NATIONAL PARK SERVICE • U.S. DEPARTMENT OF THE INTERIOR

Foundation Document

Haleakalā National Park

Island of Maui, Hawai'i

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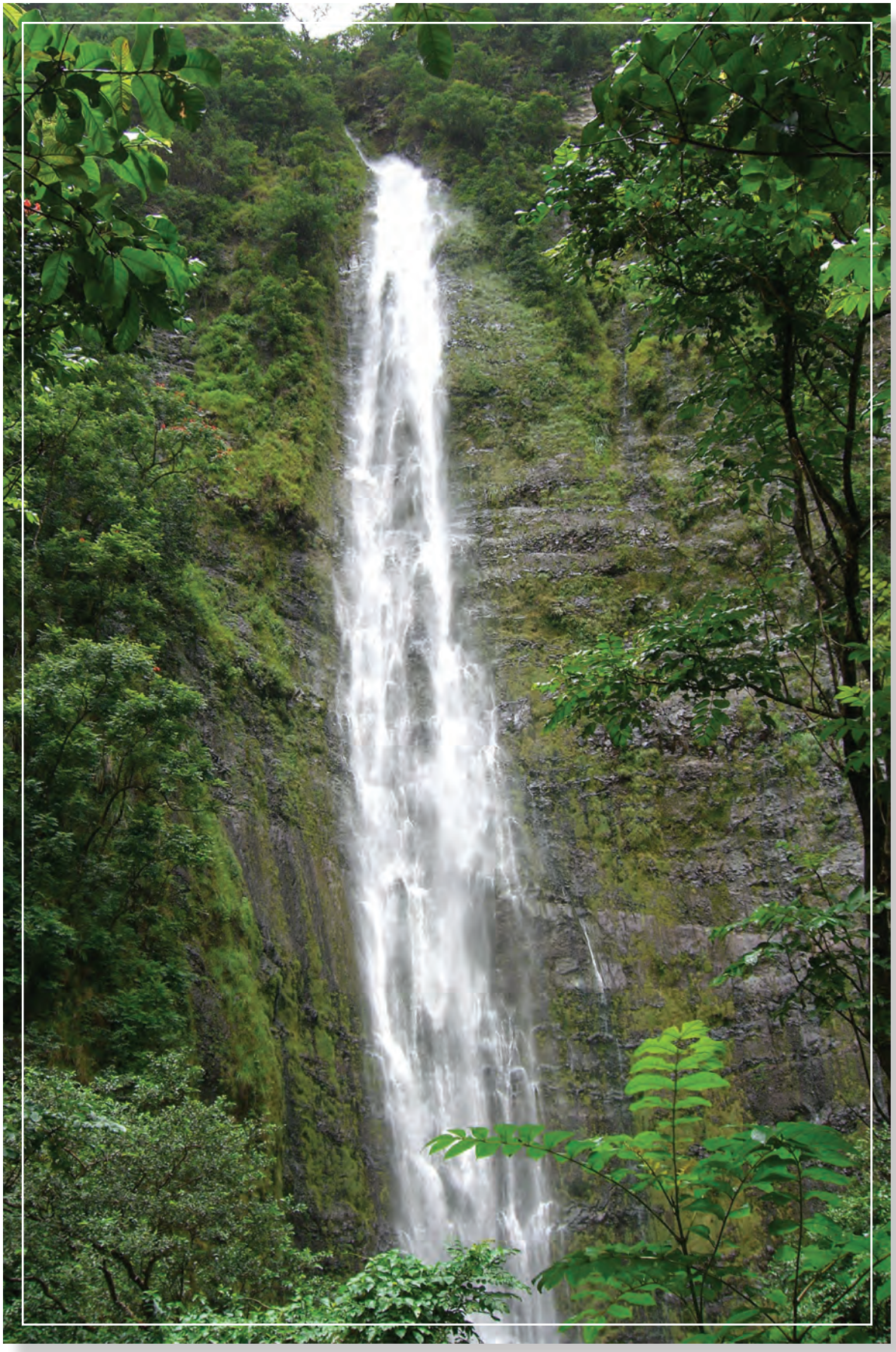


Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship**: We share a commitment to resource stewardship with the global preservation community.
- **Excellence**: We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity**: We deal honestly and fairly with the public and one another.
- **Tradition**: We are proud of it; we learn from it; we are not bound by it.
- **Respect**: We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior. While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and comprises more than 400 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.

The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park's purpose, significance, fundamental resources and values, and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for Haleakalā National Park can be accessed online at: http://insideparkatlas.nps.gov/.

Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

Brief Description of the Park

Haleakalā National Park is on the eastern side of Maui, the second largest island in the Hawaiian chain. The park is characterized by starkly contrasting mountain and coastal environments. Within a few miles from the coast the park rises dramatically in elevation to 10,023 feet at the summit of the dormant Haleakalā Volcano. Moisture-bearing trade winds bring upwards of 400 inches of annual precipitation to windward mountain slopes, while some leeward areas only receive an average of 10 inches or less. Wind, rain, temperature, and altitude contribute to shape the widely diverse character and composition of the park's natural ecosystems, microhabitats, and vegetation zones that transition from humid subtropical lowlands, cloud forests, to sparsely vegetated subalpine desert at the summit. The northern and eastern slopes of Haleakalā and the rainforests of the Kīpahulu Valley are among the richest botanical regions in Hawai'i. More than 90% of the native biota found in the park is endemic to the Hawaiian Islands and nearly 50% is endemic to Maui. The park is further renowned for its exceptional air quality and dark night skies. The remarkable ecological diversity of the park is recognized by its designation as part of an International Biosphere Reserve. The United Nations has designated the entire park, together with Hawai'i Volcanoes National Park, as the Hawaiian Islands Biosphere Reserve.

Haleakalā National Park was originally established in 1916 as part of Hawai'i National Park. At that time the park included lands on both the islands of Hawai'i (now part of Hawai'i Volcanoes National Park) and Maui. The Maui portion of the park was established as a separate NPS unit in 1961 (PL 86-744, 74 Stat. 88). Of the park's 33,265 total acres, approximately 24,000 acres (72% of the park) are designated wilderness. Park managers face an ongoing challenge in protecting and balancing the natural and untrammeled qualities of wilderness. Although the park's ecosystems retain a high percentage of unique and endemic species found nowhere else in the world, the introduction of alien plants and animals primarily by human activities has led to the extinction or severe decline of many native species. Haleakalā's wildlife and vegetation are therefore intensively managed to prevent further species declines and extinctions. Among these measures, fences have been placed along the park boundaries to keep nonnative grazing species such as wild boar and goats from damaging park resources.

The Haleakalā Volcano is the larger of the two volcanoes that form the island of Maui. Its crater measures about 20 miles in circumference and dominates the volcanic landscape at the summit. In several places the rim of the crater rises more than 2,500 feet above the crater floor. Rain clouds drift in on trade winds over the volcano's lower eastern rim, and often accumulate in the center of the crater. US Geological Survey researchers conducted radiocarbon testing of the volcano's youngest lava flows, and the data suggests the volcano was last active sometime between AD 1480 and 1600. Haleakalā's western slopes are crossed by intermittent rain-fed streambeds, and rise gently to the summit at Red Hill. The heavily eroded terrain of the mountain's eastern flank is marked by deep valleys and gorges. From the volcano's rim, lava once poured down its flanks to the sea, following the paths of the Ke'anae and Kaupo valleys.

The Kīpahulu area of the park protects Kīpahulu Valley and the scenic free-flowing stream system ending at ʻOheʻo Gulch. From east of the volcano rim, the valley drops thousands of feet down to the coast. The Kīpahulu coastal area is set in a tropical rainforest atop a seaside cliff and was first farmed by early Polynesians more than 1,200 years ago. The upper Kīpahulu Valley is managed as a biological reserve and is home to a vast profusion of flora and fauna, including some of the world's rarest birds, plants, and invertebrates. Some insects and plants that evolved in the Kīpahulu Valley live nowhere else. The general public is restricted from accessing the fragile rainforest of the biological reserve. Visitors can reach the lower valley of Kīpahulu via the long winding Hana Highway.

Haleakalā National Park is a sacred place to *kānaka maoli* (Native Hawaiians) and is fundamentally linked to their traditional and contemporary beliefs, practices, and way of life. The concept of *kuleana* (responsibility) is central to these beliefs, passed on from the *kūpuna* (ancestors) to future generations to ensure stewardship and respect for all things spiritual and physical. Closely connected to kuleana is the concept of *mālama ʻāina*, caring for and nurturing the land so it continues to provide the essential means and resources necessary to sustain life for present and future generations. For Native Hawaiians, the summit of Haleakalā is the *Wao Akua* ("Place of the Gods") where the demigod Maui snared the sun. Tangible and intangible cultural resources and values, place names, oral traditions/history, and features of the landscape are invaluable parts of Hawaiian culture. At the *piko* (navel) of East Maui, traditional Hawaiian land districts (*moku*) converge at a place called Pōhaku Pālaha. From ancient times to the present, Native Hawaiians have used particular areas, sites, and features within the current park boundaries for a broad range of activities, cultural practices, and protocols including ceremonies, spiritual training, practices related to birth and burial, resource collection, and travel across East Maui.

The Haleakalā Wilderness is part of a historic district listed in the National Register of Historic Places in recognition of its significant archeological resources and historic sites. The summit of Haleakalā, including Kīpahulu Valley and Kaupō Gap, is also eligible for the national register as a traditional cultural property for its association with the cultural landscape of Maui and because of its known uses, oral history, *mele* (chants or poems), and legends. It remains a source of traditional materials and sacred uses, and a place of profound spiritual power.

Approximately 1.2 million visitors annually come to Haleakalā National Park to experience its natural and cultural wonders. Between 15% and 30% of these visitors arrive on commercial tours. The majority of visitors who travel to the summit and headquarters / visitor center are drawn there to witness the awe-inspiring sunrise. In addition to these activities, guided hiking is available along 38 miles of trails. On clear nights, many enjoy world renowned star gazing and astronomy-oriented activities because of the exceptional viewing conditions. Two primitive campgrounds and three public use historic cabins are available for reserved visitor use in the designated wilderness area.

"Hānau ka lupe noho i kai,
Kia ʻi ʻia e ka Lupeakeke noho i uka."

-na ke Kumulipo

"Born was the stringray living in the sea,
Guarded by the stormy petrel living on land."

- found in the Kumulipo

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Haleakalā National Park was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. On September 13, 1960, Congress signed legislation (Public Law 86-744) that authorized the establishment of the park (the park was established the following year). However, approximately 21,150 acres of land now contained within the boundary of Haleakalā National Park initially was protected within Hawai'i National Park, an earlier unit of the national park system that was established by Congress in August 1916. This earlier designation also included lands on the Island of Hawai'i, which are now protected within Hawai'i Volcanoes National Park (see appendix A for enabling legislation and subsequent amendments). The purpose statement lays the foundation for understanding what is most important about Haleakalā National Park.

For the inspiration of current and future generations, Haleakalā National Park protects a wild volcanic landscape with a wide array of fragile and diverse native ecosystems, including plant and animal species found nowhere else on earth. Our stewardship perpetuates the unique and continuing connections between Hawaiian culture and this sacred and evolving land.

Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of Haleakalā National Park, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for Haleakalā National Park. (Please note that the sequence of the statements does not reflect the level of significance.)

1. Rising 10,000 feet from the sea to the summit of Haleakalā, the park protects a striking variety of natural landscapes, ranging from tropical rainforest to subalpine desert. Within these lands, extreme gradients of rainfall and temperature shape the park's remarkable biodiversity.

2. Haleakalā National Park protects unrivaled examples of native Hawaiian ecosystems, providing a home for diverse threatened and endangered species, including some that exist nowhere else in the world, and still others yet to be discovered.

3. From its windswept cinder fields to its lush rainforest, the Haleakalā Wilderness provides a panorama of exceptional grandeur where people may find solitude and inspiration within a vast and colorful landscape.

4. Haleakalā National Park preserves places, resources, stories, and intangible elements of profound sacred importance to Native Hawaiians. Collectively, these are linked by the piko, the life-line that honors the past and connects the living Hawaiian culture of today to future generations.

5. Haleakalā National Park is known for its exceptional scenery, including sunrises and sunsets above the clouds; coursing waterfalls, clear pools, and crashing waves; lush rainforests; and sparkling, star-filled skies. These and countless other sights and scenes provide transformational experiences for residents and visitors alike.

6. Visitors to the park can enjoy a broad spectrum of natural sounds, including a rare opportunity to experience intense quiet inside the Haleakalā Crater. Sound levels in the crater are among the lowest recorded in any national park.

7. The Haleakalā shield volcano, one of the highest peaks in the Pacific, is the result of countless volcanic eruptions during the past two million years, and unique erosion in action.

8. At Haleakalā, the volcano's height, landscape, air quality, and location on Earth provide for excellent, clear night skies. From ancient Polynesian navigators to current-day astronomers, people have and continue to use the summit of Haleakalā to study and view the night sky. Numerous light-sensitive species, whose lives are negatively impacted by artificial light, depend on Haleakalā's natural lightscapes for survival.

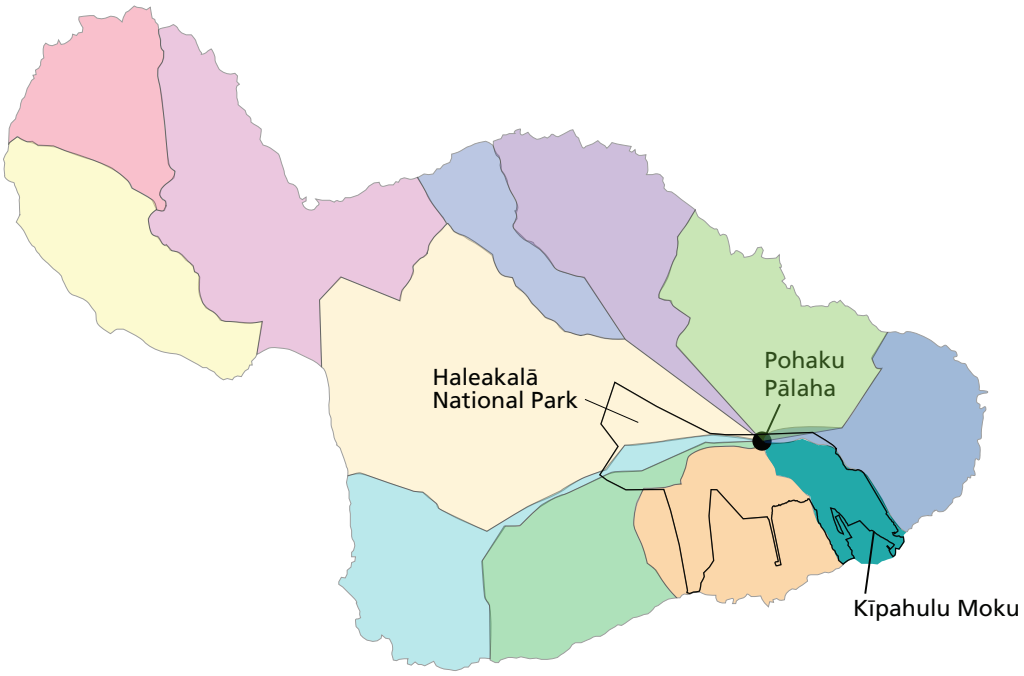
Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

The following fundamental resources and values have been identified for Haleakalā National Park:

- **Natural Sounds, Viewsheds, and Dark Night Skies –** Natural sounds, panoramic views, and dark night skies greatly contribute to Haleakalā's unique sense of place. Ambient sound levels in the Haleakalā Crater are so low that they approach the threshold of human hearing, and the crater and summit offer world-renowned stargazing opportunities. Visitors flock to the summit to witness spectacular sunrises over the park's natural landscape—this and other views in the park are supported by its excellent air quality. In addition to being highly desired values for visitors, dark night skies and natural soundscapes are vital components of a healthy, intact, biological community. Each plays an important role in wildlife communication and behavior. The preservation of natural sounds, viewsheds, and dark night skies is also critical to effective wilderness management.
- **Kīpahulu Moku District (including ʻOheʻo Gulch and Palikea Stream) –** Handed down over the centuries through oral tradition and practice, the ʻAha Moku system is the traditional Hawaiian system of natural resource division and management for ocean and land resources. The undiverted free-flowing Palikea stream and ʻOheʻo Gulch are part of an intact East Maui watershed that begins at the piko, or navel, of the island. The park is fortunate to protect nearly all of the Kīpahulu moku, including intact ahupuaʻa (smaller land divisions) within it. The Kīpahulu Biological Reserve is discussed and analyzed as part of the Native Hawaiian Biological Diversity fundamental resource and value.



"No laila, I kou komo ʻana i kēia wahi kapu, nou kēia kuleana e hoʻoko..."

"Therefore, as you enter this sacred place, this kuleana is now placed upon you..."

- **Wilderness –** Approximately 24,000 acres of Haleakalā National Park is federally designated wilderness. The wilderness area includes the majority of the Haleakalā Crater and the Kīpahulu Biological Reserve, which protects one of the most intact rainforest ecosystems in the Hawaiian Islands. The wilderness area also has cultural and spiritual significance to Native Hawaiians, who have used these lands since ancient times, and continue to visit sites and features within the wilderness for traditional practices. Visitors have opportunities to participate in wilderness experiences—from expansive views across undeveloped lands to primitive recreation and solitude.
- **Ongoing Connections to Living Hawaiian Culture –** Haleakalā National Park has cultural and spiritual value for Native Hawaiians who have used particular places, sites, and resources in the park for a broad range of activities from ancient times to the present. Among these traditional cultural activities are ritual ceremonies, spiritual training, and practices related to birth and burial. For Native Hawaiians, traditional uses and connections between people and all things spiritual and physical are incorporated in the ancient, sacred tradition of the *Kumulipo* that has been passed down orally for generations in the form of a *mele koʻihonua* or chant of more than 2,000 lines. The Kumulipo recounts the origin of the universe and the beginnings of the Hawaiian world; it inventories and explains the existence of all resources so that proper care and respect is applied through kuleana (responsibility). Sustaining the connections and interrelationships between Native Hawaiians and culturally significant park resources and places is an important objective of park managers.
- **Outstanding Geological Resources, Including the Haleakalā Volcano and Crater –** Rising to 10,023 feet in elevation, the Haleakalā volcano—also known as the East Maui volcano—is the primary geological feature of the park, and preserves a record of Maui's volcanic history. At the volcano's summit is the enormous depression known as Haleakalā Crater—described by Congress in the 1916 enabling legislation as the "largest and most spectacular crater in the world." In truth, the label "crater" is somewhat of a misnomer, as this impressive depression was not shaped solely by volcanic activity, but also by water and erosion. Northeasterly tradewinds collided with the great volcano, producing rainfall, and over time streams cut channels down the slopes of the mountain. Eventually, two streams that eroded their way up the mountain joined, ultimately creating the long and deep depression that survives today. Later, volcanic vents in this area formed richly colored cinder cones and young lava flows—major scenic features of the park. Lava at Haleakalā National Park includes lower viscosity "ropy flows" (also called *pāhoehoe*) and the higher viscosity "rough and jagged flows" (also called *ʻaʻā*). There are at least 24 known lava tube caves in the park.
- **Archeological and Historic Resources Associated with Native Hawaiian Culture –** Haleakalā National Park preserves a high density and variety of precontact and historic archeological resources. These resources exist in many locations and include Native Hawaiian temples (*heiaus*), trails, altars, fishing shrines, house platforms, and other features. Historic resources such as historic agricultural sites and astrological shelters are also preserved by the park. Some of these resources are still used today as part of the vibrant Hawaiian culture.

- **Native Hawaiian Biological Diversity –** Haleakalā, rising from sea to summit, and exposed to both the windward moist tradewinds and leeward drying air, features a striking variety of ecosystems that support a tremendous range of native biological diversity. The park protects endemic and iconic species including the nēnē (Hawaiian goose), ʻahinahina (Haleakalā silversword), ʻakohekohe (the critically endangered crested honeycreeper), and many other threatened and endangered species. The park's remarkable ecological diversity is recognized by its designation as a United Nations International Biosphere Reserve. Haleakalā serves as a scientific laboratory for studies in climate history and change, classification of species, and taxonomy.

  The upper Kīpahulu Valley, on the park's windward side, exemplifies this rich biodiversity – With its wet rainforests and bogs, the upper Kīpahulu Valley is a key refuge for native Hawaiian plant and animal species that are disappearing elsewhere. The park manages this area as the Kīpahulu Biological Reserve. Within the reserve, no trails or roads are planned in order to prevent nonnative species, which are capable of rapidly spreading and outcompeting native rainforest plants, from penetrating the valley. Entry to the reserve is allowed only to resource managers and scientists who are conducting research and management essential to understanding and protecting this rare relict ecosystem.

- **Kuleana –** The Native Hawaiian concept of kuleana is generally recognized as the responsibility passed down from the kūpuna (ancestors) to present and future generations for stewardship and respect for all things spiritual and physical. Under the traditional ʻAha Moku system of regional boundary management based on observational knowledge and sense of place, certain people had kuleana for site specific management and families had certain roles within their moku (land division). The Pōhaku Pālaha (the place where the moku boundaries converge) marks the beginning of the interconnected system linking the heavens to the depths of the ocean. How kuleana is managed affects other moku outside park boundaries as well as ocean resources. The National Park Service has accepted kuleana for the management of Haleakalā National Park. The National Park Service and the individuals who serve as konohiki (managers and stewards) represent the kiaʻi, or guardians of this sacred place for Hawaiian people.

- **Museum Archive and Collections –** The Haleakalā National Park museum collection documents the cultural and natural history of the park. The collection is divided into three main categories: natural history, cultural resources, and archives. The natural history collection is represented by biological specimens and geological samples. The herbarium includes native and nonnative plants that have been collected from the park and East Maui. The entomological collection consists of mounted native and nonnative insects collected within the island of Maui. The cultural resources collection is represented by archeological, historical, and ethnographic objects and works of art. The archives consist mostly of documents and photographs about the history, development, and management activities of the park.

Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements and fundamental resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for Haleakalā National Park:

1. Haleakalā National Park supports diverse ecosystems from sea level to 10,000 feet in elevation that are the last and only home for many plants and animals found nowhere else on Earth.

2. Haleakalā National Park's endemic plants and animals are continually threatened by alien species and human actions. Loss of these species endangers not only the health of remnant Hawaiian ecosystems, but intricate connections with living Hawaiian culture.

3. Haleakalā National Park's visitors, neighbors, and staff share the kuleana (responsibility) of protecting the park's ecosystems and qualities of wilderness, clear night sky, natural quiet, and clean air.

4. The Native Hawaiian principle of mālama ʻāina (caring for the land) parallels NPS management goals at Haleakalā National Park, allowing park staff, neighbors, and visitors to learn from and apply both traditional knowledge and scientific research.

5. The Haleakalā shield volcano is the result of two million years of ongoing contest between volcanism and erosion, in which the handiwork of Pele is constantly challenged by the forces of wind and rain.

6. From the first Polynesian settlers to visitors today, people have been drawn to Haleakalā—for cultural and religious reasons, historic and scientific interests, recreation, and inspiration.

7. Haleakalā is sacred to Native Hawaiians and supports a vibrant, living Hawaiian culture, including stories, sites, and traditions that link the past to the present and future.

Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in enabling legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for Haleakalā National Park.

Special Mandates

- **Wilderness Designation –** In 1976, Congress enacted Public Law 94-567, which designated approximately 19,270 acres of Haleakalā National Park as wilderness and 5,500 acres within the park as potential wilderness addition. The National Park Service acquired 5,449 of the 5,500 acres, and converted those acres to designated wilderness on February 14, 2002, via Federal Register notice (Vol. 67, No. 31). The National Park Service is mandated to manage these lands (approximately 24,719 acres) to protect its wilderness character.

- **Class I Clean Air –** Haleakalā National Park is designated a Class I park under the Clean Air Act. Under section 169A, "Congress declares as a national goal the prevention of any existing impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution." The Clean Air Act bestows an "affirmative responsibility" on the federal land managers to protect these areas from the adverse effects of air pollution. Superintendents are charged with taking management actions consistent with this affirwmative responsibility by integrating air resource management into NPS operations and planning. Specifically, the federal land manager is to identify and protect resources sensitive to air pollution, called Air Quality Related Values, including visibility.

Administrative Commitments

For more information about the existing administrative commitments for Haleakalā National Park, please see appendix C.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park's fundamental resources and values, and develop a full assessment of the park's planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

There are three sections in the assessment of planning and data needs:

1. analysis of fundamental resources and values (see appendix B)
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value. Please see appendix B for the analysis of fundamental resources and values.

Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental resources and values. For example, a key issue may pertain to the potential for a fundamental resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but which still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for Haleakalā National Park and the associated planning and data needs to address them:

Ecosystem Stressors.

Haleakalā National Park contains many rare and sensitive species that are affected by ecosystem stressors including invasive and nonnative species, climate change, external stressors, and visitation (trampling, litter, etc.). There is a need to address the following stressors in planning and management of park ecosystems.

- **Invasive and Nonnative Species –** Invasive and nonnative species continue to be a major threat to sensitive species and unique ecosystems. Ongoing management of invasive and nonnative species requires substantial investment of park resources (e.g., fencing, invasive species removal). Management actions have benefitted rare species (such as the Hawaiian petrel). However, such actions have also benefitted invasive and nonnative species (such as Clidemia sp., Japanese bush-warblers). Adaptive management tools and decision-making processes are necessary to reevaluate management actions and provide information for decision making.

- **Climate Change –** Climate change has the potential for serious impacts on ecological systems. Changes in environmental conditions, such as temperatures and rainfall, can cause negative impacts on sensitive species such as the Haleakalā silversword. Changes in spatial climate patterns could favor certain established invasive plant species, such as Monterey pine, further challenging park efforts to control the spread of such species. Additional information on the potential effects climate change will have on park ecosystems is needed to inform park decision making regarding the long-term protection of its sensitive species and unique ecosystems. Many of the park's identified planning needs will consider the effects of climate change, the largest single threat to park resources.

- **External Stressors –** External development and environments also have the potential to impact Haleakalā's sensitive ecosystems. For example, buildings outside of park boundaries and around Maui, as well as nighttime visitation, could produce light that affects dark skies. Artificial light may result in substantial impact on certain species. Future energy development projects, on land and off shore, could also impact marine and terrestrial species. Increasing populations of nonnative species that occur outside of park boundaries, such as axis deer and feral dogs, are able to breach park fencing. These species can reverse the recovery of species that benefitted from the park's management actions.

- **Visitation –** High concentrations of visitors can affect sensitive habitat. For example, visitors travel off trail beyond designated platforms and viewing areas and trample sensitive areas and species. During high visitation times, parking lots and viewing areas overflow, resulting in resource damage from trampling and trash.

The park's resource management plan was completed in 1999. Since then, resources have changed dramatically, with many resources recovering because of management actions from the plan (e.g., silversword, Hawaiian petrel). The 1999 plan needs revision to reflect these changes to assist the park in making decisions. Additionally, Haleakalā National Park has acquired approximately 6,500 acres of land in isolated areas on the southwestern slope of Haleakalā that contain a variety of habitats and sensitive species. The park lacks management plans for the protection of resources on these newly acquired lands. The primary planning need is an integrated resource stewardship strategy to provide overall management guidance for park ecosystems.

Visitor Capacity.

With more than 1.2 million annual visitors, visitor use management is a key issue for Haleakalā National Park. High visitation to popular park destinations affects park resources, facilities, and overall visitor experience. The vast majority of visitors spend time at the two major visitor areas, the high-elevation Summit and coastal Kīpahulu. Both areas experience frequent crowding and congestion and current infrastructure does not support peak visitation. Large groups of people (tour groups, cruise ships) often visit the park at the same time.

At the Summit area, high volumes of visitors ascend all at once to experience the iconic sunrise over Haleakalā Crater creating a variety of traffic management challenges. High volumes of cars and buses traverse the narrow and winding access road before and after sunrise. Once at the summit, visitors flood parking areas, trails, and other viewing areas. When parking lots and viewing areas fill, visitors trample sensitive areas or critical habitat either by foot or by parking in inappropriate areas. Similar circulation and vehicular congestion problems occur at times in the Kīpahulu visitor area.

Many visitors are unprepared for the variety of challenging terrains and weather conditions at Haleakalā, which range from very cold and windy conditions at the high elevation Summit area to heavy downpours and wet conditions at Kīpahulu. Heavy downpours cause flash flooding at the popular ʻOheʻo pools, which has resulted in drowning incidents. At Kīpahulu, visitor exploration in areas that are unsafe and contain sensitive resources is another visitor use management challenge. People disregard warning signs and closures and subsequently get injured.

The primary planning need for this issue is the development of visitor use management strategies for the Kīpahulu and Summit areas. Visitor use management strategies would be included as a component of the Kīpahulu comprehensive site plan and through a visitor use management plan for the Summit area. The park will also consider the effects of visitation patterns on local residents and communities.

Facilities and Infrastructure.

Park facilities and infrastructure are at capacity and need evaluation to ensure that they meet long-term visitor and administrative needs. The capacity of existing infrastructure, including roads and utilities, is limited by the park's steep terrain and remoteness. Any expansion of existing infrastructure such as road widening could have serious impacts on the many sensitive species that inhabit the park, such as the Hawaiian petrel, Haleakalā silversword, and Haleakalā sandalwood.

Facilities at the Summit and Kīpahulu visitor areas reach capacity during peak visitation periods. The availability of potable drinking water and wastewater treatment capacity are also limiting factors that need to be considered with increasing visitation. Climate change could further affect the potable water collection system at the summit as the inversion layer rises. Additionally, accessible trails and overlooks in many areas of the park are not compliant per standards required by the Americans with Disabilities Act.

Recently acquired park lands in remote areas of the southwestern slope currently have no visitor service or operational facilities. Although access to these areas is very limited given their remote location and constrained road access, the National Park Service needs to determine if appropriate and feasible levels of visitor use at these locations are possible, and what facilities or infrastructure improvements would be necessary to accommodate these uses.

High-priority planning needs that would help address infrastructure needs at Haleakalā include the comprehensive site plan at Kīpahulu, the visitor use management plan at the Summit area, the management plan for areas on the southwestern slope (Nu‘u, Ka‘āpahu, and Puhilele), and the climate action plan (green parks plan).

Telling the Full Story of Haleakalā National Park – Improving Outreach and Relevancy.

Based on information from the Maui Visitors Bureau, most, if not all, visitors to Maui visit Haleakalā National Park. Visitors often receive information from hotel concierges and tourism companies who direct them to visit the popular areas in the park. Often visitors are unprepared for the wide range of terrain and weather conditions at Haleakalā affecting their safety. Because the majority of visitors typically only experience major attractions such as the ‘O‘heo pools at Kīpahulu and sunrise at the Haleakalā Crater, they do not gain an understanding of the park as a whole and the full range of significant resources at Haleakalā. Greater outreach is needed with the tourism industry to ensure that visitors are prepared for conditions at Haleakalā National Park and to provide visitors with information to understand the full range of resources and experiences at the park.

The park could greatly benefit from greater outreach to the local community including Native Hawaiians, schools, and local organizations. Although the park has productive relationships with the Kīpahulu ‘Ohana and Kupuna groups, some segments of the local community perceive the park as being run by people outside of the culture. Greater engagement could increase volunteerism and partnership efforts. Subject to departmental and agency policies, opportunities such as programs for job recruitment, retention, and internship/hiring programs could also improve engagement and relevancy in the local community. Sustaining and building partnerships through park planning processes provide additional opportunities to engage the broader community in park decision-making processes.

Broader interpretation of the cultural story could improve connections and relevancy with the Hawaiian community and would help employees and visitors understand the cultural significance of the park. In addition to local outreach efforts, there are also opportunities for the park to partner in islandwide coordinated efforts such as for natural and cultural resource preservation.

Primary planning needs to address this issue include a comprehensive interpretive plan and a multidisciplinary plan for outreach. Visitor use studies would inform these planning efforts.

Wilderness Protection.

Haleakalā National Park contains approximately 24,000 acres of wilderness, almost 72% of the park's land. Many of the park's fundamental resources are within wilderness, which encompasses scenic views, endemic plant and animal life, a volcanic landscape, evidence of Hawaiian culture and other historic uses, and the volcano's vast natural depression itself. Haleakalā Wilderness provides opportunities for visitors to enjoy the solitude and untrammeled landscape that are characteristic of a high quality wilderness experience. Acoustic measurements confirm that Haleakalā Crater is one of the quietest places on Earth. The Haleakalā Crater and its western slopes have hiking and riding trails as well as three visitor cabins (at Kapalaoa, Hōlua, and Palikū) and two primitive campsites for overnight use by the public. The historic cabins predate and are excluded from the designated wilderness. However, modern conveniences associated with these structures such as water spigots, heating, outhouses, and picnic tables have some effect on the availability of a primitive recreational wilderness experience in these areas.

In some areas, wilderness values are affected by park operations, unauthorized activities, and aircraft overflights. Park management activities focused on protection and restoration of natural resources, such as the use of helicopters to transport staff, materials, and monitoring equipment, require some level of disturbance in or near wilderness. While these activities improve the natural quality of wilderness, they have an effect on other qualities of wilderness such as undeveloped, untrammeled, and opportunities for solitude or primitive and unconfined recreation.

Unauthorized activities include off trail travel, feeding of wildlife, stacking of rocks, littering, and drawing in the cinders. Such activities make an obvious imprint on the landscape. Surrounding development also has an effect on wilderness values. For example, the Haleakalā Observatories and radio repeaters along the rim are modern buildings and structures that might interfere with a view from within the wilderness. Future energy development projects, such as wind turbines, could further impact viewsheds. Air pollution from regional and local sources of pollution such as power plants, wildfires, industrial facilities, agriculture, and urban development also has the potential to affect views in wilderness. Air tours of Haleakalā National Park are a popular attraction on Maui, offering visitors a unique way to access, view, and enjoy the park's volcanic landscape, rain forest, and waterfalls from the air. However, overflights and air tours can impact wilderness values, primarily the solitude and natural quiet.

Commercial uses of the Haleakalā Wilderness, such as hiking and horseback tours, provide unique opportunities to experience wilderness. However, without proper management, such uses can impact wilderness values. The park must determine the extent to which commercial services are necessary to fulfill the recreational and other purposes of Haleakalā's congressionally designated wilderness areas to ensure compliance with sec. 4(d)(5) of the Wilderness Act. A wilderness stewardship plan would provide guidance for protection of Haleakalā Wilderness values and provide necessary guidance for commercial activities in wilderness.

Other Important Issues

In addition to the key issues described above, management challenges related to staffing and budget were also noted as affecting park management and operations.

Operational Challenges.

Park operations are strained by insufficient funding and staffing limitations, affecting both day-to-day and long-term management of the park. The lack of career track positions and the high cost of living on Maui create high staff turnover, resulting in lack of continuity and experience.

Planning and Data Needs

To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Criteria and Considerations for Prioritization.

The following criteria were used to evaluate the priority of each planning or data need:

- Ability of the plan to address multiple, or interrelated, issues. For example, many visitor capacity issues are interrelated with resource protection issues.
- Emergency/urgency of the issue (including safety concerns).
- Prevention of resource degradation. Consideration of protection of the fundamental resources or values.
- Ability to impact visitor use and experience.
- Funding availability for the planning effort, study, or data collection.
- Feasibility of the completing the plan or study.
- Opportunities, including interagency partnership or assistance.

High Priority Planning Needs

Wilderness Stewardship Plan.

Rationale — Haleakalā National Park lacks a wilderness management plan to guide the preservation, management, and use of its wilderness areas. While the vast majority of visitors view the wilderness from perimeter areas, many take at least a day hike into the backcountry and designated wilderness. Several commercial companies currently provide tour services in wilderness, yet the park lacks guidance for such uses.

Scope — A wilderness stewardship plan would identify measures to restore, protect, and enhance wilderness character, the primary affirmative mandate of the 1964 Wilderness Act. Additionally, the wilderness stewardship plan would provide direction for decision making regarding the use of the park's wilderness and backcountry areas. Components of the plan would include desired future conditions and identification of indicators, measures, and standards beyond which management actions will be taken to maintain or restore desired conditions for wilderness character, and evaluation of park operations and visitor use in wilderness areas. The plan would determine the extent to which commercial services are necessary to fulfill the recreational and other purposes of Haleakalā's congressionally designated wilderness areas to ensure compliance with sec. 4(d)(5) of the Wilderness Act. This determination could also be completed separately from the broader wilderness stewardship plan.

Kīpahulu Comprehensive Site Plan (with Visitor Use Management Strategies).

Rationale — The Kīpahulu visitor area is a primary destination for visitors to Haleakalā National Park and Maui. The Kīpahulu area contains sensitive natural and cultural resources and offers exceptional opportunities to learn about Native Hawaiian culture. Kīpahulu is located in a remote area of Maui with limited access and infrastructure, posing challenges to both visitor use and park operations. Despite its isolated location, up to 750,000 visitors come to Kīpahulu annually, primarily drawn to attractions such as the ʻOheʻo pools and the Pīpīwai Trail.

There have been various development plans and proposals for the Kīpahulu developed area, but the park lacks comprehensive strategic guidance to address facilities for current operational needs, visitor uses, and partner uses. The Kīpahulu comprehensive site plan was originally initiated in 2010. Preliminary alternatives were developed and released for public input in 2012. However, the park put the plan on hold to complete its commercial services plan. The local community provided input and has expressed frustration that the process has been delayed. The comprehensive site plan is needed to provide clear direction for the level of development needed to accommodate visitor use and park operations in the developed area of Kīpahulu.

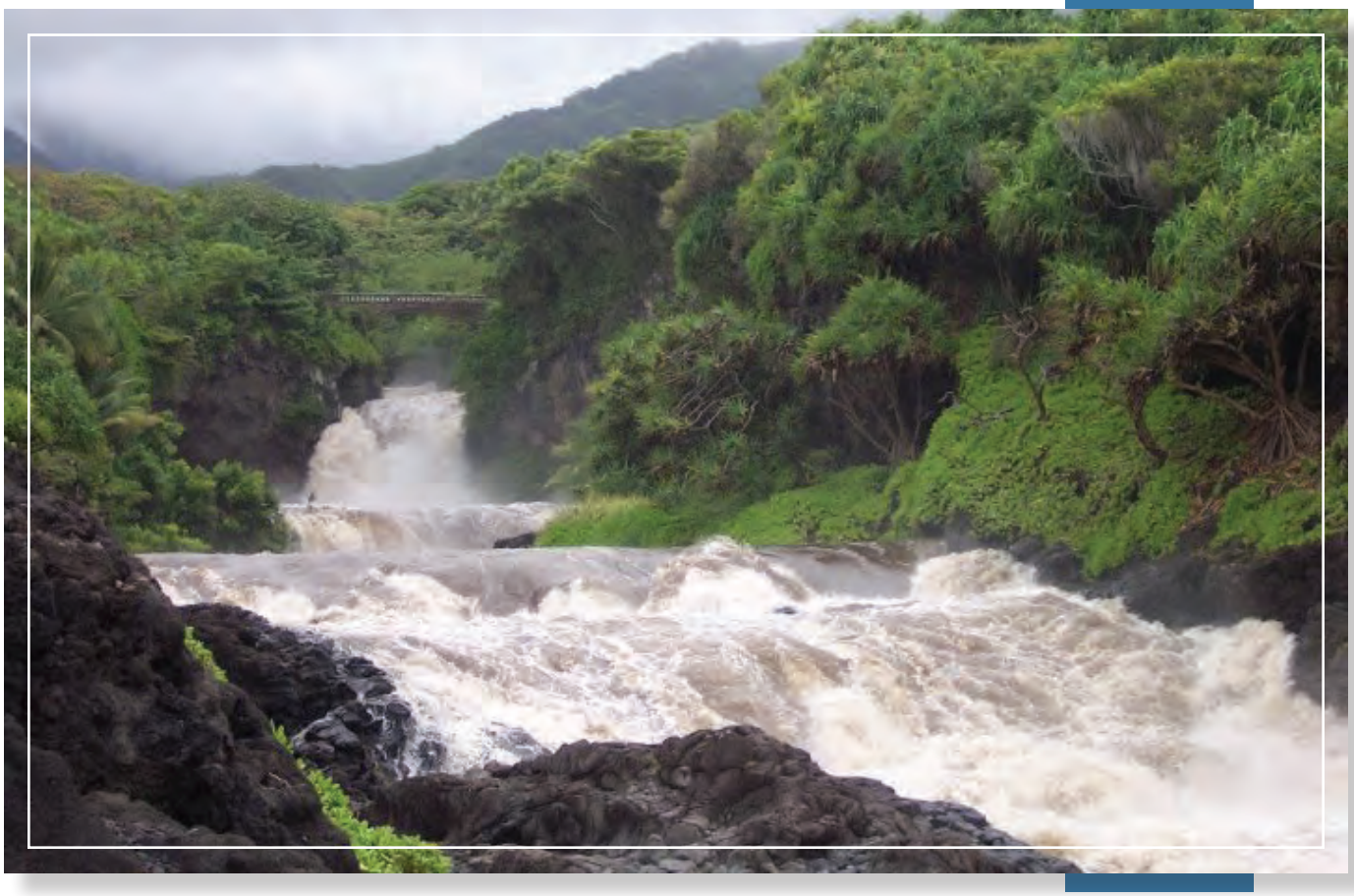
Scope — The comprehensive site plan would address the ʻOheʻo area within the Kīpahulu District. The plan would state the overall purpose for the area and provide direction regarding appropriate levels of development to support visitors, park operations, cultural significance, and partner uses of the area as well as guidance for site design and development character. Specific elements of the plan could include: (1) identification of zones defining use and management goals for each area (including zones where activities are restricted); (2) identification of appropriate levels of development and overall design character for visitor and operational facilities; (3) evaluation of the trail system and recommendations for trail use (including equestrian), trail alignment, accessibility, potential trail connections, and safety elements (e.g., surfacing, railings, overlooks, road crossings, etc.); (4) identification and feasibility of additional visitor use facilities including a cultural demonstration area and improved infrastructure at the campground; (5) determination of whether to expand or replace the existing visitor center; (6) identification and management of cultural and archeological features; (7) identification and management of native natural resources; (8) access to shorelines for fishing and gathering purposes; (9) siting of operational facilities such as required park housing as identified in the housing management plan; (10) evaluation of proposed expansion of the Kapahu Farm, managed cooperatively by a local nonprofit organization, the Kīpahulu Ohana; and (11) identification of visitor use management strategies. The plan would also evaluate the appropriateness of developed facilities as it relates to preservation of sensitive natural and cultural resources, aesthetics, visitor experience, and visitor safety. Visitor use data and research, broad-based and site-specific, would be necessary to understand and guide visitor behavior in high-use areas.

Summit Area Visitor Use Management Plan.

Rationale — The Summit area of Haleakalā National Park receives up to 750,000 visitors annually. Visitor facilities include hiking and horse trails, historic cabins available for overnight use, a campground, picnic areas, and the Haleakalā Visitor Center. High concentrations of visitors cause crowding in parking lots, on trails, and in other viewing areas. Infrastructure at the Summit area is highly constrained by the narrow access road and the limited availability of potable drinking water and wastewater treatment capacity, yet visitation to the area continues to increase, particularly at sunrise and sunset. The visitor use management plan is needed to evaluate current and future visitation levels to determine strategies to manage visitor use.

Scope — The visitor use management plan would provide guidance for long-range planning of visitor use to protect resources and cultural significance and provide for a good visitor experience. The plan would state the overall purpose for the area and provide direction regarding appropriate levels of development to support visitors, park operations, cultural significance, and partner uses of the area as well as guidance for site design and development character. Strategies could include: (1) infrastructure improvements; (2) managing numbers of visitors to the area using various methods such as distribution of tickets and working with tour companies to manage commercial use times; and (3) managing numbers of vehicles.

Specific elements of the plan could include (1) identification of zones defining use and management goals for each area (including zones where activities are restricted); (2) evaluation of visitor use to determine what levels of visitor use can be maintained and still protect the cultural significance of Haleakalā, minimally affect resources, and provide for high-quality visitor experience; (3) evaluation of the trail system and recommendations for trail use in order to eliminate social trails and other off-trail use; (4) determination of whether to expand or replace the existing visitor centers; (5) identification and management of natural and cultural resources within this high visitor use area; and (6) evaluation of supporting operational facilities. Visitor use data and research, broad-based and site-specific, would be necessary to understand and guide visitor behavior in high-use areas.



Resource Stewardship Strategy.

Rationale — An integrated resource stewardship strategy is needed to define integrated and specific desired future conditions for natural and cultural resources. Resources have recovered and some strategies and direction from the current resource management plan need updating to address current park issues. Additionally, the park has acquired new lands that contain sensitive natural and cultural resources for which specific resource management goals and objectives have not been established. The strategy would consider adaptive management approaches that evaluate the effects of climate change on ecological resources and processes to determine if management goals are realistic and feasible.

Scope — An integrated resource stewardship strategy would provide a condition assessment of the park's fundamental resources and identify comprehensive strategies to guide in making management decisions and determine desired resource goals. The resource stewardship strategy would provide guidance to address primary threats to fundamental resources, which include invasive and nonnative species, ecosystem stressors such as climate change, and visitor use impacts. The resource stewardship strategy could also evaluate plausible climate change scenarios and identify activities to maintain ecosystem integrity. This resource stewardship strategy could build on the existing resource management plan and evaluate past management actions and their effects on resources.

Management Plan for Southern Lands (Nu'u, Ka'āpahu and Puhilele).

Rationale — The National Park Service has acquired three different parcels of land (approximately 6,500 acres) at Haleakalā National Park since 1998. Two of these areas, known as Nu'u and Ka'āpahu, and are located along the southwestern slope of Maui west of Kīpahulu, while Puhilele is located near 'Ohe'o. The park lacks management guidance documents for these new areas, which were acquired after the completion of the 1996 general management plan. Preliminary resource inventories have been completed for the new lands and have identified rich cultural and natural resources, with particularly high concentrations of significant cultural resources at Nu'u. The park needs comprehensive guidance and decision-making tools to determine resource protection goals and potential visitor use opportunities for these new lands. The new lands are located in a relatively undeveloped and isolated area of Maui, with access only via a narrow, and in many places unpaved, access road.

Scope — This plan would incorporate baseline information to guide the development of an overall integrated management direction for the park's newly acquired lands including zoning, identification of appropriate visitor use opportunities, overall desired conditions for resource management and visitor experiences, and identification of infrastructure improvements needed to support park operations and visitor use.

Climate Change Scenario Planning.

Rationale and scope — Climate change scenario planning is a living process based on credible science that explores a range of plausible climate futures and identifies the associated impacts and management implications. The park has already completed some level of climate change scenario planning and will continue these efforts. The climate change scenario planning outcomes and vulnerability assessments will be integrated in park planning and management so that appropriate climate change adaptation will be considered into those efforts (e.g., resource stewardship strategy, fire management plan, wilderness stewardship plan, visitor use management plan).

"For kānaka maoli, this system continues today and into the future"

Climate Change Action Plan (Green Parks Plan).

Rationale and scope — Climate change has the potential for serious impacts on and disruptions to both ecological systems and park operations. A green parks plan will identify strategies and action items that Haleakalā National Park can undertake to reduce greenhouse gas emissions and adapt to current and future impacts of climate change on both park resources and operations. The plan would present the park's emission reduction goals, and associated reduction actions to achieve park goals.

High Priority Data Needs

Air Quality Monitoring.

Rationale and scope — Haleakalā National Park is considered a Class I area for air quality. The Clean Air Act establishes a national goal of preventing any future and remedying any existing human-made visibility impairment in Class I areas. Clean air is also important for public health, plants and wildlife, water quality, and for preservation of Haleakalā National Park's scenic vistas and dark night skies. Monitoring of air quality parameters such as ozone, nitrogen, and sulfur deposition as well as visibility are needed to better understand potential air quality threats from nearby development.

Climate Change Vulnerability Assessments for Natural Resources, Cultural Resources, and Facilities.

Rationale and scope — Vulnerability to climate change is the degree to which a system, asset, or resource is susceptible to and unable to cope with adverse effects associated with climate change and other stressors such as habitat fragmentation or water pollution. Vulnerability assessments are needed at Haleakalā National Park to help set priorities for conservation and adaptive action. Climate change vulnerability assessments provide two essential types of information needed for adaptation planning. This includes: (1) identifying which species, systems, or assets are likely to be vulnerable to climate change; and (2) understanding why they are vulnerable. The vulnerability assessments will inform resource management and facility planning and decision making.

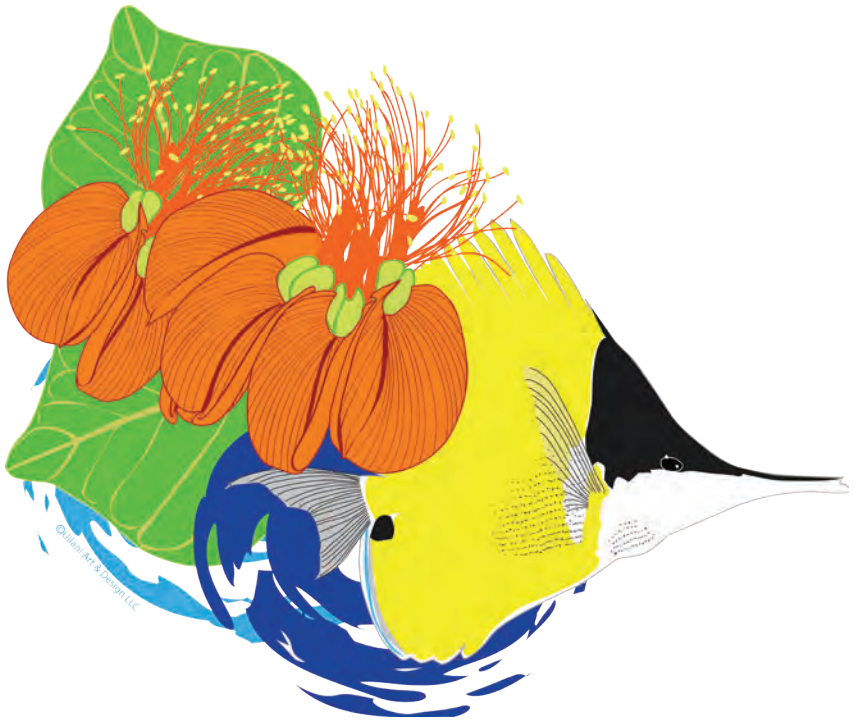
Determinations of Eligibility for the National Register of Historic Places.

Rationale and scope — Determinations of eligibility determine whether cultural resources are eligible for listing in the National Register of Historic Places. The determinations help park managers make decisions about appropriate management and treatment of cultural resources and are needed to ensure compliance under section 106 of the National Historic Preservation Act. Updates and new nominations for listing in the National Register of Historic Places are being prepared for Crater Historic District, Kīpahulu Historic District, and the areas of Ka‘āpahu and Nu‘u. The park headquarters area and Hosmer’s Planting area need new determinations of eligibility. Other areas of the park may also need determinations of eligibility.

Visitor Use Data and Studies.

Rationale and scope — Greater understanding of park visitation patterns and the visitor use needs is needed for planning decisions related to visitor use management, facility and infrastructure improvements, and interpretive and educational programming. Visitor use data will feed into other planning efforts including visitor use management plans and assist the park in addressing issues such as visitor safety, congestion, and crowding. Data needed would include visitor survey tools, growth projections, and social science studies designed to inform user capacity decision making (e.g., studies to define what constitutes crowding to visitors).

See appendix D for a description of operational efforts that will address key park issues. Appendix E contains a compilation of past and ongoing plans and data collection efforts.

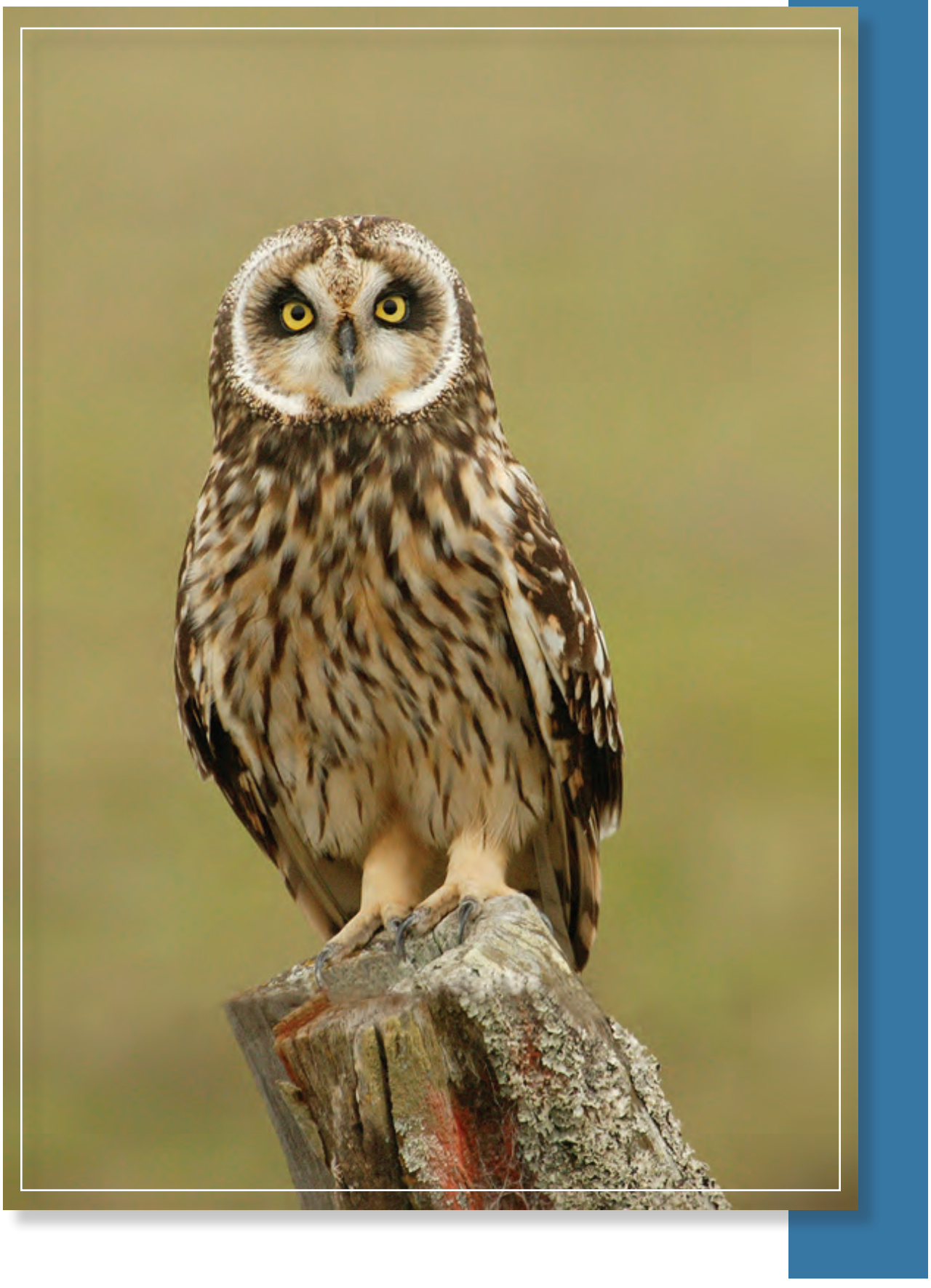


“Hānau ka wili noho i kai
Kia ‘i ia e ka wiliwili noho i uka...”

-na ke Kumulipo

“Born is the wiliwili fish living in the sea,
Guarded by the wiliwili tree living on land.”

- found in the Kumulipo



Summary of High Priority and Other Planning and Data Needs		
Planning or Data Needs	**Priority (H, M, L)**	**Notes**
Resource Management		
Plans		
Climate change scenario planning	H	To include rainfall projection at the Summit District potable water rain catchment structure
Management plan for southern lands (Nu'u, Ka'àpahu, and Puhilele)	H	This plan would also identify potential visitor use of the new lands and the facilities and infrastructure that would be needed to support park operations and visitor use opportunities
Resource stewardship strategy	H	To provide guidance for both natural and cultural resources
Wilderness stewardship plan	H	
Geological resource protection plan	M	
Acoustic resource management plan	M	
Records management plan	M	
Cave management plan	L	As additional lava tube caves are identified through inventories, a cave management plan may be beneficial
Museum management plan update	L	
Data Needs and Studies		
Continued support for existing in-park air quality monitoring (i e , visibility)	H	
Climate change vulnerability assessments for natural resources, cultural resources, and facilities in support of scenario planning	H	This would also include spatial effects
Determinations of eligibility for the National Register of Historic Places	H	
Monitoring of additional air quality parameters (e g , ozone, nitrogen and sulfur deposition) to better understand potential threats from nearby development	H	
Administrative history	M	
Cave documentation including locations, survey data and maps, inventories of associated items found in caves, and other important basic information	M	
Cultural landscape inventory for Hosmer's Grove	M	
Historic resource study update	M	To include more recent time periods
Night sky baseline inventory (underway)	M	
Paleontological vital signs monitoring including erosion (geologic and climatic factors)	M	

Summary of High Priority and Other Planning and Data Needs		
Planning or Data Needs	**Priority (H, M, L)**	**Notes**
Scenic resource inventory	M	
Spatial database and satellite imagery for landscape scale baseline data and change over time; would include wilderness, stream, erosion, and biological reserve data	M	
Special studies to examine pollution dose-response relationships in sensitive park ecosystems, including the potential impact of mercury and other toxics on biota in the park	M	
Stream studies including a stream species inventory, stream characteristics study, and study on the effects of contaminants of stream and ocean ecosystems (for instance, possible sensors to measure stream water composition)	M	

Summary of High Priority and Other Planning and Data Needs		
Planning or Data Needs	**Priority (H, M, L)**	**Notes**
Visitor Experience		
Plans		
Kīpahulu comprehensive site plan	H	Includes visitor use management strategies for the Kīpahulu area
Summit area visitor use management plan	H	
Backcountry travel and safety plan	M	
Comprehensive interpretive plan	M	
Multidisciplinary plan for outreach	M	
Sign plan	M	
Data Needs and Studies		
Visitor use surveys and studies	H	
Data to assist public understand about the effects of climate change	M	
Facilities and Park Operations		
Plans		
Climate change action plan (Green parks plan)	H	Project rainfall and availability of potable and nonpotable water Propose infrastructure improvements to collect water, if needed Propose operating budgets to transport water
Schematic site design for Kīpahulu campground	H/M	Could be completed separately or concurrently with the Kīpahulu comprehensive site plan
Accessibility self-evaluation and transition plan	M	
Air tour management process	M	Pending national level policy decision making on air tour management
Search and rescue plan	M	
Structural fire management plan	M	
Alternative transportation plan	L	
Comprehensive financial plan	L	
Traffic studies	L	Could be part of a visitor use study (above)
Trail condition inventory	L	Ongoing
Volunteer plan/strategy	L	

Part 3: Contributors

Haleakalā National Park

Natalie Gates – Superintendent

Berkeley Yoshida – Chief of Administration

Bill Haus – Biological Technician

Cathleen Bailey – Wildlife Biologist

Clinton Fukushima – Feral Animal Removal and Resource Management

Elizabeth Gordon – Cultural Resource Program Manager and Compliance Coordinator

Fabian Park – Kīpahulu Trails Crew

Greg Page – Fee and Commercial Services Program Specialist

James Herbaugh – Kīpahulu District Ranger

Jamie Mar – Chief Ranger

Jason Mangonon – Feral Animal Removal and Resource Management

Jeffrey (Woody) Mallinson – Biologist

Howard Forbes – Management Assistant

Lahela Park – Fee Supervisor

Leroy Winters – Maintenance Supervisor

Matt Brown – Chief of Resource Management

Melissa Chimera – VIP Coordinator

Patti Welton – Botanist

Peter Kafka – Maintenance Supervisor

Polly Angelakis – Chief of Interpretation

Sierra Gabrels – Advanced Technology Solar Telescope (ATST) Project Monitor and Environmental Protection Specialist

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Stephan Orwig – Biotech for Resource Management

Steve Anderson – Natural Resource Program Manager

Timmy Bailey – Park Fire/Aviation/Feral Animal Removal Manager

Walter Pu – Kīpahulu Interpretive Ranger

NPS Pacific West Region

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Sarah Bodo, Community Planner

Steve Whissen, Cultural Resource Specialist

Angie Marie Wing, Visual Information Specialist

Appendixes

Appendix A: Enabling Legislation and Legislative Acts for Haleakalā National Park

Enabling Legislation Establishing Hawai'i National Park, August 1916

August 1, 1916.
[H. R. 9525.]

[Public, No. 171.]

Hawaii National Park.
Established on islands of Hawaii and Maui.

CHAP. 264.—An Act To establish a national park in the Territory of Hawaii.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the tracts of land on the island of Hawaii and on the island of Maui, in the Territory of Hawaii, hereinafter described, shall be perpetually dedicated and set apart as a public park or pleasure ground for the benefit and enjoyment of the people of the United States, to be known as Hawaii National Park. Said tracts of land are described as follows:

Description.
On Hawaii.

First. All that tract of land comprising portions of the lands of Kapapala and Keauhou, in the district of Kau, and Kahaualea, Panaunui, and Apua, in the district of Puna, on the island of Hawaii, containing approximately thirty-five thousand eight hundred and sixty-five acres, bounded as follows: Beginning at a point on the west edge of the Keamoku Aa Flow (lava flow of eighteen hundred and twenty-three), from which point the true azimuth and distance to Government survey trigonometrical station Ohaikea is one hundred and sixty-six degrees twenty minutes, six thousand three hundred and fifty feet, and running by true azimuths: (First) Along the west edge of the Keamoku lava flow in a northeasterly and northwesterly direction, the direct azimuth and distance being one hundred and ninety-eight degrees ten minutes, fourteen thousand seven hundred feet; (second) two hundred and fifty-six degrees, eleven thousand four hundred feet, more or less, across the land of Kapapala and Keauhou to a marked point on the Humuula trail; (third) three hundred and twenty-eight degrees fifteen minutes, eight thousand seven hundred and twenty-five feet, across the land of Keauhou to the top of the fault north of the Kau road; (fourth) along the fault in a northeasterly direction, the direction azimuth and distance being two hundred and fifty-one degrees and thirty minutes, four thousand three hundred and thirty feet; (fifth) two hundred and forty-five degrees, six thousand feet, to a point near the southwest boundary of the land of Olaa; (sixth) three hundred and thirty-seven degrees ten minutes, eight thousand six hundred and fifty feet, more or less, to the junction of the Hilo and Keauhou roads; (seventh) three hundred and thirty-three degrees and twenty minutes, three thousand three hundred feet, more or less, to the southwest corner of the land of Keaau; (eighth) three hundred and thirty-two degrees and ten minutes, seven thousand feet, along the land of Kahaualea; (ninth) two hundred and eighty-one degrees, thirty thousand three hundred and seventy-five feet, more or less, across the land of Kahaualea, passing through the north corner of the land of Panaunui, to the north corner of the land of Laeapuki; (tenth) thirty-one degrees thirty minutes, thirteen thousand two hundred feet, more or less, along the land of Laeapuki and across the land of Panaunui; (eleventh) eighty-nine degrees and ten minutes, thirty-two thousand nine hundred feet, more or less, across the land of Panaunui, Apua, and Keauhou to "Palilele-o-Kalihipaa," the boundary point of the Keauhou-Kapapala boundary; (twelfth) fifty-one degrees and thirty minutes, five thousand and five hundred feet, across the land of Kapapala; (thirteenth) one hundred and two degrees and fifty minutes, nineteen thousand one hundred and fifty feet, across the land of Kapapala to a small cone about one thousand five hundred feet

southwest of Puu Koae trigonometrical station; (fourteenth) one hundred and sixty-six degrees twenty minutes, twenty-one thousand feet, across the land of Kapapala to the point of beginning.

Second. All that tract of land comprising portions of the lands of Kapapala and Kahuku, in the district of Kau, island of Hawaii; Keauhou second, in the district of North Kona; and Kaohe, in the district of Hamakua, containing seventeen thousand nine hundred and twenty acres, bounded as follows: Beginning at Pohaku Hanalei of Humuula, a small cone on the brow of Mauna Loa, and at the common boundary points of the lands of Humuula, Kapapala, and Kaohe, from which the true azimuth and distance to Government survey trigonometrical station Omaokoili is one hundred and ninety-five degrees twelve minutes eighteen seconds, seventy-eight thousand two hundred and eighty-six feet, and running by true azimuths: First, two hundred and ninety-eight degrees, five thousand two hundred and forty feet; second, twenty-eight degrees, thirty-six thousand nine hundred and sixty feet; third, one hundred and eighteen degrees, twenty-one thousand one hundred and twenty feet; fourth, two hundred and eight degrees, thirty-six thousand nine hundred and sixty feet; fifth, two hundred and ninety-eight degrees, fifteen thousand eight hundred and eighty feet, to the point of beginning.

Third. A strip of land of sufficient width for a road to connect the two tracts of land on the island of Hawaii above described, the width and location of which strip shall be determined by the Secretary of the Interior.

On Maui.

Fourth. All that tract of land comprising portions of the lands of Honuaula and Kula, in the district of Makawao, and Kipahulu, Kaupo, and Kahikinui, in the district of Hana, on the island of Maui, containing approximately twenty-one thousand one hundred and fifty acres, bounded as follows: Beginning at a point called Kolekole, on the summit near the most western point of the rim of the crater of Haleakala, and running by approximate azimuths and distances: First, hundred and ninety-three degrees forty-five minutes nineteen thousand three hundred and fifty feet along the west slope of the crater of Haleakala to a point called Puu-o-Ili; second, two hundred and sixty-eight degrees twenty-three thousand feet up the western slope and across Koolau Gap to the point where the southwest boundary of Koolau Forest Reserve crosses the east rim of Koolau Gap; third, three hundred and six degrees thirty minutes seventeen thousand one hundred and fifty feet along the southwest boundary of Koolau Forest Reserve to a point called Palalia, on the east rim of the crater of Haleakala; fourth, along the east rim of the crater of Haleakala, the direct azimuth and distance being three hundred and fifty-four degrees fifteen minutes eighteen thousand three hundred feet to a point on the east rim of Kaupo Gap, shown on Hawaiian Government survey maps at an elevation of four thousand two hundred and eight feet; fifth, eighty-eight degrees forty-five minutes three thousand three hundred feet across Kaupo Gap to a point called Kaumikaohu, on the boundary line between the lands of Kipahulu and Kahikinui; sixth, one hundred and two degrees and thirty minutes forty thousand seven hundred and fifty feet along the south slope of the crater of Haleakala to the point of beginning.

Existing land claims not affected.

SEC. 2. That nothing herein contained shall affect any valid existing claim, location, or entry under the land laws of the United States, whether for homestead, mineral, right of way, or any other purpose whatsoever, or shall affect the rights of any such claimant, locator, or entryman to the full use and enjoyment of his land. Whenever consistent with the primary purposes of the park the Act of February fifteenth, nineteen hundred and one, applicable to the location of rights of way in certain national parks and the national

Rights of way. Vol. 31, p. 790.

forests for irrigation and other purposes, shall be and remain applicable to the lands included within the park. The Secretary of the Interior may, in his discretion and upon such conditions as he may deem wise, grant easements or rights of way for steam, electric, or similar transportation upon or across the park.

Private ownership not affected.

SEC. 3. That no lands located within the park boundaries now held in private or municipal ownership shall be affected by or subject to the provisions of this Act.

Administration, etc.

SEC. 4. That the said park shall be under the executive control of the Secretary of the Interior whose duty it shall be, as soon as practicable, to make and publish such rules and regulations as he may deem necessary or proper for the care and management of the same. Such regulations shall provide for the preservation from injury of all timber, birds, mineral deposits, and natural curiosities or wonders within said park, and their retention in their natural condition as nearly as possible. The Secretary may in his discretion grant leases for terms not exceeding twenty years, at such annual rental as he may determine, of parcels of land in said park of not more than twenty acres in all to any one person, corporation, or company for the erection and maintenance of buildings for the accommodation of visitors; but no such lease shall include any of the objects of curiosity or interest in said park or exclude the public from free and convenient approach thereto or convey, either expressly or by implication, any exclusive privilege within the park except upon the premises held thereunder and for the time granted therein; and every such lease shall require the lessee to observe and obey each and every provision in any Act of Congress and every rule, order, or regulation of the Secretary of the Interior concerning the use, care, management, or government of the park, or any object or property therein, under penalty of forfeiture of such lease. The Secretary may in his discretion grant to persons or corporations now holding leases of land in the park, upon the surrender thereof, new leases hereunder, upon the terms and stipulations contained in their present leases, with such modifications, restrictions, and reservations as he may prescribe. All of the proceeds of said leases and other revenues that may be derived from any source connected with the park shall be expended under the direction of the Secretary, in the management and protection of the same and the construction of roads and paths therein. The Secretary may also, in his discretion, permit the erection and maintenance of buildings in said park for scientific purposes: *Provided*, That no appropriation for the maintenance, supervision, and improvement of said park in excess of $10,000 annually shall be made unless the same shall have first been expressly authorized by law: *And provided further*, That no appropriation shall be made for the improvement or maintenance of said park until proper conveyances shall be made to the United States of such perpetual easements and rights of way over private lands within the exterior boundaries of said park as the Secretary of the Interior shall find necessary to make said park reasonably accessible in all its parts, and said Secretary shall when such easements and rights of way have been conveyed to the United States report the same to Congress.

Leases for accommodating visitors.

Proceeds for park uses.

Provisos.
Limit on expenses.

Conveyances of easements from private owners.

Approved, August 1, 1916.

Public Law 86-744, September 1960. Formally Designates and Establishes Haleakalā National Park

Public Law 86-744

AN ACT

September 13, 1960
[S. 3623]

To designate and establish that portion of the Hawaii National Park on the island of Maui, in the State of Hawaii, as the Haleakala National Park, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, effective July 1, 1961, the detached portion of the Hawaii National Park which lies on the island of Maui is hereby established as a separate unit of the national park system to be known as Haleakala National Park. The park so established shall be administered in accordance with the Act entitled "An Act to establish a National Park Service, and for other purposes", approved August 25, 1916 (39 Stat. 535), as amended and supplemented, and in accordance with any other applicable provision of law relating to the Maui portion of Hawaii National Park.

Haleakala National Park, Hawaii.
Establishment.

16 U S C 1-4, *passim*.

Approved September 13, 1960.

48232 O-61-56

Public Law 94-578, Oct. 21, 1976. Authorizes the Secretary of the Interior to Acquire New Lands (Kīpahulu District) for Inclusion within Haleakalā National Park

90 STAT. 2732 PUBLIC LAW 94-578—OCT. 21, 1976

Public Law 94–578
94th Congress

An Act

Oct. 21, 1976
[H.R. 13713]

To provide for increases in appropriation ceilings and boundary changes in certain units of the National Park System, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SEC. 313. The Act of September 13, 1960 (74 Stat. 881) which designates and establishes that portion of the Hawaii National Park on the island of Maui, in the State of Hawaii, as the Haleakala National Park, is amended by adding the following new section:

16 USC 396b.

"SEC. 2. (a) Notwithstanding any limitations on land acquisition as provided by the Act of June 20, 1938 (52 Stat. 781), the Secretary of the Interior may acquire for addition to the park any land on the island of Maui within the boundaries of the area generally depicted on the map entitled 'Haleakala National Park, Segment 03,' numbered 162–30,000–G, and dated May 1972, by donation, purchase with donated or appropriated funds, or exchange. The map shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior.

Land acquisition.
16 USC 396c.

"(b) There is authorized to be appropriated such sums but not to exceed $920,000 as may be necessary to carry out the purposes of this section.".

Appropriation authorization.

Corrected Designation of Park to Native Hawaiian Spelling

Public Law 106–510
106th Congress

An Act

To eliminate restrictions on the acquisition of certain land contiguous to Hawaii Volcanoes National Park, and for other purposes.

Nov. 13, 2000
[S. 938]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Hawaii Volcanoes National Park Adjustment Act of 2000.
16 USC 1 note.

SECTION 1. SHORT TITLE.

This Act may be cited as the "Hawaii Volcanoes National Park Adjustment Act of 2000".

SEC. 2. ELIMINATION OF RESTRICTIONS ON LAND ACQUISITION.

The first section of the Act entitled "An Act to add certain lands on the island of Hawaii to the Hawaii National Park, and for other purposes", approved June 20, 1938 (16 U.S.C. 391b), is amended by striking "park: *Provided,*" and all that follows and inserting "park. Land (including the land depicted on the map entitled 'NPS–PAC 1997HW') may be acquired by the Secretary through donation, exchange, or purchase with donated or appropriated funds.".

SEC. 3. CORRECTIONS IN DESIGNATIONS OF HAWAIIAN NATIONAL PARKS.

(1) IN GENERAL.—Public Law 86–744 (74 Stat. 881) is amended by striking "Haleakala National Park" and inserting "Haleakalā National Park". 16 USC 396b, 396c.

(2) REFERENCES.—Any reference in any law (other than this Act), regulation, document, record, map, or other paper of the United States to "Haleakala National Park" shall be considered a reference to "Haleakalā National Park". 16 USC 396b note.

(c) KALOKO-HONOKŌHAU.—

SEC. 4. CONFORMING AMENDMENTS.

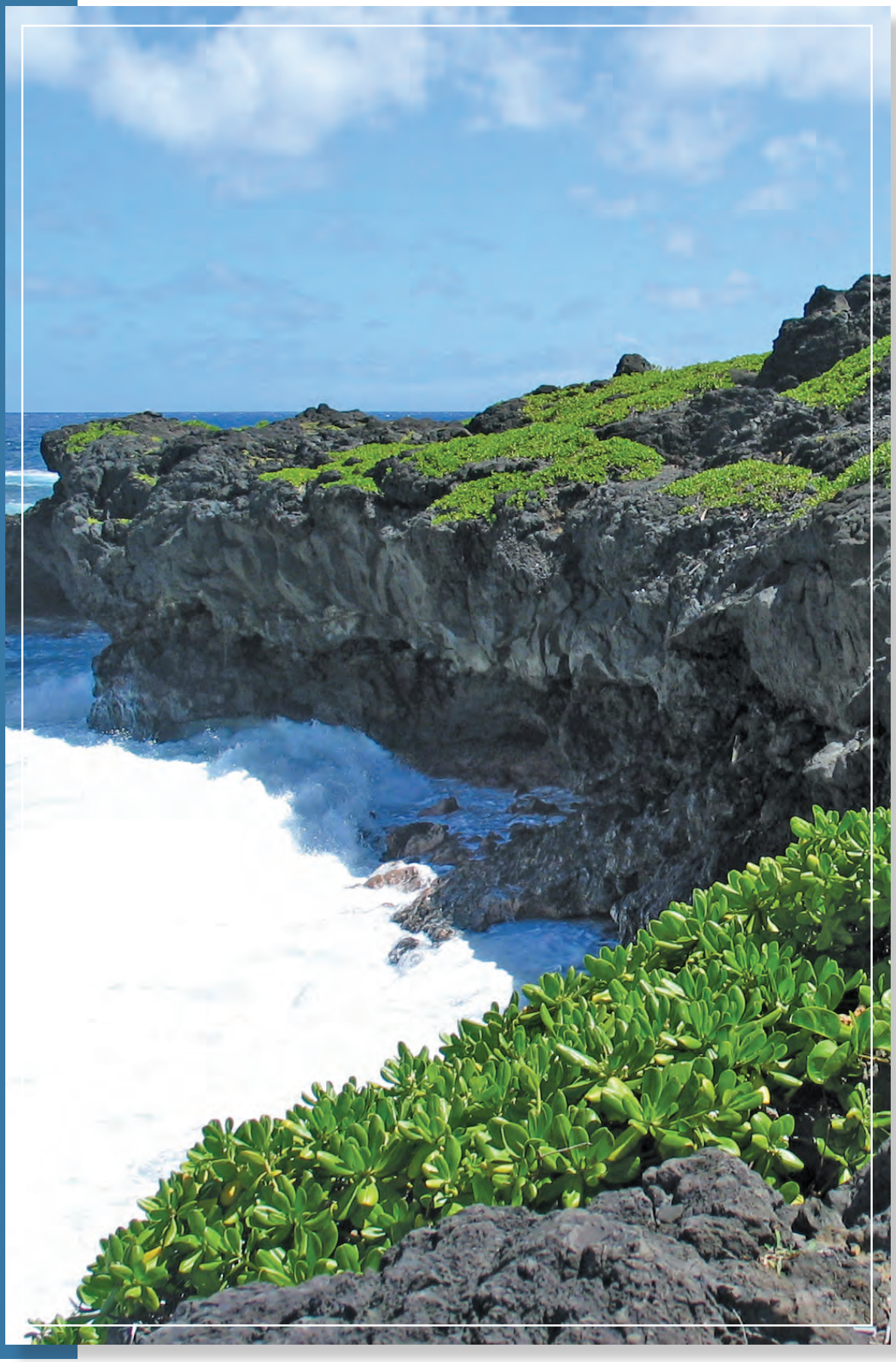
16 USC 1132 note.

(a) Section 401(8) of the National Parks and Recreation Act of 1978 (Public Law 95–625; 92 Stat. 3489) is amended by striking "Hawaii Volcanoes" each place it appears and inserting "Hawai`i Volcanoes".

16 USC 1132 note.

(b) The first section of Public Law 94–567 (90 Stat. 2692) is amended in subsection (e) by striking "Haleakala" each place it appears and inserting "Haleakalā".

Approved November 13, 2000.

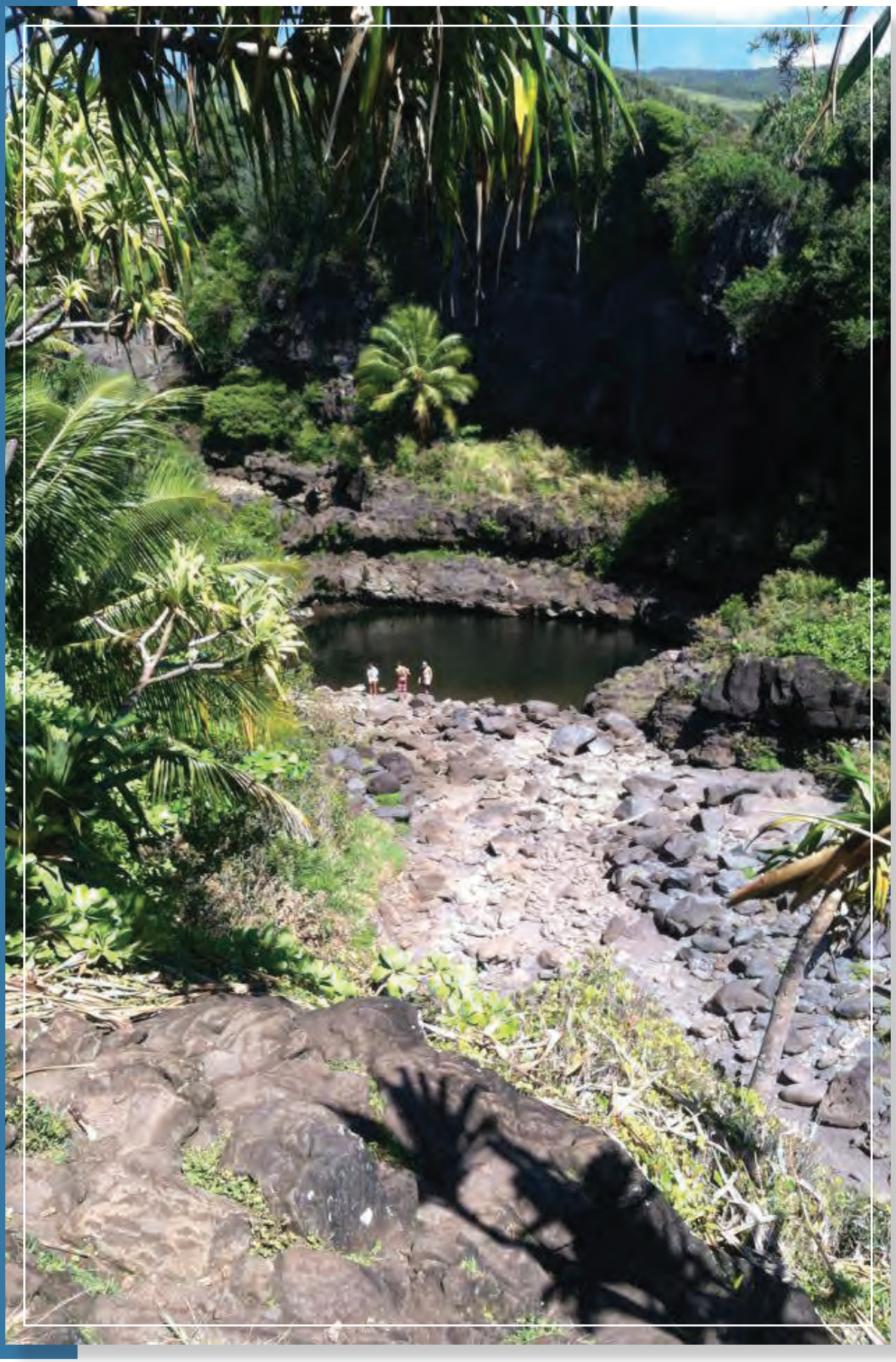


Appendix B: Analysis of Fundamental Resources and Values

Fundamental Resource or Value	Natural Sounds, Viewsheds, and Dark Night Skies
Related Significance Statements	3 Wilderness 5 Exceptional Scenery 6 Natural Sounds and Intense Quiet 7 Haleakalā Volcano 8 Dark Night Skies
Current Conditions and Trends	**Conditions** Natural Sounds • Extensive acoustical monitoring and related studies demonstrate that sound levels in Haleakalā National Park are remarkably low and dominated by natural sounds These studies also show that the most common source of noise is from aircraft and that visitors find the aircraft noise annoying • Repeated studies establish that ambient sounds levels in the park are among the lowest recorded in any national park • Natural quiet conditions at the Haleakalā Crater are exceptional Haleakalā Crater is the quietest area measured in the national park system (approximately 10 decibels) In some cases the sound levels were so quiet that they could not be measured The lowest sound reading was on Sliding Sands Trail The highest sound reading was in forested upland near waterfalls (35 1 decibels) Viewsheds • Most views from the park are relatively pristine and generally not modified by the existence of development However, vistas in the park are sometimes obscured by pollution-caused haze Sources include the Kilauea Volcano, wildfires, power generation, vehicles, sugar cane burning, and international transport of atmospheric pollutants Long-range views beyond park boundaries are especially affected by air pollution • Because the park is currently surrounded primarily by ranch land and state land, most scenic views should be relatively protected • Haleakalā National Park has a Class I air quality designation • Currently air quality at Haleakalā National Park meets National Ambient Air Quality standards for ozone • Currently, visibility conditions at Haleakalā National Park do not meet the NPS Air Resources Division recommended benchmark for good condition • Eighty-six percent (86%) of carbon emissions in the park are from visitor vehicles Dark Night Skies • The park's remoteness, combined with the elevation of the Haleakalā Crater create excellent conditions for night sky viewing • Ground based observations collected in 2012 at Kala-haku Overlook produced an anthropogenic light ration (ALR) of 0 15 An ALR of 0 0 would indicate pristine natural conditions, while a ratio of 1 0 would indicate that anthropogenic light was 100% brighter than the natural light from the night sky Therefore, at Haleakalā National Park, the sky is predicted to be just 15% brighter than natural • At these light levels, most observers feel they are in a natural environment The Milky Way is visible from horizon to horizon and may show great detail **Trends** • According to the Interagency Monitoring of Protected Visual Environments (IMPROVE) summary data (see "Existing Plans and Data Related to this FRV"), currently at Haleakalā National Park air pollution has reduced average visual range from 150 to 100 miles On the haziest days, visual range has been reduced from 110 to 55 miles • The National Oceanic and Atmospheric Administration has predicted that lightning strikes will be more frequent, increasing risk of wildfire which can impact visibility

Fundamental Resource or Value	Natural Sounds, Viewsheds, and Dark Night Skies
Threats	Natural Sounds • Overflights, including use of helicopters, have an impact on soundscapes and the acoustic environment Drones may pose an impact • Loud motorcycles and other vehicles also impact acoustic conditions Viewsheds • Air quality and scenic resources are impacted by regional and local sources of air pollution such as power plants, industrial facilities, agriculture, and urban developments Wildfire is also a source of air pollution • Air quality is also impacted by volcanic activity on the Island of Hawai'i, organic compounds, soot, dust, and marine aerosols • In some areas, human activities that disturb vegetation and soil surfaces may trigger dust emissions that degrade visibility and the expansive scenic views from within the park • Air pollution may have an effect on native plants and lichens More information is needed to understand the potential effects • The park's freshwater streams and ponds may be particularly sensitive to sulfur compounds emitted from the Kilauea Volcano • Future development such as residential areas or renewable energy projects—including offshore wind—could affect views beyond park boundaries that are an important part of the visitor experience • An increase in mean annual temperature and decrease in mean annual precipitation projected for the region could increase a range of ecological vulnerabilities at the park that may impact viewsheds (e g , increased mortality of tropical montane cloud forest, increase in Monterey pine, elevation shifts of climate and native vegetation) Dark Night Skies • Light pollution from developed areas and from visitor and commercial use vehicles can impact night skies
Opportunities	Natural Sounds • Management of noise from overflights, nearby land uses, park visitors, and park operations • Education and outreach about the "intense quiet" of the park, soundscapes, and noise • Electric vehicles and vanpools may have benefits to the acoustic environment and soundscape Viewsheds • There are ongoing opportunities through federal air quality programs (e g , regional haze program) for the National Park Service to work cooperatively with other federal and state air quality agencies and local stakeholders to potentially reduce air quality impacts in class I parks from sources of air pollution • Development of a green shuttle system to reduce vehicle emissions (also could have beneficial effects on natural soundscapes) • Vanpools are an opportunity if the park could secure additional funding to support this • Coordination with electric vehicles effort on Maui However, this would require installation of vehicle charging stations (2019 park proposal) • Ongoing work to reduce emissions as part of the Climate Friendly Park program and Director's Order 13A: *Environmental Management Systems* for park environmental leadership • Summit cams could provide views outside park boundary, yielding information related to air quality and visual resources • Use of solar power in park operations Currently the park is exploring the addition of solar panels to all visitor use buildings • NPS involvement in islandwide and statewide planning for energy Dark Night Skies • Continue to provide overnight camping and night sky viewing programs • Continue to monitor night sky conditions

Fundamental Resource or Value	Natural Sounds, Viewsheds, and Dark Night Skies
Existing Data and Plans Related to the FRV	• Resource management plan (1999) Natural Sounds • Haleakalā has one of the most extensive acoustical monitoring datasets in the national park system, both in terms of visitor experience and ambient monitoring, in the "Haleakalā National Park Acoustical Monitoring Report" (2012) • Data on the effects of overflights and air tours Viewsheds • Air resource condition benchmarks • Conditions and on-site monitoring of air quality related values • Interagency Monitoring of Protected Visual Environments 2013 IMPROVE Summary Data Available at http://vista cira colostate edu/improve/Data/IMPROVE/summary_data htm Dark Night Skies • Night sky baseline inventory (ongoing)
Data and/or GIS Needs	• Scenic resource inventory from sensitive park vista points that include views extending beyond NPS boundaries (Summit cams, once installed, could provide views outside the park boundary related to air quality and visual resources) • Monitoring of additional air quality parameters (e g , ozone, nitrogen and sulfur deposition) to better understand potential threats from nearby development • Special studies to examine pollution dose-response relationships in sensitive park ecosystems, including the potential impact of mercury and other toxics on biota in the park • Continued support for existing in-park air quality monitoring (i e , visibility) (For instance, potentially install small-footprint sensors in other areas of the park to better understand locational differences, if any, and paint a more complete picture over time)
Planning Needs	• Resource stewardship strategy • Soundscape management plan/acoustic resource management plan • Air tour management plan (on hold)
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • The Clean Air Act (42 U S C 7401 et seq) gives federal land managers the responsibility for protecting air quality and related values, including visibility, plants, animals, soils, water quality, cultural resources, and public health, from adverse air pollution impacts • National Parks Air Tour Management Act of 2000 • National Parks Overflight Act of 1987 (Public Law 100-91) • "Audio disturbances" (36 CFR 2 12) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 13A: *Environmental Management Systems* • NPS *Management Policies 2006* (1 4) "Park Management" • NPS *Management Policies 2006* (1 6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (3 1) "General" • NPS *Management Policies 2006* (4 7) "Air Resource Management" • NPS *Management Policies 2006* (4 10) "Lightscape Management" • NPS *Natural Resource Management Reference Manual 77* • Director's Order 47: *Soundscape Preservation and Noise Management* • NPS *Management Policies 2006* (4 9) "Soundscape Management" • NPS *Management Policies 2006* (5 3 1 7) "Cultural Soundscape Management" • NPS *Management Policies 2006* (8 4) "Overflights and Aviation Uses" • NPS *Management Policies 2006* (8 2 3) "Use of Motorized Equipment"



Fundamental Resource or Value	Kīpahulu Moku District (including ʻOheʻo Gulch and Palikea Stream)
Related Significance Statements	1 Diverse Landscapes and Biodiversity 2 Native Hawaiian Ecosystems 4 Cultural Significance
Current Conditions and Trends	**Conditions** • There are two major divisions in Kīpahulu, the upper valley and lower valley The upper valley (Kīpahulu Biological Reserve) is a scientific reserve where native Hawaiian biodiversity is protected and studied Visitors are not permitted in the reserve in order to protect its exceptional ecological resources The lower valley is developed to provide visitor services The following comments refer to the lower valley: • ʻOheʻo pools receive very high levels of visitation The tourism industry celebrates and promotes swimming in the pools • There is a lack of adequate facilities to accommodate the high visitor use of the Kīpahulu district Generally, facilities are outdated and inadequate for the number of visitors the district receives The facilities in the Kīpahulu district are also heavily impacted by the rainy season • The endemic species in ʻOheʻo pools and the contiguous ocean environment (e g , oʻopu) are being impacted by visitor use ʻOheʻo pools have high concentrations of sunscreens and insect sprays and other contaminants, which harm species that depend on the water of Palikea stream • Palikea is Maui's longest perennial stream • The Kīpahulu district features a rich cultural heritage; however, many visitors only want to swim in the pools After a brief stop, many tour groups leave the site to go elsewhere **Trends** • Increasing visitation to the Kīpahulu district • Increasing motor vehicle accidents associated with the increasing visitation • A trend toward more community outreach on the part of the park Staff is proactive at addressing issues (for instance, with Opihi monitoring) • Fishing has been increasing in popularity, especially at Puhilele Point The area may be in danger of becoming fished out, yet there is no monitoring of resources • The Alelele Falls area (west of Kīpahulu) is receiving increased visitation, despite being officially closed to public entry due to archeological site sensitivity Trash and feces accumulate in this area and other remote areas
Threats	• The safety of many visitors (especially waders/swimmers) is at risk due to rock fall from waterfalls and along roadsides and trail conditions Injuries result from visitors disregarding safety signage The accumulation of trash and feces in remote areas can also pose safety issues • Wading and swimming in the Palikea stream and ʻOheʻo pools are dangerous to visitors Flash floods and rocks that fall over waterfalls are particular threats to visitors Serious injuries and deaths have occurred • Leptospirosis and other zoonotic diseases continue to be a concern in the ʻOheʻo pools This is a threat to the safety of swimmers • Threats to natural and cultural resources in the Kīpahulu district include visitors traveling off trails and roads due to congestion; visitors hiking through archeological sites (on established trails or off trail); visitors swimming in ʻOheʻo pools, which impacts endemic species (e g , Opihi); invasive species (e g , mongoose, ungulates, miconia, and the hala tree); and trash and/or feces found in remote areas of the park • An increase in mean annual temperature, decrease in mean annual precipitation, increase in storm intensity and sea level rise projected for the region would impact natural hydrologic regimes, geomorphic and biotic processes, and visitation (e g , salt water intrusion of freshwater systems, increase in invasive species, flood events, changes in visitor patterns)

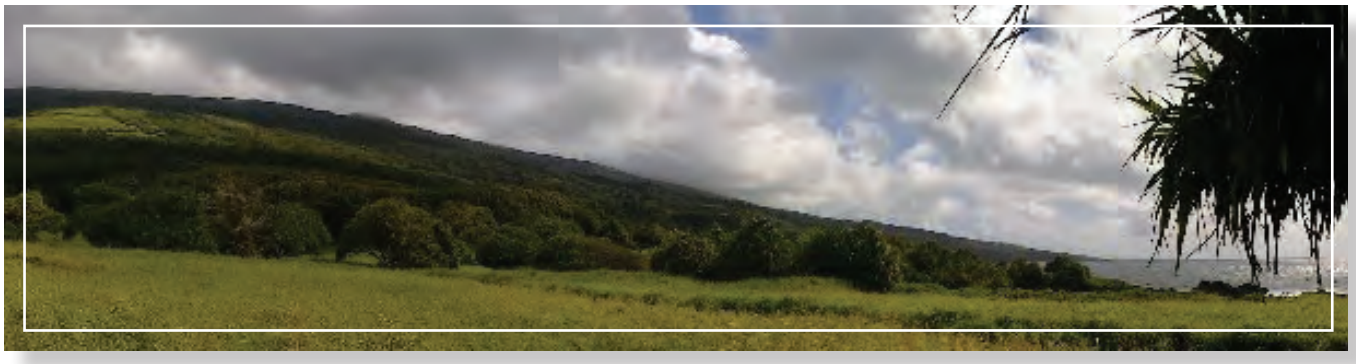
Fundamental Resource or Value	Kīpahulu Moku District (including ʻOheʻo Gulch and Palikea Stream)
Opportunities	• Opportunities for natural and cultural resource protection and visitor safety include bus protocols, cultural demonstrations, more interpretive waysides (for instance, to identify and interpret archeological sites), designing and constructing an Architectural Barriers Act-accessible trail to Kuloa Point, and seabird monitoring (e g , brown noddy) • Continue to provide education about the resources and opportunities that the Kīpahulu district offers, for example world class hiking trails and stargazing at the campground • Redesign of the campground could provide designated campsites and a system for reservations • Management of natural resources would increase native vegetation in the district • Emphasis on the cultural significance of the area would give visitors an alternate reason for visiting the area Careful management (such as that of a museum) of archeological sites and Kapahu loʻi (with close coordination with the Kīpahulu Ohana) could provide visitors with an alternate cultural experience • The Nationwide Rivers Inventory identified Palikea stream (including Pīpīwai and ʻPools of ʻOheʻo) as having potential for inclusion in the National Wild and Scenic Rivers system Current and proposed future management of park stream resources would be compatible with the Wild and Scenic Rivers Act (PL 90-542)
Existing Data and Plans Related to the FRV	• General management plan / environmental impact statement (1995) • General management plan / environmental assessment amendment (2005) • Strategic plan (2012) • Fire management plan (1977, 2005) • US Fish and Wildlife Service biological opinion and informal consultation (2012) • Visitor study (2001, 2004) • Superintendent's Compendium (2012) • Kīpahulu comprehensive site plan (ongoing) • Design guidelines for the Kīpahulu District - ʻOheʻo (2001) • Long-range interpretive plan (2003) • Trail inventory (2011) • Commercial services plan and environmental assessment (2012) • Resource management plan (1999) • Seabird inventory (2009) • Hawaiian bat inventory (2007) • Scientific report of the Kīpahulu Valley expedition (1977)

Fundamental Resource or Value	Kīpahulu Moku District (including ʻOheʻo Gulch and Palikea Stream)
Data and/or GIS Needs	• Stream species inventory • Stream characteristics • Effects of contaminants of stream and ocean ecosystems (for instance, possible sensors to measure stream water composition) • Effects of visitor use on landscape (erosion, stream, invasive species) • Satellite imagery of the park to provide analysis with respect to change over time
Planning Needs	• Schematic site design for Kīpahulu campground • Resource stewardship strategy • Kīpahulu comprehensive site plan (with visitor use management strategies)
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • National Environmental Policy Act of 1969 • Secretarial Order 3289 "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Americans with Disabilities Act of 1990 • Architectural Barriers Act Accessibility Standards 2006 • Architectural Barriers Act of 1968 • Rehabilitation Act of 1973 • Migratory Bird Treaty Act • NPS General Authorities Act **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* and *DO-12 Handbook* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 18: *Wildland Fire Management* • Director's Order 42: *Accessibility for Visitors with Disabilities in National Park Service Programs and Services* • Director's Order 45: *National Trails System* • Director's Order 77: *Natural Resource Protection* • Director's Order 79: *Integrity of Scientific and Scholarly Activities* • NPS *Management Policies 2006* (4 4 1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (4 7 2) "Weather and Climate" • NPS *Management Policies 2006* (8 2 2) "Recreational Activities" • NPS *Management Policies 2006* (8 2 2 1) "Management of Recreational Use" • NPS *Management Policies 2006* (8 2 4) "Accessibility for Persons with Disabilities" • NPS *National Resource Management Reference Manual 77* • NPS *Wildland Fire Management Reference Manual 18* • "Enforcement of Nondiscrimination on the Basis of Handicap in Programs or Activities Conducted by the Department of the Interior" (43 CFR 17) • "Architectural Barriers Act Accessibility Guidelines; Outdoor Developed Areas"

Fundamental Resource or Value	Wilderness
Related Significance Statements	3 Wilderness 1 Diverse Landscapes and Biodiversity 2 Native Hawaiian Ecosystems 6 Natural Sounds and Intense Quiet
Current Conditions	Natural Quality • The park (exemplified in the wilderness) has a high level of biological diversity Natural processes such as evolution continue to take place, largely unaffected by humans • Upper Kīpahulu Valley features a protected native Hawaiian intact rainforest that is used for scientific study (discussed under Native Hawaiian Biological Diversity FRV) • Extensive management activities are focused on protection and management of natural resources Undeveloped Quality • There is some development in the crater (trails, research equipment, and temporary shelters for research) • Three historic cabins for overnight visitor use exist as enclaves within the wilderness (at Hōlua, Kapalaoa, and Palikū) Two areas also have designated wilderness campsites (Hōlua and Palikū) • Park management uses fences along the park boundary to protect the flora and fauna from wild pigs, deer, and goats and from cattle encroachment • There are several places in the crater where fencing exists to support public safety (e g , around lava tubes and pits) • Monitoring equipment exists in places within the wilderness • Water catchment structures for vegetation management activities are also present • Administrative helicopter use impacts the undeveloped quality of wilderness Solitude or Primitive and Unconfined Recreation • Exceptional solitude can be found in the crater • The wilderness offers visitors a comparatively safe wilderness experience because of its trails, cabins (adjacent to wilderness), and the absence of dangerous wildlife • Conveniences available at the cabin enclaves impact the experience of primitive recreation Signage and maintained trails also impact the primitive experience • The requirement for visitors to remain on trails and camp only in designated areas limits opportunities for unconfined recreation, but these measures protect natural resources • Commercial services currently occurring in/above wilderness include guided tours and air tour overflights • An occasional helicopter may be routinely heard from the wilderness area—either from internal park use or from external commercial scenic flights, which hover just outside the park boundary and can cross over the park in the lower Kīpahulu Valley Untrammeled Quality • The untrammeled quality of wilderness is exemplified in the dark, windswept sands of the crater, which are unmarked by human influences • The Kīpahulu Biological Reserve exists within the wilderness area This reserve is closed to public access in order to protect its exceptional biodiversity It is historically difficult to get to (even for researchers and managers), lending the area the sense of being completely untrammeled (Kīpahulu Biological Reserve is addressed under the Native Hawaiian Biological Diversity FRV) • Park management actions to control invasive species (e g , fencing) impact the natural and untrammeled qualities of wilderness • Extensive revegetation projects and other actions to restore the natural environment also affect the untrammeled quality

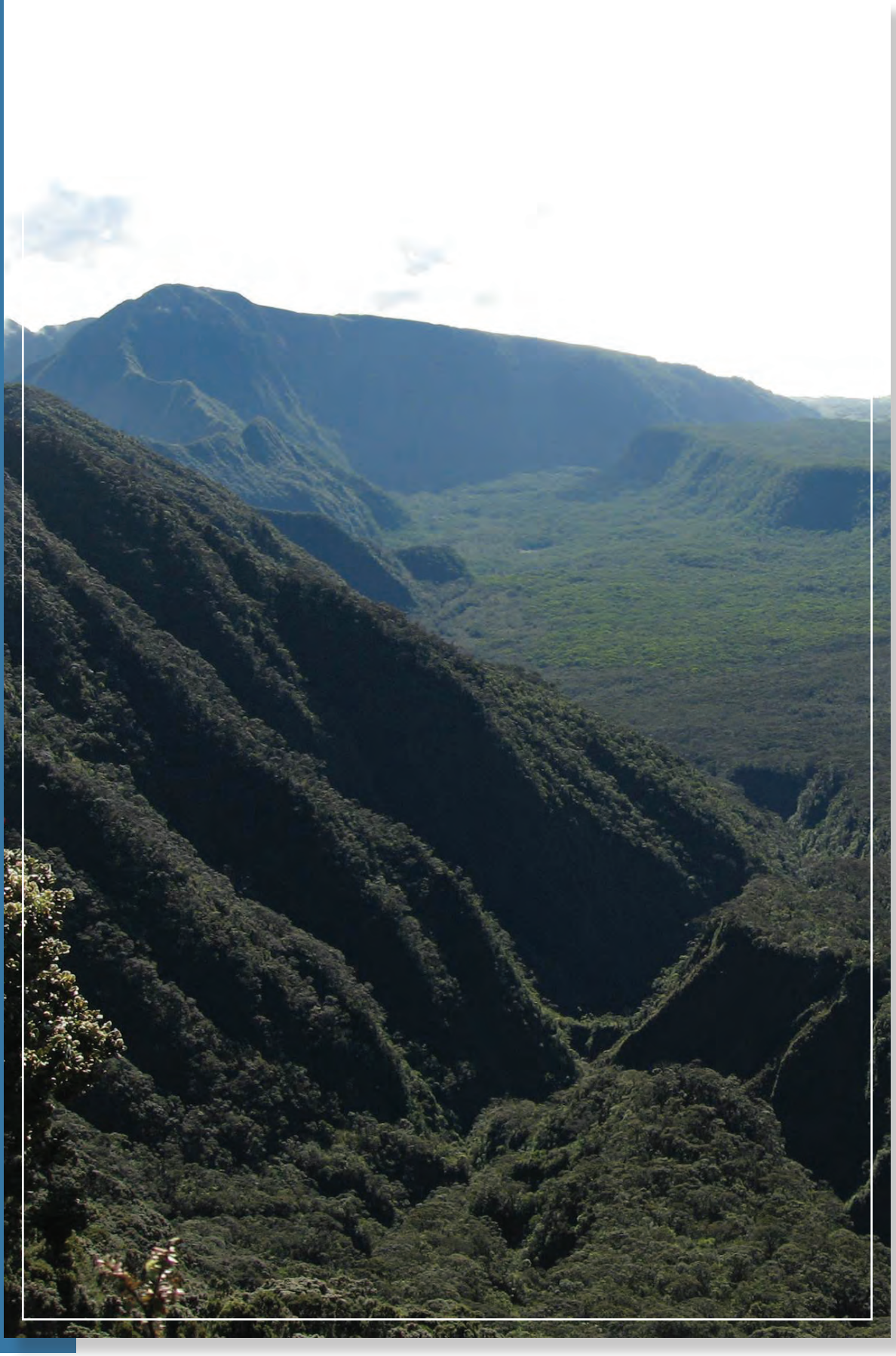
Fundamental Resource or Value	Wilderness
Current Conditions Continued	Cultural Values • The wilderness contains many sites and features that are culturally significant to Native Hawaiians—for example, trails and other corridors for travel, sites that are important for astronomy, etc • Rock walls from historic ranching and other resources associated with historic uses also exist in wilderness • Native Hawaiians continue to use sites and features within wilderness, including the crater, for traditional practices Commercial Services • Horseback tours and hiking tours are permitted in the crater The current commercial services plan does not address these service providers
Trends	• Concentrations of people and day use visitation impact wilderness character • New recreational activities are emerging such as extreme trail running, paragliding, use of drones, and bicycling Such activities can potentially impact solitude (Some of these activities are occurring within designated wilderness, while others are taking place outside the wilderness area but in proximity to it) • Increasingly, visitors to the park possess electronic devices that are audible to others
Threats	• Further loss of biodiversity (many of the below bullets are related factors) • Depredations by alien mammals and predation by nonnative species • Invasions of alien/nonnative plants • Cattle and other animals breaking through fences • Impacts of avian diseases on avian fauna • Climate change An increase in mean annual temperature, decrease in mean annual precipitation, increase in storm intensity and sea level rise projected for the region threaten the natural processes and ecological communities (e g , loss of native species [Haleakalā silversword, Hawaiian honeycreepers], proliferation of nonnative species [Monterey pine], changes in hydrologic regimes) • Noise and artificial light from nearby developments or activities in and near the park can detract from wilderness quality • External (but nearby) development including the new telescope being constructed in Science City—i e , these threaten the "undeveloped" quality • Air pollution and wildfire effects on scenery • Unauthorized actions by visitors such as off-trail travel, stacking of rocks, littering, and feeding of wildlife • Increasing visitation (if not appropriately managed) • Visitor use of technology may threaten solitude • Search and rescue efforts impact wilderness values These occur largely as a result of visitor unpreparedness for the weather conditions • Management actions that require walking off trail (e g , access to research stations) • In some areas, wilderness values are affected by park operations Management activities focused on protection and restoration of natural resources, such as the use of helicopters to transport staff, materials, and monitoring equipment, require some disturbance in or near wilderness These activities improve the natural quality but also affect other qualities of wilderness character (undeveloped, untrammeled, and opportunities for solitude or primitive and unconfined recreation) • Fencing needed to control invasive species at areas such as Kaupō Gap, Halemau Trail, Koalau Gap affects wilderness values (untrammeled, undeveloped qualities).

Fundamental Resource or Value	Wilderness
Opportunities	• Install fencing away from wilderness • Better education and messaging to visitors (e g , sound impacts from MP3 players and other devices) • More backcountry patrols/rangers (currently constrained by funding) Prepare for future staffing opportunities by identifying future needs • Complete a wilderness stewardship plan, which will include specific guidance for commercial service operators • Expand wilderness area Fifty-one acres of potential wilderness have been identified
Existing Data and Plans Related to the FRV	• Internal draft wilderness character narrative • Haleakalā has one of the most extensive acoustical monitoring datasets in the National Park Service system, both in terms of visitor experience and ambient monitoring, in the "Haleakalā National Park Acoustical Monitoring Report" (2012) • Night sky baseline inventory (ongoing) • Scenic resource inventory • Air resource condition benchmarks • Data on the effects of overflights and air tours • Conditions and on-site monitoring of air quality related values
Data and/or GIS Needs	• Scenic resource inventory • Air quality monitoring • Visitor use studies • High resolution aerial/satellite imagery of the wilderness to provide visual baseline data and analysis of change over time
Planning Needs	• Wilderness stewardship plan (with extent necessary determination and guidance related to commercial services in wilderness) • Resource stewardship strategy • Air tour management plan (on hold)
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Wilderness Act, 1964 • Clean Air Act • Secretarial Order 3289, "Addressing the impacts of Climate Change on America's Water, Land, and other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 6) "Wilderness Preservation and Management" • Director's Order 41: *Wilderness Stewardship* • NPS *Reference Manual 41: Wilderness Stewardship* • NPS *Keeping It Wild in the National Park Service User Guide*



Fundamental Resource or Value	Ongoing Connections to Living Hawaiian Culture
Related Significance Statements	4 Cultural Significance
Current Conditions and Trends	**Conditions** • Connections between the land and the living Hawaiian culture continue to exist There are tangible and intangible connections, which are described in legend and stories • Native Hawaiians are provided opportunities to use the park lands for cultural purposes Gathering of herbs and plants is prohibited, except as part of a resource management program • Kupuna groups are consulted in decision-making processes • Pursuant to a general agreement with the government, the Kīpahulu O'hana continues to operate a farm on park land using traditional practices • Cultural demonstrations occur periodically in the park • The lack of a plan to connect the Hawaiian people to the park keeps this connection from being at the forefront of decision making and planning • In accordance with NPS policies and applicable laws and regulations (e g , Native American Graves Protection and Repatriation Act, American Indian Religious Freedom Act), the National Park Service supports and respects the rights of Hawaiians to access particular places (e g , cemeteries) and resources in the park having long-standing cultural associations and connections Park staff protects Hawaiian precontact and post-contact burial remains existing in the park **Trends** • In recent years, there has been resurgence in interest in Hawaiian cultural traditions The resurgence is not necessarily led by Hawaiians themselves It's a complex issue that Haleakalā National Park management recognizes and supports For example, the park is reaching out to the local community to employ more Native Hawaiians • Haleakalā National Park is making progress; the trend is toward being inclusive of Hawaiian culture The new park brochure, which was published in in both Hawaiian and English, is one example • Park management has worked to maintain better opportunities to foster connections to living Hawaiian culture; however, certain constraints such as federal rules and law limit the ability to accomplish these goals Some examples of constraints include federal hiring rules as well as rules on traditional cultural use by Native Hawaiians, which are not formalized • Although the park employs Native Hawaiians on staff, Hawaiian personnel are underrepresented in decision making related to park management
Threats	• Many older Native Hawaiian park employees will be retiring soon; a threat is not having a succession plan for key positions and for losing institutional knowledge of Hawaiian customs • The federal agency rules and system is a continued threat to creating connections to living Hawaiian culture Changes in management could also change whether fostering connections to living Hawaiian culture is a priority • Change to watersheds is another threat to the park's connections to living Hawaiian culture Invasive species and extraction can change watersheds, and also have additional impacts on cultural practices • Native Hawaiian culture is defined by Native Hawaiian resources Loss of Native Hawaiian resources results in a loss of Hawaiian culture

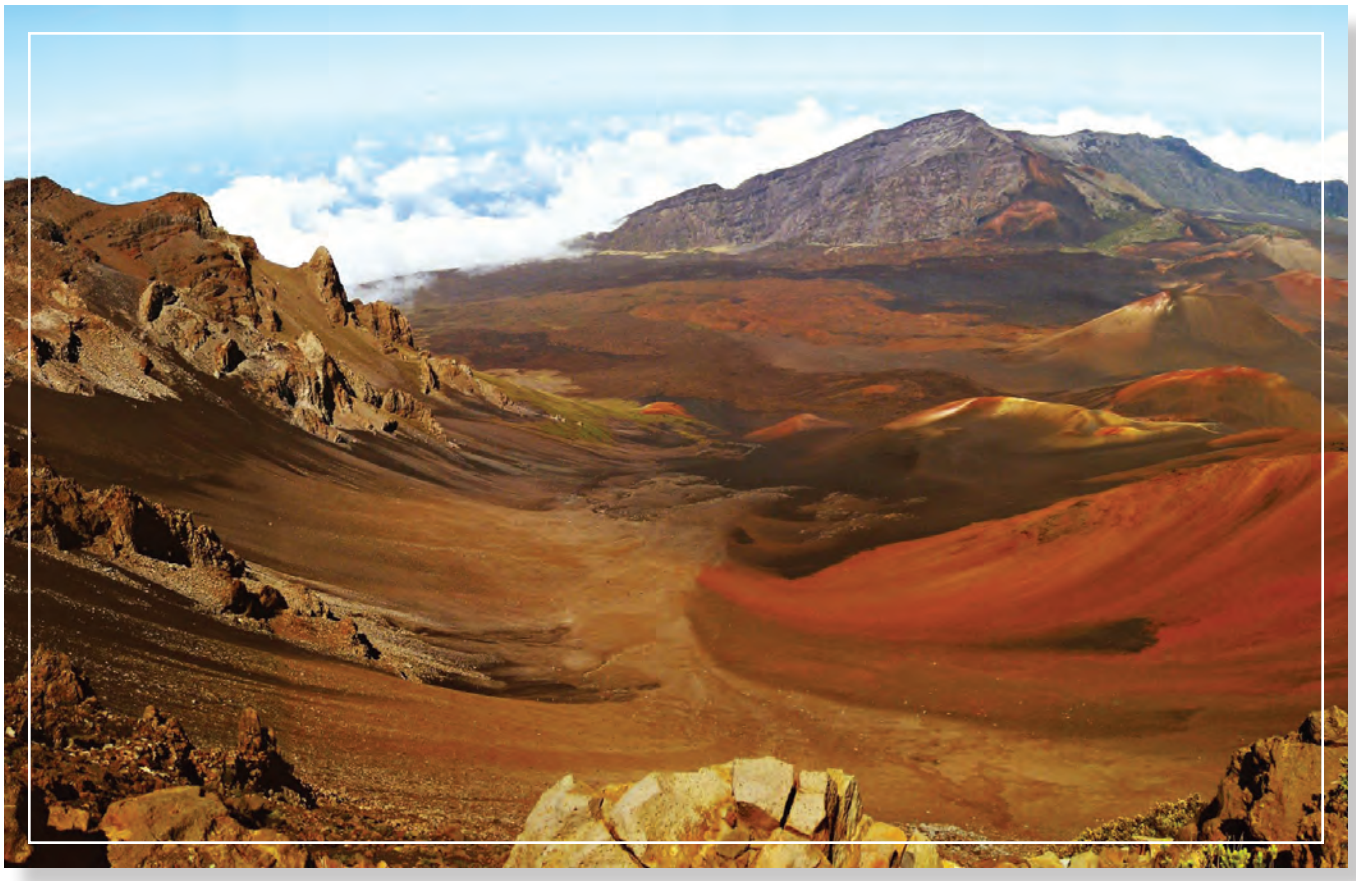
Fundamental Resource or Value	Ongoing Connections to Living Hawaiian Culture
Opportunities	• Hawaiian interns, outreach programs • Educational programs, expanding to schools and communities • Additional cultural demonstration programs • Translate film other demonstrations to Hawaiian • Consider strategies to make consultations more beneficial • Continue offering cultural sensitivity training, language training to park staff, encourage park staff to participate in consultation and meetings with Kupuna groups • Management decisions incorporate modern and traditional living Hawaiian culture • Management decisions take into account and are informed by the ʻAha Moku System
Existing Data and Plans Related to the FRV	• "An Ethnographic Study of the Cultural Impacts of Commercial Air Tours Over Haleakalā National Park, Island of Maui" (2008)
Data and/or GIS Needs	• Determinations of eligibility for the National Register of Historic Places for Kaʻāpahu and Nuʻu • Determinations of eligibility for the National Register of Historic Places for the Summit area and Kīpahulu • Historic resource study updates
Planning Needs	• Kīpahulu comprehensive site plan • Management plan for southern lands (Nuʻu, Kaʻāpahu and Puhilele) • Position and staffing management plan • Education plan for visitor service providers
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Curation of Federally-Owned and Administered Archeological Collections" (36 CFR 79) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (1 6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (2 3 1 4) "Science and Scholarship" • NPS *Management Policies 2006* (4 1) "General Management Concepts" • NPS *Management Policies 2006* (4 1 4) "Partnerships" • NPS *Management Policies 2006* (4 2) "Studies and Collections" • NPS *Management Policies 2006* (5 1) "Research" • NPS *Management Policies 2006* (8 10) "Natural and Cultural Studies, Research, and Collection Activities" • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management*



Fundamental Resource or Value	Outstanding Geological Resources, Including the Haleakalā Volcano and Crater
Related Significance Statements	7 Haleakalā Volcano 1 Diverse Landscapes and Biodiversity 8 Dark Night Skies 5 Exceptional Scenery
Current Conditions and Trends	**Conditions** • Generally, geological resources are assumed to be stable, except where impacted by natural processes such as erosion and mass wasting (which may be accelerated by past or present human land uses and other activities) or by inappropriate visitor activities such as graffiti • Haleakalā Volcano, the park's primary geologic feature, is considered potentially active, having erupted frequently during the past thousands of years Haleakalā National Park contains the only potentially active Hawaiian volcano not on the Island of Hawaii • The park's highest point is the Pu'u'ula'ula summit atop Haleakalā Volcano with an elevation of 10,023 feet (3,055 meters) • At the volcano's summit is a large erosional depression, more than 2,625 feet (800 meters) deep and approximately three to six miles wide The "crater" is one of the largest erosional depressions on Earth (The label "crater" is a misnomer because the feature formed via the erosion of two large drainages: Ke'anae and Kaupō valleys, which eventually merged through the Ko'olau and Kaupō gaps) • The bottom of this enormous depression is covered by young lava flows and pyroclastic cones—major scenic features of the park • Rocks within the Haleakalā Volcano record a nearly complete sequence of Hawaiian volcanic evolution • Lava exposed on Haleakalā Volcano includes lower viscosity "ropy flows" (pāhoehoe) and the higher viscosity "rough and jagged flows" ('a'ā) • Haleakalā Volcano retains evidence of Pleistocene glaciation (the Hawaiian Islands contain the only high land areas in the Pacific basin that retain evidence of glaciation) • Two major valleys, Ke'anae to the north and Kīpahulu to the south, may have been shaped by glacial ice • Paleontological resources were found in Luamanu and Pukamoa lava tubes • There are at least 24 known lava tube caves in the park Current conditions or trends are unknown though assumed to be stable because of park policies that prohibit off-trail travel • Mass movement (landslides, rockfall, mud flows, or soil creep) and erosion are significant active geologic processes on Haleakalā Volcano Steep slopes are prone to mass wasting as a result of poorly consolidated rock, saturation and erosion **Trends** • Continued human-caused erosion (roads, off-trail travel, horse traffic, land practices outside the park that affect the park landscape) • Continued water damage to geologic features as result of rain and runoff • Continued natural processes such as erosion and mass wasting (in some instances accelerated due to past or nearby land use practices—see Threats)

Fundamental Resource or Value	Outstanding Geological Resources, Including the Haleakalā Volcano and Crater
Threats	• Unauthorized cave entries threaten geologic resources and other natural resources • Graffiti on geologic features • Visitors building stone piles ("cairns") and "shrines " • Visitors traveling off-trail, especially in sensitive areas (can contribute to increased erosion) • Erosion and mass wasting are natural processes that shape the park's geologic resources However, these processes may be accelerated/exacerbated by past or present human activities and/or climate change Erosion (related to both wind and water)—much of it human caused—is a significant resource management issue at the park • On the windward, moisture-laden side of the island, flowing water is the erosive force Erosion there has been exacerbated by anthropogenic changes to the landscape, including introduction of feral ungulates and invasive plant species • Wind erosion transports fine-grained sediment to park lands Erosion can also lead to increased sedimentation and turbidity within the offshore submarine environment, harming marine resources such as coral reefs (coral resources are not a park resource, but their protection is nonetheless important) Geology-Related Threats to Park Infrastructure and Visitor Safety • Steep slopes within the park are prone to mass wasting—the dislodging and downslope movement of soil and rock material This natural process may be accelerated by human activities At Haleakalā National Park, mass wasting is manifested as landslides, mud flows, or soil creep These may affect views (including geological resources) and impact park infrastructure • Mass movement and erosion can cause long-term maintenance problems and significant safety concerns Landslides and mud flows can block transportation corridors, damage park facilities, and injure visitors or staff • Although these are natural processes, volcanic activity (pyroclastic flows) and seismic activity (earthquakes) potentially could affect park resources and facilities The most recent volcanism of Haleakalā occurred roughly 400 years ago and volcanism occurs on an interval of 200–500 years • Seismic activity could cause ground shaking and geologic instability, resulting in damage to park facilities including buildings or roads • Tsunamis, high waves, and seasonal swells, and potential sea level rise threaten infrastructure near the coast and may cause coastline erosion The park boundary does not encompass a large area of coastline However, the Kīpahulu Visitor Center and other Kīpahulu facilities are located on the southeastern coast of Maui This area has been assessed by the US Geological Survey (USGS) to have an overall hazard assessment of 6 (high) at the low-lying embayed coasts found at the stream mouths in Maulili Bay At Ka'āpahu Bay, there exists a combination of moderately high ranking for high waves, erosion, sea level rise, and seismicity, and high threat due to tsunami, stream flooding, and storms
Opportunities	• Enhanced education of visitors about the impacts of off-trail travel • More documentation of condition of and resources in lava tubes • Paleontological inventory and monitoring • Continued interpretation of the park's geological resources, including the role that these resources play in supporting the park's ecosystems, creating its primary scenic resources, and influencing human history • Rocks within Haleakalā's volcano clearly record a nearly complete sequence of Hawaiian volcanic evolution, providing an opportunity to study the volcanic evolution of a

Fundamental Resource or Value	Outstanding Geological Resources, Including the Haleakalā Volcano and Crater
Existing Data and Plans Related to the FRV	• "Haleakalā National Park Geologic Resources Inventory Report" (2011), NPS Geologic Resources Division • "The Island of Maui Coastal Hazard Intensity Report," USGS (includes detailed coastal hazard maps for the southeastern coast of Maui and may assist in park management and issues of coastal hazards)
Data and/or GIS Needs	• Documentation of all caves including locations, survey data and maps, inventories of associated items found in caves, and other important basic information Note that a parkwide spatial database may help coalesce disconnected spatial elements • Monitor paleontological vital signs including erosion (geologic and climatic factors) • High resolution satellite imagery to help monitor erosion over time
Planning Needs	• A cave management plan would be useful as more caves and information on caves are discovered • Geological resource protection (or management) plan
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Federal Cave Resources Protection Act of 1988 • Paleontological Resources Preservation Act of 2009 • Coastal Zone Management Act • Geothermal Steam Act of 1970, with amendments (1988) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (4 6 1, 4 6 2, 4 6 4, 4 8 1 1, 4 8 2 1, 6 3 11 2) • NPS *Natural Resource Management Reference Manual 77*

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Fundamental Resource or Value	Archeological and Historic Resources Associated with Native Hawaiian Culture
Related Significance Statements	4 Cultural Significance
Current Conditions and Trends	*Note: that much of this information came from the park reviewed draft cultural resource condition assessment.* **Conditions** Archeological Sites • There are varying conditions for the sites Many sites are stable, but may not continue to be stable The cultural resource condition assessment notes differences in conditions • Knowledge about the inventoried resources is good Assessments have been completed, and all known sites are in the Archeological Sites Management Information System GIS databases are up to date Some areas, such as new lands have not been surveyed Archeological and historical archival research has been completed • The Haleakalā Wilderness is part of an historic district listed in the National Register of Historic Places in recognition of its significant archeological resources and historic sites Only 1% of park lands have been intensively surveyed • The park has a backlog of archeological materials that still need to be cleaned, conserved, studied, catalogued, and properly stored Only 291 of 891 items have been catalogued • Archeological records have been properly stored but not processed • Research results are shared with park staff as appropriate to protect resources • The park monitors site conditions, but generally has not worked on improving the condition of sites that have threats or disturbances • None of the 7,200 maintained archeological sites are identified in the Facility Management Software System • Hawaiians have little or no access to these sites for cultural practices Historic Sites • Varying About half of all historic structures are in good condition; however, this analysis does not parse out only those historic structures identified as fundamental resources • Most historic structures are on the List of Classified Structures and are updated regularly Several documents and plans provide documentation of park historic structures Most of the structures on the List of Classified Structures are in the Facility Management Software System • Limited physical examination documentation exists of historic structures to support treatment strategies • Few of the structures are documented in the National Register of Historic Places • Information and research is conveyed to park staff for resource protection and interpretive purposes • The summit of Haleakalā, including Kīpahulu Valley and Kaupō Gap, is also eligible for the national register as a traditional cultural property for its association with the cultural landscape of Maui and because of its known uses, oral history, *mele* (chants or poems), and legends It remains a source of traditional materials and sacred uses, and a place of profound spiritual power **Trends** Archeological Sites • Trends vary for the different sites Resource conditions tend to be worst where there is regular visitor use At some sites, the resources are intact Historic Sites • Trends vary for the different sites Heavy use of some historic structures causes wear; however, areas with high levels of use often receive needed funding for preservation

Fundamental Resource or Value	Archeological and Historic Resources Associated with Native Hawaiian Culture
Threats and Opportunities	**Threats** Archeological sites • The following factors present threats to the archeological resources to varying degrees: visitor use, invasive plant spread, and symptoms of climate change including storm surges and sea level rise Historic sites • The same threats that exist for archeological sites are also threats to historic structures, although invasive plants are not a great threat **Opportunities** Archeological sites • Removal of some threats from some areas, for example, fencing the Nu'u area would reduce visitor use impacts • Opportunities for education • There are opportunities to interpret the stories and possibly the sites • Opportunity to connect with the trend of Hawaiian culture resurgence for use and education • Opportunity to aid connection between resources and living culture Historic sites • Improve documentation of sites, including uploading documents to the Integrated Resource Management Applications system and completing National Register of Historic Places nomination forms • Evaluate undocumented historic structures
Existing Data and Plans Related to the FRV	Archeological sites • Cultural resources condition assessment (in progress) • Archeological overview and assessment for Haleakalā National Park (2007) • Archeological Sites Management Information System data • GIS database including surveys, reports, and sites • General management plan (1995) • National Register of Historic Places listings for 51 sites (of 145) • Commercial services plan and environmental assessment (2012) Historic sites • "Historic Resources Study for Hawai'i Volcanoes and Haleakalā National Parks: The Early Years (1916-1945)" (2002) • "Historic Resource Study of Kīpahulu Historic District, Haleakalā National Park" (1975) • The cultural landscape inventory for Haleakalā Highway provides some documentation of Mission 66 development in the park • Additional historical research is ongoing with the development of a special history study • Haleakala National Park cultural resource assessment (2014)
Data and/or GIS Needs	• Historic resource study update • Determinations of eligibility for the National Register of Historic Places for Ka'āpahu and Nu'u • Determinations of eligibility for the National Register of Historic Places for the Summit area and Kīpahulu • Climate change vulnerability assessment for select natural resources, cultural resources, and facilities (in support of scenario planning)

Fundamental Resource or Value	Archeological and Historic Resources Associated with Native Hawaiian Culture
Planning Needs	• Resource stewardship strategy • Management plan for southern lands (Nu'u, Ka'āpahu and Puhilele)
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Antiquities Act of 1906 • Historic Sites, Buildings, and Antiquities Act of 1935 • National Historic Preservation Act of 1966, as amended (16 USC 470) • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • Museum Act (16 USC 18f through 18f-3) • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Curation of Federally-Owned and Administered Archeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (chapter 5) "Cultural Resource Management" • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* (1998) • Director's Order 28A: *Archeology* (2004) • NPS *Museum Handbook*, parts I, II, and III • *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*

Fundamental Resource or Value	Native Hawaiian Biological Diversity
Related Significance Statements	1 Diverse Landscapes and Biodiversity 2 Native Hawaiian Ecosystems
Current Conditions and Trends	**Conditions** • The park encompasses numerous and varied ecosystems from sea level to the summit • Certain species that were on the brink of extinction, such as the Hawaiian petrel, have recovered because of management efforts • Each ecosystem has endemic threatened and endangered species • New species are still being discovered and described • Currently, the park conducts more management efforts than research • In the upper Kīpahulu Valley, areas above approximately 5,000 feet in elevation consist of largely intact native Hawaiian rainforest (i e , Kīpahulu Biological Reserve), a rare and precious ecosystem The Kīpahulu Biological Reserve supports endemic Hawaiian birds and vegetation This reserve is one of the primary ecological features of the park • The Kīpahulu Biological Reserve is closed to public access in order to protect its exceptional biodiversity Entry to the reserve is allowed only to resource managers and scientists who are conducting research and management essential to understanding and protecting this rare relict ecosystem • At elevations between approximately 3,000 and 5,000 feet, invasive species are encroaching into the biological reserve • Below approximately 3,000 feet the area is predominantly native canopy with an invasive understory Avian malaria is also present in rainforest birds at this elevation • Approximately 60 miles of fencing exist to keep large feral animals out of park boundaries **Trends** • Despite intensive management efforts, the park (including the Kīpahulu Biological Reserve) continues to face threats from encroaching invasive species Invasive species are continuing to gain elevation and spread • With increasing temperatures, mosquitoes will also continue to gain elevation • Climate change is impacting the Haleakalā silversword and many other species • New invasive species continue to become established in the park • There is noticeable recovery in areas where nonnative animals have been removed (e g , native vegetation is increasing and natural bird colonies are stabilizing) • Restoration activities occur in various areas of the park, specifically Kaupō, Haleakalā crater and Kīpahulu

Fundamental Resource or Value	Native Hawaiian Biological Diversity
Threats and Opportunities	**Threats** • Invasive, nonnative species continue to be a major threat to native flora and fauna, particularly in the upper Kipahulu Valley Nonnative species invasion may be exacerbated by natural processes Park management vigorously counteracts these threats by reinforcing fences, removing invasive plants, and controlling nonnative predators • The following factors present threats to biological diversity to varying degrees: nonnative animals, invasive species, and climate change • If not properly managed, increased visitation threatens vegetation (e g , visitors off trail), Hawaiian petrel burrows, and water quality (e g , sunscreen in pools) • Generally, visitors lack knowledge about the species that live in the park • Residents of Maui and tourists speed on park roads, which is a safety issue Some native wildlife are at risk of being killed by automobiles • Development and lack of management on areas outside the park serve as sources for nonnative and invasive species that threaten biodiversity • Climate change An increase in mean annual temperature, decrease in mean annual precipitation, increase in storm intensity and sea level rise projected for the region threaten the current biodiversity (e g , loss of native species [Haleakalā silversword, Hawaiian honeycreepers], proliferation of nonnative species [Monterey pine], changes in hydrologic regimes) **Opportunities** • The following are opportunities for interpretation, education, and outreach of the park's biological diversity: visitor center exhibits, school groups, interpretive programs, research and monitoring programs, community meetings • Resource management opportunities to protect biodiversity include research and monitoring programs, new techniques for controlling nonnative and invasive species • Acquiring annual or biannual high resolution satellite imagery of the park (including the biological reserve) could provide analysis with respect to change over time
Existing Data and Plans Related to the FRV	• General management plan / environmental impact statement (1995) • General management plan / environmental assessment amendment (2005) • Strategic plan (2012) • Fire management plan (1977, 2005) • US Fish and Wildlife Service biological opinion and informal consultation (2012) • Visitor study (2001, 2004) • Initial recommendations for Maui deer management (2002) • Superintendent's Compendium (2012) • Resource management plan (1999) • Internal park databases and reports on endangered wildlife species and nonnative predators (ongoing) • Seabird inventory (2009) • Ka'āpahu animal inventory (2007) • Information for programmatic section 7 consultation (2012)
Data and/or GIS Needs	• Climate change vulnerability assessment for select natural resources, cultural resources, and facilities (in support of scenario planning) • Data on species response to warmer climate and changing precipitation • Parkwide spatial database (may help coalesce data for analysis and future planning) • High resolution satellite imagery of the biological reserve and elsewhere in the park to help analyze change over time

Fundamental Resource or Value	Native Hawaiian Biological Diversity
Planning Needs	• Resource stewardship strategy • Cave management plan • Climate change scenario planning
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • National Environmental Policy Act of 1969 • Secretarial Order 3289 "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • NPS General Authorities Act • Endangered Species Act • Migratory Bird Treaty Act • Secretarial Order 3289, "Addressing the impacts of Climate Change on America's Water, Land, and other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • Director's Order 6: *Interpretation and Education* • Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* and *DO-12 Handbook* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 18: *Wildland Fire Management* • Director's Order 77: *Natural Resource Protection* • Director's Order 79: *Integrity of Scientific and Scholarly Activities* • NPS *Management Policies 2006* (4 4 1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (4 7 2) "Weather and Climate" • NPS *National Resource Management Reference Manual 77* • NPS *Wildland Fire Management Reference Manual 18*

Fundamental Resource or Value	Kuleana
Related Significance Statements	4 Cultural significance
Current Conditions and Trends	**Conditions** • Generally, among the public there is not as strong a sense of "responsibility" and respect for the land as the park would prefer Park management and interpretation aims to encourage and perpetuate this sense of responsibility • Some local residents (both adults and children) have not visited the park in a long time and therefore do not feel very connected to this park • Generally, there is a lack of understanding about how sacred and wild the park is • Local schools lack funding (for buses) to get schoolchildren to the park **Trends** • There is increasing staff awareness for the concept of kuleana and what it represents • The park is involving the local community, Kupuna, and next generation as stewards of Haleakalā National Park as demonstrated by an active youth internship program, outreach to public schools, and new volunteer opportunities for local residents • There is an overall increase in visitation, especially among international visitors, which makes delivering safety and interpretive messages challenging • Tour groups in Kīpahulu are participating in welcome ceremonies in partnership with park staff These types of activities introduce visitors to the concept of kuleana and reinforce their own responsibility for the park
Threats and Opportunities	**Threats** • Some visitors come to the park and are more interested in recreation than education • There are threats to resource protection including pets being brought to the park and endangering species, traveling off-trail introducing invasive species, and increased amounts of litter, human waste, and graffiti These types of activities and behaviors do not reflect kuleana • Turnover of park personnel presents challenges to relaying the true message of kuleana to park staff Kuleana is a concept learned after living and working with the Native Hawaiian culture for a significant amount of time It may be difficult to grasp **Opportunities** • The following opportunities exist for visitors to better understand the concept of kuleana: the revised park unigrid brochure (published in English and Hawaiian), stewardship opportunities (e g , new delivery methods to get children involved in connecting to the land), educational programs (e g , teacher workshops), new visitor center exhibits, local Hawaiians sharing their culture and instilling their values, and reaching out to rental car companies about "Slow down for nene" and "Save the nene" pledges
Existing Data and Plans Related to the FRV	• "An Ethnographic Study of the Cultural Impacts of Commercial Air Tours Over Haleakalā National Park, Island of Maui" (2008) • General management plan / environmental impact statement (1995) • General management plan / environmental assessment amendment (2005) • Strategic plan (2012) • Visitor study (2001, 2004) • Superintendent's Compendium (2012) • Long-range interpretive plan (2003) • Kīpahulu comprehensive site plan (ongoing) • Design guidelines for the Kīpahulu District - 'Ohe'o (2001) • Updated Hawaiian language park brochure (2014)
Data and/or GIS Needs	• Visitor use surveys

Fundamental Resource or Value	Kuleana
Planning Needs	• Multidisciplinary plan for outreach • Education plan for visitor service providers
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Curation of Federally-Owned and Administered Archeological Collections" (36 CFR 79) • Secretarial Order 3289 "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (1 6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (2 3 1 4) "Science and Scholarship" • NPS *Management Policies 2006* (4 1) "General Management Concepts" • NPS *Management Policies 2006* (4 1 4) "Partnerships" • NPS *Management Policies 2006* (4 2) "Studies and Collections" • NPS *Management Policies 2006* (5 1) "Research" • NPS *Management Policies 2006* (8 10) "Natural and Cultural Studies, Research, and Collection Activities" • Director's Order 6: *Interpretation and Education* • Director's Order 14: *Resource Damage Assessment and Restoration* • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • Director's Order 77: *Natural Resource Protection* • Director's Order 79: *Integrity of Scientific and Scholarly Activities* • NPS *Management Policies 2006* (4 4 1) "General Principles for Managing Biological Resources" • NPS *Management Policies 2006* (4 7 2) "Weather and Climate" • NPS *National Resource Management Reference Manual 77*

Fundamental Resource or Value	Museum Archive and Collections
Related Significance Statements	1 Diverse Landscapes and Biodiversity 2 Native Hawaiian Ecosystems 4 Cultural Significance
Current Conditions and Trends	**Conditions** • The collections are in good condition • Knowledge about the collections is good based on fairly recent plans and inventories completed The park has met planning requirements for the collection, although some plans are outdated • Assemblages are assessed against the scope of collections during accessioning • Only 3% of objects have been catalogued • The archives are not processed and catalogued • Many components of the museum management plan were implemented with construction of the new museum building The new museum building has made collections more accessible to staff Research results are distributed as necessary to park staff • The park does not have a curator or archivist on staff • Maintenance and reporting practices follow NPS standards • Some of the collection is on display in the visitor center • Some natural history specimens are in other museums, particularly the Bishop Museum, and at universities **Trends** • Conditions for the collections have improved greatly since moving to the museum building, which was opened in 2012 Collections are now stored in a stable environmental condition in the museum building • The collection is growing; in particular, additional Hawaiian research has been added • Some families of *paniolos* (cowboys) and retired NPS employees have donated collections • The park has been raising awareness about the collection, sharing information from the collection, and providing education on the collection • More of the collection has been digitized and/or been made available via the Internet • The National Park Service instituted a new central file system in 2013
Threats and Opportunities	**Threats** • Use provides opportunities but also can cause deterioration The park is implementing ways to balance access and preservation • The new system will be in compliance with the most recent NPS guidance on central files in parks However, it will take time to address the following issues: The park's central files have not been maintained or updated for four to five years and are not current Many administrative and archival documents exist on employees' hard drives and are both inaccessible to the rest of the park and also vulnerable to loss **Opportunities** • Additional scientific research on extinct species, now that the collections are consolidated in one place at the museum • Encourage greater research and understanding • Additional digitization of records • A learning opportunity for interns and school groups • Inspirational for artists • Potential to acquire additional items • Collaborate with other parks or the regional office to perform curatorial and archival work

Fundamental Resource or Value	Museum Archive and Collections
Existing Data and Plans Related to the FRV	• Museum management plan (2004) • Scope of collections statement • Cultural resources condition assessment (in progress) • NPS policy of park central files
Data and/or GIS Needs	• Historic resource study update
Planning Needs	• Resource stewardship strategy • Museum management plan update • Records management plan
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	**Laws, Executive Orders, and Regulations That Apply to the FRV** • National Historic Preservation Act of 1966, as amended (16 USC 470) • Antiquities Act of 1906 • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • Historic Sites, Buildings, and Antiquities Act of 1935 • Museum Act of 1955, as amended • Paleontological Resources Protection Act • Lacey Act, as amended • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • "Curation of Federally-Owned and Administered Archeological Collections" (36 CFR 79) **NPS Policy-level Guidance (NPS *Management Policies 2006* and Director's Orders)** • NPS *Management Policies 2006* (1 6) "Cooperative Conservation Beyond Park Boundaries" • NPS *Management Policies 2006* (2 3 1 4) "Science and Scholarship" • NPS *Management Policies 2006* (4 1) "General Management Concepts" • NPS *Management Policies 2006* (4 1 4) "Partnerships" • NPS *Management Policies 2006* (4 2) "Studies and Collections" • NPS *Management Policies 2006* (4 7 2) "Weather and Climate" • NPS *Management Policies 2006* (5 1) "Research" • NPS *Management Policies 2006* (8 10) "Natural and Cultural Studies, Research, and Collection Activities" • Director's Order 24: *NPS Museum Collections Management* • Director's Order 28: *Cultural Resource Management* • NPS *Museum Handbook*, parts I, II, and III

Appendix C: Inventory of Administrative Commitments

Name	Agreement Type	Start Date	Expiration Date	Stakeholders	Purpose	Notes
Memorandums of Understanding (MOU)						
MOU partnership agreement for the East Maui Watershed Partnership		1991		NPS, Hawai'i Department of Land and Natural Resources, County of Maui, The Nature Conservancy, East Maui Irrigation Company, Haleakala Ranch and Hana Ranch	To protect watershed resources and native ecosystems	
Interagency Agreements (IA)						
Mutual assistance agreement with Maui County		2015		Maui County	For emergency services in case of fire, accidents, and criminal activity	
Cooperative Agreements						
Hawai'i Pacific Parks Association agreement	Cooperating association agreement	2010	2015	Hawai'i Pacific Parks Association	To sell interpretive materials and conduct interpretive programs in the park	The National Park Service has entered into a series of agreements with the Hawai'i Pacific Parks Association, a private nonprofit organization
Hawai'i Pacific Parks Association agreement	Cooperating association agreement	1999		Hawai'i Pacific Parks Association (formerly Hawai'i National History Association)	To provide facilities and cooperating services for the production and sale of materials of interpretive, educational, and thematic value, and for presenting approved programs	

Name	Agreement Type	Start Date	Expiration Date	Stakeholders	Purpose	Notes
Hawai'i Pacific Parks Association agreement	Supplemental agreement	1996		Hawai'i National History Association	To assist Haleakalā National Park in providing interpretive services, programs, and activities	
Hawai'i Pacific Parks Association agreement	Supplemental agreement	2000		Hawai'i National History Association	To provide fundraising activities for development of a secondary school environmental education curriculum	
General Agreements						
Kīpahulu Ohana agreement	Agreement	2012	2015	Kīpahulu Ohana	The agreement authorizes a private nonprofit organization with expertise in Native Hawaiian cultural demonstrations and traditional Native Hawaiian agriculture and aquaculture practices to provide living exhibits and interpretive programs at the Kapahu Farm	The National Park Service has entered into a series of agreements, the most recent of which is for the term 2012–2015 with the Kīpahulu 'Ohana to provide these services

Name	Agreement Type	Start Date	Expiration Date	Stakeholders	Purpose	Notes
Special Park Uses						
Special Use Permits	Special Use Permits	Varies	Varies	Individuals, groups, or organizations	To authorize activities that benefit an individual, group, or organization, rather than the public at large, and that require written authorization and management control in order to protect park resources and the public interest	Examples include weddings, scattering of ashes, commercial filming and/or photography, First Amendment activities, athletic and other special events, collecting resource materials, and commercial vehicle access to "Science City"
Commercial Services						
Hawai'i Pacific Parks Association concession contract	Concession contract	1/1/2006	12/31/2015	Hawai'i Pacific Parks Association	To sell convenience items for the benefit of the visitor	
Commercial use	Commercial use authorizations	Varies	Varies	Businesses	Businesses desiring to conduct visitor service related operations inside Haleakala National Park must obtain a commercial use authorization to manage commercial activities to ensure that they do not impair park resources and provide for quality visitor services	
Other Agreements - The park retains numerous other written and verbal agreements such as rights-of-way and easements that traverse park lands and provide rights of access for utilities, fire suppression and emergency services, public works, control of invasive species, and other purposes						

Appendix D: Operational Efforts That Will Address Key Park Issues

Education Plan for Visitor Service Providers – The Haleakalā commercial services plan requires park staff to implement a program of training and certification for tour guides and other commercial service provider staff. This effort would be intended to ensure that patrons have high-quality experiences, including messages that are consistent with the park's purpose and NPS philosophies.

Position and Staffing Management Planning – Flat or declining NPS budgets combined with staffing limitations create challenges in supporting the park mission. Additionally, high staff turnover leads to low morale, inefficiencies, unsafe work practices, and a loss of institutional knowledge. Position and staffing management planning will provide direction in meeting current and future staffing needs at Haleakalā National Park.

Emergency Response Scenario Planning and Risk Assessment – Conditions at Haleakalā National Park can create dangerous situations that require prompt emergency response. One such example is the flash floods that impact the Kīpahulu District and visitors to the ʻOheʻo Pools. Additional challenges to emergency response at Haleakalā National Park include limited access routes and periods of high visitor congestion. Actions taken in the initial minutes of an emergency are critical. Emergency response planning and risk assessment can aid Haleakalā National Park better plan for the safety of employees and the general public. Emergency response scenario planning and risk assessment will aid in planning for safety and emergency response.

Law Enforcement Assessments – Law enforcement assessments will be completed as required to ensure that law enforcement staffing, training, and operations adequately meet visitor and resource protection goals.

Appendix E: Past and Ongoing Park Planning and Data Collection Efforts

Plan/Data	Date	Notes
Administrative History (1972 Park, 2005 Summit Area)	1972	
Alternative Transportation System Study	2001	
Archeological Reconnaissance Surveys	1975	
Archeological Survey Plan	2000, 1994	
Biological Opinion, United States Fish and Wildlife Service	2012	
Collection Management Plan	1989	
Commercial Services Plan	2014	
Cultural Landscape Inventory Civilian Conservation Corps Trails	2009	
Cultural Landscape Inventory Haleakalā Highway	2008	
Design Guidelines for Kāpahulu District/ʻOʻheo	2001	
Development Concept Plan	1977	
Ethnographic Overview and Study of Cultural Impacts of Commercial Air Tours	2008	
Fire Management Plan	2005	
General Management Plan	1995	
General Management Plan Amendment (Final Draft)	2005	Plan halted before being released for public comment
Historic Resource Study of Kāpahulu Historic District	1975	
Initial Recommendations for Maui Deer Management Plan	2002	
Land Protection Plan	1986	
Long-Range Interpretive Plan	2003	
Museum Management Plan	2004	
Preliminary Cultural Resource Inventory	1976	
Resource Management Plan	1999	
Road Inventory (Cycle 3)	2006	
Road Inventory and Needs Study	1980	A road inventory program assessment and bridge assessment is performed by the Federal Highway Administration either annually or biannually
Statement for Management	1997	
Strategic Plan	2012	
Trail Inventory	2011	
Transportation Management Plan	2005	Remains in draft form
Value Analysis – Construct Wastewater System	1995	
Visitor Study	2004 (2001)	
Water System Improvement Alternatives	1998	

Pacific West Region Foundation Document Recommendation
Haleakalā National Park

September 2015

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Pacific West Regional Director

September 14, 2015

RECOMMENDED
Natalie Gates, Superintendent, Haleakalā National Park **Date**

September 21, 2015

APPROVED
For Martha J Lee, Acting Regional Director, Pacific West Region **Date**

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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