

National Park Service  
U.S. Department of the Interior



Haleakalā National Park, Maui, Hawai‘i

# Haleakalā National Park

Kalahaku Overlook Area Management

Environmental Assessment



May 2019

# Haleakalā National Park

## Kalahaku Overlook Area Management

This document contains:

Environmental Assessment (May 2019)

# Contents: Environmental Assessment

Tables.....	ii
Boxes.....	ii
Figures .....	ii
Acronyms.....	ii
1 PURPOSE AND NEED .....	1
1.1 Introduction .....	1
1.2 Background of Haleakalā National Park.....	1
1.3 Project Background.....	1
1.4 Purpose and Need.....	5
1.5 Related Laws, Legislation, and Management Guidelines .....	5
1.5.1 Pertinent Laws, Regulations, and Policies .....	5
1.5.2 Relevant Haleakalā National Park Planning Documents .....	6
1.5.3 Relationship to Regional Planning Documents .....	7
1.6 Scoping and Consultations .....	7
1.7 Issues and Impact Topics.....	7
1.7.1 Issues and Impact Topics Identified for Further Analysis.....	7
1.7.2 Impact Topics Considered but Dismissed.....	8
2 ALTERNATIVES .....	10
2.1 Alternative 1: No Action .....	10
2.2 Actions Common to All Action Alternatives.....	10
2.3 Alternative 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative) .....	11
2.4 Alternative 3: Improve Existing Features and Expand Sheltered Viewing Area .....	12
2.5 Logistics of Project Implementation .....	12
2.6 Measures to Minimize Adverse Impacts.....	15
2.7 Alternatives Considered and Dismissed .....	17
3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES .....	18
3.1 General Methods for Analyzing Impacts.....	18
3.2 Addressing Cumulative Impacts.....	19
3.3 Biological Environment.....	21
3.3.1 Vegetation .....	21
3.3.2 Fauna.....	22
3.3.3 Habitat.....	28
3.4 Physical Environment .....	29
3.4.1 Geology, Topography and Soils .....	29
3.4.2 Lightscape .....	30
3.4.3 Soundscape.....	31
3.5 Cultural Resources .....	32
3.5.1 Affected Environment.....	32

3.6	Socio-Economic Environment.....	36
3.6.1	Human Health and Safety.....	36
3.6.2	Visitor Use and Experience.....	38
3.6.3	Designated Wilderness Area.....	40
4	CONSULTATION AND COORDINATION.....	42
4.1	Scoping.....	42
4.1.1	Internal Scoping.....	42
4.1.2	External Scoping.....	42
4.2	Regulatory Compliance.....	42
4.2.1	Section 7 Consultation.....	42
4.2.2	Section 106 Consultation.....	43
5	LIST OF PREPARERS AND CONTRIBUTORS.....	44
6	REFERENCES.....	45
Appendix A.	Agency, Organization, and Public Review.....	1

## Tables

Table 1.	Issues and Impact Topics.....	8
Table 2.	Measures to Minimize Impacts of the Action Alternatives.....	15
Table 3.	Actions Considered for Cumulative Impact Analysis.....	19
Table 4.	Special Status Wildlife at Kalahaku Overlook.....	23
Table 5.	Examples of Cultural Practices.....	34

## Boxes

Box 1.	Terms Used in Discussion of Environmental Consequences.....	18
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## Figures

Figure 1.	Haleakalā National Park and Surrounding Environs.....	2
Figure 2.	Existing Features at Kalahaku Overlook.....	3
Figure 3.	Examples of Signs with Graphics.....	11
Figure 4.	Example of Pedestrian Crossing Signage.....	11
Figure 5.	Alternative 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative), Proposed Improvements.....	13
Figure 6.	Alternative 3: Improve Existing Features and Expand Sheltered Viewing Area, Proposed Improvements.....	14
Figure 7.	Existing Kalahaku Overlook Structure.....	15
Figure 8.	Critical Habitat: Haleakalā Silversword.....	28
Figure 9.	Area of Potential Effect.....	33

## Acronyms

ABAAS	Architectural Barriers Act Accessibility Standards
EA	Environmental Assessment
HNP	Haleakalā National Park

NEPA	National Environmental Policy Act
NPS	National Park Service
NRHP	National Register of Historic Places
SHPD	State Historic Preservation Division
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service

# **1 PURPOSE AND NEED**

## **1.1 Introduction**

This Environmental Assessment (EA) was prepared to analyze the effects of potential management actions to rehabilitate visitor use areas at Kalahaku Overlook in Haleakalā National Park (HNP). A steady increase in visitation to areas of the Summit District of HNP over the past decade has raised concerns about visitor safety and enjoyment and adverse impacts to natural and cultural resources at Kalahaku Overlook.

This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4341 et seq.), and implementing regulations, 40 CFR § 1500–1508; the National Park Service (NPS) Director’s Order #12 and associated *2015 NPS NEPA Handbook*; and Section 106 of the National Historic Preservation Act of 1966 as amended, and implementing regulations, 36 CFR § 800.

## **1.2 Background of Haleakalā National Park**

Established in 1916, HNP manages over 33,000 acres of federal lands on the east side of the island of Maui (Figure 1). There are two districts in the park, the Summit District and the Kīpahulu District. Kalahaku Overlook Area is part of the Summit District, which also includes a 10.6 mile portion of Haleakalā Highway, Haleakalā Crater, Kaupō Gap, and Nu ‘u. Kalahaku Overlook is not within the park’s 24,719 acres of Congressionally designated Wilderness.

HNP was formed to preserve a nationally significant portion of Haleakalā Volcano and its unique native Hawaiian ecosystems, and to provide opportunities for the public to access many of its geologic, scientific, and historic features. The park is visited year round, with the most popular activity being viewing sunrise or sunset from the overlook areas near the summit. Between 2014 and 2017, HNP averaged 1.2 million visitors annually (NPS 2018).

## **1.3 Project Background**

The project area, Kalahaku Overlook, is located along the rim of Haleakalā Crater at an elevation of 9,324 ft. (Figure 1). The overlook is one of four locations in the park where visitors gather to watch sunrise and sunset and enjoy broad crater vistas. Kalahaku Overlook is located on the crater’s western rim and provides unobstructed scenic views east into the crater and to the west overlooking the island of Maui. Viewing areas along Haleakalā Crater become very crowded during peak visitation periods.

Kalahaku Overlook consists of a parking area; a vault toilet; stairs; trails; a rock wall; and a partially enclosed viewing structure that overlooks Haleakalā Crater (Figure 2). Kalahaku Overlook is regularly visited throughout the day. During peak visitation periods the parking area fills quickly, which results in vehicles parking along the shoulder of Kalahaku Overlook Access Road (historically called ‘Sword Access Road’).

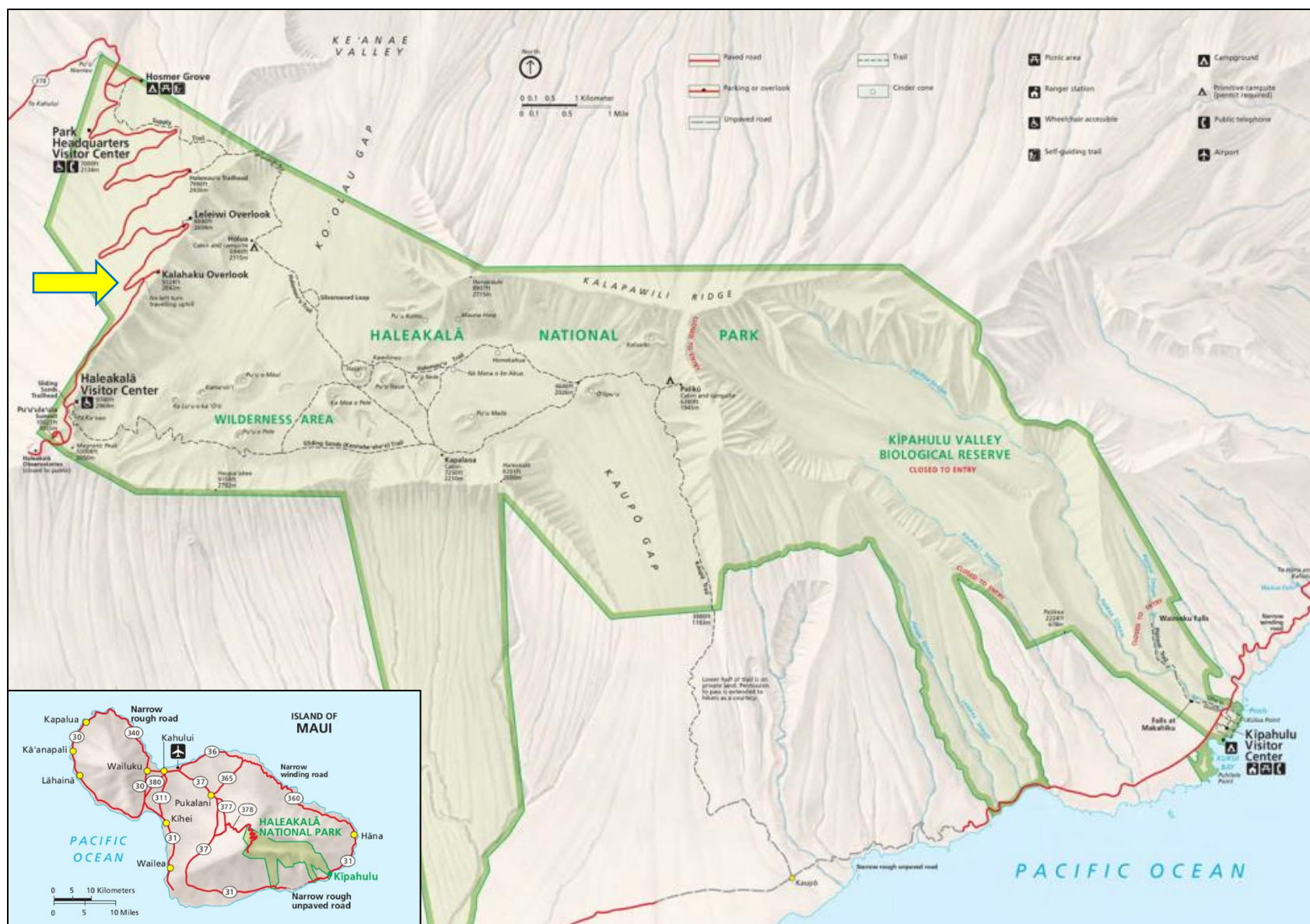


Figure 1. Haleakalā National Park and Surrounding Environs



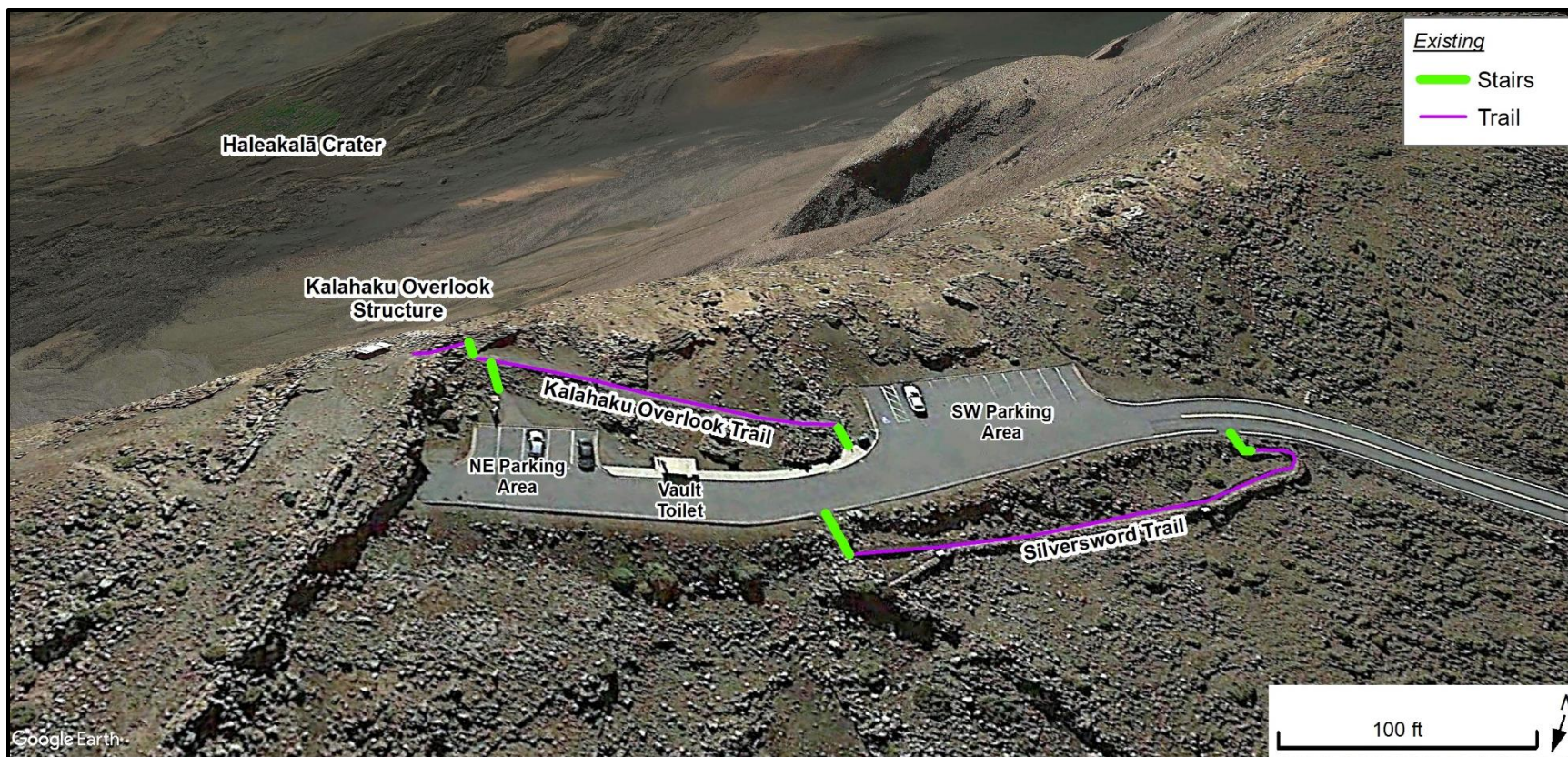


Figure 2. Existing Features at Kalahaku Overlook



There are two designated trails at Kalahaku Overlook, the Kalahaku Overlook Trail and the Silversword Trail. The Kalahaku Overlook Trail provides access to the Kalahaku Overlook structure, built in 1966. The structure, and surrounding area, is the only designated visitor use area at Kalahaku Overlook with unobstructed views into Haleakalā Crater. The 15 foot by 12 foot structure can fit approximately twenty visitors and is often filled to capacity during peak visitation times. This results in visitors travelling outside of the designated visitor use area to take in views over the crater.

HNP has a “Stay on Trail” policy, meaning visitors should not travel off designated trails, roads, or public areas. The Kalahaku Overlook Trail is not clearly delineated and has very little signage, so many visitors may not realize that they are disregarding the “Stay on Trail” policy, nor understand their potential impacts to resources. The terminus of the Kalahaku Overlook Trail is marked with a sign, but it does not dissuade some visitors from travelling beyond that point (e.g. out the flat ridge to the east). The Silversword Trail, which showcases a ‘āhinahina or Haleakalā silversword (*Argyroxiphium sandwicense* subsp. *macrocephalum*) planting area, is bounded on the north side by a rock wall. Asphalt lining the trail is in disrepair in several areas and rocks from the wall have dislodged and fallen out.

Species listed under the federal Endangered Species Act that regularly occur in the area include: endangered ‘ua ‘u, or Hawaiian petrel (*Pterodroma sandwichensis*) and the federally threatened ‘āhinahina, or Haleakalā silversword. Hawaiian petrels successfully nest in the cliffs below the crater rim at Kalahaku Overlook. Nests are located outside designated visitor use areas, but park staff have witnessed visitors walking close to burrows. Walking on top of burrows can cause them to collapse, which can result in injury or death to birds or eggs. Walking close to burrows can disturb birds. Haleakalā silverswords are also highly sensitive to trampling. Other federally listed species that may occur in the area include: endangered ‘ōpe ‘ape ‘a or Hawaiian hoary bat (*Lasiurus cinereus semotus*); endangered nēnē or Hawaiian goose (*Branta sandwicensis*); endangered ‘akē ‘akē or band-rumped storm petrel (*Oceanodroma castro*); and threatened ‘i ‘iwi or scarlet honeycreeper (*Drepanis coccinea*).

Cultural resources at Kalahaku Overlook include cultural landscapes, structures, and ethnographic resources associated with particular cultural practices. The Kalahaku Overlook area is one location in the park where Native Hawaiian practitioners continue to engage in cultural practices including performing rituals and ceremonies, *pule* (prayer), and chanting. The summit of Haleakalā, including Haleakalā Crater, Kīpahulu Valley, and Kaupō Gap have been determined eligible for listing in the National Register of Historic Places (NRHP) through consultation with the Hawai‘i State Historic Preservation Division (SHPD) as a traditional cultural property. Historic features at Kalahaku Overlook include the Kalahaku Overlook structure, walkways, trails, stairs, and Silversword Trail rock wall. These features are eligible for listing on the Hawai‘i and National Registers of Historic Places.

Park visitors have expressed a desire for more areas throughout HNP that accommodate individuals with disabilities. Currently Kalahaku Overlook has minimal interpretive opportunities and places to view scenic vistas that accommodate people with disabilities.

The EA considers options to improve visitor safety and the visitor experience at Kalahaku Overlook, while maintaining protections for natural and cultural resources. The proposed improvements are

consistent with the *General Management Plan / Environmental Impact Statement for Haleakalā National Park* (NPS 1995).

## **1.4 Purpose and Need**

The purpose of this action is to rehabilitate visitor use areas at Kalahaku Overlook to improve visitor enjoyment and safety and reduce adverse impacts to natural and cultural resources.

The need for this action is driven by the number of visitors to the overlook and the lack of clearly defined trails and visitor use areas. Kalahaku Overlook receives up to several hundred visitors daily. The existing overlook structure is the only designated viewing area along the crater rim at this location, and often becomes overcrowded during peak viewing times. Visitors routinely wander off-trail around the crater edge and near steep cliffs, and into threatened and endangered species habitat to experience better views. There is a need to more clearly delineate visitor use areas to provide for visitor safety and reduce impacts on natural and cultural resources. Increasing the size and/or number of designated viewing areas would help relieve overcrowding at the existing Kalahaku Overlook viewing structure and improve visitor enjoyment.

There is a need to better educate visitors on the types of natural and cultural resources at Kalahaku Overlook, and the impacts to these resources when visitors travel outside of designated visitor use areas. There is a need to improve the condition of the Silversword Trail, including the adjoining stairs and adjacent rock wall, for visitor safety and enjoyment. There is a desire to increase the number of activities and educational opportunities available at HNP for individuals with disabilities.

## **1.5 Related Laws, Legislation, and Management Guidelines**

The potential impacts of the action alternatives must be evaluated in the context of the park purpose, which is based on the park's enabling legislation and other federal laws that affect management of the park. The *NPS Management Policies 2006* provides guidance for implementing these laws (NPS 2006). *Management Policies 2006* includes direction for preserving and protecting cultural resources, natural resources, processes, systems, and values (NPS 2006).

### **1.5.1 Pertinent Laws, Regulations, and Policies**

- National Environmental Policy Act of 1969, As Amended (42 USC § 4321 et seq.)
- Endangered Species Act of 1973, As Amended (16 USC § 1531 et seq.)
- National Historic Preservation Act of 1966, As Amended (16 USC § 470; 36 CFR § 800)
- Migratory Bird Treaty Act of 1918, As Amended (16 USC § 703–712)
- Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (2001)
- Executive Order 13112, Invasive Species (1999)
- Lacey Act of 1900, As Amended (18 USC § 42–43; 16 USC § 3371–3378)
- Act to Establish A National Park Service (Organic Act) of 1916 (16 USC § 1 et seq.)
- General Authorities Act of 1970
- National Parks and Recreation Act of 1978
- National Parks Omnibus Management Act of 1998 (P.L. 105–391)

- Title 36, Code of Federal Regulations, Chapter 1
- National Park Service Management Policies 2006
- National Park Service Director's Order #12: Conservation Planning, Environmental Impact Analysis, and Decision-Making National Park Service National Environmental Policy Act Handbook (2015)
- National Park Service Director's Order #42: Accessibility for Visitors with Disabilities in National Park Service Programs and Services
- Rehabilitation Act of 1973 (Section 504)
- Architectural Barriers Act of 1968

## **1.5.2 Relevant Haleakalā National Park Planning Documents**

### **General Management Plan / Environmental Impact Statement for Haleakalā National Park**

The *General Management Plan / Environmental Impact Statement for Haleakalā National Park* presents a framework to guide management, development, and use of HNP (NPS 1995). The following are included in the broad management objectives: protection of unique geologic, biotic, and cultural resources of HNP; and improvement in the quality of the visitor's experience. The plan states that management and use of the west crater rim is "oriented toward providing for appreciation of the major geological features of Haleakalā Crater," as well as interpretation of biological and historic features present in the area (NPS 1995).

### **Foundation Document, Haleakalā National Park**

Foundation Documents provide a basic understanding of a park's resources, values, and history to support planning and management. Core components include: a brief description of the park; the park's purpose; the park's significance; fundamental resources and values; and interpretive themes. The HNP Foundation Document (Draft) presents eight 'significance statements' that explain why the park's resources and values are important enough to merit its designation as a unit of the National Park System (NPS 2015a). These include "a home for diverse threatened and endangered species, including some that exist nowhere else in the world"; "provides a panorama of exceptional grandeur where visitors may find solitude and inspiration within a vast and colorful landscape"; and "is known for its exceptional scenery, including sunrises and sunsets above the clouds [that] provide transformational experiences for residents and visitors alike" (NPS 2015a).

### **Biological Opinion and Informal Consultation for the Operation and Management of the Haleakalā National Park**

A Biological Opinion was issued in 2012 to address all operation and maintenance activities at HNP over a 20-year period and to facilitate Section 7 review in compliance with the Endangered Species Act (USFWS 2012a). The Biological Opinion addresses 65 listed or proposed species found within HNP as well as designated or proposed critical habitat. Activities included in the Biological Opinion related to the action alternatives are: vehicle use in the park; pedestrian activity; commercial activity; park maintenance and operation activities; resource management activities; staff traversing through habitat; ground disturbance; vegetation management; endangered wildlife management; trail maintenance; and interpretation and education. Two federally listed species that may occur at Kalahaku Overlook, band-rumped storm petrel and scarlet honey creeper, are not covered under the 2012 Biological Opinion.

The band-rumped storm petrel was listed as endangered in 2016 and the scarlet honey creeper was listed as threatened in 2017.

### **1.5.3 Relationship to Regional Planning Documents**

#### **U.S. Fish and Wildlife Service, Regional Seabird Conservation Plan, Pacific Region**

This U.S. Fish and Wildlife Service (USFWS) plan identifies priorities for regional seabird management, monitoring, research, outreach, planning, and coordination (USFWS 2005). The plan includes: a review of seabird resources and habitats; a description of issues and threats; and a summary of current management, monitoring, and outreach efforts. The sections covering Hawaiian petrels and band-rumped storm petrels discuss distribution, population status, and trends. They also describe ecology; outline conservation concerns and activities; and provide recommended actions.

### **1.6 Scoping and Consultations**

Internal scoping involved an interdisciplinary team who determined potential issues and impact topics. Internal scoping involved multiple site visits and discussions on what type of improvements could be made to improve visitor safety and reduce adverse impacts to natural and cultural resources at Kalahaku Overlook. The park conducted internal scoping from November 2016 to November 2017.

The park conducted external scoping to obtain input from other agencies, organizations, and the public on potentially affected resources and issues to be considered. The park conducted external scoping from December 4, 2017 to March 7, 2018. The scoping period for the project was advertised in the local newspaper, on the NPS Planning, Environment, and Public Comment website, and through direct outreach to interested parties. A public scoping meeting and a site visit were held with the Haleakalā Summit and Kīpahulu Kūpuna Groups and Native Hawaiian Organizations to solicit input on potential alternatives as well as resources and impacts to consider. Additional details on the scoping process can be found in Section 0: Consultation and Coordination.

### **1.7 Issues and Impact Topics**

#### **1.7.1 Issues and Impact Topics Identified for Further Analysis**

The following topics require detailed analysis due to the potential level of environmental impacts resulting from implementing the action alternatives. These topics have been identified based on federal laws, regulations, and orders; *Management Policies 2006* (NPS 2006); NPS knowledge of resources; input from natural resource managers; and public input.

**Table 1. Issues and Impact Topics**

Impact Topic	Reasons for Retaining Impact Topic
Geology, Topography, and Soils	Small rocks and cinder from the surrounding area could be taken or disturbed to implement the action alternatives.
Vegetation	Native vegetation could be impacted by the action alternatives. Federally listed species are located in the area.
Wildlife	Federally listed species are located in the area.
Habitat	The area contains habitat for federally listed species. The area is within designated critical habitat for the Haleakalā silversword.
Lightscares	Implementation of the action alternatives involves the installation of pathway lighting.
Soundscapes	Implementation of the action alternatives could create noise not normally present at Kalahaku Overlook.
Cultural Resources (Archeological Resources, Cultural Landscapes, Structures, and Ethnographic Resources Associated with Particular Cultural Practices)	The area contains cultural resources that could be impacted by the action alternatives. Cultural practices occur in the area. The trails, walkways, stairs, and rock wall are contributing features of the Haleakalā Highway Historic District.
Human Health and Safety	The action alternatives seek to address concerns for visitor safety.
Visitor Use and Experience	The action alternatives seek to address visitor experience and education, and to improve physical and programmatic accessibility.
Designated Wilderness	The view plane from the designated wilderness would be affected.

### 1.7.2 Impact Topics Considered but Dismissed

The following topics were considered but dismissed from detailed analysis in the EA because:

- the topics do not exist in the analysis area, or would not be affected by the action alternatives; or
- the likely impacts are not reasonably expected; or
- through the application of measures to minimize adverse impacts, there would be minor or less effects from the action alternatives.

### Air Quality

Dust and emissions resulting from construction activities were evaluated for their potential impact on air quality. The amount of dust and emissions generated from the use of tools and the collection of small rocks and cinder would be negligible. The effect of one or two extra vehicles travelling to the work site would be negligible. The action alternatives would not result in any temporary or long-term changes to air quality.

### Water Resources

Due to the dry climate, lack of perennial streams at Kalahaku Overlook, and the distance from permanent waterbodies, implementation of the action alternatives is unlikely to directly or indirectly adversely affect water resources. The action alternatives are unlikely to result in any release of contaminants. The small amount of precipitation that falls at Kalahaku Overlook infiltrates quickly into the soil profile, and thus analysis of run-off or erosion due to rainfall is not warranted.



## **Wildland Fire**

The action alternatives would not increase the chance of a wildland fire occurring. The area is very sparsely vegetated and does not contain any significant fuel source for a wildland fire.

## **Park Operations**

Implementation of the action alternatives would not result in any increase to operations and maintenance costs. The action alternatives would not result in any changes to the need for law enforcement to patrol Kalahaku Overlook, nor maintenance staff to continue regular maintenance. Implementation of the action alternatives would not require hiring any additional employees. The action alternatives would have a negligible effect on administrative actions.

## **Climate Change**

The action alternatives would result in no permanent changes to energy requirements or greenhouse gas emissions.

## **Socioeconomics**

No long-term impact on the local economy would occur as a result of the action alternatives.

## **Environmental Justice**

Executive Order 12898, “General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. The actions proposed in this analysis would not have disproportionate health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency’s Environmental Justice Guidance (1998).

## **Indian Trust Resources**

There are no Indian trust resources at HNP.

## 2 ALTERNATIVES

This section outlines alternatives for Kalahaku Overlook area management. Two action alternatives were carried forward for detailed analysis (Section 2.3 and 2.4), along with the No Action Alternative (Section 2.1). The action alternatives have a set of common improvements (Section 2.2). Alternatives were developed collaboratively by an interdisciplinary National Park Service (NPS) team based on use patterns of the site, safety considerations, and known cultural resources. Alternatives considered but dismissed from detailed analysis are also discussed (Section 0).

### 2.1 Alternative 1: No Action

Under the No Action Alternative there would be no improvements made to Kalahaku Overlook. The conditions as described in the Affected Environment (Section 3) would remain the same. Routine trail maintenance would still be performed. The No Action Alternative provides a basis for comparison with the action alternatives and the respective environmental consequences and is required under the National Environmental Policy Act.

### 2.2 Actions Common to All Action Alternatives

Both action alternatives focus on providing for resource protection, visitor safety, and visitor enjoyment. During the final design phase for either action alternative, an effort will be made to make new construction meet physical accessibility requirements and programmatic guidelines. Universal design principles will be employed where feasible.<sup>1</sup> A set of improvements is common to the two action alternatives.

Additional signs, conforming to the NPS Sign Program, would be installed to inform visitors, including non-English speakers, about existing features and protection of resources, and direct visitors to stay within designated visitor use areas (Figure 3). All signs would be mounted on posts in the ground or on low-profile railings. All pathway lighting installed will conform to the seabird and night sky friendly lighting and structures guidance (be low to the ground, shielded or pointed downward, and a warm color of light such as amber). Improvements made within the parking area would conform to Architectural Barriers Act Accessibility Standards (ABAAS) scoping and code requirements.

Two crosswalks would be installed. A pedestrian crossing sign would be installed along the Kalahaku Overlook Access Road (Figure 4). Fully accessible sidewalks would be installed along the parking areas to provide safe pedestrian passage. Low-profile railings would be installed along the sidewalks to discourage people from travelling off-trail. The railings would be constructed of galvanized pipe railing to match the existing railings at the Kalahaku Overlook area.

The Silversword Trail, a contributing feature to the cultural landscape, would be rehabilitated, per the Secretary of the Interior's standards for the treatment of historic properties. The asphalt portions of the trail would be resurfaced with black or dark gray asphalt. The historic dry-laid rock wall and rock

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<sup>1</sup> Universal design is the design of buildings, products or environments to make them accessible to all people, regardless of age, disability, or other factors.

and mortar stairs would be repaired using in-kind materials. Short path lighting, brown or red color to match the surrounding area, will be placed along the rock wall to light the Silversword Trail. The lighting would consist of individual solar powered lights.

The action alternatives would be implemented using hand tools (i.e. shovels, buckets, grip hoists, and rock bars) and mechanized tools (i.e. pionjars). Any compliance required related to gathering rock and cinder from the upper elevations of the Summit District would be completed prior to work beginning.

**Figure 3. Examples of Signs with Graphics**



**Figure 4. Example of Pedestrian Crossing Signage**



### **2.3 Alternative 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)**

Alternative 2, the Preferred Alternative, would provide additional designated viewing locations for individuals to experience scenic vistas (Figure 5). Two new designated viewing areas, approximately 400–500 sq. ft. in size, would be constructed along the Haleakalā Crater rim using locally sourced rock and cinder. The viewing areas would consist of a flattened cinder surface bordered by a low-profile rock and mortar wall, built to match the rock and mortar wall (including color and width of the mortar) at the existing Kalahaku Overlook structure, per the Secretary of the Interior’s standards for the treatment of historic properties.

Two new spur trails would provide access to these viewing areas from the Kalahaku Overlook Trail and the southwest parking area. The spur trails would be constructed of locally sourced rock and cinder. The trails would be constructed by lining with rocks and filling with cinder and compacting. Solar pathway lighting would be placed along the new spur trails. Pathway lighting will conform to the seabird and night sky friendly lighting and structures guidance (be low to the ground, shielded or pointed downward, and a warm color of light such as amber).

A fully accessible viewing area overlooking the Silversword Trail would be constructed adjacent to the north side of the parking lot. It would consist of approximately 70–100 sq. ft. of uncovered platform with a low-profile railing along the north side, conforming to ABAAS code requirements and universal design principles.

The final design may include a bench or some type of seating within the platform area. At least one crosswalk would be installed to connect the proposed ABAAS compliant sidewalk to the viewing area. An interpretive wayside exhibit would be installed near the platform with information about the history of Kalahaku Overlook and endangered and threatened species in the area.

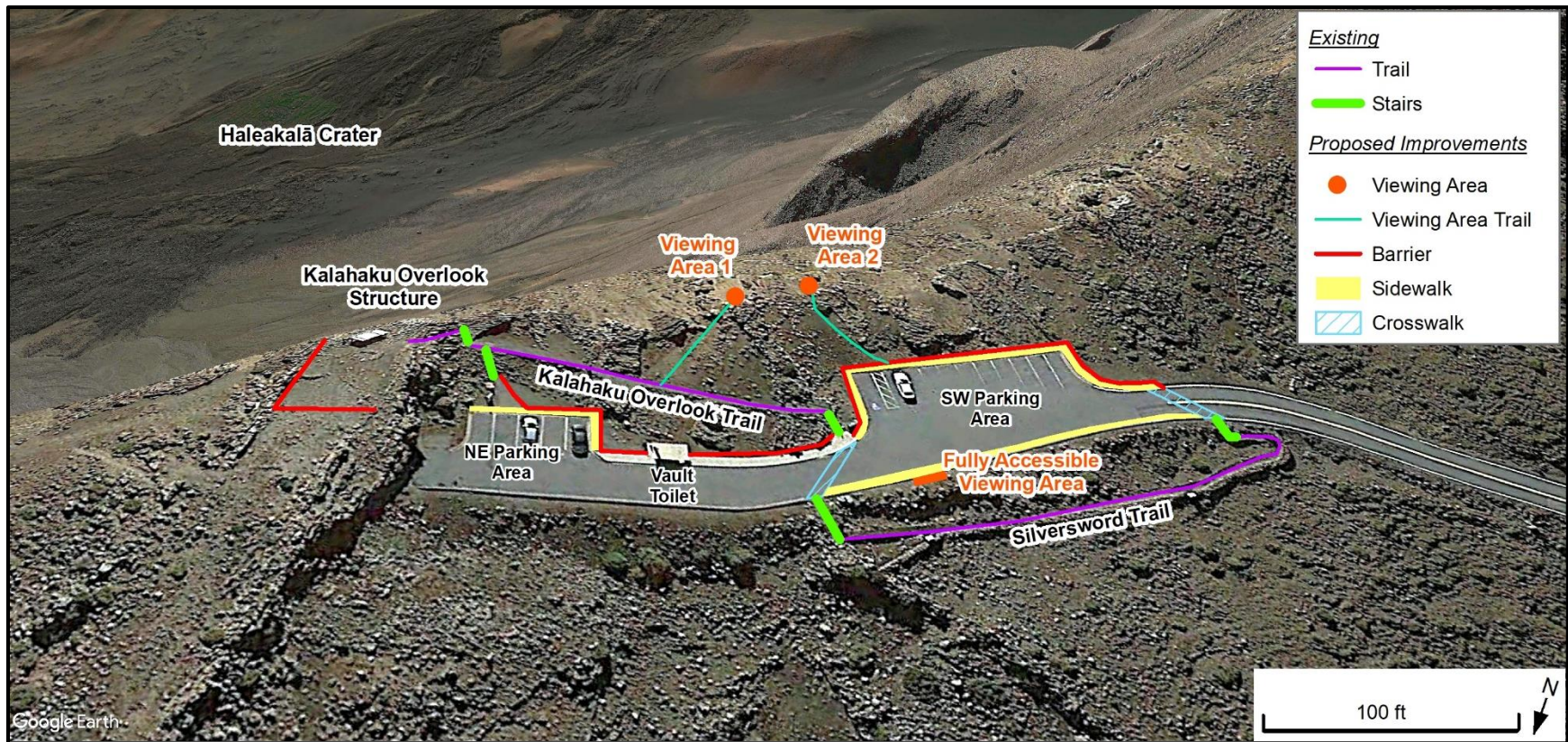
## **2.4 Alternative 3: Improve Existing Features and Expand Sheltered Viewing Area**

Alternative 3 would expand the amount of designated viewing area with shelter from the elements (Figure 6). In addition to improvements common to the two action alternatives, under Alternative 3, the existing Kalahaku Overlook structure would be increased in size with the addition subordinate to the existing structure. The expansion would use materials in-kind to the existing structure and would be compatible with the current design, following the Secretary of the Interior's standards for the treatment of historic properties (Figure 7). The expansion would be on the north side of the existing structure and set back from the crater edge. Within or adjacent to the expanded structure, an interpretive wayside exhibit would be installed to inform visitors about the history of Kalahaku Overlook and the threatened and endangered species in the area. A seating area may also be included in the expanded shelter.

## **2.5 Logistics of Project Implementation**

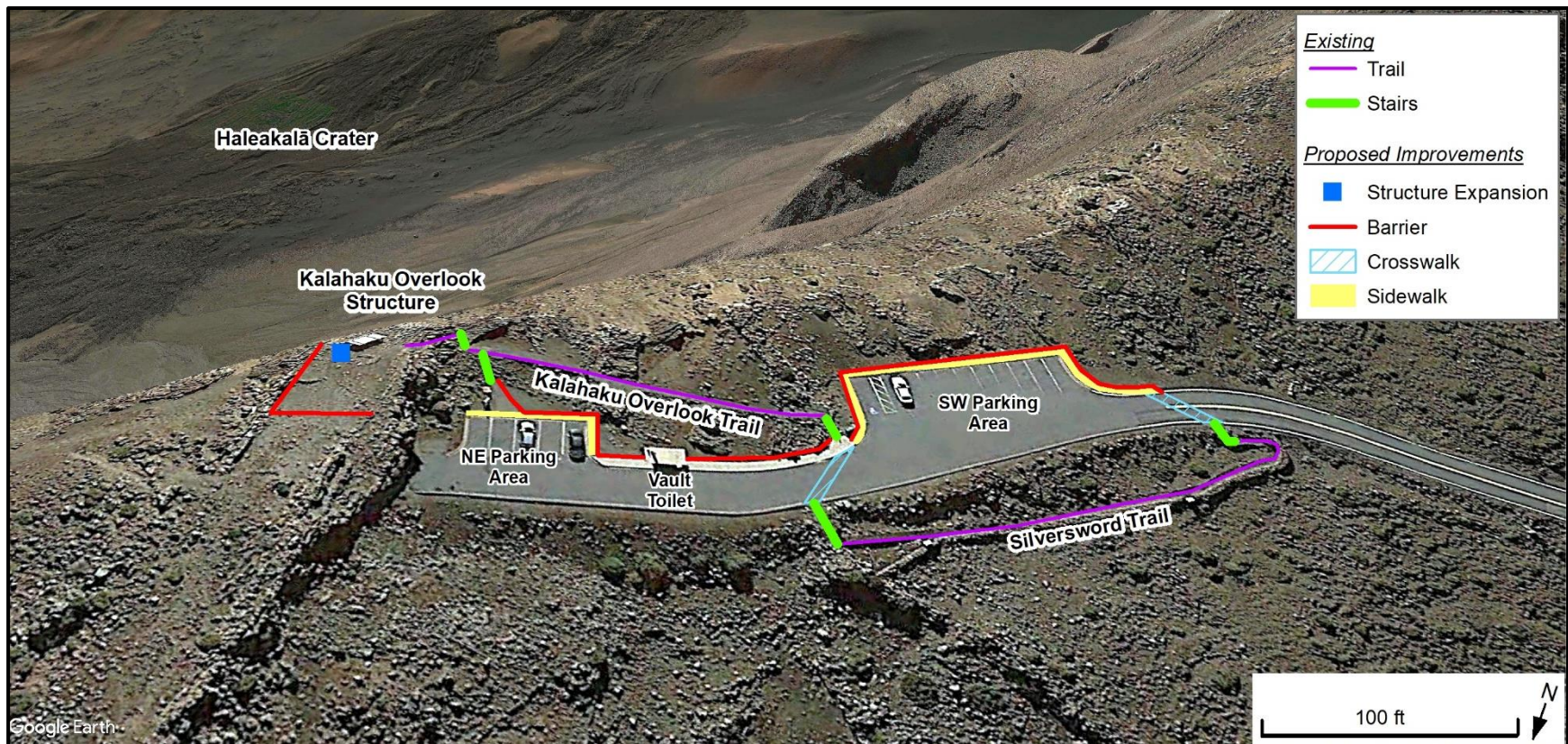
Small rocks and cinder would be gathered from borrow pits at Kalahaku Overlook. The borrow pit locations would be inspected by a park biologist prior to any material being removed. If any protected biological species are found in close proximity to the proposed borrow pit, a new location would be chosen. During excavation a qualified archeologist will monitor the borrow pits for any cultural resources. Should any cultural resources be found, excavation would cease. After removal of material, borrow pits would be filled in with rock and cinder from the surrounding area.

Large rocks would be brought to the site from other areas of the park, mainly the base-yard stockpile. Large rocks would be cleaned at the point of origin to avoid transporting non-native invertebrates and plant species to the project site.



**Figure 5. Alternative 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative), Proposed Improvements**





**Figure 6. Alternative 3: Improve Existing Features and Expand Sheltered Viewing Area, Proposed Improvements**

**Figure 7. Existing Kalahaku Overlook Structure**



## 2.6 Measures to Minimize Adverse Impacts

Measures to minimize adverse impacts are incorporated into the action alternatives. These include existing policies, practices, and measures that the NPS utilizes to reduce adverse impacts of designated activities, functions, or processes, as well as measures that have been developed in consultation with the U.S. Fish and Wildlife Service (USFWS) and/or the Hawai‘i State Historic Preservation Division (SHPD).

Table 2 summarizes measures that would be taken to avoid, minimize, or mitigate any adverse impacts under the action alternatives.

**Table 2. Measures to Minimize Impacts of the Action Alternatives**

Impacts Reduced/Avoided	Measures to Minimize Impacts
Impacts to federally listed species	Coordinate with biologists to schedule operations at strategic times to avoid inadvertent contact with or impact to any known threatened and endangered species.
Impacts to federally listed species	Personnel working on improvements would be required to be able to properly identify threatened and endangered species.
Impacts to federally listed species	Haleakalā silversword plants would not be removed. Trampling around the base of Haleakalā silverswords would be avoided.
Impacts to federally listed species	No gathering of rock and cinder would occur within 100 ft of threatened and endangered species.
Impacts to federally listed species	Small rocks and cinder would be collected from borrow pits without disturbing native vegetation.
Impacts to federally listed species	All project personnel would be apprised that threatened or endangered species could be in the vicinity of the project at any time during the year. If a threatened or endangered species should appear

Impacts Reduced/Avoided	Measures to Minimize Impacts
	within 100 ft of ongoing work, all activity would be suspended until the species leaves the area on its own accord.

**Table 2. Measures to Minimize Impacts of the Action Alternatives (cont'd)**

Impacts Reduced/Avoided	Measures to Minimize Impacts
Impacts to federally listed species	All project personnel would be made aware of the potential for Hawaiian petrels and Hawaiian geese to be present on roadways and would be required to travel at or below posted speed limits.
Impacts to federally listed species	Pathway lighting would be low to the ground, shielded or pointed downward, and a warm color of light, such as amber, so as not to disrupt flight patterns of threatened and endangered seabirds.
Impacts to federally listed species	Whenever possible, noise and vibration of equipment would be kept to a minimum when working in the vicinity of threatened or endangered species.
Impacts to federally listed species & Human health and safety	Work areas would be cleaned up at the end of each shift so that loose tools, debris and materials are not left out in a manner that could present a hazard to listed species or workers.
Impacts to federally listed species	Hazmat spill prevention protocol would be followed while operating all gas-powered equipment.
Impacts to federally listed species	Tarps would be used to contain any debris that may fall while working on buildings or rock and mortar structures (e.g. paint chips, mortar chips). Magnets would be used to pick up any loose nails or screws from the work site.
Impacts to federally listed species	All signs would be installed at the lowest possible height to decrease risk of collision for petrel species.
Spread of invasive plants	All tools, construction materials, work boots, and clothes would be free of weed seeds and plant material.
Spread of invasive species	Material required for the project would be those already in the park or would be inspected for invasive species by park staff prior to being imported into the park.
Spread of invasive invertebrates	Trash, particularly food items, would be removed daily to avoid infestations of Argentine ants and Western yellow-jacket wasps.
Cultural Resources	Ground disturbance will be monitored by a qualified archeologist.
Cultural Resources	No large rocks from Kalahaku Overlook would be used.* Large rocks would come from other areas of the park, mainly the stockpile in the park base-yard, which is rock from HNP removed during previous projects.
Human health and safety	All personnel working on project would wear personal protection equipment at all times.
Human health and safety	Safety officer would advise on safety concerns as needed.

\* This condition was requested by Native Hawaiians during the scoping period for this EA.

## **2.7 Alternatives Considered and Dismissed**

One alternative was considered but dismissed from further analysis. The alternative included all of the actions common to both Alternative 2 and Alternative 3 (Section 2.2), as well as the addition of an interpretive structure just north of the existing Kalahaku Overlook structure. The interpretive structure would have been a stand-alone structure, seating up to twenty people, and intended for ranger-led and self-guided interpretation.

The best location topographically for the interpretive structure would not have provided for viewing into Haleakalā Crater, and thus would not relieve overcrowding at the existing Kalahaku Overlook structure. Additionally, during scoping, people indicated that having two separate structures in close proximity was considered much less desirable than adding on to the existing structure.

An increase in the number of activities within HNP accessible to people with disabilities has been a desire expressed by a number of visitors over the years. There is no location at Kalahaku Overlook to add an interpretive structure of this size that would be accessible to people with disabilities. Ranger-led activities at the interpretive structure would require park staff. HNP has a small number of interpretive staff and adding new personnel would increase the annual operations budget.

This alternative was dismissed from consideration as it does not fully meet the purpose and need of increasing the number of designated viewing areas to improve visitor enjoyment and safety. This alternative did not include providing increased access and educational opportunities for people with disabilities, which is highly desirable. This alternative was also dismissed due to lack of available staff to provide for ranger-led interpretive activities.



### 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

#### 3.1 General Methods for Analyzing Impacts

The impact analysis and conclusions contained in this Environmental Assessment (EA) were based on existing literature; previous and ongoing Haleakalā National Park (HNP) research and findings; information provided by experts within the National Park Service (NPS), other agencies, and professionals; and public input. Impacts to resources as a result of each alternative were evaluated to determine the duration of any impacts, whether the impacts would be considered beneficial or adverse; and if impacts would have direct, indirect, or cumulative effects (Box 1) (NPS 2015b). Measures to be used by park personnel to minimize adverse impacts were included in the evaluation (Table 2).

#### Box 1. Terms Used in Discussion of Environmental Consequences

*Duration:* Effects are considered short-term if the impacts are confined to the duration of the construction phase. Effects are considered long-term if the impacts last beyond the project completion.

*Type:* An impact is considered *beneficial* if actions improve the resource or the quality or quantity of the resource. An *adverse* impact is one that harms or depletes the resource or the quality or quantity of the resource.

*Intensity:* Intensity refers to the severity of an impact, which may be direct, indirect, or cumulative.

*Direct impacts* are impacts “which are caused by the action and occur at the same time and place” (40 CFR 1508.8(a)). For example, if there is a proposal to construct a new trail, construction activities might directly adversely affect native vegetation due to removal of plants during trail creation.

*Indirect impacts* are impacts “which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable” (40 CFR 1508.8(b)). For example, consider the trail proposal discussed above. A reasonably foreseeable consequence of taking the action might be a reduction of visitors on existing trails throughout the year. The resulting impact on visitor use and experience (in this instance, a beneficial one) would represent an indirect impact. It would occur later in time and at a greater distance than the action of creating the trail, but would nonetheless be a consequence of the proposal.

A *cumulative impact* is an “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions” (40 CFR 1508.7). 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.



### 3.2 Addressing Cumulative Impacts

The cumulative impacts addressed in this analysis include actions in the area that have occurred in the recent past, are presently being implemented, or are planned to be implemented in the reasonably foreseeable future.

**Table 3. Actions Considered for Cumulative Impact Analysis**

Action	Description	Resources Potentially Affected
<b>Past Projects</b>		
US Air Force Guidestar laser upgrade	The Guidestar laser at the Maui Space Surveillance System, located in the Haleakalā High Altitude Observatory site and used to correct for atmospheric distortion and provide clearer images, was upgraded from an older laser technology to state-of-the-art technology in mid-2017.	Cultural Resources
Road and parking lot rehabilitation	Maintenance and repair to the main park road between mile marker 11.1 and 14.9, as well as parking lots at Halemau'u trailhead, Headquarters Visitor Center, Hosmer Grove, Haleakalā Visitor Center, Kalahaku Overlook, Leleiwi Overlook, and the Summit.	Vegetation, Wildlife, Cultural Resources, Visitor Use and Experience, Park Operations
Repaint exterior of Summit District water tanks	Approximately 7,500 sq. ft. of exterior surfaces of two Summit District, 250K gallon water storage tanks and adjacent slow sand filters will be painted. Recoating of exteriors is needed to keep steel tanks from rusting and deteriorating and to bring them into good condition.	Vegetation, Wildlife, Cultural Resources, Human Health and Safety, Park Operations
Routine painting of historic park buildings.	Painting of park buildings is necessary to maintain them in good condition. Painting is done by park staff or contractors. Painting historic buildings requires consultation with the Cultural Resources Program Manager prior to beginning work.	Wildlife, Cultural Resources, Human Health and Safety, Park Operations
Improve bird watching at Hosmer Grove	Two permanently mounted weatherproof binoculars and three new benches are being installed along the trail. The wayside exhibit is being replaced.	Cultural Resources, Park Operations
Sunrise Visitation Management	In consideration of ways to reduce overcrowding at the summit during sunrise viewing a pilot reservation system to limit the number of non-commercial vehicles to no more than 150 between the hours of 3:00 and 7:00 a.m. was implemented and evaluated in an EA as a long-term solution. The EA resulted in a Finding of No Significant Impact and the reservation system has been implemented as a long-term solution.	Vegetation, Wildlife, Cultural Resources, Visitor Use and Experience, Park Operations

**Table 3. Actions Considered for Cumulative Impact Analysis (cont'd)**

Action	Description	Resources Potentially Affected
<b>Current Projects</b>		
Repair failing rain shed (rain catchment)	Repair a rain shed (rain catchment) in the Summit District. Base material is being put down in muddy areas around the rain shed, a ditch is being cut and a pipe is being installed to divert water. The project requires heavy equipment use such as an excavator and a skid steer to rehabilitate a ditch at the top of the rain shed.	Vegetation, Wildlife, Cultural Resources, Human Health and Safety, Park Operations
Invasive pine tree removal	Helicopters have been and continue to be used to treat invasive pine trees with herbicide in inaccessible portions of the Summit District.	Vegetation, Wildlife, Cultural Resources, Visitor Use and Experience, Park Operations
Daniel K. Inouye Solar Telescope	A solar telescope is currently being constructed in the Haleakalā High Altitude Observatory site at the end of Crater Road.	Vegetation, Wildlife, Cultural Resources, Visitor Use and Experience, Park Operations
Crater Road pullout improvements project	Pullouts and road shoulders along Crater Road are being improved for the safety of motorists by adding gravel road base and drainage systems.	Vegetation, Wildlife, Cultural Resources, Human Health and Safety, Visitor Use and Experience, Park Operations
Rehabilitate Haleakalā Visitor Center wastewater system	Rehabilitation and modernization of the Haleakalā Visitor Center wastewater system is underway. The project includes replacing the septic system and underground water tanks; and repairing parking lot asphalt, sidewalk, and rail fence.	Vegetation, Wildlife, Cultural Resources, Visitor Use and Experience, Park Operations
New concession contracts	An EA was completed to implement a commercial services plan to guide concessions in the park.	Vegetation, Wildlife, Cultural Resources, Human Health and Safety, Visitor Use and Experience, Park Operations
<b>Future Projects</b>		
Replace windows at Kalahaku Overlook structure	Replace three glass panels at the Kalahaku Overlook structure.	Cultural Resources
Replace undersized and non-compliant Headquarters Visitor Center	Replace the existing Headquarters Visitor Center, which is undersized at 3,425 sq. ft., with a building of approximately 8,000 sq. ft. The project includes installation and subsequent removal of temporary office structures; abatement of hazardous materials; realignment and expansion of parking areas, sidewalks and other hardscape features; installation of energy conserving features; and installation of a second water tank and septic tank.	Vegetation, Wildlife, Cultural Resources, Human Health and Safety, Visitor Use and Experience, Park Operations

### 3.3 Biological Environment

#### 3.3.1 Vegetation

##### 3.3.1.1 Affected Environment

Kalahaku Overlook is characterized as subalpine dry shrubland and consists of open areas of volcanic cinder interspersed with a sparse cover of shrubs and grasses (NPS 2015c). Native species dominate the area, although non-natives are more prevalent in areas of heavy visitor use. Currently, native plants throughout Kalahaku Overlook are directly impacted by trampling and indirectly impacted by erosion resulting from off-trail travel.

Common native shrubs present include *pūkiawe* (*Leptecophylla tameiameia*), *‘ōhelo* (*Vaccinium reticulatum*), *kūpaoa* (*Dubautia menziesii*), *kūkaenēnē* (*Coprosma ernodeoides*), and *pilo* (*Coprosma montana*). Native grasses include bentgrass (*Agrostis sandwicensis*), alpine hairgrass (*Deschampsia nubigena*), and *pili uka* (*Trisetum glomeratum*). The native fern *kalamoho lau li ‘i* (*Pellaea ternifolia*) is also present.

The only federally-listed plant species that occurs at Kalahaku Overlook is the threatened *‘āhinahina* or Haleakalā silversword (*Argyroxiphium sandwicense* ssp. *macrocephalum*). Haleakalā silversword is a slow growing plant from the family Asteraceae. It is endemic to Maui where it occurs in the subalpine and alpine deserts of Haleakalā (Brueggmann and Garaway 2003, USFWS 1997). Considered the park’s hallmark plant species, the Haleakalā silversword was near extinction in the 1920s due to browsing and trampling by feral ungulates and cattle and vandalism by visitors. The population has increased considerably with intensive ecosystem management, including the installation of ungulate control fencing. Haleakalā silverswords are a primary attraction for many park visitors. The Silversword Trail at Kalahaku Overlook, on the north side of the parking area, provides an opportunity for visitors to view the plants up close without having to travel off-trail.

##### 3.3.1.2 Environmental Consequences of Alternative 1: No Action

The No Action Alternative would not result in any new adverse direct or indirect impacts to vegetation. Under this alternative, existing negative impacts to vegetation would continue. Visitors trampling native vegetation due to lack of clearly delineated visitor use areas would continue to cause mortality. The lack of clearly delineated trails and viewing areas would continue to inhibit natural recruitment of native species into locations with high visitor use (e.g. along Haleakalā Crater rim and along the flat ridge to the east of the Kalahaku Overlook Trail terminus).

##### 3.3.1.3 Environmental Consequences of Action Alternatives

###### 3.3.1.3.1 Effects Common to All Action Alternatives

Potential short-term, direct, adverse effects to native plants include trampling by workers, disturbance due to removal of small rocks and cinder, and disturbance due to moving large rocks. However, Kalahaku Overlook contains large areas of bare ground, making it feasible to conduct most activities without disturbing any large areas of native vegetation. Haleakalā silverswords would not be susceptible to trampling during repair activities as all plants are a minimum of three feet away from the Silversword

Trail, stairs, and rock wall. Workers would be able to repair the trail, stairs, and rock wall from the un-vegetated footprint of the trail.

Long-term, direct, adverse effects to native plants would be mortality resulting from infrastructure installation. The area where the sidewalk and railing would be installed contains approximately 40% vegetative cover, approximately half of which is native species. Long-term beneficial effects for native plant populations would be that decreased disturbance may provide for their expansion throughout the Kalahaku Overlook area.

Measures to protect native plants would be employed (Table 2). The adverse effects on native plants, including Haleakalā silverswords, would be negligible due to the small area being disturbed and measures to minimize impacts.

#### ***3.3.1.3.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

Due to sparse vegetation and previous disturbance, installation of new viewing areas and access trails would disturb very few native plants. There are no Haleakalā silverswords within the location where new viewing areas along the crater rim and access trails would be installed. Installation of the accessible viewing platform would result in mortality of a small number of native plants in the platform footprint. There are no Haleakalā silverswords within or directly adjacent to the proposed platform footprint. The Preferred Alternative would not result in short or long-term significant adverse effects because of the very small number of native plants that would be affected. Delineation of visitor use areas would be beneficial to native plant populations.

#### ***3.3.1.3.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area***

The area where the existing Kalahaku Overlook structure would be expanded does not contain any native plants. The bare ground surrounding the existing structure is large enough to stage materials and tools necessary for construction. Expansion of the structure would not result in any short or long-term significant adverse effects to vegetation.

***Cumulative Impacts:*** Many projects occurring in the Summit District adversely impact some native vegetation through trampling or removal. Cumulative impacts to vegetation from either action alternative combined with other current and future projects would be adverse. However, due to park-wide measures to minimize adverse effects and the sparse nature of vegetation in the park, the cumulative amount of disturbance to native vegetation is still low and does not represent a significant adverse effect.

### **3.3.2 Fauna**

#### **3.3.2.1 Affected Environment**

Native and non-native animals occur in the Kalahaku Overlook area. There are five federally listed wildlife species present or potentially present at Kalahaku Overlook (Table 4).

#### **Previous Consultation Regarding Endangered Wildlife**

Three endangered animals (Hawaiian hoary bat, Hawaiian petrel and Hawaiian goose) found at Kalahaku Overlook were covered in the 2012 Biological Opinion (USFWS 2012a). U.S. Fish and Wildlife Service

(USFWS) issued the determination that the level of anticipated “take” from NPS actions related to operations and maintenance was not likely to result in jeopardy to the populations of these species. Under Section 3(18) of the Endangered Species Act “take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct”. The Biological Opinion cited measures that the park takes to mitigate adverse effects such as predator trapping and feral ungulate removal. The band-rumped storm petrel and the scarlet honeycreeper, which had not been federally listed at the time of issuance of the Biological Opinion, were not included. Measures taken to prevent adverse impacts to Hawaiian hoary bats and Hawaiian petrels also provide protections for band-rumped storm petrels and scarlet honeycreepers.

**Table 4. Special Status Wildlife at Kalahaku Overlook**

Scientific Name	Hawaiian Name	Common Name	Regulatory Status	Presence at Kalahaku
<b>Mammals</b>				
<i>Lasiurus cinereus semotus</i>	‘ōpe‘ape‘a	Hawaiian hoary bat	Endangered	Present
<b>Birds</b>				
<i>Branta sandvicensis</i>	nēnē	Hawaiian goose	Endangered	May occur
<i>Oceanodroma castro</i>	‘akē‘akē	band-rumped storm petrel	Endangered	Passes through, but not present
<i>Pterodroma sandwichensis</i>	‘ua‘u	Hawaiian petrel	Endangered	Present
<i>Drepanis coccinea</i>	‘i‘iwi	scarlet honeycreeper	Threatened	May occur

### 3.3.2.1.1 Mammals

The only native land mammal in Hawai‘i, ‘ōpe‘ape‘a or Hawaiian hoary bat (*Lasiurus cinereus semotus*), has been detected at night at Kalahaku Overlook. The Hawaiian hoary bat is federally and state listed as endangered. They are nocturnal and roost solitarily during the day (except mothers with pups) in trees or sometimes in rock crevices (USFWS 2012b, Bonaccorso 2010). There are no trees for roosting at Kalahaku Overlook, but Hawaiian hoary bats have been detected in the area and may roost in the rocky outcrops in the vicinity.

Fencing of the park boundary in the mid-1980s and ongoing ungulate control efforts (i.e. maintenance of over 50 miles of fence and removal of any ungulates that breach the fence), exclude alien goats, pigs, and deer from much of the park. Non-native mammals that have been detected at Kalahaku Overlook include rats, cats, and mongoose. The park engages in active predator control efforts that have been successful at keeping predator populations low.

### 3.3.2.1.2 Birds

Bird species that frequent Kalahaku Overlook include chukar, pheasants, and house finches, and endangered Hawaiian petrels. Endangered Hawaiian geese and threatened scarlet honeycreepers have



been documented in the area, although rarely. Endangered band-rumped storm petrels occur at HNP and may fly over Kalahaku Overlook in transit to the crater.

Active ‘ua ‘u or Hawaiian petrel (*Pterodroma sandwichensis*) burrows are located throughout the Kalahaku Overlook area and the upper elevations of the Summit District. Hawaiian petrels are federally and state listed as endangered. Hawaiian petrels are medium-sized seabirds that are endemic to Hawai‘i. The largest known breeding colony is found at Haleakalā Crater on Maui, with other colonies at high elevations on Mauna Loa and Mauna Kea on Hawai‘i Island, Kaua‘i, and on the summit of Lāna‘i. The population size is estimated at 8,000 – 10,000 individuals at Haleakalā (HNP unpubl. data 2014) and was estimated at 20,000 statewide in 2005 (DLNR 2005a). Hawaiian petrels nest in burrows located mostly on steep slopes (HNP 2018). Pairs may return to the same burrow year after year (Natureserve 2014, HNP 2018, Simons and Natividad Hodges 1998). Hawaiian petrel incubation season, which lasts 55 days, is April through July at Haleakalā. During the nesting season they search for food over pelagic ocean waters during the day, sometimes for several days, and return to their colony at night. Chicks remain in the burrow for about four months after hatching and are visited and fed by their parents. Hawaiian petrel burrows at Kalahaku Overlook are regularly monitored for the presence of adults and chicks. Current threats to Hawaiian petrels include habitat loss; trampling of burrows by people and feral ungulates; predation; fallout due to artificial lighting; and collision with man-made objects/structures.<sup>2</sup>

Nēnē or Hawaiian goose (*Branta sandvicensis*) have been documented within the Summit District of the park and may occur sporadically at the Kalahaku Overlook area. Hawaiian geese are federally and state listed as endangered. Although they are known to occupy high-elevation lava flows and cinder deserts, Hawaiian geese rely on plants for food and nest at elevations lower than Kalahaku Overlook. This medium-sized goose is endemic to Hawai‘i. Reintroduction of Hawaiian geese in HNP began in 1962 and the population in and around the park is estimated at 200–250 individuals. Current threats to Hawaiian geese within the park include predation of eggs and goslings by introduced mammals (particularly rats, cats, and mongoose); human-caused disturbance (including habituation); and mortality due to vehicle collisions.

‘Akē ‘akē or band-rumped storm petrel (*Oceanodroma castro*) have never been detected in the Kalahaku Overlook area (Natividad Bailey, pers. comm.). They have been detected in Haleakalā Crater near Kapalaoa, Waikau, and Waikane, several miles east of Kalahaku Overlook. Band-rumped storm petrels potentially fly over the project area in transit to other crater sites, where they are likely nesting. Band-rumped storm petrels nest in burrows or natural rock cavities at high elevations (DLNR 2005b). The Hawai‘i distinct population segment of band-rumped storm petrels are federally and state listed as endangered. Band-rumped storm petrels are a medium-sized, pelagic seabird that when not breeding, generally stay at sea. The population size of the Hawai‘i distinct population segment is unknown at this time. The current breeding population in Hawai‘i is suspected to be very small based on confirmed

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<sup>2</sup> Seabirds such as petrels use moonlight to navigate out to sea. Fallout is a phenomenon where young seabirds become disoriented by bright artificial lighting (street lights, building lights, etc.), fly around until they become exhausted, and fall to the ground or collide with a structure. Once on the ground they become extremely vulnerable to predation or being hit by a vehicle. Young birds attempting their first flight out to sea are the most at risk.

sightings of birds and nests. Current threats to band-rumped storm petrels include habitat loss; predation; fallout due to artificial lighting; and collision with man-made objects/structures.

*Iʻiwi* or scarlet honeycreeper (*Drepanis coccinea*) are rarely detected in the Kalahaku Overlook area (Natividad Bailey, pers. comm.). Scarlet honeycreepers are federally and state listed as threatened. It is a medium-sized forest bird that belongs to the endemic Hawaiian honeycreeper family. Scarlet honeycreepers mainly feed on the nectar of various plants, and occasionally insects and spiders (Pratt et al. 2009). East Maui is estimated to support between 55,000 and 65,000 scarlet honeycreepers (USFWS 2017), and the birds are regularly sighted and detected throughout forested and shrubland areas of the park (NPS 2012).

### **3.3.2.1.3 Invertebrates**

Studies conducted in the Haleakalā summit region provide information on invertebrate species that are potentially present at Kalahaku Overlook. Kalahaku Overlook lies within the aeolian ecosystem, a term used to describe areas that exist on non-weathered lava substrates found mostly, but not exclusively, at high elevations (Medeiros et al. 1994). Invertebrate species in the aeolian system rely heavily on wind-blown organic materials for food and on adaptations of thermal regulation and moisture conservation to survive. As is true in other ecosystems, it is likely that some invertebrate species migrate downwards through interstitial spaces between loose cinders and tephra rocks to find moisture and protection from high temperatures.

A basic inventory of the insects of summit area conducted in 1980 identified 389 species of insects, 60% of which were believed to be endemic to Hawaiʻi and 21% of which were determined to be endemic to Haleakalā (Beardsley 1980). Arthropod inventories conducted at a Haleakalā summit telescope site identified 62 species of arthropods (Pacific Analytics 2003, 2005, 2007, and 2009). Endemic invertebrates associated with the aeolian ecosystem include: tephridid flies (*Trupanes* sp.); Haleakalā flightless moth (*Thyrocopa apatela*); yellow-faced bee (*Hylaeus volanicus*); moths (*Agrotis*, *Rhynchephestia*); planthoppers (*Nesosydne*); Lycosid wolf spiders (*Lycosa hawaiiensis*); two species of long horn beetles (*Plagithmysus* sp.); and cerambycid beetles (*Mecyclothorax* sp.). Many of these species are dependent on the Haleakalā silversword for their survival. No invertebrate species listed as endangered, threatened, or that are currently proposed for listing under either federal or state endangered species statutes are known to occur in the aeolian ecosystem of the summit area.

Two particularly problematic non-native invertebrates in the summit aeolian ecosystem, including Kalahaku Overlook, are the Argentine ant (*Linepithema humile*) and the western yellow-jacket wasp (*Vespula pensylvanica*). Both species are aggressive predators that prey upon and displace native invertebrates. Monitoring and mapping the borders of the Argentine ant populations in the park has been ongoing since 1980 by the U.S. Geological Survey. Western yellow-jacket wasp activity in the park is monitored to study the spread of the species and the effectiveness of control methods.

### **3.3.2.2 Environmental Consequences of Alternative 1: No Action**

Under the No Action Alternative, existing negative impacts to fauna would continue. Concerns would remain that visitors could collapse petrel burrows or disturb chicks when walking outside of the designated visitor use area. Visitors traveling off-trail would adversely impact invertebrates by direct

mortality and by trampling and crushing cinder habitat. If bats are roosting within rocky outcrops in the area surrounding Kalahaku Overlook, visitors travelling outside of designated use areas could startle bats off their roosts, which represents a direct adverse impact. The No Action Alternative may result in future negative impacts to fauna. Although band-rumped storm petrels are not known to nest in this location, the area contains suitable habitat for nesting. If nesting were to occur in the future, visitors traveling off-trail could adversely affect band-rumped storm petrels by collapsing burrows or disturbing chicks.

### **3.3.2.3 Environmental Consequences of Action Alternatives**

#### ***3.3.2.3.1 Effects Common to All Action Alternatives***

##### **Mammals and Birds**

Implementing either action alternative has the potential to result in short-term adverse effects to native wildlife in the form of disturbance. Disturbance of native mammals and birds would be restricted to Kalahaku Overlook and the cliff below where the Hawaiian petrel burrows are present and Hawaiian hoary bat and band-rumped storm petrel habitat exists. Measures to minimize adverse impacts would ensure no ‘take’ of threatened or endangered species (Table 2).

The project does not involve the installation of any barbed wire fencing, powerlines, guywires, or other cables that have been known to cause injury to bats and some bird species. All project implementation activities would take place during the day. No overhead artificial lighting would be required during project implementation that could adversely affect Hawaiian petrels or band-rumped storm petrels. The pathway lighting that would be installed would conform to the seabird and night sky friendly lighting and structures guidance, which indicates that outdoor lights should be low to the ground, shielded or pointed downward, and a warm color of light, such as amber, so as not to disrupt flight patterns of threatened and endangered seabirds. No significant adverse effects to wildlife are anticipated due to installation of pathway lighting.

Implementation of either action alternative would result in short-term, temporary noise. Noise generated by vehicles and construction has the potential to result in startle, alarm, and alert behavior and disturb the day-time sleep of Hawaiian petrels (USFWS 2012a). The sound levels resulting from improvement activities would be similar to or lower than those currently produced by vehicles and tour buses coming and going from Kalahaku Overlook (Section 3.3.2). There is likely some level of noise habituation by Hawaiian petrels due to the daily presence of vehicles, including tour buses (NPS 2012). All project activities would take place more than 100 ft away from Hawaiian petrel burrows. The noise associated with improvement activities is not anticipated to result in significant adverse effects to wildlife.

##### **Invertebrates**

Implementation of either action alternative could adversely impact native invertebrates directly through mortality, or indirectly through destruction of habitat or introduction of non-native species. Gathering small rocks and cinder to delineate visitor use areas is likely to result in some direct mortality to a small number of native invertebrates at borrow pit locations. Given the way that rock and cinder are

gathered and the small area from which they would be taken, native invertebrates may be affected, but are not likely to be significantly adversely affected. The non-native Argentine ant and Western yellow-jacket wasp are already present throughout the site, so moving cinder and rock around does not pose a threat of further spreading these species. Transportation of construction materials to the site presents a risk of introducing non-native invertebrates. Accidental introduction of non-native arthropod species can negatively impact native arthropod species through direct competition and direct consumption.

#### **3.3.2.3.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)**

The new viewing areas and access trails would not be located near any existing Hawaiian petrel burrows. NPS staff performed several site visits to ensure the proposed locations of viewing areas and access trails would not adversely impact Hawaiian petrel burrows.

Given the low population of native mammals and birds, and the measures to minimize adverse impacts, there would be little to no disturbance of native wildlife (Table 3). Any disturbance would be temporary and not life threatening. Therefore, the Preferred Alternative would not result in significant adverse impacts to native fauna, including endangered species. Implementing the Preferred Alternative would result in long-term beneficial effects to native wildlife as visitors would be less likely to travel outside of designated visitor use areas.

The creation of new viewing areas and access trails would likely result in the direct, short-term mortality of some invertebrates due to trampling. However, directing visitor traffic to specific areas rather than visitors wandering all around Kalahaku Overlook would result in a lower long-term mortality rate for invertebrates, resulting in an overall beneficial impact.

#### **3.3.2.3.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area**

The location of the proposed addition to the existing viewing structure does not contain suitable habitat for mammals or birds. The invertebrate population present in the footprint of the proposed structure addition is likely low due to long-term repeated trampling.

Given the low population of native mammals and birds, and the measures to minimize adverse impacts, there would be little to no disturbance of native wildlife (Table 3). Any disturbance would be temporary and not life threatening. Therefore, Alternative 3 would not result in significant adverse impacts to native fauna, including endangered species. Implementing Alternative 3 would result in long-term beneficial effects to native wildlife as visitors would be less likely to travel outside of designated visitor use areas.

**Cumulative Impacts Birds and Mammals:** Because there are no adverse impacts to mammals and birds associated with either action alternative, implementation would not contribute adversely to any cumulative impacts. Implementation of either action alternative in combination with *Sunrise Visitation Management* would benefit native mammals and birds as reduced overcrowding would likely result in less travel outside of designated visitor use areas.

**Cumulative Impacts Invertebrates:** Management activities under either action alternative, as well as current and future actions, have the potential to introduce and spread new non-native species, mainly

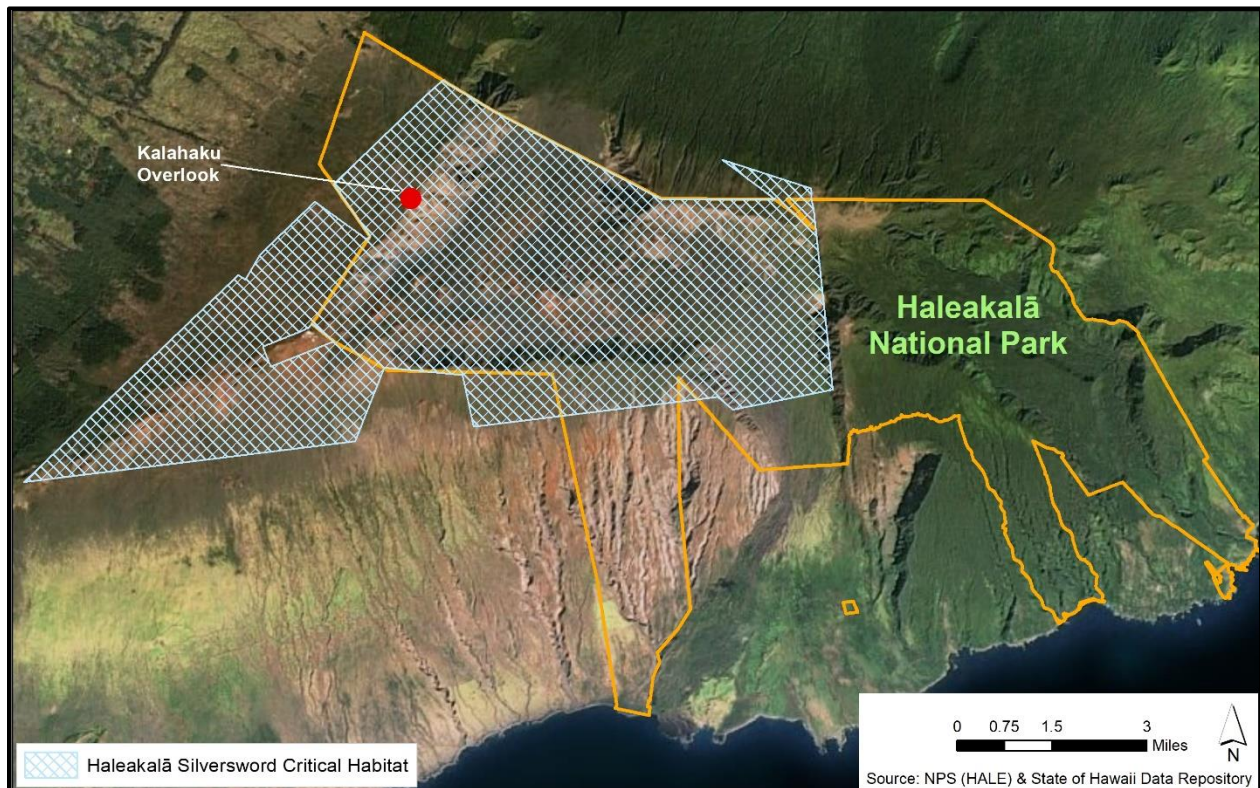
through movement of equipment. Implementation of the action alternatives would only contribute to cumulative adverse effects if a new introduction is not contained and eliminated. Measures to minimize adverse impacts would greatly reduce the chance of a new introduction (Table 3).

### 3.3.3 Habitat

#### 3.3.3.1 Affected Environment

Kalahaku Overlook is within the alpine cinder desert or aeolian ecosystem. This cinder dominated habitat begins at around 8,530 ft on the western slope of the volcano and extends up to the summit (10,023 ft). Climate conditions are extreme, with widely varying temperatures and little precipitation. Vegetation is sparse and there are no trees. There are no perennial water sources. Kalahaku Overlook is within the area of HNP surrounded by ungulate control fencing, which protects native plants from browsing and trampling and protects Hawaiian petrel burrows from collapse due to trampling. Kalahaku Overlook is within designated critical habitat for one federally listed plant species, Haleakalā silversword (Figure 8).

**Figure 8. Critical Habitat: Haleakalā Silversword**



#### 3.3.3.2 Environmental Consequences of Alternative 1: No Action

The No Action Alternative would not result in any new negative direct or indirect impacts to habitat. Under the No Action Alternative, adverse impacts to habitat, including critical habitat would continue. Vegetation would continue to be subject to trampling. The lack of clearly delineated trails and viewing

areas would continue to inhibit natural recruitment of native plant species into locations with high visitor use (e.g. the flat ridge to the east of the Kalahaku Overlook Trail terminus). Erosion resulting from off-trail travel would continue. The concern of visitors collapsing Hawaiian petrel burrows due to off-trail travel would remain high.

### **3.3.3.3 Environmental Consequences of Action Alternatives**

#### **3.3.3.3.1 *Effects Common to All Action Alternatives***

Installation of new sidewalks, railings, and signs would not result in any significant adverse impacts to habitat as proposed areas are already heavily disturbed as a result of long-term visitor use. New sidewalks, railings, signs, and trail delineations would be beneficial to habitat as they would direct visitors to stay in designated visitor use areas. Limiting visitor use outside of designated visitor use areas would be beneficial to the health of designated Haleakalā silversword critical habitat. Impacts to invertebrate habitat due to borrow pits would be limited to a small area, and do not represent a significant adverse effect.

#### **3.3.3.3.2 *Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

The Preferred Alternative would not result in any significant short or long-term adverse effects to habitat. Installation of the two viewing areas and their access trails would occur in areas where habitat is already adversely impacted due to visitor use. The Preferred Alternative would direct pedestrian traffic and should diminish the amount of off-trail travel, which would be beneficial for habitat.

#### **3.3.3.3.3 *Alt 3: Improve Existing Features and Expand Sheltered Viewing Area***

The site where the existing structure would be expanded is used regularly by visitors. The area has been subjected to decades of trampling and does not contain functional habitat. Due to the small size of the addition and the current state of the land, expansion of the existing structure would not result in significant long-term adverse effects to habitat.

**Cumulative Impacts:** Because there are no adverse impacts to habitat associated with either action alternative, implementation would not contribute adversely to any cumulative impacts. Implementation of either alternative in combination with *Sunrise Visitation Management* would be beneficial to habitat as reduced overcrowding would likely result in less travel outside of designated visitor use areas. A reduction in off-trail travel by visitors offers protection to habitat and allows for degraded areas to recover.

## **3.4 Physical Environment**

### **3.4.1 Geology, Topography and Soils**

#### **3.4.1.1 Affected Environment**

The soils at the summit, including Kalahaku Overlook, consist of volcanic rocks and boulders, relatively unweathered volcanic cinders, pumice, and ash (USDA 2013, USDA Soil Conservation Service 1972). Erosion due to natural causes is low and is primarily caused by wind and occasionally rainfall. Within visitor use areas soils are compacted and small rocks have been crushed to cinder by trampling. Off-



trail travel, which occurs due to crowding and lack of designated viewing areas, has caused accelerated erosion.

### **3.4.1.2 Environmental Consequences of Alternative 1: No Action**

The No Action Alternative would not result in any new adverse direct or indirect effects on soils, topography, or geologic resources. Under this alternative existing adverse effects due to visitors traveling off trail would continue. Existing adverse effect include accelerated erosion, changes to topography due to accelerated erosion and crushing of cinder.

### **3.4.1.3 Environmental Consequences of Action Alternatives**

#### ***3.4.1.3.1 Effects Common to All Action Alternatives***

Neither of the action alternatives would involve significant alteration of geological resources, topography, or soils. Gathering of small rocks and cinder would be confined to specific locations within the project area. HNP personnel would ensure a minimal amount of ground disturbance during removal of small rocks and cinder. The action alternatives would be expected to result in long-term, beneficial effects throughout the Kalahaku Overlook area as soils would be less subject to crushing and accelerated erosion would decrease due to less off-trail travel.

#### ***3.4.1.3.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

The Preferred Alternative would not result in any short or long-term significant adverse effects to soils, topography, or geologic resources. The locations of the proposed viewing areas were chosen because they are relatively flat and free of vegetation. Any grading required would be minimal and would be accomplished using hand tools. The area where the viewing platform near the parking area would be placed would be subject to minimal soil disturbance where piles are driven into the ground to support the structure.

#### ***3.4.1.3.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area***

The site proposed for the existing structure expansion is in an area of heavy visitor use that has been subjected to decades of trampling. Due to the existing soil conditions, expansion of the existing structure is unlikely to result in any further damage to soils. The topography immediately adjacent to the existing structure is flat and expansion is unlikely to increase erosion at the site. The structure addition may require a minimal amount of grading, which would be accomplished using hand tools. Due to the small size of the addition and the current state of the land, expansion of the existing structure would not result in significant adverse effects to geology, topography, and soils.

***Cumulative Impacts:*** Because there are no adverse impacts to geology, topography, and soils associated with either action alternative, implementation would not contribute adversely to any cumulative impacts.

## **3.4.2 Lightscape**

### **3.4.2.1 Affected Environment**

The lightscape at Kalahaku overlook is generally “natural” with light being provided by the sun during the day and the moon and stars during the night. Currently there is no permanent artificial lighting at

the overlook, but temporary, intermittent light sources are present, predominantly from vehicle lights and flashlights.

### **3.4.2.2 Environmental Consequences of Alternative 1: No Action**

The No Action Alternative would not result in any changes to the natural lightscape. Light levels within the area would remain at present levels. Both direct and cumulative impacts resulting from the No Action Alternative would be negligible.

### **3.4.2.3 Environmental Consequences of Action Alternatives**

#### ***3.4.2.3.1 Effects Common to All Action Alternatives***

Implementation of the action alternatives would involve increased light levels in a few concentrated areas due to the installation of pathway lighting. Increased light levels would occur during the evening hours and last until the solar charge on the lights was lost, likely sometime in the middle of the night. Pathway lighting would be placed so that it would not be visible in the designated wilderness area directly to the south of the Kalahaku Overlook. Adverse impacts to the lightscape would be negligible because increased light would be concentrated, limited to certain hours, and not be visible outside of the Kalahaku Overlook area.

***Cumulative Impacts:*** Because pathway lights would only be installed in a few places, the lights would be directed downward in a concentrated fashion, and there are no other light generating projects involving changes to the lightscape in the vicinity, implementation of either action alternative would not contribute to any cumulative impacts to the lightscape.

## **3.4.3 Soundscape**

### **3.4.3.1 Affected Environment**

The “natural” soundscape is filled with noises from the wind and occasional wildlife. Noise from visitors talking and noise from vehicles (music and running cars) is also part of the existing soundscape. Tour helicopter flights around Haleakalā Crater are part of the soundscape on a regular though intermittent basis.

### **3.4.3.2 Environmental Consequences of Alternative 1: No Action**

The No Action Alternative would not result in any changes to the natural soundscape. Noise levels within the area would remain at present levels. Both direct and cumulative impacts resulting from the No Action Alternative would be negligible.

### **3.4.3.3 Environmental Consequences of Action Alternatives**

#### ***3.4.3.3.1 Effects Common to All Action Alternatives***

Implementation of the action alternatives would involve direct, temporary, increased noise levels due to the use of tools. Increased noise levels would occur during working hours (7:30 a.m. to 4:30 p.m.) and be heard only by visitors at Kalahaku Overlook. Mechanized tools would be louder than hand tools and carry over a farther distance. Noise from the tools would be heard by visitors throughout the Kalahaku Overlook area, but not in the designated wilderness area directly to the south. Adverse impacts to the

soundscape would be negligible because increased noise would be intermittent, temporary, and limited to certain hours of the day. The action alternatives would not result in any long-term changes to the soundscape at Kalahaku Overlook.

**Cumulative Impacts:** Because the increase in noise would be temporary and there are no other noise generating projects in the vicinity, implementation of either action alternative would not contribute to any cumulative impacts to the soundscape.

### **3.5 Cultural Resources**

One of the six resource management priorities identified in the General Management Plan (1995) is to identify and protect cultural sites and remains, stabilize significant archeological structures and where appropriate, assist in the perpetuation and interpretation of traditional Hawaiian culture. NPS-28: Cultural Resources Management Guidelines states that cultural resources include both tangible entities and cultural practices (NPS 1998). The National Register of Historic Places (NRHP) categorizes tangible cultural resources as districts, sites, buildings, structures, and objects, while the park service manages archaeological resources, cultural landscapes, structures, museum objects, and ethnographic resources.” (NPS 1998).

Cultural resources were evaluated within the area of potential effect (Figure 9). Cultural resources at Kalahaku Overlook include cultural landscapes, structures, and ethnographic resources associated with particular cultural practices. Although there are archeological features in the general area, reconnaissance and inventory surveys indicate there are no archeological features within the area of potential effect.

#### **3.5.1 Affected Environment**

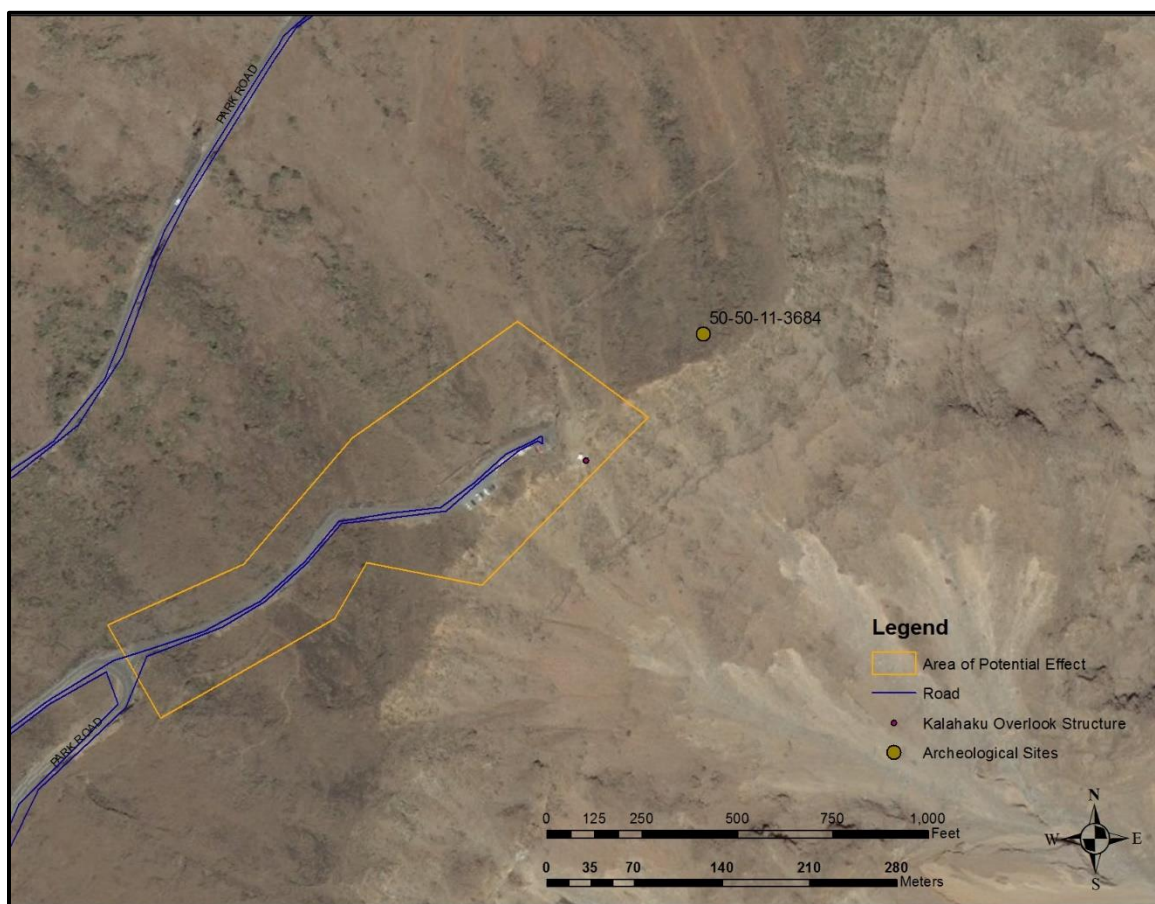
##### **Cultural Landscapes and Structures**

Cultural landscapes are a geographic area, including both cultural and natural resources, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic value (NPS 1998). In 2008 the NPS portion of the Haleakalā Highway was determined eligible for listing in the NRHP as a historic district. Features associated with the Haleakalā Highway Historic District include the road corridor as well as development nodes along its route at Halemau‘u Trailhead, Leleiwi Overlook, Kalahaku Overlook, White Hill, and Red Hill.

The period of significance for the historic district extends from 1933 to 1966, beginning with the initial construction of the road and covering the subsequent improvements and developments along the road that furthered the park’s mission to enhance visitor access to Haleakalā Crater. Historic features constructed or improved between 1954 and 1966 were part of the Mission 66 Program, a national NPS initiative aimed at improving deteriorating infrastructure and accommodating changing visitation patterns. The proposed historic district contains buildings, roads, a bridge, trails, walkways, steps, retaining walls, culverts, and other features that create a cohesive assemblage portraying NPS master planning from the 1930s and Mission 66 eras, and the evolution of NPS style from rustic to modern. Although some historic features of the Haleakalā Highway have been removed or altered, key

characteristics that historically defined the road and its associated development areas are intact and continue to convey the historic character of the road as a scenic highway.

**Figure 9. Area of Potential Effect**



Kalahaku Access Road and the parking area were constructed in 1954. Existing features at Kalahaku Overlook eligible for listing in the NRHP include the Kalahaku Overlook structure, four sets of rock and mortar stairs with railings, the asphalt Silversword Trail, walkways, and the rock wall along the Silversword Trail. These features were all built during the Mission 66 Program. A rest house was built at Kalahaku Overlook in 1894, and later re-built by the Maui Chamber of Commerce in 1914. In 1957, the NPS demolished the existing rest house, but some remnants from the structure's foundation remain.

### **Ethnographic Resources and Cultural Practices**

Ethnographic resources are defined as objects and places, including sites, structures, landscapes, and natural resources, with traditional cultural meaning and value to associated peoples (NPS 1998). A Traditional Cultural Property is used by the NRHP to identify a property “that is eligible for inclusion in the National Register because of its association with cultural practices or beliefs of a living community that, (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community” (Parker and King 1998). Haleakalā is a *wahi pana* (legendary place) and holds significant cultural value due to spiritual, ceremonial, and traditional

importance to Native Hawaiians (Dagan et al. 2007, Kailihiwa and Cleghorn 2003). The summit area of Haleakalā, including Haleakalā Crater, Kīpahulu Valley, and Kaupō Gap, has been determined eligible for listing in the NRHP as a traditional cultural property. Eligibility is based on its association with the cultural landscape of Maui and because it has known uses, oral history, *mele*, and legends surrounding Haleakalā; is a source for both traditional materials and sacred uses; and is a place exhibiting spiritual power (Prasad and Tomonari–Tuggle 2008).

Cultural practices are defined as a pattern of behavior associated with a particular way of life (NPS 1998). Cultural practices are often associated with particular ecosystems, the use of natural resources, and the use or production of sites, structures, objects and landscape features. The Kalahaku Overlook area is one location in the park where Native Hawaiian practitioners engage in cultural practices including performing rituals and ceremonies, *pule* (prayer), and *mele* (chants, songs, or poems) (Table 5). The details of many cultural practices are kept private for personal or other reasons. Part of the scoping process to identify the affected environment included early consultations with Native Hawaiian Organizations and individuals knowledgeable about the traditional, cultural, and spiritual significance of Haleakalā.

**Table 5. Examples of Cultural Practices**

Type	Example
Haleakalā as a sacred mountain	<ul style="list-style-type: none"> <li>• <i>Pōhaku Pālaha</i>, the location within the crater that is considered the <i>piko</i> of East Maui</li> <li>• Associated with many Hawaiian legends</li> <li>• The summit as a place exhibiting spiritual power</li> <li>• A place of reflection and rejuvenation</li> </ul>
Spiritual training and study	<ul style="list-style-type: none"> <li>• The summit area is a place where <i>kahuna</i> (priests) were trained</li> </ul>
Trails and travel	<ul style="list-style-type: none"> <li>• Haleakalā summit and Haleakalā Crater were used as a trans-Maui thoroughfare for travel through East Maui</li> </ul>
Ritual/ceremonial practices	<ul style="list-style-type: none"> <li>• <i>Mele</i> (chants, songs, or poems)</li> <li>• Solstice or equinox ceremonies</li> <li>• Visiting special sites at certain times of the year</li> <li>• <i>Pule</i> (prayer)</li> </ul>
Traditional birth and burial practices	<ul style="list-style-type: none"> <li>• Traditional accounts exist of the use of Haleakalā summit for burial of the dead and deposition of the umbilical cords of newborns.</li> </ul>
Astronomy	<ul style="list-style-type: none"> <li>• The summit region as a place to study traditional astronomy</li> </ul>
Resource collection	<ul style="list-style-type: none"> <li>• Basalt resources for use in tool-making were collected in the summit region. Archeological sites on the mountain include areas that were used for collection of basalt and workshop areas where tools were made, or basalt chunks were reduced for easier transport down the mountain.</li> <li>• Collection of birds for food and feathers for adornment</li> <li>• Gathering of plants</li> </ul>

A large basalt quarry (State Site No. 50–50–11–2510) is located inside the crater below the cliffs of Kalahaku Overlook. This quarry was a central focus of lithic activity at the summit. Basalt flaking debris

from the preliminary stages of adze manufacture has been found in surface scatters grouped along the lower slopes west of the Kalahaku Overlook area, outside of the area of potential effect.

### **3.5.1.1 Environmental Consequences of Alternative 1: No Action**

The No Action Alternative would not result in any new negative direct or indirect impacts to cultural landscapes, structures, and ethnographic resources associated with particular cultural practices. Under this alternative, existing negative impacts would continue. Under this alternative, the historic Silversword Trail, including historic stairs and adjacent rock wall would remain in disrepair and are likely to further deteriorate. Visitors unknowingly wandering out of designated visitor use areas may negatively impact cultural landscapes, structures, and ethnographic resources associated with particular cultural practices. The creation and perpetuation of social trails (pathways created by repeated use) spurring off of designated trails would continue to negatively impact the cultural landscape. Overcrowding at the historic Kalahaku Overlook structure would continue. Under the No Action Alternative people with mobility issues would continue to lack a location to safely enjoy Kalahaku Overlook.

### **3.5.1.2 Environmental Consequences of Action Alternatives**

#### ***3.5.1.2.1 Effects Common to All Action Alternatives***

The Kalahaku Overlook area within the Haleakalā Highway Historic District was designed and built according to the Mission 66 era philosophy of incorporating new materials while blending new infrastructure in with the surrounding natural environment (PWRO 2008). New and rehabilitated features would be built with modern materials compatible with the historic district (e.g. steel, concrete, asphalt, and mortar) combined with native rock. Overall, the circulation patterns, natural systems, and historic uses within the historic district would not be significantly affected by the new additions.

Resurfacing the Silversword Trail with asphalt would be in keeping with the character of the historic district and the Mission 66 design philosophy. The historic stairs and adjacent rock wall would be rehabilitated using in-kind materials and addition of the path lighting would be compatible with the historic Mission 66 design philosophy. All rehabilitations would follow the Secretary of the Interior's Standards for the treatment of historic properties.

Both action alternatives would result in temporary noise and other construction related disturbance that may negatively impact cultural practitioners over the short-term. Conditions to reduce impacts on cultural resources are described in Table 2. Neither action alternative would have an effect on the continuation of previously occurring cultural practices, however some locations may be temporarily off limits during work periods. Implementation of either action alternative would not significantly affect long-term use by cultural practitioners as the space and environment available for Native Hawaiian practitioners would not change significantly. Delineation of designated trails and visitor use areas is expected to result in less off trail travel by the general public. This may provide more solitude for traditional practitioners in certain locations.

Some practitioners have expressed a desire for no additional development within the park. They may consider the incorporation of new signs, delineation rocks, railings, or any type of structure to be a



negative impact to the cultural landscape. A decrease in the number of social trails in the area would be beneficial to the cultural landscape.

#### ***3.5.1.2.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

The areas where the two new viewing areas, access trails, and accessible platform would be located would be subject to soil disturbance and would increase the number of features within the cultural landscape at Kalahaku Overlook. During consultation with Native Hawaiian Organizations and individuals regarding cultural resources, park staff were reminded that there are specific cultural implications associated with placing a large stone upright. Any rock walls installed to delineate viewing areas would not contain any large upright stones. The access trails to the new viewing areas would use native materials including rock lining and cinder. The viewing area walls would be built with rock and mortar, matching the rock and mortar wall at the existing Kalahaku Overlook structure, including color and width of the mortar. Pathway lighting would be brown or red color with amber lights, to match the surrounding area and blend with the local landscape. Addition of these features would result in no adverse impacts as the design would be compatible with the character of the historic district and the Mission 66 design philosophy, and follow the Secretary of the Interior's Standards for the treatment of historic properties.

The addition of the viewing platform adjacent to the parking area would be beneficial to *kūpuna* and traditional practitioners with mobility issues who may otherwise lack an accessible place to spend time at Kalahaku Overlook.

#### ***3.5.1.2.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area***

The subordinate expansion of the existing structure is not expected to result in adverse impacts to the historic integrity of the structure since the Secretary of the Interior's standards for treatment of historic properties will be followed. Should additional interpretive materials and/or some type of seating be included in the design, they would only be placed in the expanded portion of the structure and would not affect the historic integrity of the Kalahaku Overlook structure. The few remnant rocks remaining from the base of the previous rest house would not be disturbed or covered over by the expansion of the Kalahaku Overlook structure.

***Cumulative Impacts:*** Implementation of either action alternative would not contribute adversely to any cumulative impacts as a result of measures taken to protect cultural resources.

### **3.6 Socio-Economic Environment**

#### **3.6.1 Human Health and Safety**

##### **3.6.1.1 Affected Environment**

Visitor safety is a concern at Kalahaku Overlook. The crater rim consists of steep drop offs along the entire edge of the overlook. The existing viewing structure has railings, but that area becomes over crowded during peak visitation periods, so people spread out to other areas along the rim where no protective walls or railings exist.

Visitors frequently walk onto the flat ridge to the east of the trail terminus. The area is not designated for visitor use and contains steep drop offs. The ridge also has many tripping hazards as it is not a maintained trail. Off-trail travel is prohibited throughout HNP.

The Silversword Trail is located to the north of the parking area, on the opposite side of the crater viewing area. People must cross through the traffic lane of the parking area to reach the trailhead. There are no crosswalks or signs indicating that vehicle should watch for pedestrian traffic. The broken asphalt on the Silversword Trail, the state of disrepair of the stairs, and overgrown vegetation along the trail all represent tripping hazards.

### **3.6.1.2 Environmental Consequences of Alternative 1: No Action**

Under the No Action Alternative, existing negative impacts would continue. Visitors are likely to continue to travel off-trail to experience better views. Off-trail travel in a terrain with steep cliffs and uneven ground is dangerous and represents an adverse impact to human health and safety. Under the No Action Alternative pedestrians would continue to wander across the parking area at all locations due to lack of marked crossings. Tripping hazards on the Silversword Trail would remain.

### **3.6.1.3 Environmental Consequences of Action Alternatives**

#### ***3.6.1.3.1 Effects Common to All Action Alternatives***

The short-term effects to human health and safety would be negligible due to measures to minimize adverse impacts during construction activities (Table 2). The proposed elements would not result in any additional long-term risks to human health or safety not already present in the natural environment of HNP. Trail delineations clearly identifying safe pedestrian traffic patterns would improve visitor safety as visitors would be directed away from hazardous areas. This includes the proposed rock wall or railing at the trail terminus that would deter visitors from walking out the ridge to the east of the Kalahaku Overlook structure, which has steep drop-offs along each side. Installation of signage and crosswalks to the parking area would improve pedestrian safety by indicating to pedestrians where to cross and alerting drivers that pedestrians explore park features on both sides of the parking area. The chance of people tripping while walking on the Silversword Trail would be greatly reduced by repair of the trail and the installation of pathway lighting.

#### ***3.6.1.3.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

Under the Preferred Alternative visitor safety would be directly increased over the long-term due to clearly identified viewing areas into the crater. Clearly defined viewing areas should make visitors less likely to wander unguided along the crater rim where steep drop-offs and uneven ground exist. Pathway lighting on the new spur trails would improve the safety of all visitors during low-light evening hours.

#### ***3.6.1.3.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area***

Under Alternative 3 visitor health and safety would directly benefit over the long-term as the expanded structure would have a larger covered viewing area, providing protection from the elements for visitors, and a resting location should the final design incorporate seating.

***Cumulative Impacts:*** Because there are no adverse impacts to human health and safety associated with either action alternative, implementation would not contribute adversely to any cumulative impacts.

## 3.6.2 Visitor Use and Experience

### 3.6.2.1 Affected Environment

The *NPS Management Policies* state that the enjoyment of park resources and values is part of the fundamental purpose of all parks and that the NPS is committed to providing appropriate, high-quality opportunities for visitors to enjoy the parks (NPS 2006). A mission of the park is to provide opportunities for public education, enjoyment, and safe access to the park and its resources. Between 2014 and 2017, HNP averaged 1.2 million visitors annually (NPS 2018). Between 15% and 30% visit the park on a commercial tour.

Kalahaku Overlook is used by independent travelers as well as most commercial tour groups visiting the summit area. It receives regular visitor use throughout the day. Commercial tour vehicles are not permitted to park at Kalahaku Overlook during sunrise. The parking lot contains accessible parking for people with disabilities, but there are no trails, viewing areas, or exhibits that employ universal design principles or conform to ABAAS codes. The Proposed Action nor any considered Alternative will impact the National Park Service's current policy regarding *Kanaka Maoli* whom wish to conduct traditional cultural practices in the park.

**Viewing Areas.** The Kalahaku Overlook structure and the areas directly adjacent provide the only designated viewing areas into Haleakalā Crater at Kalahaku Overlook. Overcrowding at the structure is often a problem during peak visitation periods.

**Interpretive Materials.** Interpretive signage is located on the southeast side of the parking area, at the northeast entrance to the Silversword Trail, and at the Kalahaku Overlook structure. There are no interpretive materials at Kalahaku Overlook that comply with ABAAS access requirements and incorporate universal design principles.

**Trails:** Kalahaku Overlook has two designated trails, the Kalahaku Overlook Trail and the Silversword Trail. The Kalahaku Overlook Trail terminus has signage, but there are no barriers to dissuade visitors from travelling beyond that point. The Silversword Trail showcases a planting area for the Haleakalā silversword, and also provides far reaching vistas including Mā'alaia Bay, Kahului Bay, and upcountry Maui. Many visitors do not follow the HNP "Stay on Trail" policy at Kalahaku Overlook.

**Reservation System.** In early 2017, HNP instituted a pilot reservation system in an effort to manage sunrise summit visitation. The reservation system was instituted to determine if limiting the number of visitors to the Summit District during sunrise would provide for: improvement to visitor and employee safety, protection of natural and cultural resources, and a higher quality visitor experience (EnviroSystems Management, Inc. 2018). The Haleakalā Sunrise Summit Visitation EA resulted in a Finding of No Significant Impact and the reservation system has been implemented as a long-term solution. Visitors entering the Summit District between the hours of 3:00 a.m. and 7:00 a.m. are required to have a preexisting reservation. A maximum of 150 permits are issued each day to non-commercial

vehicles.<sup>3</sup> The reservation system has dramatically reduced crowding at the summit during sunrise hours, along with the safety concerns and resource damage noted prior to implementation. It should be noted however, that overall the number of vehicles entering HNP at the Summit Entrance on a monthly basis has not declined since the reservation system began, with an average of 21,000 vehicles per month entering between June of 2014 and June of 2018 (NPS 2018).

### **3.6.2.2 Environmental Consequences of Alternative 1: No Action**

The No Action Alternative would not result in any new negative direct or indirect impacts to the visitor experience. Under the No Action Alternative, existing negative impacts would continue. While crowding during sunrise has decreased somewhat at Kalahaku Overlook with the implementation of the reservation system, the designated viewing area still becomes overcrowded during all peak visitation periods, diminishing the visitor experience. Visitors that travel outside of designated visitor use areas in order to view scenic vistas are subject to citation by park law enforcement, which can negatively affect the visitor experience.

### **3.6.2.3 Environmental Consequences of Action Alternatives**

#### ***3.6.2.3.1 Effects Common to All Action Alternatives***

Implementation of either action alternative would result in direct, short-term adverse impacts to the visitor experience. The Silversword Trail would be closed to visitor use during rehabilitation. The trail terminus and Kalahaku Overlook structure would be closed during construction activities. During the construction period two vehicles used for carrying NPS employees and tools would temporarily reduce visitor parking. The work vehicles would be present at the site during periods when the parking area typically is not full.

Other aspects of implementing the action alternatives would not have any direct impact on visitor use and experience. Placement of signs, delineation of the Kalahaku Overlook Trail, and installation of the sidewalk and adjacent railings would not require any closures. All work at Kalahaku Overlook would occur between 7:30 a.m. and 4:30 p.m. and would not impact sunrise or sunset viewing for visitors.

#### ***3.6.2.3.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

The Preferred Alternative includes several features that would be beneficial over the long-term to the visitor experience. The number of viewing areas into Haleakalā Crater would increase, likely reducing crowding at individual locations throughout Kalahaku Overlook. The addition of a new platform near the parking area would include an accessible route and provide for accessible viewing and interpretation features at Kalahaku Overlook. These improvements to accessibility would create more experiences for more visitors, including for people with disabilities, and would add to the number of park areas where accessibility to visitors is enhanced. In the long-term, implementation of the Preferred Alternative would be beneficial to visitor use and enjoyment of park resources.

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<sup>3</sup> Commercial vehicles operate under the Commercial Use Authorization policy regarding sunrise tours and are not required to use the reservation system.

#### **3.6.2.3.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area**

Expansion of the existing Kalahaku Overlook structure would result in a short-term, direct adverse impact, as it would be closed to visitor use during construction. It is estimated that construction would take two weeks or less. Due to the short period of the closure, the impact is not significant. Over the long-term, implementation of Alternative 3 would be beneficial to visitor use and enjoyment of park resources. The expanded structure would increase the amount of sheltered viewing available at Kalahaku Overlook. Should some type of seating be included in the final design, it would be beneficial to visitors that desire a place to rest.

**Cumulative Impacts:** Cumulative impacts on visitor use and experience would be beneficial as the several of the past, present, and foreseeable actions are aimed at improving the visitor experience and expanding visitor services. Specifically, the proposed additional viewing areas at Kalahaku Overlook combined with *Sunrise Visitation Management* would be beneficial for visitors as the viewing areas would not be as crowded during sunrise as they have been in the past. However, although limits imposed on the number of visitors during sunrise has decreased crowding during that period, the number of visitors entering the summit district of the park on a monthly basis has not changed. This indicates that visitors still find it desirable to visit the summit district for reasons other than just watching sunrise. Since limits on sunrise visitation push visitation into other periods of the day, the improvements to Kalahaku Overlook will help decrease crowding during all peak visitation periods.

### **3.6.3 Designated Wilderness Area**

#### **3.6.3.1 Affected Environment**

The Draft Foundation Document for HNP states that “The preservation of natural sounds, viewsheds, and dark night skies is also critical to effective wilderness management” (HNP 2015). Designated wilderness at HNP includes the majority of Haleakalā Crater. The northern border of the designated wilderness runs along the crater rim at Kalahaku Overlook. The Kalahaku Overlook, including the existing structure, is only visible from a small part of the designated wilderness, namely along portions of the Sliding Sands Trail. The existing structure is not visible from the campsites or cabins within designated wilderness.

#### **3.6.3.2 Environmental Consequences of Alternative 1: No Action**

Under the No Action Alternative, the existing conditions are not producing any direct or indirect adverse impacts to designated wilderness.

#### **3.6.3.3 Environmental Consequences of Action Alternatives**

##### **3.6.3.3.1 Effects Common to All Action Alternatives**

The proposed improvements would not occur within the park’s designated wilderness. Over the short-term, construction noise would not be heard by visitors using trails, campsites, or cabins within the designated wilderness.

#### ***3.6.3.3.2 Alt 2: Improve Existing Features and Add Open Air Viewing Areas (Preferred Alternative)***

The Preferred Alternative would not result in any new direct, long-term adverse effects to the designated wilderness. The proposed crater viewing areas would not be discernable from the designated wilderness when unoccupied. However, people standing within the viewing area may be visible from the designated wilderness area. People currently utilize the same area for crater viewing, and thus this does not represent a new or significant adverse impact. The accessible platform near the parking area would not be visible from the designated wilderness.

#### ***3.6.3.3.3 Alt 3: Improve Existing Features and Expand Sheltered Viewing Area***

Under Alternative 3, an expanded structure would add to the built environment that is visible from the designated wilderness. The existing structure was constructed prior to congressional designation of the wilderness area. Since the existing Kalahaku Overlook structure is an established part of the view plane from a small part of the designated wilderness, and the expansion is relatively minor in size, this does not represent a significant adverse effect.

***Cumulative Impacts:*** Because there are no adverse impacts to designated wilderness associated with the Preferred Alternative, implementation would not contribute adversely to any cumulative impacts. Under Alternative 3, the expansion of the existing shelter would contribute to cumulative impacts in that it is an addition to the built environment within the view plane of the designated wilderness.



## **4 CONSULTATION AND COORDINATION**

### **4.1 Scoping**

Scoping was conducted both internally and externally.

#### **4.1.1 Internal Scoping**

Park personnel met several times to discuss the most effective methods for rehabilitating visitor use areas at Kalahaku Overlook to improve visitor safety and experience and to protect natural and cultural resources. Topics covered included: current concerns for safety and the visitor experience, the need to improve trail conditions, the desire to increase access to experiences for people with disabilities, and preservation of historic elements.

#### **4.1.2 External Scoping**

External scoping was conducted to engage interested parties on proposed improvements for Kalahaku Overlook. The National Park Service (NPS) solicited feedback from the public as well as governmental and non-governmental organizations that have an interest in conservation issues in Hawai‘i and specifically on Maui (Appendix A). On December 4, 2017 the NPS distributed information on the action alternatives and details on the public meeting via a press release, a newsletter, agency/organizational letters, and the NPS Planning, Environment, and Public Comment website. The NPS requested that comments be provided by January 8, 2018. A public meeting was held on December 7, 2017 in Pukalani, Hawai‘i to inform, answer questions, and collect comments. The Haleakalā Summit and Kīpahulu Kūpuna Groups and 21 Native Hawaiian Organizations were invited to attend a site visit and “talk story” session regarding the proposed improvements on March 7, 2018.

Comments received during scoping covered the following topics:

- Resource Protection
- Logistics/Park Management
- Overlooks and Trails
- Structures
- Signage
- Additional Parking
- Addition of a Modern Ahu
- Cultural Considerations for Placement of Rocks

All of the comments expressed support for the NPS implementing improvements to the Kalahaku Overlook area. All comments were taken into consideration during the development of this Environmental Assessment (EA).

### **4.2 Regulatory Compliance**

#### **4.2.1 Section 7 Consultation**

Section 7 of the Endangered Species Act requires federal agencies to consult with U.S. Fish and Wildlife Service (USFWS) or National Marine Fisheries Service when taking an action that may affect federally listed threatened or endangered species or designated critical habitat.

During the scoping process the NPS provided information to USFWS on proposed activities and requested any early input or concerns (December 1, 2017). On December 6, 2017 the USFWS replied that after review there were no outstanding concerns or comments.

In November 2018, the USFWS informed NPS that the proposed activities in the action alternatives were covered under the park's current Biological Opinion for park activities and that all appropriate mitigation measures must be followed for work occurring in the area. Additionally, biologists familiar with the listed wildlife species potentially present must be consulted at least one month prior to the start of work to ensure minimization measures are pertinent and accurate. During the EA review process, NPS will request USFWS review the measures to minimize adverse impacts to listed species.

#### **4.2.2 Section 106 Consultation**

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effects of their undertakings on historic properties and to provide state historic preservation officers, tribal historic preservation officers, and, as necessary, the Advisory Council on Historic Preservation a reasonable opportunity to review and comment on the effects of agency actions. 36 CFR Part 800, Subpart B details the elements of the Section 106 process. As required per 36 CFR Part 800, NPS made a reasonable and good faith effort to invite Native Hawaiian organizations and all Haleakalā Summit and Kīpahulu Kūpuna group members to provide input on the proposed project.

December 1, 2017: During the scoping process the NPS provided information to the Hawai'i State Historic Preservation Division (SHPD) on proposed activities and requested any early input or concerns.

December 28, 2017: The Hawai'i SHPD replied that they did not have sufficient information at the time to provide meaningful comments.

February 18, 2018: All Haleakalā Summit and Kīpahulu Kūpuna group members were contacted by phone and invited to a site meeting conducted by park staff at Kalahaku Overlook. Native Hawaiian Organizations were invited by certified mail.

March 7, 2018: A meeting at Kalahaku Overlook with the Kūpuna groups and Native Hawaiian Organizations was conducted under Section 106 Part 800.2(c). Comments and early input into the Area of Potential Effect and historic properties of cultural and religious significance were gathered in person at the meeting and afterwards during follow ups conducted by the park Section 106 Coordinator.

April 11, 2019: A short description of the project and a map were included in the park's Kūpuna and Native Hawaiian Organization newsletter, mailed to the Summit and Kīpahulu Kūpuna groups, to continue to gather information on historic properties of cultural and religious significance prior to public review of the EA.

May 2019: Formal Section 106 consultation will be initiated with the Hawai'i SHPD under 36 CFR Part 800 during the public comment period. NPS will provide SHPD with an electronic copy of the EA and a figure that depicts the Area of Potential Effect. A formal letter with assessment of effect will be sent by certified mail. Native Hawaiian organizations and Haleakalā Summit and Kīpahulu Kūpuna group members will be consulted on the assessment of effect by NPS during the public comment period.

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## 6 REFERENCES

- Beardsley, J.W. 1980. *Haleakalā National Park Crater District Resources Basic Inventory: Insects*. University of Hawai‘i at Manoa, Department of Botany, Cooperative National Park Resources Studies Unit Technical Report 31. 49 pp.
- Bonaccorso, F.J. 2010. ‘Ōpe ‘ape ‘a: Solving the Puzzles of Hawai‘i’s Only Bat. *Bats* 28: 10–12.
- Bruegmann, M.M. and V. Caraway. 2003. *Argyroxiphium sandwicense*. The IUCN Red List of Threatened Species. Version 2014.3. Viewed January 18, 2018. <http://www.iucnredlist.org/>
- Dagan, C., R. Hill, T. Lee–Greig, and H. Hammatt. 2007. *Supplemental Cultural Impact Assessment for the Proposed Advance Technology Solar Telescope (ATST) at Haleakalā High Altitude Observatories Papa ‘anui Ahupua ‘a, Makawao District, Island of Maui*. Prepared for KC Environmental and The National Science Foundation. May.
- U.S. Department of the Interior (DOI). National Park Service. 2017. *The Secretary of the Interior’s Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*. Revised by Anne E. Grimmer. Technical Preservation Services, Washington D.C.
- EnviroSystems Management, Inc. 2018. *Haleakalā Sunrise Summit Visitation Draft Environmental Assessment*. January.
- Environmental Protection Agency. 1998. *Final Guidance for Incorporating Environmental Justice Concerns in EPA’s NEPA Compliance Analyses*. April.
- Haleakalā National Park. 2014. *Hawaiian Petrel Activity Information*. Unpublished Data.
- Haleakalā National Park. 2018. *Hawaiian Petrel Fact Sheet*. Haleakalā National Park Endangered Species Management. Haleakalā National Park, Maui, Hawai‘i.
- Hawaii Department of Land and Natural Resources. 2005a. *Hawaii’s Comprehensive Wildlife Conservation Strategy*. Seabirds. ‘Ua ‘u or Hawaiian Petrel. Viewed January 2018. <http://dlnr.hawaii.gov/wildlife/files/2013/09/Fact-Sheet-Hawaiian-petrel.pdf>
- Hawaii Department of Land and Natural Resources. 2005b. *Hawaii’s Comprehensive Wildlife Conservation Strategy*. Seabirds. ‘Akē ‘akē or Band-rumped Storm-Petrel (*Oceanodroma castro*). Viewed January 2018. <http://dlnr.hawaii.gov/wildlife/files/2013/09/Fact-Sheet-band-rumped-storm-petrel.pdf>.
- Kailihiwa, S. and P. Cleghorn. 2003. *Identification of Culturally Important Properties on Haleakalā, Island of Maui*. Prepared for Earth Tech, Inc. July.
- Medeiros, A.C., F.R. Cole, and L.L. Loope. 1994. *Impacts of biological invasions on the management and recovery of rare plants in Haleakala National Park, Maui, Hawaiian Islands*. In Restoration of Endangered Species, M. Bowles and C.J. Whelan (eds.).
- National Park Service (NPS). U.S. Department of the Interior. 1995. *General Management Plan / Environmental Impact Statement for Haleakalā National Park*.
- National Park Service (NPS). U.S. Department of the Interior. 1998. *NPS-28: Cultural Resource Management Guidelines*.

- National Park Service (NPS). U.S. Department of the Interior. 2006. *Management Policies 2006*.
- National Park Service (NPS). U.S. Department of the Interior. 2012. *Information for Programmatic Section 7 Consultation, Haleakalā National Park, Maui*.
- National Park Service (NPS). U.S. Department of the Interior. 2015a. Draft *Foundation Document, Haleakalā National Park*.
- National Park Service (NPS). U.S. Department of the Interior. 2015b. *National Park Service NEPA Handbook*. Director's Order 12. <http://www.nps.gov/applications/npspolicy/DOrders.cfm>.
- National Park Service (NPS). U.S. Department of the Interior. 2015c. *Vegetation Mapping Inventory Project Haleakalā National Park*. Natural Resource Report NPS/PACN/NRR-2015/986. July.
- National Park Service (NPS). U.S. Department of the Interior. 2017. *Programmatic Accessibility Guidelines for National Park Service Interpretive Media*. Prepared by the Harpers Ferry Center Accessibility Committee. May. <https://www.nps.gov/hfc/accessibility/guidelines/>
- National Park Service (NPS). U.S. Department of the Interior. 2018. National Park Service Visitor Use Statistics. Viewed March 2018. <https://irma.nps.gov/Stats/Reports/Park/HALE>
- NatureServe Explorer. 2014. *Pterodroma sandwichensis*. Viewed January 2018. <http://explorer.natureserve.org/servlet/NatureServe?searchName=Pterodroma+phaeopygia+sandwichensis>
- Pacific Analytics, LLC. 2003. *Arthropod Inventory and Assessment. Haleakalā High Altitude Observatory Site, Maui, Hawai'i*. Prepared for KC Environmental Co., Inc. Makawao, Hawai'i.
- Pacific Analytics, LLC. 2005. *Updated Arthropod Inventory and Assessment. Haleakalā High Altitude Observatory Site, Maui, Hawai'i*. Prepared for KC Environmental Co., Inc. Makawao, Hawai'i.
- Pacific Analytics, LLC. 2007. *Supplemental Arthropod Sampling at the Haleakalā High Altitude Observatories Maui, Hawai'i Advanced Technology Solar Telescope Primary and Alternative Sites*. Prepared for KC Environmental Co., Inc. Makawao, Hawai'i.
- Pacific Analytics, LLC. 2009. *Arthropod Inventory and Assessment at the Haleakalā National Park Entrance Station and at the Haleakalā High Altitude Observatories, Maui, Hawai'i Advanced Technology Solar Telescope Primary and Alternative Sites*. Prepared for KC Environmental Co., Inc. Makawao, Hawai'i.
- Parker, P. and T. King. 1998. *National Register Bulletin: Guidelines for Evaluating and Documenting Traditional Cultural Properties*. U.S. Department of the Interior National Park Service. National Register, History and Education. National Register of Historic Places. <https://www.nps.gov/nr/publications/bulletins/pdfs/nrb38.pdf>
- Pacific West Regional Office (PWRO). 2008. *National Park Service Cultural Landscapes Inventory 2008: Haleakala Highway, Haleakala National Park*. May.
- Prasad, U.K. and M.J. Tomonari-Tuggle. 2008. *An Ethnographic Study of the Cultural Impact of Commercial Air Tour Over Haleakalā National Park, Island of Maui*. Prepared for National Park Service, Pacific West Region-Pacific Islands Support Office. June.
- Pratt, T. K., C. T. Atkinson, P. C. Banko, J. D. Jacobi, B. L. Woodorth, and L. A. Mehrhoff. 2009. Can Hawaiian forest birds be saved? Chapter 25 in *Conservation Biology of Hawaiian Forest Birds*:

- Implications for Island Avifauna. T. K. Pratt, C.T. Atkinson, P. C. Banko, J. D. Jacobi, B. L. Woodworth (eds.). Yale University Press. New Haven.
- Simons, T.R. and C. Natividad Hodges. 1998. *Dark-rumped Petrel* (*Pterodroma phaeopygia*). In *The Birds of North America*, No. 345. A. Poole and F. Gill (editors). The Birds of North America, Inc. Philadelphia, PA. 24 pp.
- U.S. Department of Agriculture (USDA). 2013. Web Soil Survey. Viewed January 2018. <https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm>
- U.S. Department of Agriculture (USDA) Soil Conservation Service. 1972. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Government Printing Office, Washington D.C. 254pp.
- U.S. Fish and Wildlife Service (USFWS). 1997. *Recovery Plan for the Maui Plant Cluster*. U.S. Fish and Wildlife Service, Portland, OR. 130 pp. + appendices.
- U.S. Fish and Wildlife Service (USFWS). 2005. *Regional Seabird Conservation Plan, Pacific Region*. U.S. Fish and Wildlife Service, Migratory Birds and Habitat Programs, Pacific Region, Portland, OR.
- U.S. Fish and Wildlife Service (USFWS). 2012a. *Biological Opinion and Informal Consultation for the Operation and Management of the Haleakalā National Park, Island of Maui*. (Service File) 2013-F-0049. December 12, 2012.
- U.S. Fish and Wildlife Service (USFWS). 2012b. *Endangered Species in the Pacific Islands*. Hawaiian Hoary Bat. Viewed January 2018. <http://www.fws.gov/pacificislands/fauna/HIhoarybat.html>
- U.S. Fish and Wildlife Service (USFWS). 2017. Threatened Species Status for the 'I'iwi (*Drepanis coccinea*). FR 82(181) 43873-43885.

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## **Appendix A. Agency, Organization, and Public Review**

The following agencies and persons were contacted by telephone, email, or in-person during the preparation of this document. Each has been notified of availability of the EA for review. Copies of official correspondence and the mailing list are on file and available from HNP.

### **Federal**

U.S. Fish and Wildlife Service

### **State of Hawai‘i**

Department of Land and Natural Resources, Division of Forestry and Wildlife, Honolulu and Maui

Department of Land and Natural Resources, Land Division, Honolulu and Maui

Department of Hawaiian Home Lands, Honolulu and Maui

Administrator, Department of Land and Natural Resources, State Historic Preservation Division  
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Office of Hawaiian Affairs

Department of Hawaiian Home Lands

### **County of Maui**

Maui County Office of the Mayor

Maui County Council

Administrator, Maui County Environmental Program

### **Others of Interest**

‘Aha Moku o Kahikinui

‘Aha Moku o Kaupō

‘Aha Moku o Maui, Inc.

Ali ‘i Ai Moku o Kahekili

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Friends of Haleakalā National Park

Friends of Moku ‘ula, Inc.

George K. Cypher ‘Ohana

Haleakalā Summit Kūpuna Group

Hawai ‘i Islands Land Trust

Historic Hawai ‘i Foundation

Kamehameha Schools Maui

Kaupo Community Association

Kilakila o Haleakalā

King Kekaulike High School

Kīpahulu Kūpuna Group

Kīpahulu ‘Ohana

Kula Community Association

Kuloloi ‘a Lineage – I ke Kai ‘o Kuloloi ‘a

Kumu A ‘o  
Leeward Haleakalā Watershed Restoration Partnership  
Maui Visitors Bureau  
Na ‘Aikane o Maui  
Na Koa Ikaika Ka Lāhui Hawai ‘i  
Nekaifes ‘Ohana  
Paukukalo Hawaiian Homes Community Center  
Pukalani Community Association  
University of Hawaii Maui College  
Waiehu Kou Phase 3 Association  
Waiohuli Hawaiian Homesteaders Association  
Wananalua Congregational Church

### **Public Review**

Copies of the EA are available for public review and comment. The full document is available via the following:

NPS Planning, Environmental and Public Comment website: <http://parkplanning.nps.gov/Overlook>

Makawao Library, 1159 Makawao Ave., Makawao, HI 96768

Hana Library, 4111 Hana Hwy., Hana, HI 96713

Comments will be accepted through the NPS Planning, Environmental and Public Comment website, via email to Linette King at [linette\\_king@nps.gov](mailto:linette_king@nps.gov) or via mail to:

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