enhance habitat and benefit other wildlife species. The removal of the elk fence under alternative B is included in that assessment. While the NPS does not at this time have formal plans to study how the removal of the elk fence might benefit wildlife species, existing habitat and species monitoring efforts will continue under any of the alternatives, and there is the possibility for such studies in the future. Therefore, this alternative was dismissed from further consideration for this EA.

VISITOR USE AND EXPERIENCE

Improve Trail to McClure's Beach

This alternative would make improvements to the McClures Beach Trail or initiate a trail re-route to provide for a safer and more secure way to reach the beach. The NPS analyzed the feasibility of making improvements to McClures Beach Trail. However, the feasibility of a complete trail restoration or re-route would be technically- and cost-prohibitive. Under alternative B, the NPS proposes making improvements to the trail to allow for routine maintenance to be consistent with wilderness requirements and to improve drainage. Future assessments could determine additional actions to take, but for the purposes of this EA, more intensive changes to the trail were dismissed from further consideration.

Formalize Public Access Beyond Lower Pierce

This alternative would establish formal public access beyond Lower Pierce that is compatible with wilderness requirements to the extent practical. This action would have reduced the use of undefined, social trails currently within the Lower Pierce area. The new access, as proposed, would be designed to avoid sensitive plants or habitats needing protection. Signage would have been added at the trailhead to educate visitors about wilderness trail conditions and use, while existing signs in the wilderness beyond Lower Pierce would be removed. This alternative was considered but dismissed from further analysis because the terrain and broad network of wildlife trails in the area makes it inviting for unconfined wilderness experience. More formalized access would be a challenge for NPS staff to maintain.

Expand/Enhance Interpretive Signage and Education

This alternative would expand public education and interpretation at the Pierce Ranch buildings, particularly related to Native American culture and history of the area in consultation with FIGR and other descendants of Coast Miwok inhabitants. Other interpretation would include information about the tule elk on Tomales Point and their role in the history and ecology of the Point Reyes peninsula. However, expanding interpretive signage and environmental education programming is not specific to this EA. It is more suited for inclusion within the Seashore's interpretive plan. Therefore, this was dismissed from further consideration.

Perform a Visitor Carrying Capacity Study Prior to Expanding Public Access

This alternative would initiate a visitor carrying capacity study to help the NPS set a carrying capacity for day use and overnight camping visitation to protect the Seashore's resources prior to any future expansion of public access on Tomales Point. Proposed visitor enhancements under alternatives B and C are not intended to expand visitation but rather to enhance the experience of visitors under current visitation levels while better protecting natural and cultural resources. Any improvements to visitor facilities would be limited to the non-wilderness portion of the planning area, which has already been developed. There will be no new development of trails or structures within the wilderness zone. The TPAP focuses on better management strategies for existing visitor use and experience, particularly as it relates to the protection of natural resources. There will be no increase in, or impacts on, the visitor carrying capacity of the planning area. Therefore, this was dismissed from further consideration.

Appendix B: Impact Topics Considered but Dismissed from Detailed Analysis

Analysis in an environmental assessment (EA) should focus on significant issues (meaning pivotal issues, or issues of critical importance) and only discuss insignificant issues briefly (Code of Federal Regulations 2024). Therefore, the following issues and impact topics were not carried forward for detailed analysis in the EA.

SPECIAL STATUS WILDLIFE SPECIES

The NPS evaluated the potential impacts on several federally listed and state-listed species to determine whether potential impacts warranted full analysis in the Tomales Point Area Plan (TPAP) EA. Species were dismissed from further analysis if (1) their habitat is not present in the planning area, (2) the species does not occur in the planning area, or (3) the species and/or its habitat is present in the planning area, but actions proposed in the EA do not have the potential to affect the species.

OTHER WILDLIFE SPECIES

The NPS evaluated the potential impacts on wildlife species aside from tule elk and black-tailed deer to determine whether potential impacts warranted full analysis in the EA. Additional wildlife species occurring in the project area were not included under impact topics in Chapter 3 due to a lack of evidence that the discussed alternatives would have impacts on any of these groups. These species not considered in Chapter 3 include additional mammals, birds, reptiles, amphibians, and invertebrates. Marine animals (e.g., sea lions, whales, seals, sea turtles, abalone) are not included in this discussion because the actions considered in the stated alternatives would not affect these species or their habitats and these animals do not occur within the project area.

Mammals

Common mammal species at the Seashore not included in the detailed analysis include gray fox (*Urocyon cinereoargenteus*), coyote (*Canus latrans*), American badger (*Taxidea taxus*), bobcat (*Lynx rufus*), brush rabbit (*Sylvilagus bachmani*), black-tailed jackrabbit (*Lepus californicus*), raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), and several species of bats, rodents, and shrews (NPS 2021c). These species either do not occur in the project area in significant numbers or are not expected to be impacted by the actions considered under the stated alternatives.

Birds

The Seashore contains the greatest diversity of avian species of any national park unit in the United States, with recordings of approximately 490 species belonging to nearly 60 distinct families (NPS 2018a). This increased diversity is due to the park's latitude, diversity of habitats, and location along the Pacific Flyway. Common bird species include ground-nesting species, songbirds, raptors, and shorebirds (NPS 2018a). The actions considered in the stated alternatives would not significantly negatively affect these species or their habitats.

Reptiles and Amphibians

Seventeen species of reptiles are known to occur on the Seashore, including four species of lizards, eight species of snakes, and the northwestern pond turtle (*Actinemys marmorata*), formerly known as *Clemmys marmorata*, which is a California species of special concern (NPS 2021d). The four lizard species are known to occur in most habitats within the Seashore except for the most damp, interior

forests and tidal salt marshes (NPS 2023a). Because most native snake species prefer warm and dry environments, the humid environment at the Seashore limits snake population sizes (NPS 2023a).

Six species of salamanders and four species of frogs and toads, including the non-native American bullfrog (*Lithobates catesbeianus*) and the federally threatened California red-legged frog (*Rana draytonii*), can be found on the Seashore (NPS 2015a). Amphibians at the Seashore primarily live in and around streams and ponds (NPS 2018). The actions considered in the stated alternatives would not significantly negatively affect these species or their habitats.

Invertebrates

Two populations of Myrtle's silverspot butterfly are known to occur within the Seashore (Adams, Smick and Lewis 2009). This species is known to use the Seashore's coastal dune system and coastal prairie, including active ranches that support livestock operations. It is not known whether tule elk or deer browse on the preferred nectar or larval host plants of the butterfly. However, previous research indicates tule elk and deer graze on species similar to the one plant (Western dog violet) that serves as a larval host for Myrtle's silverspot butterfly. The western dog violet is discussed under Vegetation Communities in Chapter 3. The actions considered in the stated alternatives would not significantly negatively affect these species or their habitats.

AIR QUALITY

The 1963 Clean Air Act, as amended (42 United States Code [USC] § 7401 et seq.), requires federal land managers to protect air quality and meet all federal, state, and local air pollution standards. The US Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS). Current standards are set for criteria pollutants including sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone, particulate matter equal to or less than 10 microns in size, particulate matter equal to or less than 2.5 microns in size, and lead.

The proposed project is in Marin County, California, which is currently in non-attainment status for 8-hour ozone (1997, 2008, and 2015 standards), 1-hour ozone (1979 standard), and PM 2.5 24 hour (2006 standard). The alternatives within the TPAP could have a slight impact on air quality from the use of vehicles and equipment during monitoring and restoration activities; however, the effects would be localized, temporary, and in line with current use levels. There may also be minor impacts to air quality resulting from the use of prescribed burns for vegetation management. Air quality impacts from the use of prescribed fire are analyzed in detail within the Final Fire Management Plan EIS, which includes prescribed fire as a management activity at Tomales Point. Consistent with section 102(2)(C) of NEPA, federal agencies must disclose and consider the reasonably foreseeable effects of how proposed actions would result in greenhouse gas (GHG) emissions that contribute to climate change. Rising GHG levels are causing corresponding increases in average global temperatures and in the frequency and severity of natural disasters including storms, flooding, and wildfires. Management activities within the TPAP would not be expected to significantly increase GHG levels within the region. For these reasons, air quality is dismissed from further analysis within this EA.

SOUNDSCAPES

In accordance with NPS Management Policies 2006 and Director's Order 47: *Sound Preservation and Noise Management*, an important part of the NPS mission is to preserve the natural soundscapes associated with NPS units. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in the NPS units,

together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sounds that humans can perceive and can be transmitted through air, water, or solid materials. The frequency, magnitude, and duration of human-caused sound considered acceptable varies among NPS units and potentially throughout the Seashore—being generally greater in developed areas and less in undeveloped areas such as within the wilderness zone. Noise associated with tule elk management activities includes the use of all-terrain vehicles and other motorized equipment, such as string trimmers and mowers. These ongoing activities are not expected to change the existing soundscape. Firearm noise associated with potential tule elk management would include noise associated with the discharging of firearms.

Noise impacts related to tule elk management activities are addressed in the context of the analysis of impacts on the elk and on visitor use and experience and are addressed in those relevant sections. As discussed under *Wilderness Character* in Chapter 3, the NPS uses the minimum tools necessary for park management activities to preserve the wilderness character. No long-term changes to the soundscape are expected under any of the alternatives analyzed within this EA. As a result, this topic was dismissed from further analysis.

HUMAN HEALTH AND SAFETY

Health and safety issues associated with some of the actions under consideration include the use of herbicides and prescribed fire for vegetation and wildlife habitat management. The NPS is responsible for public safety associated with proposed elk management efforts such as lethal removal operations and would implement area closures to keep visitors safely away from such operations. The NPS would also monitor the operations and post signage to ensure that visitors understand safety precautions. As described in chapter 2 of the EA, use of herbicides and prescribed fire by NPS staff would be subject to safety protocols included in an approved Pesticide Use Permit or Prescribed Fire Permit. In addition, the Seashore's Fire Management Plan provides guidance to mitigate impacts to human health from prescribed burns. Furthermore, all herbicides would be applied under the supervisor of trained NPS personnel. Because potential human health and safety impacts are already addressed in other topics where relevant, human health and safety as a stand-alone topic was dismissed from detailed analysis in the EA.

SCENIC RESOURCES

Consistent with the Organic Act and the Point Reyes enabling legislation, the Point Reyes foundation document identifies wild beaches, dramatic cliffs, detached coastal formations, and coastal grasslands as the primary scenic resources that the NPS seeks to protect in managing the park. Neither the proposed action nor any of the alternatives analyzed within this EA would lead to any physical changes to detached coastal formations, cliffs, or beaches. Impacts to the scenic nature of the historic structures within Pierce Ranch are addressed in the "Cultural Resources" section of chapter 3 in the EA. This section also addresses maintenance of Pierce Ranch structures and the impact of such maintenance on aesthetic qualities such as scenery and setting. Finally, the EA proposes some actions that would improve recreational opportunities, including an improved trail and day-use parking that would enhance the ability of visitors to experience the park's scenic resources. These topics are addressed in the "Visitor Use and Experience" section of chapter 3 in the EA. Because scenic resources affected by plan actions are adequately addressed in these sections, scenic resources as a standalone topic were dismissed from detailed analysis in the EA.

SOCIOECONOMICS

Under alternative B, the removal of the existing elk fence could affect the cattle ranches on NPS land. Some ranch lessees and commenters have expressed concerns that the elk could impact existing forage for cattle if they travel outside of Tomales Point and begin grazing on ranchland.

Because the elk fence has been in place since the reintroduction of the tule elk to Tomales Point in 1978, it is unknown precisely how and when the presence of elk could impact the adjacent ranches. However, observation of the two free-range elk herds in the Seashore show that female groups tend to maintain limited ranges from their core area. The NPS anticipates that if alternative B were selected, many subgroups from the Tomales Point herd would most likely remain on Tomales Point after the elk fence was removed, impacting few, if any, nearby ranches unless more intensive changes to existing forage or water sources occurred. Those elk that do leave the planning area under alternative B would be managed in a manner similar to the Limantour herd. Neither the Limantour nor the Drakes Beach herds have been found to significantly impact historic ranching operations.

Under the no-action alternative and alternative C, the fence would remain and there would be no potential for impact on nearby ranches and forage. The enhanced visitor experience opportunities outlined within alternatives B and C could have positive impacts on the local community through more visitation, but those are considered to be limited, as visitation levels are not expected to increase significantly should the NPS implement either of those alternatives. For these reasons, socioeconomic impacts were considered but dismissed from further analysis within this EA.

ENVIRONMENTAL JUSTICE

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and Executive Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All,* direct federal agencies to "make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations", including effects on tribal populations. The population surrounding Point Reyes is predominantly white, with the surrounding areas containing fewer than 20 percent minority populations. The TPAP would not be reasonably expected to negatively impact minority populations and could have positive impacts on minority populations due to improved visitor experience within the planning area. Tribal consultation is an integral part of the proposed actions within the TPAP and is conducted in accordance with the General Agreement. For these reasons, environmental justice is dismissed from further analysis within this EA.