



Alternatives ∞



Siloama Church. NPS Photo.

The National Environmental Policy Act of 1969 (NEPA) requires that alternative management scenarios be developed for federal actions. This general management plan explores a range of ideas, methods, and concepts for managing Kalaupapa NHP. All alternatives should be feasible for implementation. In addition, regulations require that the plan identify a “preferred alternative” before the draft general management plan and the environmental impact statement is released for public review. The preferred alternative is the alternative the National Park Service believes would best accomplish its goals, based on the analyses conducted.

Development of these alternatives was based on information about Kalaupapa National Historical Park’s resources, visitor use, and visitor preferences gathered from National Park Service information, the public, government agencies, and stakeholder groups. Each of these alternatives would support Kalaupapa NHP’s purpose and significance, address uses of concern, avoid unacceptable resource impacts, and respond to differing wishes or concerns. The concepts and subsequent actions for each alternative comply with NPS park planning requirements and were evaluated to ensure consistency with current laws, regulations, and policies.

This chapter contains several parts:

- description of the four management zones for the action alternatives
- description of elements that are common to all alternatives
- description of alternatives A, B, C, and D including:
 - alternative concept
 - desired conditions
 - estimated costs
 - boundary modifications
 - user capacity prescriptions
- other actions and alternatives considered but dismissed from detailed consideration
- environmentally preferred alternative
- summary table detailing all components of the alternatives
- summary of impacts, see “Chapter 6: Environmental Consequences” for details

In many cases, decisions or other discussions contained in this general management plan/environmental impact statement (GMP/EIS) refer directly to maps

and figures; many decisions themselves are “map-based.” The reader must rely on the text, maps, and figures taken together to fully understand the range of alternatives described in this draft GMP/EIS.

Four alternatives are described in this draft GMP. Each alternative has a different overarching concept, application of management zones on the landscape (except for alternative A), series of actions, and associated costs. The four alternatives are characterized as follows:

Alternative A is the no-action alternative and assumes that programming, facilities, staffing, and funding would generally continue at their current levels to protect the values of Kalaupapa NHP in the near term. The NPS would continue to manage Kalaupapa NHP through cooperative agreements with agencies and organizations and the lease with the Department of Hawaiian Homelands (DHHL). Alternative A does not provide long-term guidance for park management after the Department of Health (DOH) departs Kalaupapa.

Alternative B focuses on maintaining Kalaupapa’s spirit and character by limiting visitation to the park. The goal for this alternative would be similar to alternative A, but would provide future guidance for managing Kalaupapa once the DOH leaves. Alternative B would maintain most of the rules and regulations that currently exist, including the limits of visitation of 100 people per day and age restrictions. Visitor use at Kalaupapa would be highly structured, though limited opportunities would exist for public visitation. The NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations.



Kalawao, late 1800s. Photo courtesy of Bishop Museum.

Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa's lands in collaboration with the park's many partners. Kalaupapa's diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. Through hands-on stewardship activities, service, and volunteer work, groups would have meaningful learning experiences, while contributing to the long-term preservation of Kalaupapa's resources. Visitation by the general public would be supported, provided, and integrated into park management. Visitor regulations would change in the long-term, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap while continuing to limit the number of visitors per day through new mechanisms.

Alternative D focuses on personal connections to Kalaupapa through visitation by the general public. Resources would be managed for long-term preservation through NPS-led programs. This alternative focuses on learning about Kalaupapa's people and history through direct experience, exploration, and immersion in the historic setting. This alternative offers visitors the greatest opportunities in the park and to explore areas of Kalaupapa on their own. Visitor regulations would change, including allowing children to visit Kalaupapa under adult supervision and removing the 100 person per day visitor cap, while continuing to limit the number of visitors per day through new mechanisms.

Identification of the Preferred Alternative

The preferred alternative is the alternative the NPS and State of Hawai'i agency partners deemed at this time to be most capable of fulfilling Kalaupapa NHP's mission and responsibilities. The planning team identified the preferred alternative through a week-long workshop in October 2011. The preferred alternative was identified following an initial assessment of the impacts of the alternatives. The public's ideas, preferences, and reasoning greatly assisted the NPS in identifying the preferred alternative.

A logical and trackable decision-making process was used to analyze and compare the relative advantages, impacts, and costs of each alternative. The preferred alternative was identified because it: 1) preserves resources and promotes long-term stewardship of Kalaupapa, 2) provides a range of high quality visitor experiences, 3) preserves the character, sacredness, and values of Kalaupapa, and 4) provides for cost efficient and sustainable facilities and operations.

Management Zones

Management zones define specific desired conditions and management approaches to be achieved and maintained in each area of Kalaupapa NHP. Each zone includes the types of activities and facilities that are appropriate in that management zone. For Kalaupapa NHP, four management zones have been developed. These zones include:

- Integrated Resource Management Zone
- Engagement Zone
- Operations Zone
- Wao akua (Upland Forests) Zone

These zones form the basis of the plan's alternatives and are applied to different areas of Kalaupapa NHP in each action alternative (alternatives B, C, and D). For alternative A, the no-action alternative, a management zoning scheme has not been completed, as the park currently operates without management zones to guide desired conditions in areas of the park. For alternatives B, C, and D, management zone boundaries were assigned according to the overall concept of each alternative.

It is important to note that some actions in the management zones, particularly related to visitation and use, would only be implemented after the DOH leaves Kalaupapa.

The management zones and prescriptions for Kalaupapa NHP are presented in Table 3.1. A zone concept, desired resource conditions, visitor use and experience, and facilities are described for each management zone. The zones are included in the maps for alternatives B, C, and D.

Table 3.1: Management Zones

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
<p>Zone Concept Summary</p>	<p><i>This zone emphasizes the interconnectedness of nature and culture that is evident in people's connection with the 'āina at Kalaupapa.</i></p> <p>This is the most widely used zone applied to each of the alternatives.</p> <p>Natural and cultural resources would be managed in an integrated fashion for protection and restoration of native vegetation communities, wildlife habitat, and marine resources.</p> <p>Significant cultural resources would be preserved to perpetuate their historic, natural, and scenic character and for their interpretive and research values and traditional cultural activities.</p> <p>There would be opportunities to understand the significance of Kalaupapa's resources through a range of methods that would be complementary to the landscape. Access would be by escort and through a special use permit only to allow for inventorying, monitoring, and other research and protection activities.</p> <p>Facilities would be minimal and only allowed in support of resource protection, visitor use, and visitor safety. Facilities could include trails, unimproved roads, and fencing.</p> <p><i>Areas zoned integrated resource management include:</i></p> <ul style="list-style-type: none"> • Makanalua Peninsula • Coastal and ocean areas, offshore islets • Kauhakō Crater • Cemeteries • Portions of Kalawao • Portions of Waikolu Valley • Pu'u Ali'i Natural Area Reserve 	<p><i>The emphasis of this zone would be to provide opportunities for visitors to engage, learn about, and experience Kalaupapa.</i></p> <p>Cultural resources would be preserved to tell Kalaupapa's stories.</p> <p>Visitors would learn about the significance of Kalaupapa's natural and cultural resources. Opportunities would include guided and self-guided tours, an orientation film, cultural demonstrations, interpretive and stewardship programs, and spiritual reflection, so long as resources would not be degraded. Escorted and unescorted visitor access would be allowed in this zone.</p> <p>Some historic structures would be rehabilitated for visitor services. Facilities could include a visitor center, waysides and kiosks, trails, roads, picnic, group use areas, lodging, and food service. Universal access opportunities would be provided.</p> <p><i>Areas that are zoned engagement include:</i></p> <ul style="list-style-type: none"> • Kalaupapa Settlement • Pali trail • Road corridors to the airport, light station, portions of Kauhakō Crater, and Kalawao • Portions of Kalawao • Portions of Waikolu Valley 	<p><i>This zone would consist mainly of operation and maintenance facilities for the park and its partners.</i></p> <p>Historic buildings and structures would be preserved to tell Kalaupapa's stories. Some would be rehabilitated for operations.</p> <p>Intact natural resources and processes would be preserved. Resources may be further altered in previously disturbed areas to allow for operations.</p> <p>Visitor access would be controlled in certain locations and would generally be by escort only. Visitor experience may be restricted due to safety and residents' privacy concerns.</p> <p>Facilities in this zone include buildings, structures, utilities, and transportation facilities for operations. Facilities could include the airport, harbor and pier, roads and parking, administrative offices, staff housing, maintenance facilities, warehouses and garages, utilities, and the DOH care facility (future use to be determined). Both motorized and non-motorized access would continue in this zone. Universal access opportunities would be provided.</p> <p><i>Areas that are zoned operations include:</i></p> <ul style="list-style-type: none"> • Settlement facility areas, housing • Airport • Well and water tanks and access road • Composting and Recycling areas 	<p><i>This zone is based on the native Hawaiian land classification called "wao akua" (place of the spirits). These upland forests would be managed for their sacredness and natural features.</i></p> <p>This zone includes the upland forests and generally follows the portion of the North Shore Cliffs National Natural Landmark within the park boundary. This zone would be managed primarily for its natural values.</p> <p>Natural resources would be preserved or restored where practical to allow native ecosystems to persist. Within this zone, the natural landscape is also the cultural landscape. Significant cultural landscape features would be preserved alongside natural features.</p> <p>Access would be difficult due to steep slopes. Access would be restricted for safety and would occur infrequently. Activities could include traditional practices and research.</p> <p><i>Areas that are zoned wao akua include:</i></p> <ul style="list-style-type: none"> • The portion of the North Shore Cliffs National Natural Landmark within the park boundary following the 500 foot contour, but excluding the Pu'u Ali'i Natural Area Reserve.

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Cultural Resources: Cultural Landscapes	<p>Kalaupapa’s cultural landscapes would be preserved to perpetuate their historic, natural, and scenic character and values.</p> <p>The NPS would enhance the interpretative environment and historic character of the cultural landscape by selective reconstruction of non-extant features</p>	<p>Cultural landscapes would be actively preserved or reestablished to tell Kalaupapa’s stories.</p> <p>Elements/features could be adapted for visitor use, administrative purposes, safety, and resource protection where compatible with the character defining features of the cultural landscape. Introduced features would not alter the character of Kalaupapa’s cultural landscapes.</p> <p>NPS activities in the cultural landscape would serve to enhance interpretation.</p> <p>Traditional cultural practices would be incorporated in resource management activities to maintain cultural landscape elements.</p>	<p>Cultural landscapes would be preserved but could be adaptively re-used for park operations.</p> <p>Historic patterns of use in the cultural landscape would be retained while allowing operations to continue. Any introduced features would be sited and designed to be compatible with the character of Kalaupapa’s cultural landscapes.</p> <p>Elements/features could also be adapted for visitor use, safety, and resource protection where compatible with the character defining features of the cultural landscape.</p>	<p>These areas would be preserved for their scenery which contributes to the cultural landscape. Within this zone, the natural landscape is also the cultural landscape.</p> <p>Significant cultural landscape features, if present in this zone, would be preserved to perpetuate their historic, natural, and scenic character and values while allowing for natural resource objectives.</p> <p>No adaptive re-use of cultural landscape features would occur in this zone.</p> <p>There would be minimal introduced features, and only for resource protection.</p>
Cultural Resources: Historic Buildings and Structures	<p>Historic buildings and structures would be preserved through a range of treatments, including preservation and rehabilitation.</p>	<p>Historic buildings and structures would be preserved through a range of treatments, including preservation and rehabilitation.</p> <p>Many historic structures could be rehabilitated and used as interpretive exhibits and to serve operational and visitor needs, such as food service and potential lodging.</p>	<p>Historic buildings and structures would be preserved through a range of treatments, including preservation and rehabilitation.</p> <p>Some historic structures could be rehabilitated and used to serve operational needs.</p>	<p>If historic buildings and structures are present, they would be preserved using a variety of treatments, including preservation and rehabilitation.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Cultural Resources: Archeology	<p>Inventorying, monitoring and research of archeological sites would continue.</p> <p>Opportunities for interpretation and cooperation with traditionally associated peoples may be developed.</p>	<p>Archeological sites would be protected while allowing interpretation of appropriate resources.</p> <p>Documentation and stabilization would support effective interpretation.</p> <p>Opportunities for interpretation and cooperation with traditionally associated peoples may be developed. Service groups could assist with preservation projects.</p>	<p>Operations activities would not impede preservation of archeological resources.</p> <p>Monitoring and documentation of archeological resources would continue.</p>	<p>Emphasis would be on preservation treatments and research.</p> <p>Stabilization and monitoring of archeological sites would continue.</p>
Natural Resources: Vegetation and Wildlife	<p>Native plant communities and wildlife habitat would be preserved and promoted to the greatest extent possible.</p> <p>Invasive nonnative species would be removed to preserve native species, native ecosystems and cultural resources.</p>	<p>Native plant communities and wildlife habitat could be modified to support important cultural features or to illustrate a particular historic period.</p> <p>Invasive nonnative species would be removed to preserve native species, native ecosystems, and cultural resources. Non-invasive non-native species could be maintained if determined to be a contributing resource to cultural landscapes.</p>	<p>Native plant communities and wildlife habitat would be mostly intact, but may be modified by development in suitable areas.</p> <p>In developed settings, native or appropriate non-invasive nonnative vegetation that can withstand operational and residential/ community use may be planted.</p> <p>Invasive nonnative species would be suppressed and actively managed to preserve native species, native ecosystems, and cultural resources.</p>	<p><i>Same as Integrated Resource Management</i></p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Natural Resources: Marine Resources	<p>Marine resources would be preserved and restored to the greatest extent possible.</p> <p>Marine resource conditions are driven by an integrated management approach to natural and cultural resources, and people.</p> <p>Selected areas would be resilient and resistant to climate change.</p> <p>Invasive nonnative species would be removed to the extent possible to preserve native species, native ecosystems, and cultural resources.</p>	<p>Near-term and long-term: Marine resources would be managed and restored for demonstration and interpretive purposes.</p> <p>Long-term: Natural processes would be allowed to occur to the maximum extent possible, but would be compatible with providing visitor engagement.</p>	Marine resources would be managed primarily for their cultural importance and to allow for operational and administrative activities with a focus on limiting nonnative species introductions.	<i>Not applicable in this zone</i>
Natural Resources: Ecological Processes, Including Hydrology, Fire, etc.	<p>Ecological processes would be primarily left unimpeded.</p> <p>The emphasis of resource management would be on the interconnectedness of nature and culture.</p> <p>Unique geologic features would be preserved and natural habitat conditions would be re-established.</p>	<p>Ecological processes would be primarily left unimpeded except to provide visitor opportunities where appropriate.</p> <p>Where possible, infrastructure would be designed or relocated to minimize impacts on ecological processes.</p> <p>Significant ecological resources would be protected from visitor use impacts.</p>	<p>Where possible, infrastructure would be designed or relocated to minimize impacts on ecological processes.</p> <p>Significant ecological resources would be protected from impacts from operational use.</p>	<p>Ecological processes would be protected to the greatest extent possible and would be primarily left unimpeded.</p> <p>Unique geologic features would be preserved and natural habitat conditions would be re-established.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Natural Resources: Soundscapes, Lightscapes/ Night Sky, and Viewsheds	<p>The natural soundscape, night sky, and viewsheds would be preserved or restored.</p> <p>Natural sounds dominate, however distant artificial sounds associated with resource management operations and visitor experiences could be heard at times. Habitats for sensitive species would be free or nearly free of intrusive noise.</p> <p>Dark night skies would be preserved to the greatest extent possible. No artificial outdoor lighting would be present, although distant lighting could be visible from certain locations.</p> <p>Viewsheds would be protected to a high degree. Uninterrupted views of natural, cultural, and scenic resources would be a part of the visitor experience.</p>	<p>The natural soundscape, night sky, and viewsheds would be largely intact and enhance the visitor experience.</p> <p>Natural sounds would be generally audible mixed with sounds from visitor and cultural resource management and other park operations activities.</p> <p>Outdoor lighting would be present when needed to support visitor services or park operations, but would be designed to minimize light pollution.</p> <p>Historically and culturally appropriate sounds and lighting from the period of significance could modify the otherwise intact natural soundscape and night sky.</p> <p>Any new facilities would be sited and designed to minimize impacts on the soundscape, night sky, and viewshed.</p>	<p>Intact natural soundscapes, night skies, and viewsheds could be experienced at certain locations. Facilities would be sited and designed to minimize impacts on the soundscape, night sky, and viewshed.</p> <p>Natural sounds would be generally audible mixed with sounds from visitor and park operations activities. Artificial sound levels would be highest in this zone to enable all operations to continue unimpeded.</p> <p>Outdoor lighting would be used when needed to support visitor services or park operations, but would be designed to minimize light pollution.</p> <p>Views of natural, cultural, and scenic resources would be present in many locations.</p>	<p>The natural soundscape, night sky, and viewsheds would be intact.</p> <p>Natural sounds dominate in these areas, with few artificial sound disturbances limited to occasional park resource management operations and visitor experiences. Habitats for sensitive species would be free or nearly free of intrusive noise.</p> <p>No artificial outdoor lighting would be present, although distant lighting could be visible from other locations.</p> <p>Viewsheds would be protected to a high degree. There would be no visible human constructed features. Uninterrupted views of natural and scenic resources would be a part of the visitor experience.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Visitor Experience: Use Levels	Visitation levels would be generally low, with moderate visitation at entry points or points of interest. Opportunities for solitude might be found in certain areas. Visitor levels could be higher in locations where programs occur. Group sizes could be limited to protect experiential and resource protection objectives.	Visitation levels would generally be moderate in the long-term. Visitors could encounter a moderate to high level of contact with staff and other visitors during peak use. A range of group sizes could be accommodated.	Low use levels would be expected since this area is intended for staff and visitors on official business. Encounters with other visitors would generally be low, but encounters with park staff could be high.	Visitation levels would be low and encounters with other visitors would be infrequent. Park managers have the discretion to allow visitor uses that would not be disruptive to research or resource protection activities. Opportunities for solitude might be found in certain areas. Large group events would not be permitted.
Visitor Experience: Interpretation and Education	<p>Interpretation and education are important functions of this zone and would be achieved through a range of methods.</p> <p>Visitors would gain an understanding of natural (including marine) and cultural resources and their cultural value to the past and present.</p> <p>Structured programs would include hands-on stewardship activities in the landscape, such as invasive species management, site rehabilitation, and cultural practices.</p> <p>Other interpretation and education opportunities may be self-directed. Off-site opportunities to learn about the area would be provided through web access and at visitor facilities.</p>	<p>Interpretation and education are important functions of this zone and would be achieved through a range of methods.</p> <p>Interpretation and education would reflect all time-periods in Kalaupapa. Special emphasis would focus on the history of Hansen's disease and the policy of forced separation and community use sites that played a major role in patients' lives.</p> <p>Visitors would receive orientation describing what activities would be appropriate at Kalaupapa.</p> <p>Interpretive tools would include brochures, displays, audio interviews and presentations, and visits to historic structures adapted for interpretive use.</p>	<p>Interpretation and education would be focused on providing visitors with an understanding of sustainability and the challenges with Kalaupapa Settlement operations.</p> <p>Passive interpretative tools could include waysides.</p>	<p>Interpretation and education would emphasize the sacredness, significance, and/or sensitivity of the area and the importance of protecting it.</p> <p>Before entering this zone, visitors would receive education and interpretation about traditional cultural values and practices in the wao akua forest areas.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Visitor Experience: Activities	<p>Visitors would have opportunities to experience areas rich in cultural history with outstanding natural features. There would be opportunities for unstructured and self-guided experiences as well as opportunities to participate in interpretive and stewardship programs including guided walks/hikes.</p> <p>Opportunities would be complementary to the natural setting, and could be restricted to protect natural and cultural resources.</p> <p>Opportunities could include spiritual reflection, nature and culture appreciation, and stewardship programs. Passive interpretation such as brochures and wayside exhibits would be available.</p> <p>Kalaupapa's traditional cultural practices would be perpetuated in this zone and visitors could experience these through observation and/or participation. A minimal number of traditional structures could be added to enhance the visitor experience.</p> <p>A moderate to high degree of physical effort may be required to experience this zone. Visitors should be prepared for challenge and use of outdoor skills.</p>	<p>Visitors would have opportunities to experience cultural landscapes. There would be opportunities for interpretation and education programs complementary to the cultural setting.</p> <p>Opportunities could include learning about historic sites and structures, participating in interpretive and stewardship programs (living history), spiritual reflection, hiking/walking (e.g. for topside opportunities), appreciation of natural and cultural resources, guided tours, and after-dark programs so long as cultural resources and values would not be degraded.</p> <p>In addition, special events such as cultural events and community celebrations may be allowed, but group sizes may be limited. Measures may be taken to mitigate impacts on resources and other visitors during these events.</p>	<p>Visitors would have opportunities to experience cultural landscapes by viewing exteriors of structures. Access may be controlled in certain locations.</p> <p>Opportunities could include orientation, guided walks, and passive interpretation.</p>	<p>Visitors would have opportunities to experience the cultural and natural heritage of Kalaupapa, but access would be controlled.</p> <p>Opportunities would be complementary to the natural setting, and could be restricted to protect natural and cultural resources to promote visitor safety.</p> <p>Visitors would have a self-guided experience in this zone. Opportunities include spiritual reflection, and appreciation of natural and cultural resources, so long as natural and cultural resources and values would not be degraded.</p> <p>Off-site opportunities to learn about the area would be provided through web access and at visitor facilities.</p> <p>A moderate to high degree of physical effort may be required to experience this zone. Visitors should be prepared for challenge and use of outdoor skills.</p>

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Facilities	<p>Facilities would be minimal and only allowed in support of resource protection, visitor use, and visitor safety.</p> <p>Types of facilities:</p> <ul style="list-style-type: none"> • Trails • Unimproved roads • Fences for resource protection • Temporary facilities for resource management (staging areas, storage, helipad) • Unobtrusive signs and wayside exhibits • Existing structures to support utilities (Waikolu water systems) and resource management (U.S. Geological Survey stream gauges) • Limited, small-scale telecommunications facilities and power facilities may be allowed in this zone if designed and sited to minimize visual impacts 	<p>Facilities in this zone consist primarily of buildings, structures, utilities, and transportation facilities for visitor use.</p> <p>Types of facilities:</p> <ul style="list-style-type: none"> • Near-term: • Waysides and kiosks • Trails • Roads and parking areas • Mule corral • Restrooms • Picnic and group use areas • Long-term • Visitor contact facility (visitor center or visitor contact station) • Potential overnight accommodations • Educational areas or classrooms • Food service • General store • Limited, small-scale telecommunications facilities and transmission lines may be allowed if compatible with cultural landscape values and if designed and sited to minimize visual impacts. 	<p>Facilities in this zone consist primarily of buildings, structures, utilities, and transportation facilities for operations.</p> <p>Types of facilities:</p> <ul style="list-style-type: none"> • Roads and parking areas • Administrative offices • Staff housing • Maintenance facilities • Warehouses and garages • Harbor/pier • Signs • Waysides • Gas station • Utilities • Communications structures if compatible with cultural landscape values and if designed and sited to minimize visual impacts • Airport • DOH care facility (future use to be determined) • Potential alternative energy sites 	<p>Facilities would be allowed only in support of resource protection.</p> <p>Types of facilities:</p> <ul style="list-style-type: none"> • Limited unmaintained trails • Fences for resource protection • Temporary facilities for resource management activities • New telecommunications and power facilities would not be allowed

ZONES	INTEGRATED RESOURCE MANAGEMENT	ENGAGEMENT	OPERATIONS	WAO AKUA (Place of the spirits)
Access and Transportation	<p>Access to this zone would be via trails and by the unimproved road used for park operations.</p> <p>Visitor access would be by escort only.</p> <p>In the near term, patients would continue to have vehicular access along the unimproved road to traditional gathering areas. The general public would access these hunting areas from topside.</p>	<p>Escorted and unescorted visitor access would be allowed.</p> <p>In the near term, escorted access would occur in all parts of this zone except the overlook, which would remain open to unescorted use.</p> <p>Access would occur along roads and historic trails. Sea access for permitted individuals could be allowed. Motorized access would be allowed on roads.</p> <p>In the near term, access between topside and the park along the pali trail would continue to be by DOH permit.</p> <p>Universal access opportunities would be provided.</p>	<p>This zone would encompass major transportation infrastructure such as the airport, harbor and pier, as well as improved road.</p> <p>Both motorized and non-motorized access would continue in this zone.</p> <p>Visitor arrivals by air and supply shipments via barge would continue. Access would be controlled in certain locations.</p> <p>Universal access opportunities would be provided.</p>	<p>Access to this zone would be by limited trails, and would be afforded mainly to researchers and cultural practitioners.</p> <p>Escorted and unescorted visitor access would be allowed.</p> <p>A landing zone clearing would afford helicopter access in support of resource management operations.</p> <p>Motorized access would not be allowed.</p>



Kalaupapa Landing, 1920s. Photo courtesy of Damien Museum.

Range of Alternatives

This section presents the four alternatives that are being considered for Kalaupapa National Historical Park. Each alternative is structured around a concept or vision for the future. For each alternative, there are desired conditions for resources and visitor use as a whole and for specific areas within Kalaupapa NHP. Each alternative is also supported by management zones with boundaries that vary by alternative. It is important to note that the management zones provide desired conditions for areas within Kalaupapa NHP, and the alternatives provide additional guidance both at a parkwide scale as well as site-specific prescriptions. The complete list of parkwide desired conditions and specific actions that would be taken under each alternative is presented in the alternatives comparison table at the end of this chapter.

Conditions at Kalaupapa are anticipated to change in the future, once there is no longer a patient community at Kalaupapa and the Department of Health ceases its operations. For each alternative, near-term and long-term guidance was considered and is identified where necessary. Near-term guidance is defined as the time period while there is still a Hansen's disease patient community supported by DOH operations. Long-term guidance is defined as a time period when patients no longer reside at Kalaupapa and the DOH ceases operations within the park. For much of the guidance, the actions could be undertaken any time after the GMP is completed.

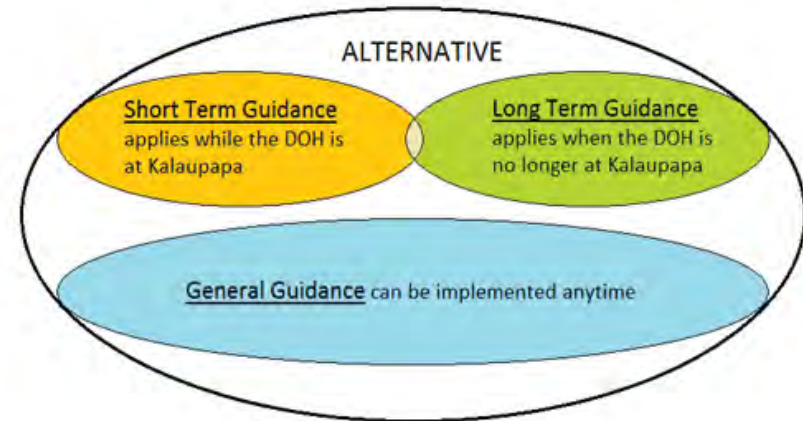


Figure 3.1: Alternatives include short-term, long-term, and general guidance

Management guidance, desired conditions, and actions that would apply to all alternatives, including alternative A (no-action), are described below in the Common to All section followed by descriptions of each of the alternatives: alternatives A, B, C, and D.



The original Bay View Home was destroyed by a fire between 1914 and 1915. Here is the Bay View Home in the Kalaupapa Settlement today. NPS photo.

Actions Common to All Alternatives

The following management guidance, desired conditions, and actions would apply to all four alternatives.

In the near term, the ongoing transfer of DOH responsibilities to NPS would continue. In the long-term, the NPS would assume full management of visitor access, activities, and overall management of Kalaupapa and its resources in consultation with state agency partners.

Throughout this planning process, patient residents, ‘ohana of patient residents, kama‘āina of Kalaupapa, native Hawaiians, Molokai residents, and citizens have expressed concern about potential changes to Kalaupapa that could detrimentally affect Kalaupapa as a wahi pana (sacred place). Core to the future vision of Kalaupapa National Historical Park is honoring the legacy of the Hansen’s disease community. The long history of native Hawaiians who called Kalaupapa their home through respect and care of the land and its spirit is another important part of the history of Kalaupapa.

It is important to recognize that desired conditions from law and policy identified in Appendix C would also apply to all alternatives.

Hansen’s Disease Patients and Department of Health Operations

The National Park Service is committed to fulfilling its responsibilities under Public Law 96-565 with respect to providing “a well-maintained community in which the Kalaupapa leprosy patients are guaranteed that they may remain at Kalaupapa for as long as they wish; to protect the current lifestyle of these patients and their individual privacy...”

The living and deceased Hansen’s disease patients and their individual and collective experiences at Kalaupapa over the past 150 years are the primary reason for which Kalaupapa National Historical Park was established and exists today. The need to mālama i ka‘āina (care for the land) in a manner that shows respect for the peninsula’s people, stories, and way of life would be at the core of present and future NPS management of Kalaupapa.

As long as patients live at Kalaupapa, the National Park Service would manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the present character of the community. Several areas of management relate to this, including management of resources, visitor use, and facilities, and they are described in more detail in the following paragraphs in this “Actions Common to All Alternatives” section.

Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP that would be common to all alternatives.

Kalawao

Now and into the future, Kalawao would be preserved for its historic values as the location where the first settlement on the Kalaupapa peninsula for individuals with Hansen’s disease were forcibly removed from their homes to live in isolation. The character of Kalawao with its iconic churches, significant cemeteries, and quiet and spiritual ambiance provides a contrast to Kalaupapa Settlement. The area offers an opportunity for visitors to contemplate the experiences of thousands of people afflicted with Hansen’s disease living at Kalawao in earlier times. The association of Saint Damien with Kalawao as embodied in St. Philomena Church and his nearby gravesite would be preserved. Siloama Church would continue to be co-managed with the Hawai‘i Conference Foundation. The churches would continue to be actively used by the Roman Catholic Church and the Hawai‘i Conference Foundation for services and special events.

The planned addition of a Kalaupapa Memorial within the Old Baldwin Home for Boys site would be a new development in Kalawao; it would provide recognition and honor for the thousands of individuals afflicted with Hansen’s disease at Kalaupapa whose names and identities have been lost to time. Siting and construction of the memorial would follow the guidance detailed in the *Construct Memorial to Commemorate Kalaupapa Patients Environmental Assessment 2011*. It is expected that current patterns of visitation to Kalawao could change as a result of the memorial. The goals for the site development and design associated with the new memorial include preservation of significant

historic resources and design components that are compatible with the character and setting of the historic landscape at Kalawao.

Judd Park would continue to be a destination for visitors on the eastern end of the peninsula. The visitor facilities and overlook would be maintained to provide visitors with a place to relax, reflect, and view the rugged coastline of the North Shore Cliffs and offshore islands.

Above all, Kalawao would continue to be a place of contemplation and compassion, where the ethereal qualities of Kalawao's history of forced isolation can be illuminated for all visitors.

Kalaupapa Settlement

The Kalaupapa Settlement is a cultural landscape comprised of more than 300 historic buildings, structures, and sites that are within the boundary of the National Historic Landmark. Designed as a settlement for the care and treatment of individuals with Hansen's disease, it continues to serve the remaining patient community and functions as a small town. Land uses continue to be clustered to consolidate functions and services for the operation of the settlement and welfare of the patients (Figure 3.2). The NPS would strive to retain historic structures and landscape features that contribute to the National Historic Landmark through stabilization to ensure significant deterioration from termites, neglect, and the elements is halted. Cyclic maintenance would be required for long-term preservation.

In the near term in all alternatives, Kalaupapa Settlement would continue to function much as it does today. The DOH would continue to maintain patient homes, the care facility, and operational functions related to the care and treatment of the remaining patients. Patients would continue to reside in their houses, could be cared for by the DOH at the care facility, would continue to maintain beach houses on the outskirts of the settlement, and continue to live in Kalaupapa Settlement as their home. The NPS would continue its role in maintaining the historic fabric of the community. Visitors (by DOH permit only) would continue to stop at key locations within the settlement including the staging area near the base of the pali trail, bookstore in the Americans of Japanese Ancestry Hall, the churches, Fuesaina's Bar, and other locations.

In the long-term in all alternatives, the NPS would continue to maintain buildings, structures, and cultural landscape features within Kalaupapa Settlement that contribute to the National Historic Landmark, with an emphasis on the period between 1866 and 1969. Many of the building types and associated areas within Kalaupapa Settlement provide specific functions for the operation of the community. Because of their design, use, and location within the settlement, the NPS would continue to maintain these buildings for their existing functions where appropriate. These include the maintenance facilities (such as the motor pool, recycling facility, construction camp, industrial warehouses, and storage facilities), the post office, NPS operational headquarters (such as Hale Mālama and NPS headquarters), visitors' quarters, and gas station. In the long-term, houses and other building types that could be adaptively used for other functions would be assigned a use depending on the vision of the alternative. In the long-term, the NPS could assign some buildings to be managed by other entities, such as agency partners, organizations, and concessions operations. See the Kalaupapa Settlement sections in the alternatives for more descriptions.

Buildings, structures, and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve their congregations that include Hansen's disease patients, DOH and NPS staff, and visitors with religious affiliations to the churches. These include St Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, and the Church of Jesus Christ of Latter-day Saints.

Molokai Light Station

The Molokai Light Station is a historic district on the northern tip of Kalaupapa peninsula which contains a majestic 138-foot lighthouse and associated buildings dating to 1908. Under all alternatives the Molokai Light Station would be preserved for its historic values associated with maritime history, transportation, commerce, and social history. In the long-term, the Molokai Light Station would be preserved and could be adaptively used for other functions depending on the vision of the alternative. In both the short and long-term, cultural and archaeological sites in the immediate area of the Molokai Light Station would continue to be inventoried, monitored, and undergo preservation treatments.

Figure 3.2 Kalaupapa Settlement Neighborhoods



Peninsula

The peninsula is defined as the area from the base of the sea cliffs to the ocean. Throughout history it has been referred to by different names, including Makanalua Peninsula, Kalawao Peninsula, and Kalaupapa peninsula. Kalaupapa peninsula is the most recognized name today. Today, the peninsula contains a rich array of archeological features that comprised a complex native Hawaiian cultural landscape that developed over centuries. Long-term preservation of resources that relate to the Hansen's disease era; the long history of native Hawaiian habitation and use; and terrestrial, geologic, and marine resources would be ensured on the peninsula in the Kalaupapa, Makanalua, and Kalawao ahupua'a. Access to the peninsula would be focused on research and monitoring activities. In the near term, visitation by the general public would be prohibited, and all sponsored visitors would need to be escorted in the area.

Kauhakō Crater

Kauhakō Crater is the geologic site where lava erupted from the ocean floor, creating the Kalaupapa peninsula. The crater stands 405 feet tall and contains a small lake that plunges to 800 feet below sea level. Prior to 1866, native Hawaiians lived and farmed in and around Kauhakō Crater for centuries, and the remaining archeological features are evidence of an agricultural and residential complex. After Kalaupapa became the site for Hansen's disease patients, several prominent residents were buried near the crater's rim and a cross was erected. Today, Kauhakō Crater is only accessible to residents, researchers, and sponsored guests.

Pālā'au State Park

Forty-three acres of Pālā'au State Park are within the boundary of Kalaupapa NHP and cooperatively managed with DLNR. The Pālā'au State Park portion of Kalaupapa NHP contains the Kalaupapa Overlook and is the most accessible and most visited area within Kalaupapa NHP. In the near and long-term, the NPS would maintain the Kalaupapa Overlook in Pālā'au State Park in cooperation with DLNR including the wayside facilities, trailhead, and assisting with vegetation management to maintain the significant views to Kalaupapa. Visitors would continue to have free and unescorted access on the premises of Pālā'au State Park within the boundary of Kalaupapa NHP.

Seabird Sanctuaries on ‘Ōkala and Huelo Islands

‘Ōkala and Huelo Islands are state-designated seabird sanctuaries, cooperatively managed for the protection and conservation of indigenous birds and wildlife by the State of Hawai‘i Department of Land and Natural Resources (DLNR) and the NPS. Access to the islands would be limited to scientific and resource management activities, and public entry and landings would continue to be prohibited per state regulations in order to protect indigenous wildlife in sanctuaries. The existing management structure and limited access would continue in the near and long-term.

Waikolu Valley and Pu‘u Ali‘i Natural Area Reserve

Waikolu Valley and Pu‘u Ali‘i Natural Area Reserve would continue to be managed primarily for their outstanding resource values. Waikolu Valley includes intact archeological features from native Hawaiian settlements, the original water line to the Kalawao and Kalaupapa Settlements, terrestrial habitats, and aquatic resources associated with the Waikolu Stream. The Pu‘u Ali‘i Natural Area Reserve supports one of the best examples of Hawaiian montane wet forest or ‘ohi‘a rain forest in Hawai‘i and is critical habitat for rare and endangered native forest birds. Access would continue to be limited in the near and long-term. Hunting would continue to be permitted per State of Hawai‘i hunting regulations. Also see the “Wild and Scenic River” section.

Molokai Forest Reserve

The Molokai Forest Reserve within the boundary of Kalaupapa NHP includes upland portions of the Waihānau and Wai‘ale‘ia valleys. The Forest Reserve is dominated by nonnative plant species and is managed by DLNR as a public hunting unit. Existing general management practices by the NPS and DLNR focused on resource protection and monitoring, as well as hunting and gathering, would continue in the near and long-term.

Management Structure, Partnerships, and Agreements

Kalaupapa National Historical Park has a unique management structure different from most parks. Most of the lands within the Kalaupapa NHP boundary are owned by the State of Hawai‘i and managed by the NPS through a lease and cooperative management agreements. NPS regulations apply within the marine

area of the park (mean high water mark to ¼ miles offshore) and on land within the areas covered by the lease and cooperative agreements to the extent consistent with the lease and those agreements. See “Chapter 2: Special Mandates” for greater detail about management structure, partnerships, and management agreements.

In all alternatives, the NPS would establish and maintain partnerships and projects with state and local agencies, adjacent landowners, and organizations for resource protection, interpretation, and visitor use. Partnerships entities could include schools and universities, historical institutions, native Hawaiian cultural groups, environmental organizations, neighboring landowners, and many others.

Governance of Kalawao County

In the near term, the Department of Health would continue to govern Kalawao County under Hawai‘i Revised Statute 326. However, once the DOH departs Kalaupapa, DOH management authority of Kalaupapa and Kalawao County may no longer be necessary.

The NPS would work collaboratively with the State of Hawai‘i DOH, DHHL, DLNR, and DOT to determine governance of Kalaupapa when DOH departs.



View to Ka‘aloa, Pu‘u Ali‘i Natural Area Reserve. NPS photo.

It may be incumbent upon the State of Hawai'i to pass legislation to update Hawai'i Revised Statute 326 to address the continued existence of Kalawao County and governance of the areas within Kalawao County.

Cooperative Agreements

Cooperative agreements with DOH, DLNR, DOT, and the lease agreement with DHHL would continue. More information about these agreements can be found in Chapter 2: Special Mandates.

Department of Health Partnership

In the near term, the existing structure of shared DOH and NPS management of visitor use, facilities, and operations would continue. The current Cooperative Agreement between NPS and DOH runs through 2024.

The DOH would continue to manage operations related to the care of the patient community and DOH staff support. This includes continued operation of the care facility, cafeteria, general store, and gas station for patient residents and DOH staff. The DOH would also continue to oversee and operate the visitor permit and sponsorship system and some visitor facilities, including the Visitors' Quarters. In addition, DOH would continue to maintain patient homes and yards and manage the state-mandated closure of the Kalaupapa Landfill.

The NPS would continue to manage visitor protection, education and interpretation, natural resources, cultural resources, historic buildings and structures, and infrastructure, including roads and trails. The NPS would continue to assume management and operational responsibilities and facilities as the DOH transitions out of management responsibilities at Kalaupapa.

Department of Hawaiian Home Lands Partnership

In the near term, the NPS would continue the 50-year lease agreement with DHHL that comes up for renewal in 2041 and work collaboratively with DHHL to define and plan for long-term management of DHHL lands.

Department of Land and Natural Resources, Department of Transportation, and R. W. Meyer, Ltd. Partnerships and Churches

In the near term, the NPS would work collaboratively with DLNR (Cooperative Agreement runs through 2029), DOT (Cooperative Agreement currently up for renewal for another 20 years), and R. W. Meyer, Ltd. (Memo of Understand-

ing) for management of these lands, resources, facilities, and operations within Kalaupapa NHP boundary.

Cultural Resources

The NPS would continue to conduct cultural resource projects, inventories, and interpretation related to cultural resources. This includes continuing to stabilize and preserve historic buildings, structures, and landscape features that contribute to the National Historic Landmark designation as funding allows.

Values, Traditions, and Practices of Traditionally Associated People (also referred to as ethnographic resources)

The NPS would continue the anthropology program in which NPS staff, partners, and researchers engage patients, lineal descendants, and other subject-matter experts (such as retired nurses) in ethnographic research through oral histories and participant observation in the form of informal discussions or open-ended interviews.

Archeological Resources

Archeological sites would be preserved for their interpretive and research values and traditional cultural activities. The NPS would continue ongoing efforts to monitor and conduct condition assessments of archeological sites and perform archaeological inventory surveys. The NPS would prepare baseline documentation including: a site-specific research design, updated Archaeological Overview and Assessments and standard operating procedure documents.

Historic Structures

Historic structures refers to buildings and structures that are contributing to the Kalaupapa Settlement National Historic Landmark, or are otherwise listed or are eligible for listing in the National Register. The NPS would conduct condition assessments and employ historic preservation treatments to protect historic structures. Structures that were built by patients after 1969 would be evaluated to determine whether they are historic and/or contribute to the NHL. Non-contributing historic structures could be stabilized and adaptively re-used for operations or documented and allowed to deteriorate until they become a safety hazard and removed.

Treatments for Historic and Non-historic Structures and Facilities

The following section defines treatments according to the Secretary of the Interior's Standards for the Treatment of Historic Properties. It provides information about the application of more specific treatments for historic buildings included in the alternatives. These treatments were applied to Kalaupapa's historic buildings based on a building's condition, potential future function, and for cost estimating.

Historic Stabilization

Stabilization is a treatment under the standard for preservation. Stabilization involves "correcting deficiencies to slow down the deterioration of the building." Stabilization is not considered a final treatment. For Kalaupapa's historic buildings:

- Stabilization is the minimum treatment for structures that were constructed between 1866 and 1969 and contribute to the NHL.
- Generally, stabilization is to maintain the exterior character of a structure. Future use is as an exterior exhibit until a future use is determined.
- Stabilization can include treatments and activities such as exterior painting, roof replacement, pest control, structural bracing, addressing moisture and ventilation, and securing mechanical systems and utilities.

Historic Preservation

Preservation means the act or process of applying measures necessary to sustain the existing form, integrity and materials of an historic property. Work, including preliminary measures to protect and stabilize the property, generally focuses upon the ongoing maintenance and repair of historic materials and features rather than extensive replacement and new construction. New exterior additions are not within the scope of this treatment; however, the limited and sensitive upgrading of mechanical, electrical and plumbing systems and other code-required work to make properties functional is appropriate within a preservation project. (The Secretary of the Interior's Standards for the Treatment of Historic Properties 36 CFR § 68.2(a)). For Kalaupapa's historic buildings:

- Preservation is listed as a treatment if the historic building materials and character-defining features are intact and in good condition.
- Preservation is applied to structures where a future interior use is projected and/or the structure is highly significant to Kalaupapa's history.
- Preservation is applied if the projected use is the same as its historic use or closely aligned use.
- Preservation is for structures that require only cyclic maintenance to maintain the historic integrity of the structure.

- Preservation generally includes stabilization treatments and activities, protecting and maintaining the structure, repairing, limited replacement in kind, and employing hidden structural reinforcements and upgrading mechanical and utility systems as appropriate.

Historic Rehabilitation

"Rehabilitation is defined as the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical, cultural, or architectural values" (Secretary of Interior Standards). For Kalaupapa's historic buildings:

- Rehabilitation is listed as a treatment if the historic structure is in fair condition or in poor condition according the LCS or formal/informal condition assessment.
- Rehabilitation is applied to structures where a future interior use is projected and/or the structure is highly significant to Kalaupapa's history. Rehabilitation assumes that "existing historic fabric has become damaged or deteriorated over time and, as a result, more repair and replacement will be required."
- Rehabilitation generally includes protecting and maintaining the structure, repairing and replacing historic materials and features, and making minor alterations and additions for continued use.

Historic Rehabilitation for Public Use

This treatment requires additional modifications to historic buildings to make them universally accessible, safe for visitor use, or require a significant changes for a new use to occur within the structure. For Kalaupapa's historic buildings:

- Adaptive use is listed as a treatment if the historic structure is in fair condition or in poor condition according the LCS or formal/informal condition assessment.
- Adaptive use is applied to structures where a projected future interior use is different than its historic use.
- Adaptive use includes all the treatments for rehabilitation and may include some code required structural interior and exterior changes for accessibility and safety.
- Most adaptive use is to accommodate visitor activities within a historic building.

Maintain Non Historic Facility

Maintenance is for non-historic structures that were constructed after 1969. They contribute to the operations and functions of the park.

Renovate Non Historic Facility

Renovate is for non-historic structures that were constructed after 1969. They contribute to the operations and functions of the park. Their future use could necessitate significant changes to the structure to allow a change in use or significant updates.

Cultural Landscapes

Documented cultural landscapes within the boundary of Kalaupapa NHP include the Kalaupapa and Kalawao Settlement and the Molokai Light Station. The NPS would continue to document and research Kalaupapa's cultural landscape features, preserve significant cultural landscape features, and manage fruit and legacy trees within the settlement as funding allows. A cultural landscape report would be completed to prescribe preservation treatments for landscape characteristics and features.

The NPS would continue active management and care of known cemeteries, including ongoing stabilization of known gravesites as funding allows.

Museum Collections

Museum collections items would continue to be documented and preserved as part of the archives and manuscript collections. The NPS would continue to consult with patients and 'ohana to better understand objects in collections. Management of the museum collections would be guided by the current museum management plan and the museum emergency operations plan.

Natural Resources

The NPS would continue to implement natural resource management priorities including: research, inventory, monitoring, feral animal control, fencing, hunting, rare species stabilization, and incipient alien species removal. The NPS would continue active participation and pursuit of East Molokai Watershed Partnership goals. The NPS would continue to monitor and inventory marine resources within the ¼ mile off-shore boundary of the park. Sensitive, threatened, and endangered species and associated habitats may be actively managed in order to perpetuate these species.

Water Resources

The NPS would continue monitoring and research of water resources to identify high water quality areas, such as ocean, stream, Kauhakō Crater Lake, and wetlands. The NPS would also continue to manage the water treatment and water distribution system for drinking water.

Soils and Geologic Resources

The NPS would continue monitoring of geological resources.

Vegetation

The NPS would continue to restore native vegetation in demonstration restoration areas by removing nonnative species and planting native species. In the native forests within the park, the NPS would continue feral animal capture to reduce destruction of native vegetation. The NPS would continue preservation of areas with native vegetation such as the coastal strand and Pu'u Ali'i. The

NPS would also continue nursery activities supporting rare and threatened native plant propagation.

Wildlife

A focus on reduction and management of nonnative wildlife species within the park would continue. This includes reducing feral ungulates by fencing and hunting in selected management units of the park, maintaining the existing level of feral ungulate removal, and managing feral animals within the settlement, such as mongooses. The cooperative agreement between the NPS and DLNR includes provisions for managing feral animals within the park boundary. Both the National Park Service and the Department of Health have been issued special Wildlife Control Permits by DOFAW, for controlling problem pig and deer within the park. All participants must possess a state hunting license and be a signatory on the permit, even if not bearing arms.



This painting of a patient-resident is stored in the park museum collections. NPS photo.

Fishing, Hunting, and Gathering

The park's enabling legislation provides that "patients shall continue to have the right to take and utilize fish and wildlife resources without regard to Federal fish and game laws and regulations. . . [and] Patients shall continue to have the right to take and utilize plant and other natural resources for traditional purposes in accordance with applicable state and federal laws" (16 USC 410jj-5). NPS regulations apply within the marine area of the park and on land to the extent those regulations are consistent with the lease and cooperative management agreements under which NPS manages the park.

Applicable DOH regulations for fishing, hunting, and gathering would continue until the DOH departs. See Appendix G for the DOH's rules and regulations governing all visitors to Kalaupapa. Current DOH fishing regulations for visitors include only pole fishing, no net fishing, no 'opihi picking, no spear fishing, and enforcement of all state Department of Forestry and Wildlife, a division of DLNR, and federal fish and game rules.

The State of Hawai'i, Division of Forestry and Wildlife (DOFAW) has jurisdiction over hunting above 500 feet in the park. This area encompasses the designated Molokai Forest Reserve and Pu'u Ali'i Natural Area Reserve. Anyone with a valid state of Hawai'i hunting license can hunt in this area.

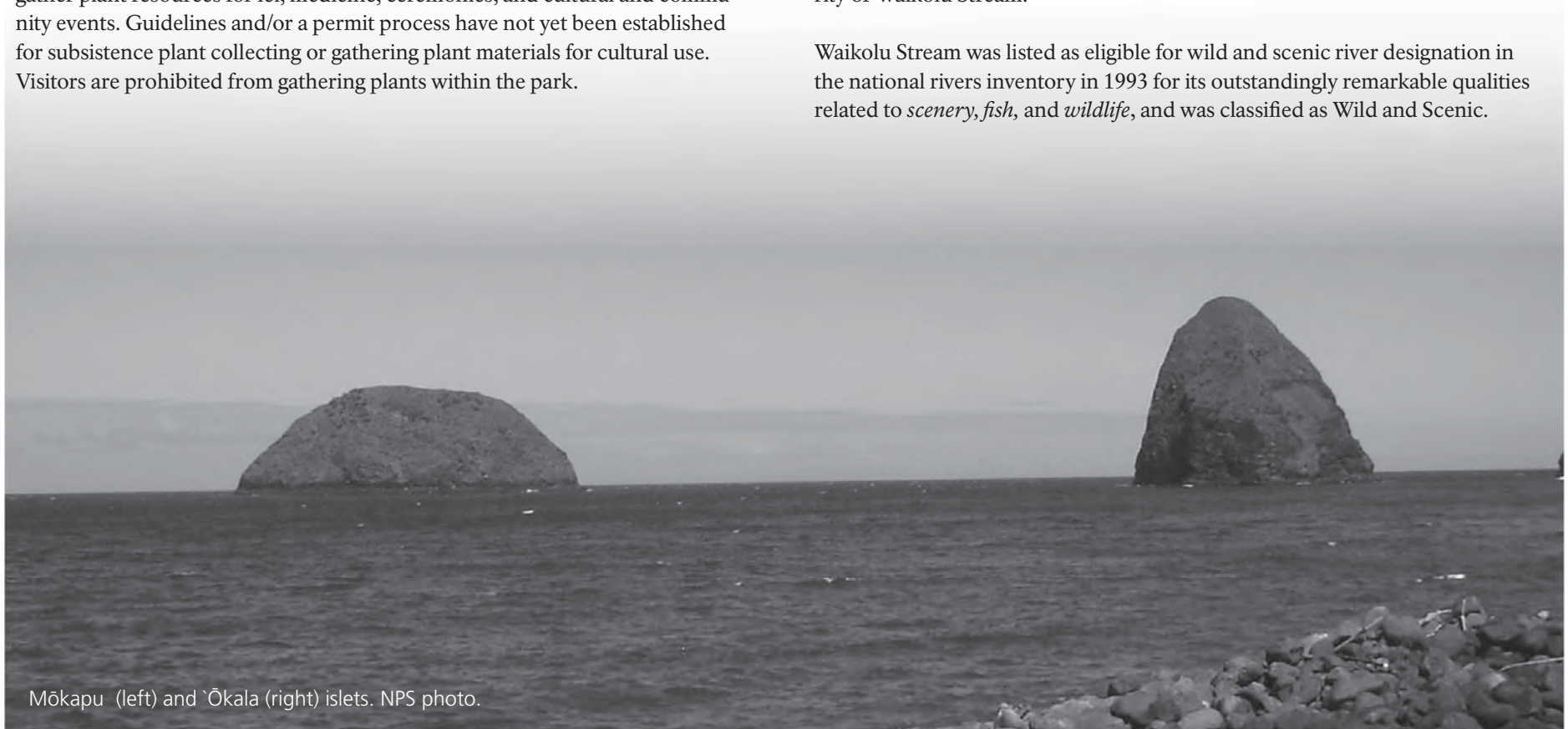
Pursuant to DOH regulations, patient and worker residents are allowed to gather plant resources for lei, medicine, ceremonies, and cultural and community events. Guidelines and/or a permit process have not yet been established for subsistence plant collecting or gathering plant materials for cultural use. Visitors are prohibited from gathering plants within the park.

Pursuant to DOH regulations, patient and worker residents of Kalaupapa are allowed to collect salt. Visitors are allowed to pick salt but may only do so in the company of their sponsor, who must either be a patient or worker resident. This is because the salt picking areas are beyond the boundaries of where visitors may travel without an escort. No bag size or other limits have yet been set on salt collecting, though salt may not be sold or sent out of Kalaupapa for sale.

Wild and Scenic River

Waikolu Stream and its immediate environs would be protected. The NPS would not undertake any actions that would diminish its free-flowing conditions within Kalaupapa NHP. The NPS would work with the Molokai Irrigation System to prevent additional extraction of water in order to maintain the integrity of Waikolu Stream.

Waikolu Stream was listed as eligible for wild and scenic river designation in the national rivers inventory in 1993 for its outstandingly remarkable qualities related to *scenery*, *fish*, and *wildlife*, and was classified as Wild and Scenic.



Mōkapu (left) and Ōkala (right) islets. NPS photo.

Based on findings of the eligibility analysis for Waikolu Stream included in this general management plan, the NPS would recommend updating the national rivers inventory to add *culture* and *history* to Waikolu Stream’s outstandingly remarkable values. New information related to its outstandingly remarkable values related to scenery, fish, and wildlife has also been updated. The Wild and Scenic classifications would be maintained.

During the life of this general management plan, the NPS would evaluate and/or complete a suitability analysis related to wild and scenic river designation of Waikolu Stream.

The complete “Wild and Scenic River Analysis for Kalaupapa NHP” is included in Appendix E of this document.

Waihānau and Wai‘ale‘ia Streams were assessed for wild and scenic river eligibility in 1990 as part of the Hawai‘i Stream Assessment; and Waihānau was found to possess outstanding cultural resources. Other streams within Kalaupapa NHP are intermittent. These streams were not assessed for wild and scenic river eligibility as part of this GMP. Additional analysis for wild and scenic river eligibility and suitability of Waihānau, Wai‘ale‘ia, and other streams could be conducted during the lifetime of this GMP.

Scenic Resources

The NPS would continue current management efforts for the preservation of scenic resources, such as removal of nonnative vegetation to maintain significant and historic viewsheds.

Interpretation and Education

In the near term, the park’s website, exhibits at the bookstore, waysides, and the park brochure would be maintained as ways to share the park’s history with the public and orient visitors to Kalaupapa NHP. The NPS would continue to grow its interpretation and education division, developing limited interpretive programs and activities, such as a self-guided walking tour of the settlement. Most onsite interpretation and education would continue to be provided by the private patient-run tour company and by allied organizations and institutions. Limited and occasional outreach programs on topside Molokai would be continued and expanded as funding allows.

Visitor Use and Experience

The structure of shared DOH and NPS management of visitor use via a cooperative agreement would continue. DOH rules and regulations for visitation would continue in order to provide a well-maintained community for the patient residents and to protect their privacy. The NPS would continue to manage visitor protection and facilities that support visitation.

In the near term, general public visitation would be limited to 100 people per day as specified in the enabling legislation and desired by the Kalaupapa Patients Advisory Committee. Visitation would continue to be day-use only, and visitors would continue to need an escort while visiting the historical park. Organized tours for the general public would be provided. There would be no entrance fees, however fees for service such as the mule ride and tours would continue. Children under the age of 16 would not be allowed. Patient residents and DOH and NPS staff would continue to sponsor family, friends, and non-resident staff for day and overnight stays. The DOH would continue to manage the visitor permit and sponsorship system.

DOH would continue to prohibit recreational uses that are not compatible with the purpose of the park, such as scuba diving, mountain biking on unpaved roads, geocaching, skateboarding, and spelunking. See Appendix G for specific DOH rules and regulations governing all visitors to Kalaupapa Settlement.

In the near and long-term, public camping would not be allowed within the boundary of Kalaupapa NHP, including Waikolu Valley, due to concerns about resource protection and safety for visitors and staff.

Commercial Visitor Services

In the near term, commercial activities operated by patient residents for tours and Fuesaina’s Bar would continue. The commercial use agreement with the mule ride operator would continue. The NPS would continue to partner with Pacific Historic Parks Association to operate the bookstore for educational and merchandise sales related to Kalaupapa.

NPS involvement and management of concessions and commercial services would be guided by Public Law 95-565 which provides patients a first right of refusal to provide revenue-producing visitor services, including such services

as providing food, accommodations, transportation, tours, and guides; and the General Lease No. 231 with DHHL that gives second right of refusal to native Hawaiians for revenue-producing visitor service after patients have exercised their first right of refusal. The NPS may consult with DHHL in the selection of applicants to operate concessions and commercial services at Kalaupapa.

Sustainable Practices and Responses to Climate Change

Kalaupapa NHP would strive to be energy independent by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices. In line with the NPS's *Climate Change Response Strategy*, the park's goals and objectives would guide the protection of park resources through four integrated components: science, adaptation, mitigation, and communication.

Existing efforts to achieve these goals would continue, including bicycle use, the community recycling program, monitoring possible climate change effects, and engaging in the NPS Climate Friendly Parks program and Climate Action Plan. The NPS would seek to minimize motor vehicle use by staff, volunteers, and

visitors in order to reduce gas consumption and carbon emissions. The NPS would encourage a “pack-in, pack-out” policy for all visitors.

The park would continue to install photovoltaic panels in selected areas on a limited basis such that visual impacts to the cultural landscape are minimized. The park would also consider the feasibility of a comprehensive energy conservation strategy, including the consolidation of renewable energy generation equipment in one or more locations.

Access and Transportation Facilities

In the near term, the current DOH permitted options for entering the historical park would continue. These include entering by foot or mule on pali trail or by plane into Kalaupapa Airport. Sea access for visitors would continue to be prohibited in the ¼ mile ocean corridor within the park due to unsafe open ocean conditions. No new transportation routes or methods to access to Kalaupapa would be allowed or constructed, including, for example, either a tram for passengers or a road for motor vehicles from topside. See the “Alternatives and Actions Dismissed from Further Consideration” section at the end of this chapter.



Visitors on a mule trip down the pali trail. NPS photo.



Patient residents and DOH workers at the Kalaupapa Airport. NPS photo.

Land Access and Pali Trail

The NPS would continue to maintain the historic pali trail for foot and mule traffic, which is the primary land access that connects Kalaupapa to topside Molokai. The NPS would offer to assist the local community with trail planning adjacent to Kalaupapa NHP on topside Molokai.

Air Access and Kalaupapa Airport

The Kalaupapa Airport would continue to serve the transportation needs of the Kalaupapa community and visitors to the historical park. Air access to the Kalaupapa Airport would continue for planes and helicopters by commercial carriers and private planes from Honolulu, Ho‘olehua Airport on Molokai, and other island airports. Air access provides the quickest access to Kalaupapa and is necessary in cases of emergency. Air transport is also necessary to provide supplies to the Kalaupapa community and transport garbage off the peninsula. The NPS would encourage the DOT and FAA to: 1) provide safe and adequate access without increasing pressure on Kalaupapa’s way of life, and 2) work with commercial tour flight operators to continue avoiding flight paths in airspace over the settlement. All commercial air tours must comply with the National Parks Air Tour Management Act of 2000. For scenic overflights, the current FAA rules state an aircraft maintain an altitude of at least 1600 feet above ground level at Kalaupapa would continue. These recommendations consider the impacts of aircraft noise to the soundscapes at Kalaupapa NHP with the goal of minimizing unnecessary aircraft noise in order to preserve Kalaupapa’s ambience and natural sounds. General aviation over Kalaupapa would continue to be regulated by Federal Aviation Agency rules.

Sea Access and Kalaupapa Landing

Water access to Kalaupapa NHP would continue to be limited to the barge to provide general supplies and project materials to Kalaupapa and official NPS boat access associated with marine resources management. The location and configuration of the Kalaupapa pier and seasonality of ocean conditions make sea access unpredictable and unsafe during most of the year. For these reasons, safe sea access to Kalaupapa is very limited. Special events within the ¼ mile ocean boundary would require a special use permit and would be determined on a case-by-case basis. General visitors would not be allowed to anchor within the offshore ¼ mile park boundary without a special use permit. The NPS would not support a ferry service to Kalaupapa because of safety concerns at the harbor.

Kalaupapa Roads and Trails

Transportation by motor vehicles within Kalaupapa would be reduced. Whenever possible, the NPS would use fuel efficient or electric vehicles, bicycles, and pedestrian transport for both visitors and operations within the settlement. Whenever possible, historic roads and trails would be adapted and re-used as feasible and within the framework of future management. Quiet pavement would be considered for road upgrades in the future.

Operations

Operational Facilities

The use of historic structures and facilities by patient residents, DOH, NPS, and partners within Kalaupapa NHP would continue in the near term.

The alternatives do not call for new facilities within the Kalaupapa peninsula, however new facilities may be deemed necessary in the future if adaptive re-use of structures is clearly not feasible for the required function. Any new construction would be designed to be architecturally compatible with the settlement’s historic structures and character and would be sited to be compatible with historic uses and the visual character of the settlement. The Hawai‘i State Historic Preservation Department would be actively consulted for any proposed new construction. Any new construction would incorporate sustainable energy systems, and siting of any new facilities would consider sea level rise. In the long-term, the NPS could explore other options for administrative facilities in partnership with the state.

In the near term, the NPS would continue to maintain all NPS managed administrative facilities within the boundary of the park. The NPS would also continue to share use of administrative facilities with DOH where feasible. NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.

The NPS would continue to manage infrastructure for the historical park, including the water, sewage, and trail system, and would assist Maui Electric in managing the electrical distribution system. The water system would also be improved for water conservation measures. The NPS would additionally consider burying utility lines to improve views and decrease long-term maintenance costs.

Communications facilities would be maintained to provide phone, radio, and internet connectivity to Kalaupapa Settlement. If additional communication facilities were constructed in the park they would need to be compatible with the historic scene.

Safety and Security

Safety and security would continue to be a high priority for the NPS in its management of Kalaupapa NHP. Operational leadership concepts and strategies would be integrated in to all aspects of management at Kalaupapa NHP. The NPS would continue current partnerships with emergency management agencies, including Maui County Police and Fire and Coast Guard for search and rescue operations, air medical transport, and law enforcement. Emergency medical services would include first responder capability by NPS or others. Individuals with life threatening emergencies would continue to be medically evacuated by air transport to the nearest medical facilities.

The NPS would adapt and modify the current DOH emergency management plan to meet the needs of the changing Kalaupapa community.

The NPS would continue to implement the fire management plan, including establishing and maintaining fire breaks around the settlement, maintaining fire suppression systems, and adding new fire suppression systems to historic buildings as feasible.

Staffing

The park would continue to maintain NPS staff and volunteers at Kalaupapa to support the purpose of the park. NPS staff administer the park, manage resources, provide visitor protection and law enforcement, and maintain Kalaupapa's historic structures and facilities, including roads, grounds, cemeteries, and infrastructure systems.

In the near term, the DOH rules and regulations related to employees and kōkua would continue. Only patient residents, NPS, DOH, DOT, and concession staff would be allowed to reside at Kalaupapa. Family members of staff would continue to be considered as visitors and would be required to follow the DOH rules and regulations for visitation.

The hiring preference and provision for training opportunities for patient residents and native Hawaiians under Public Law 95-565 would continue.



NPS staff at the 2009 Father Damien canonization celebration. NPS photo.

One full-time equivalent (FTE) is one person working 40 hours per week for one year, or the equivalent. The total number of FTEs is the number of staff required to maintain the assets of Kalaupapa NHP, provide acceptable visitor services, protect resources, and generally support Kalaupapa NHP's operations in the near term. The FTE number indicates base-funded staff only. Term, seasonal, or volunteer positions funded by projects or partners are not included in the total FTE number. FTE salaries and benefits are included in the annual operating costs. In addition, several staff are funded by projects; these include facilities and maintenance workers and cultural and natural resource management staff. These positions could be funded by future projects or be converted to permanent base funded positions as funding allows.

Cost Estimates

Cost estimates for all alternatives are not for budgetary purposes; they are only intended to show a relative comparison of costs among the alternatives.

Cost estimates are in 2012 dollars. Construction cost estimates are Class C and are guided by the NPS Cost Estimating Requirements Handbook (2012). Gross cost estimates are provided for all costs; gross estimates include escalation factors such as location, remoteness, design contingencies, historic preservation, and overhead.

The implementation of the approved plan will depend on future funding. The approval of this plan does not guarantee that the funding and staffing needed to implement the plan will be forthcoming. Full implementation of the actions in the approved general management plan would likely take many years. Additionally, some of the future long-term funding needed to implement the various actions called for in this alternative is anticipated to come from nonfederal partners.

One-time Costs

Projects are identified as either Phase 1, Phase 2, or Phase 3 as described in the alternatives.

The prioritization of facility projects would be determined through the park's asset management plan.

Projects that involve historic preservation treatments (stabilization, preservation, and rehabilitation) and replacement of infrastructure and other facilities would address deferred maintenance. Examples of these projects include preservation treatments to historic structures in poor and fair condition that contribute to the National Historic Landmark and upgrades to the water and electrical systems.

Projects could be jointly funded through partnerships with state agencies, religious institutions, and nongovernmental organizations through cooperative agreements. Shared funding with the Roman Catholic Church in the State of Hawai'i and Hawai'i Conference Foundation for rehabilitation of the churches at Kalaupapa are examples of partnership projects. Other joint funding projects could include those necessary for the development of visitor services run by a concession or nonprofit entity.

Boundaries and Land Protection

The NPS would continue to act on the enabling legislation direction to explore land donation or exchange with DHHL, DLNR, and other landowners during the life of the GMP.

The findings of the Hawai'i Area Studies that fulfilled the direction of Public Law 105-355, Sec. 511 would continue to be valid, and Congress could decide

to act on the study's findings. The two pertinent sections of the Hawai'i Area Studies were the "Kalaupapa Settlement Boundary Study Along the North Shore to Hālawā Valley, Molokai" and the "Study of Alternatives—Hālawā Valley, Molokai" completed in 2000. Both studies surveyed and analyzed the area's natural and cultural resources and determined that they are of national significance. It was determined that management by the NPS and designating these areas as part of the national park system would provide the most effective long-term protection of the area and provide the greatest opportunities for public use. The recommended areas would complement and enhance Kalaupapa NHP's legislated purpose "to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features" (Public Law 95-565, Sec. 102). In 2000, the position of the local community favored local community management of the North Shore over any management by non-Molokai entities and state and federal agencies.

Alternative A: No Action

Alternative A is the no-action alternative and assumes that management, programming, facilities, staffing, and funding would generally continue at their current levels in the near term. The emphasis of the no-action alternative would be to protect the values of Kalaupapa NHP without substantially increasing park operations. Resource preservation and protection would continue to be a high priority for NPS management of Kalaupapa NHP.

The no-action alternative is required by the National Environmental Policy Act and also serves as a baseline for comparison in evaluating the changes and impacts of the other three alternatives.

For this GMP, the no-action alternative predominantly focuses on near-term guidance while the DOH and patient community exists at Kalaupapa. Upon the departure of DOH from Kalaupapa, this alternative does not provide much long-term guidance with respect to visitation, use of historic buildings, and other aspects of management. Many of the visitor rules and regulations would no longer be valid and viable without DOH management. The nature and extent of visitation to Kalaupapa could dramatically change in unknown ways without direction from a long-range plan.

Where appropriate, alternative A does provide some long-term guidance for park management related to partnerships and cooperative agreements, resource management, use in areas of the park outside the Kalaupapa peninsula, access and transportation, sustainable practices, safety and security, and operations.

The following management guidance, desired conditions, and actions would be in addition to what is listed in “Actions Common to All Alternatives.”

Management Zones

There would be no management zoning guidance under alternative A since the park does not have a management zoning scheme. Management guidance would continue according to legislation, state regulations, Kalawao County and patient resident rules and regulations, and NPS policies.

Historic Structures

The NPS would employ historic preservation treatments to protect historic structures on a case-by-case basis and as funding allows. The NPS would continue to conduct condition assessments of historic structures and stabilize historic buildings until a future use is identified.

Staffing

Alternative A assumes current staffing levels would be maintained at 40 permanent base funded full-time equivalent (FTE) staff. Staffing numbers for Kalaupapa NHP reflects the NPS’s focus on managing resources, preserving historic structures, and maintaining the character of the Kalaupapa Settlement and community. Staff for visitor protection provides the law enforcement needed to oversee the park. The NPS also maintains approximately 12 temporary positions funded by projects.

Table 3.2 Alternative A Staffing by Division

Alternative A Staffing by Division	Base Funded
Management and Administration	3
Cultural Resources	5
Natural Resources	6
Facilities and Maintenance	19
Visitor Protection	6
Interpretation and Education	1
Total Staff	40

Cost Estimates

Annual Operating Costs

The park’s annual operating budget for fiscal year 2012 was \$4,230,000. There would be no additional operations and maintenance costs related to capital investments.

Table 3.3 Alternative A Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	None (40 FTE current)
Additional Staffing Costs	\$0
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$0
Total Annual Operational Costs	\$4,230,000

One-time Capital Costs

The estimated costs for alternative A reflect the continuation of current management, including the current level of facilities which are mostly historic structures. One-time costs for alternative A include projects for historic preservation; deferred maintenance; and life, health, and safety that would occur under current management but are not yet funded (see Table 3.4). Deferred maintenance projects would involve stabilization and rehabilitation of historic structures, as well as improvements to infrastructure to eliminate health and safety hazards and address structural deficiencies.

Alternative A focuses on stabilization and basic preservation of historic structures, maintaining current non-historic facilities, and making necessary updates to infrastructure. No new construction is proposed under alternative A. Although no additional buildings have been identified for removal, some historic structures that are in poor condition may be lost in the long term. Several non-historic outbuildings (such as garages and storage sheds) with no anticipated future use would not receive any project funds beyond maintenance.

Under alternative A, projects are identified as either phase 1 or phase 2. Phase 1 projects are considered essential: this category includes cultural resource/historic preservation treatments that are necessary to ensure the long-term integrity of NHL-contributing structures; as well as life, health, and safety-related projects; infrastructure and access maintenance; and basic visitor services. Phase 1 projects total \$16,700,000. Since alternative A lacks specific long-term guidance, the NPS would continue to preserve historic structures contributing

to the NHL in the near term and long term. Most of the total cost is attributed to rehabilitation of historic structures and rehabilitation of the electrical system. Alternative A has the highest phase 1 cost because the NPS would continue to follow existing guidance for preservation of historic structures indefinitely.

Phase 2 projects include significant historic building upgrades, non-historic structure (including infrastructure) rehabilitation, and additional cultural resources projects. Phase 2 projects total \$7,830,000. Most of this cost is from historic preservation of NHL-contributing structures, additional rehabilitation work for the electrical system, and the re-paving of roads.

Under Alternative A, there would be no phase 3 projects.

NPS costs would total \$24,530,000. Additional partner contributions for shared projects would total \$900,000. Most of these projects are related to the historic preservation of church buildings with partner contributions coming from religious institutions. The gross cost estimate, including partner contributions, would total 25,520,000. (Note: all costs are in 2012 dollars). Cost estimates for alternative A are identified below in Table 3.4 and follow the guidance outlined in the “Actions Common to All Alternatives” section as described under “One-time Costs.”



NPS staff and volunteers from Kaneohe Congregational Church clear vegetation and document cemetery resources. NPS photo.

Table 3.4 Alternative A One-time Cost Estimates

Project Description	Historic Stabilization	Historic Preservation	Historic Rehabilitation	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	Other Project (non-facility)
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)						
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites	720,000	1,290,000	340,000			
Safety / Hazardous Waste: Inspect fire suppression system and conduct hazardous materials assessment						30,000
Infrastructure: Rehabilitate water supply facilities and electric system; maintain pump house and fuel storage				10,000	2,250,000	
Access: Continue to rehabilitate and maintain the pali trail			740,000			
Operations: Stabilize, preserve, and rehabilitate operational facilities for maintenance and NPS operations	140,000	410,000	3,160,000	90,000		
Housing: Stabilize, preserve, and rehabilitate historic buildings for NPS employee housing	80,000	870,000	6,450,000			
Community Use: Stabilize or preserve Paschoal Hall and Mother Marianne Library for continued community use	10,000	110,000				
TOTAL PHASE 1	16,700,000	950,000	2,680,000	100,000	2,250,000	30,000

Project Description		Historic Stabilization	Historic Preservation	Historic Rehabilitation	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	Other Project (non-facility)
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)							
Cultural Resources: Museum catalog backlog and museum upgrades, preserve select historic structures		25,000		190,000			150,000
Infrastructure: Re-pave roads and rehabilitate electrical system			10,000			3,220,000	
Operations: Stabilize and preserve operational facilities for maintenance and NPS operations		435,000	240,000		140,000		
Housing: Stablize and preserve historic buildings for NPS employee housing		590,000	2,320,000				
Interpretation: Preserve the visitors pavilion for interpretation			70,000				
Community Use: Stabilize, preserve, or rehabilitate the Kalawao Pavilion, chapel at Bay View, Lion’s Club Pavilion, and recreation hall		110,000	50,000	210,000			
Damien Tour Operations: Continue to stabilize and maintain the bar, storage facility, and slaughterhouse restroom facility		70,000					
TOTAL PHASE 2	7,830,000	1,230,000	2,690,000	400,000	140,000	3,220,000	150,000
PHASE 3 (Concessions— Long-term)							
Under Alternative A, there would be no concession projects.							
ALTERNATIVE A TOTALS							
PHASE 1	16,700,000	950,000	2,680,000	10,690,000	100,000	2,250,000	30,000
PHASE 2	7,830,000	1,230,000	2,690,000	400,000	140,000	3,220,000	150,000
PHASES 1 AND 2	24,530,000	2,180,000	5,370,000	11,090,000	240,000	5,470,000	180,000
Additional Partner Contributions	\$900,000	20,000	450,000	270,000	0	0	170,000
Total with Partnership Funding	\$25,520,000	2,200,000	5,820,000	11,360,000	240,000	5,470,000	330,000

Alternative B

Alternative B focuses on Kalaupapa’s special or sacred places celebrated and made legendary by stories. The primary focus of alternative B is to maintain Kalaupapa’s spirit and character with an emphasis on the period between 1866 and 1969, by continuing to maintain the many visitor regulations that exist today. Under alternative B, the NPS would develop an extensive outreach program to share Kalaupapa’s history with a wide audience at offsite locations. The direction for this alternative would be similar to alternative A, but would provide future guidance for managing Kalaupapa once the DOH leaves.

Under alternative B, Kalaupapa’s many resources would be managed to protect, maintain, and in some cases, enhance their integrity. These resources include Kalaupapa’s cultural landscape, historic structures, and natural resources. Due to the limited visitation under this alternative, many of the historic buildings in the Kalaupapa Settlement would not have an interior use and would be stabilized until an interior function is identified. Most of Kalaupapa’s historic buildings and facilities would be for park operations.

The NPS would recommend the designation of highly significant resources to ensure their long-term preservation while also bringing more recognition of their regional, national, and international significance to the general public. New designations and changes to existing designations could include expanding the current National Natural Landmark status, local marine managed area, National Register of Historic Places designation for an archeological district and/or traditional cultural property, Wild and Scenic River designation for Waikolu Stream, and World Heritage designation. All new and updated designations would involve consultation with federal, state, and local agencies and partners.

In the long-term, visitor use rules and regulations would be similar to existing conditions in order to preserve the character of Kalaupapa and honor the patient community. The cap of one hundred visitors per day would continue, though access would be available on specific days for special events. Children under the age of 16 would not be allowed to visit Kalaupapa. Overnight use would be managed primarily for those with pre-existing associations and ancestral connections to Kalaupapa. Limited overnight use by the general public

would be explored. Visitors would also continue to need an escort or tour guide to visit all locations outside Kalaupapa Settlement. A nonprofit organization would provide for visitor services, such as lodging, meal service, tours, and merchandise sales. This alternative has the lowest visitation levels among the three action alternatives.

This alternative would focus educational efforts at offsite locations and through outreach in order to provide opportunities for people to learn about Kalaupapa without actually visiting the site. This includes establishing a staffed visitor information facility at Pālā’au State Park. In addition, the NPS would establish a topside office in Kaunakakai for park functions that do not need to be physically within the park.

The NPS would recommend a boundary modification to Kalaupapa National Historical Park to promote long-term protection of nationally significant resources along the North Shore Cliffs. The boundary modification would include Pelekunu Preserve and a portion of the Pu’u O Hoku Ranch. These new areas may be managed as a “Preserve” whereby access is maintained and hunting, fishing, and gathering is allowed. Congressional legislation would be required to authorize this boundary modification.

The following management guidance, desired conditions, and actions would be in addition to what is listed in “Actions Common to All Alternatives.”

Management Zones

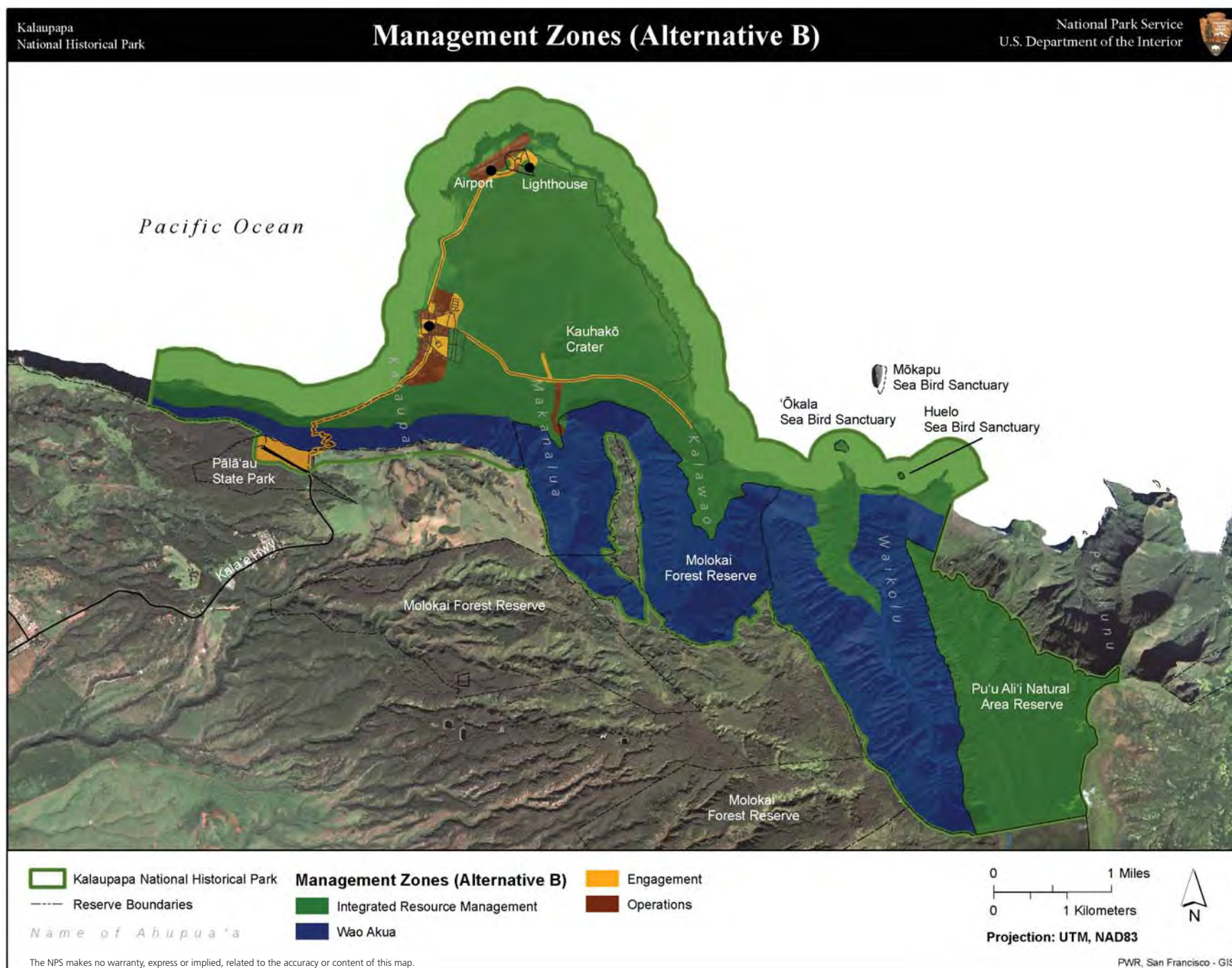
The management zones for alternative B are applied to the landscape to identify an area’s predominant use and desired future conditions. Specific boundaries of the management zones are provided in Figure 3.3. The following description identifies the locations and details for the application of management zones in alternative B.

Integrated Resource Management Zone

The integrated resource management zone would encompass most of the Kalaupapa peninsula, including the Kauhakō Crater, entire marine area, ‘Ōkala and Huelo Sea Bird Sanctuaries, Pu’u Ali’i Natural Area Reserve, and some cliff areas below 500 feet.

Figure 3.3 Alternative B Management Zones

Alternative B



Wao Akua (Place of the Spirits) Zone

The wao akua zone generally corresponds to the boundaries of the North Shore Cliffs National Natural Landmark within the park. It would include cliff areas above 500 feet, including the Pu‘u Ali‘i Natural Area Reserve.

Operations Zone

The operations zone would include portions of the Kalaupapa Settlement, including staff housing and maintenance areas. It also includes the airport and road to the well and water tanks.

Engagement Zone

The engagement zone would include the area of Pālā‘au State Park within the boundary of Kalaupapa NHP and portions of the Kalaupapa Settlement. The engagement zone access corridors would extend approximately 25 meters on either side of road centerline in all cases. These corridors would include the pali trail corridor, Airport Road and Kamehameha Street corridor, and Damien Road corridor to Kalawao and Judd Park. This zone would be restricted to corridors necessary for visitor access and select locations within the Kalaupapa Settlement to provide opportunities to learn about and experience Kalaupapa. The engagement zone would be more limited in alternative B as compared to alternatives C and D.

Unescorted access would be allowed in Pālā‘au State Park and the Kalaupapa Settlement. Visitors would need an escort in all other areas of Kalaupapa NHP.

Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP. The actions and strategies in this

section are in addition to those outlined in the “Actions Common to All Alternatives” section.

Kalawao

In the near and long-term, Kalawao would function much as it does today and as described in the “Actions Common to All Alternatives” section. All visitors would continue to need a guide or escort to visit Kalawao, the memorial, and Judd Park on the windward side of the peninsula.

Kalaupapa Settlement

In the near term, Kalaupapa Settlement would function much as it does today and as described in the “Actions Common to All Alternatives” section.

In the long-term, Kalaupapa Settlement would be managed as a cultural landscape with both designed and vernacular characteristics that illustrate its history and national significance. The settlement’s landscape characteristics would be preserved, including the overall spatial organization and layout, circulation systems such as roads and trails, the historic buildings and structures, and the small-scale features that are the personal touches of patients and kōkua. The NPS would allow unescorted public access within the settlement to the base of the pali trail, cattle guard near the airport, and cattle guard on Damien Road to Kalawao.

While the overall character of the settlement would be preserved, the function and uses of some of the neighborhoods and many of the historic structures in Kalaupapa Settlement would change. The goal and

long-term vision is to spatially organize the settlement by concentrating similar uses in to neighborhoods and localized areas within the settlement. This would allow for greater operational efficiencies and promote safety and security for staff, partners, and visitors. The NPS would seek to maintain the functions of many of the buildings at Kalaupapa due to their characteristic building types or



Saint Damien's grave in Kalawao. NPS photo.

adapt buildings for compatible future uses. In this effort, the GMP team surveyed the buildings and distinct areas of the Kalaupapa Settlement and identified appropriate uses for those areas.

The following description provides guidance for the future use and treatment of clusters within the settlement. This guidance is flexible and is meant to be helpful in making decisions about future functions of buildings and clusters. In the future, park managers may have additional information or conditions may change for individual structures and building clusters so that a different use or treatment is decided as a better solution.

Buildings, structures, and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve their congregations and visitors with religious affiliations to the churches. These include St Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, and the Church of Jesus Christ of Latter-day Saints.

Existing and future park partners could use and co-manage historic and non-historic buildings. It would be a goal for park partners to share in funding historic preservation work and cyclic maintenance necessary for these historic structures and areas. Park partners are envisioned to be agency partners, institutions, nonprofit organizations, volunteer work groups, school groups, and religious entities whose mission aligns with the purpose of Kalaupapa NHP.

Communal areas that would provide for group activities for park staff, partners, and/or visitors would be located in compatible historic facilities. These include, but are not limited to McVeigh Social Hall, Mother Marianne Library, Paschoal Hall, the Lion's Club Ocean View Pavilion, and Judd Park Pavilion.

Several buildings and clusters would be used to interpret the lives of patients and kōkua at Kalaupapa in the form of exterior exhibits and some interior exhibits. The main residential area, a portion of Bay View, and a portion of McVeigh would be stabilized as exterior exhibits and then adaptively re-used. Since unoccupied and unused buildings would be at a greater risk of neglect and deterioration over time, stabilizing these historic buildings would ensure their protection. The homesites of former patients could serve as interpretive exhibits, such as Kenso Seki's homesite and Ed Kato's studio.

Areas for visitor use would include: 1) buildings for visitor orientation, and 2) buildings and clusters for nonprofit-operated visitor services. Mother Marianne Library would function as the primary visitor orientation and resource center. Upon entering the settlement, at the base of the pali trail, the slaughterhouse and bleacher area would be a staging area for incoming and outgoing tour groups and visitors. A nonprofit or for profit entity would operate Fuesaina's Bar, the cafeteria, and the Kalaupapa Store for food and beverage services, general groceries, books, and merchandise sales. In the long term, overnight lodging options for visiting groups and individuals would be explored, with the goal of building collaborative partnerships for the rehabilitation of the Visitors' Quarters, a portion of Bay View, and a portion of McVeigh. These buildings would continue to be stabilized until funds are identified for their rehabilitation.

NPS staff housing and temporary staff housing would be located in the residences along Kamehameha Street, the south side of Damien Road, portions of Staff Row, and the central residential area. Housing in these areas and possibly other locations would support approximately 66 full-time employees and additional temporary or visiting staff. Park operations would include headquarters, offices, maintenance, and storage areas. Park offices would be located in the DOH administration building, the NPS headquarters, police headquarters, the old stone church, and Hale Mālama. Maintenance and warehouse facilities would be along the Damien Road waterfront, motor pool area, recycling center, and pier area.

Peninsula and Kauhakō Crater

The peninsula and Kauhakō Crater would continue to be managed for their cultural, terrestrial, geologic, and marine resource values. The NPS would focus on research, monitoring, and management activities that promote long-term stewardship of the 'āina. Public access to the peninsula and Kauhakō Crater would require an NPS or partner escort in order to protect the area from potential adverse uses and activities.

Pālā'au State Park

A staffed visitor information facility would be established at Pālā'au State Park in cooperation with DHHL and DLNR. The facility would provide interpretive and in-depth educational information through exhibits and possible merchandise sales. It would also provide orientation information for visitors seeking to learn about Kalaupapa and for people who descend the pali trail to Kalaupapa.

Visitors would continue to have free and unescorted access on the premises of Pālā‘au State Park within the boundary of Kalaupapa NHP.

Management Structure, Partnerships, and Agreements

Same as alternatives C and D

Cultural Resources

In addition to the management strategies in the “Actions Common to All Alternatives” section, the NPS would preserve cultural resources through research, stabilization, and formal investigations. Cultural resource preservation efforts would focus on ethnographic research with ‘ohana. Historically significant structures and cultural landscape features would be stabilized for protection. Many of these features and structures would be stabilized until a future use is identified. Efforts would be made to identify, stabilize, and mark gravesites and provide access for families.

Values, traditions, and practices of traditionally associated people (also known as ethnographic resources) and museum collections would be managed the same as alternatives C and D.

Archeological Resources

In addition to the “Actions Common to All Alternatives” guidance, the NPS would increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeological district and/or a traditional cultural property designation.

Historic Structures

Buildings and structures defined as “historic” are those that were constructed between 1866 to 1969 which is the proposed period of significance in the draft Kalaupapa Settlement National Historic Landmark updated nomination. The NPS would develop and implement historic structures report(s) for all historic structures that contribute the National Historic Landmark which emphasizes stabilization, preservation, rehabilitation, and adaptive use, where appropriate.

As possible, historic structures would be rehabilitated and adaptively used for visitor facilities, partner uses, park operations, and interpretive exhibits. The NPS would continue to conduct condition assessments of historic structures and regularly review and update the List of Classified Structures. The NPS would work with its partners to identify appropriate preservation treatments.

To accomplish the goals outlined for historic structures and facilities within the Kalaupapa Settlement and throughout the park, appropriate historic preservation treatments have been identified for each building. See the section on “Kalaupapa Settlement” that describes the future uses of building clusters and specific historic structures within the settlement.

Cultural Landscapes

In addition to the “Actions Common to All Alternatives” guidance, the NPS would improve the overall condition of Kalaupapa’s documented cultural landscapes within the boundary of Kalaupapa NHP, including the Kalaupapa and Kalawao settlements and Molokai Light Station. The NPS would develop a cultural landscape report that identifies long-term strategies to halt fragmentation and incremental loss of cultural landscape features and integrity and that prescribes preservation treatments for landscape characteristics and features. The NPS would increase support for documentation and research related to Kalaupapa’s cultural landscape features, including research on identifying cultural traditions expressed in the landscapes. The NPS would focus on stabilization of landscape features, so that further resources are not lost.

The cemeteries in Kalaupapa NHP serve as the final resting place for thousands of Hansen’s disease victims and the kōkua who assisted them. As such, they are important places in the history of Kalaupapa and for the thousands of descendants with ancestors who were exiled at Kalaupapa. As memorials, Kalaupapa’s cemeteries would be cared for with utmost respect. The NPS would continue active management and care of known cemeteries, including ongoing stabilization of known gravesites.

There would be an increase in support for research that would identify cultural traditions expressed in the landscapes. Work would occur with natural resources staff to develop and implement an integrated pest management plan to protect sensitive areas. In addition, the NPS would expand the native plant nursery program to include fruit trees, legacy trees, and additional rare and

endangered plants and work to manage fruit and legacy trees in coordination with the natural resources management program.

Natural Resources

Air quality, soundscapes, lightscapes, water resources, soils and geologic resources, wildlife, scenic resources, and fishing, hunting, and gathering would be managed the same as alternatives C and D.

Marine Resources

The NPS would explore establishing a managed area within the marine portions of the park, in consultation with DLNR and community partners, to include areas with high fish biomass and/or other important marine resources. Monitoring and research would continue and would use both traditional and contemporary methods to track status and trends of fisheries and marine wildlife and conditions in the intertidal zone and coastal reefs.

Vegetation

In addition to the management strategies in the “Actions Common to All Alternatives” for vegetation management, the NPS would continue the vegetation monitoring program to track status and trends of individual plant species and their communities in the historical park. The nursery program would be expanded to include fruit trees, legacy trees, and additional rare and endangered plants. Management of culturally significant vegetation would be done in coordination with the cultural resources staff, including carrying out an integrated pest management plan.

Interpretation and Education

The NPS would focus the content of interpretive and educational programs on the park’s updated interpretive themes that were developed as part of this GMP effort through the public planning process. They are described in Chapter 2.

To fulfill this desire for more interpretation about Kalaupapa in the long-term, the NPS would build on the growing interpretation and education division, including hiring staff to support a range of interpretive opportunities, including onsite interpretation, educational programs, and outreach programs to reach people who may not be able to visit the park. The interpretation and education division would work in collaboration with the other park resources programs in the development of interpretive and educational materials. The use of volunteer interpreters supervised by professional NPS interpreters would be emphasized.

The focus of most of the interpretive and educational efforts in alternative

B would be on engaging people at offsite locations and through extensive outreach programs. This would provide opportunities for people to learn about Kalaupapa without having to physically visit the site. Engagement would also occur at a visitor contact station inside the park boundary at Pālā‘au State Park, through outreach to schools, and through interpretive media. Interpretive media would be developed, such as publications, exhibits, a film, and educational websites. Outreach programs would be targeted to youth and communities on Molokai, on other Hawaiian Islands, the mainland, and at related international sites. Outreach materials could include web-based materials, podcasts, and networking with other relevant sites throughout the world. The NPS would develop curriculum-based educational



Hedychium coronarium, Pu‘u Ali‘i Natural Area Reserve. NPS photo.

programs and materials, such as lesson plans and traveling educational exhibits about Kalaupapa. This could be done in partnership with educational institutions in Hawai‘i and abroad.

At Kalaupapa, there would continue to be limited interpretive and educational opportunities, however there would be improvements over the existing conditions. Mother Marianne Library would be converted to a visitor orientation facility. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen’s disease community at Kalaupapa.

An updated long-range interpretive plan would be developed to plan for the future of the park's interpretive and educational goals. The plan would include identifying visitor experience goals, developing subthemes of the interpretive themes, and more detailed planning for specific sites within the park. It would provide recommendations about interpretive media, interpretive facilities, personal services, and direction for a wide range of interpretive and educational programs and partnerships.

Visitor Use and Experience

Visitor use at Kalaupapa was identified as one of the most important issues.

In the near term, visitor use would continue to be managed by DOH and NPS, and DOH rules and regulations for visitation would continue in order to provide a well-maintained community for the patient residents and to protect their privacy. This is common to all of the alternatives. In the long-term, it is anticipated that the NPS would manage visitor use and visitor facilities.

Alternative B contains restrictions for visitor access at Kalaupapa while focusing efforts on information and interpretation for the public offsite. Most of the general public would experience Kalaupapa through education and interpretation offsite. There would be efforts to provide and disseminate information about Kalaupapa through multiple mediums. There could be offsite locations for interpretation such as the Ho'olehua airport and at the Pālā'au State Park. Information and exhibits about Kalaupapa would be developed for visitor orientation at locations throughout the park. Signs, multi-media, waysides, and contact stations would be improved and developed. NPS would also work with partner organizations to assist with efforts to disseminate and deliver current information.



At the top of the pali trail. NPS photo.

In the near term, the existing rules and regulations on number of visitors, access, age limit, overnight use, and recreational activities would continue as in the common to all alternatives guidance.

Number of Visitors

In the long-term, general public visitation would be limited to 100 people per day at any one time. This is the same as the current cap on visitation. Visitation would be through tours that would rely on concessions contracts and commercial use authorizations. More opportunities to visit Kalaupapa would be available on specific days, such as family days, for special events for people with ancestral connections to Kalaupapa.

Orientation

Orientation information would be provided offsite and at key entrance points within the park boundary. Visitor information on the internet and at offsite locations would prepare visitors for their trip to Kalaupapa. Orientation and interpretive exhibits could be at the Ho'olehua Airport. The NPS would consider establishing an NPS presence for visitor orientation in Kaunakakai and in partnership with other state agencies or entities. In addition to orientation materials, there would be in depth educational materials at the staffed facility at Pālā'au State Park. Information would also be provided at other areas such as trailheads at the top and bottom of the pali trail and at the

Kalaupapa Airport for those arriving by plane.

All visitors wishing to enter the Kalaupapa Settlement would be directed to Mother Marianne Library or other facility to receive a required orientation to the park. The orientation would include introducing visitors to the purpose and significance of Kalaupapa and conveying rules and regulations so that visitors are respectful and safe during their visit. Visitors would need to ensure that they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.

Access within Kalaupapa

In the long-term, under alternative B, visitors would continue to have free and unescorted access on the premises of the Pālā‘au State Park within the boundary of Kalaupapa NHP. Visitors would be allowed to have unescorted access within the settlement. All visitation beyond the Kalaupapa Settlement and Kalawao would require an escort.

Age Limit

In the long-term, under alternative B, children under the age of 16 would be not be allowed to visit Kalaupapa, as it is today. The historical rules forbid patients from raising their children at Kalaupapa. This rule resulted in babies and children being sent away from Kalaupapa to be raised and adopted by family members and other people. Children are currently not allowed to visit Kalaupapa in order to maintain the privacy and well-being of the patient community. This alternative would keep these rules in place and restrict visitation of those 16 and under in honor of the wishes of many in the patient community.

Overnight Use

Under alternative B, there would be limited overnight use. Visitors who have a pre-existing association and/or ancestral connections to Kalaupapa would be allowed overnight access.

Limited overnight use by the general public would be explored. The NPS would manage overnight use, and the NPS could delegate management responsibilities to partners, including agencies, concessions, and nonprofit organizations. Select historic buildings and facilities have been identified for overnight use and the areas are described in the “Kalaupapa Settlement” section. The rehabilitation of historic buildings for public overnight use would require securing nonfederal partner contributions. Visitor accommodations would need to meet basic life safety codes. Camping would not be allowed in Kalaupapa NHP.



Artwork by patient resident Ed Kato. NPS photo.

Commercial Visitor Services

Same as alternatives C and D

Sustainable Practices and Responses to Climate Change

Same as alternatives C and D

Access and Transportation Facilities

In the near term, management of land access, the pali trail, air access, the Kalaupapa airport, sea access, Kalaupapa pier would continue as in the common to all alternatives guidance. Kalaupapa’s roads and trails would be managed same as alternative C.

In addition, NPS would enhance the pali trail by clearing vistas, establishing rest stops, and defining places for mules to pass along the trail. In addition, the NPS would continue to assist the local community with trail planning adjacent to the park on topside Molokai.

Operations

Operational Facilities

Same as “Actions Common to All Alternatives”

Safety and Security

Same as alternative C and D

Staffing

Alternative B would be implemented with the current staffing level (40 base funded) plus 14 full-time equivalent staff (FTEs). The NPS also maintains approximately 12 temporary positions funded by projects.

New positions would be necessary for the expected substantial increase in NPS’s operations to manage the historical park once the DOH departs. NPS staff would replace specific DOH functions for site operations, management of the visitor use, and maintenance of historic buildings. An interpretation and education division would be expanded to share Kalaupapa history with a much broader audience in Hawai‘i and nationally and fulfill the educational outreach component of alternative B. Interpretive staff would also be able to provide visitors with information about Kalaupapa at the park and topside at the visitor orientation center at Pālā‘au State Park.

Other new positions would include a: budget analyst, human resources specialist, administrative technician, archeological/anthropological technician, horticulturalist, chief of interpretation, interpretive ranger, education specialist, visitor use assistant, carpenter, painter, utility systems repair operator, high voltage electrician, and maintenance worker.

Table 3.5 Alternative B Staffing by Division

Alternative B Staffing by Division	Base Funded
Management and Administration	3+3 new
Cultural Resources	5+1 new
Natural Resources	6+1 new
Facilities and Maintenance	1+4 new
Visitor Protection	19+5 new
Interpretation and Education	1+4 new
Total Staff	54

Cost Estimates

Annual Operating Costs

This alternative would be implemented with an additional 14 FTE as described above. These positions would add approximately \$810,000 to the operating

base for alternative B. Additional operations and maintenance costs related to capital investments would be \$885,000. The total annual operating costs for alternative B would be approximately \$5,925,000 per year.

Table 3.6 Alternative B Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	14 FTE (Total 54 FTE)
Additional Staffing Costs	\$810,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$885,000
Total Annual Operational Costs	\$5,925,000

One-time Capital Costs

The costs to implement alternative B would support the long-term preservation of Kalaupapa’s resources, onsite and offsite interpretive programs, and connecting people with the history of Kalaupapa NHP. The costs include preservation and rehabilitation of historic structures and features, as well as improvements to facilities and infrastructure to eliminate health and safety hazards and to address structural deficiencies and deferred maintenance. The costs include resource management programs, visitor use, and interpretive and educational programs. Costs reflect all proposals of alternative B that could be implemented over the life of the general management plan.

The only new facility proposed under alternative B is a visitor contact station topside. Since alternative B would continue to include restrictions for visitors entering the settlement, a visitor contact station topside would be a critical facility to provide visitor orientation and interpretation and education. The Quonset dormitory is the only structure that has been identified for removal in this alternative. This facility would require a high level of investment to rehabilitate it for long term-use. In addition, some historic structures that are in poor condition may be lost in the long term. Several non-historic outbuildings (such as garages and storage sheds) with no anticipated future use will not receive any project funds beyond maintenance. Adaptive re-use would occur only in the long term for a concession operation.

Projects are identified under three different phases. Under alternative B, the following project types would be included in each phase:

Phase 1 projects are considered essential: this category includes cultural resource/historic preservation treatments that are necessary to ensure the long-term integrity of NHL-contributing structures; as well as life, health, and safety-related projects; infrastructure and access maintenance; and basic visitor services. Phase 1 projects total \$14,155,000. Most of this total cost is attributed to rehabilitation of historic structures and rehabilitation of the electric system.

Phase 2 includes projects that require significant historic building upgrades; non-historic structure (including infrastructure) rehabilitation; and additional cultural resources, interpretation, and education projects. Phase 2 projects total \$16,850,000. Most of this cost is from historic preservation of NHL-contributing structures, additional rehabilitation work for the electrical system, and the re-paving of roads.

Phase 3 includes projects for a concession operation managed by a nonprofit or for-profit entity in the long term when there is no longer a patient community at Kalaupapa. Implementation of these projects would require securing non-federal partner contributions. Phase 3 projects total \$1,210,000, representing the NPS share of rehabilitation costs for historic buildings for visitor services.

NPS costs would total \$32,215,000. Additional partner contributions for shared projects would total \$4,435,000. Most of these projects relate to religious insti-



Slaughterhouse rehabilitation. NPS photo.

tution work on historic church buildings and other buildings for other partner uses. The gross cost estimate, including partner contributions, would total \$36,650,000. (Note: all costs are in 2012 dollars).

Cost estimates for alternative B are identified below in Table 3.7 and follow the guidance outlined in the “Actions Common to All Alternatives” section as described under “One-time Costs.”

Action Plans, Studies, and Agreements

A number of specific action plans, studies, and agreements would be developed to implement alternative B. Some of these items would require additional special project funding or increases to the operating base funding. Plans for actions with potential to affect the environment would require formal analysis of alternatives in compliance with the National Environmental Policy Act, National Historic Preservation Act, and related laws. Such documents would reference and be tiered to alternative B. The following plans and studies would be required to implement alternative B:

- Administrative history
- Cooperative management agreement with Department of Hawaiian Home Lands
- Cultural landscape report
- Historic resources study
- Historic structures report(s)
- Long-range interpretive plan
- Renewable energy feasibility study
- Transition management plan
- Transportation plan

Boundaries and Land Protection

Same as alternative C

Table 3.7 Alternative B One-time Cost Estimates

Project Description	Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)	
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)										
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites. Conduct ethnographic research and develop historic structures report(s).	1,070,000	1,290,000	760,000						250,000	
Natural Resources: Fence areas to reduce feral ungulates and reduce vegetation to protect the settlement									190,000	
Safety / Hazardous Waste: Inspect fire suppression system, conduct hazardous materials assessment, conduct projects identified in the fire management plan									1,230,000	
Infrastructure: Rehabilitate electric system, maintain pump house and fuel storage					10,000	2,240,000				
Access: Continue to rehabilitate the pali trail			740,000							
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	60,000	280,000	3,380,000		90,000					
Housing: Preserve and rehabilitate historic buildings for permanent staff housing		440,000	990,000							
Interpretation, Education, and Visitor Information: Update long-range interpretive plan, develop interpretive exhibits and displays (including historic residences), and develop virtual and off-site educational programs	100,000	50,000				180,000			185,000	
Visitor Services and Community Use: Preserve or rehabilitate Paschoal Hall, Mother Marianne Library, and Lion's Club Pavilion for community and visitor use		50,000	200,000	370,000						
TOTAL PHASE 1	14,155,000	1,230,000	2,110,000	6,070,000	370,000	100,000	2,420,000	0	0	1,855,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)										
Cultural Resources: Museum catalog backlog, museum upgrades, stabilize and preserve historic structures	360,000		540,000						150,000	

Project Description		Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)
Natural Resources: Monitor air quality and soundscapes, upgrade nursery, explore marine managed area designation										140,000
Interpretation: Produce a park video, construct waysides, and preserve residences as exhibits		315,000		350,000						90,000
Infrastructure: Re-pave roads, rehabilitate electrical system, produce visitor transportation plan							3,220,000			100,000
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations		200,000	60,000	2,840,000		110,000				
Partner Use: Stabilize, preserve, and rehabilitate selected buildings for partner use (NPS share)		15,000	50,000	940,000		60,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent staff housing and remove Quonset Dormitory		15,000	1,330,000	3,410,000					80,000	
Visitor Services and Community Use: Construct new visitor contact station at Pālā'au State Park and rehabilitate McVeigh Recreation Hall and selected restrooms for community and visitor use				860,000	60,000			1,550,000		
TOTAL PHASE 2	16,850,000	905,000	1,440,000	8,940,000	60,000	175,000	3,220,000	1,550,000	80,000	480,000
PHASE 3 (Facility rehabilitation for concession operations and public use—Long-term)										
Concession Operations (commercial or non-profit): Preserve and rehabilitate select historic buildings for basic visitor services (NPS share)			180,000	1,030,000						
TOTAL PHASE 3	1,210,000	0	180,000	1,030,000	0	0	0	0	0	0
ALTERNATIVE B TOTALS										
PHASE 1	14,155,000	1,230,000	2,110,000	6,070,000	370,000	100,000	2,420,000	0	0	1,855,000
PHASE 2	16,850,000	905,000	1,440,000	8,940,000	60,000	175,000	3,220,000	1,550,000	80,000	480,000
PHASE 3	1,210,000	0	180,000	1,030,000	0	0	0	0	0	0
PHASES 1, 2, AND 3	32,215,000	2,135,000	3,730,000	16,040,000	430,000	275,000	5,640,000	1,550,000	80,000	2,335,000
<i>Additional Partner Contributions</i>	<i>\$4,435,000</i>	<i>5,000</i>	<i>1,105,000</i>	<i>3,050,000</i>	<i>0</i>	<i>50,000</i>	<i>0</i>	<i>0</i>	<i>0</i>	<i>225,000</i>
<i>Total with Partnership Funding</i>	<i>\$36,650,000</i>	<i>2,140,000</i>	<i>4,835,000</i>	<i>19,090,000</i>	<i>430,000</i>	<i>325,000</i>	<i>5,640,000</i>	<i>1,550,000</i>	<i>80,000</i>	<i>2,560,000</i>

Alternative C: Preferred Alternative

Alternative C is the NPS preferred alternative. In the spirit of *mālama i ka‘āina* (care for the land), alternative C emphasizes stewardship of Kalaupapa’s lands to ensure the long-term preservation of the Kalaupapa story about the forced isolation from 1866–1969. Kalaupapa’s diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. These diverse resources include cultural landscapes, historic structures, cemeteries, and intangible resources such as stories, customs, and living traditions. Other significant resources to protect, maintain, and enhance in character include native Hawaiian archeological sites, the natural and dramatic geology of Kalaupapa, and terrestrial and marine resources.

Alternative C would cultivate, establish, and maintain a wide range of partnerships for the long-term stewardship of Kalaupapa. The preferred alternative’s concept focuses on collaboration with agency partners, organizations, and institutions to steward Kalaupapa’s varied lands. Through hands-on stewardship activities, service and volunteer work groups would have meaningful learning experiences focused on Kalaupapa’s history and significance, while contributing to the long-term preservation of the ‘āina. Volunteers engaged in resource management activities would be trained and/or supervised by qualified professionals and would follow resource management protocols and goals. Engaging youth would be a key component to elevating awareness about Kalaupapa in Hawai‘i and nationally. Select historic buildings and neighborhoods would be reserved to provide lodging and administrative space for partners or volunteer service groups. The NPS would direct staff time, funding, and facilities to maintaining and enhancing partnerships. Partnership entities could include state and local agencies, schools and universities, historical institutions, native Hawaiian cultural groups, environmental organizations, neighboring landowners, patient and kama‘āina families, and other nonprofit organizations. Agreements with partners would be updated to reflect the intent and actions of this alternative as necessary.

Many of these partnerships already exist, and the preferred alternative would enhance these partnerships and build new relationships with allied entities throughout Hawai‘i, nationally, and abroad.

As long as patients live at Kalaupapa, the National Park Service would manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the character of the community. DOH and community rules and regulations for visitation and use would not change unless at the discretion and direction of the patient advisory council and DOH.

Visitation by the general public would be supported and integrated into park management. Visitor regulations would change, including allowing children under adult supervision to visit Kalaupapa. The 100 person per day visitor cap would be removed, and the park would engage new mechanisms to limit the number of visitors per day. A day-use entry pass system would be instituted as a free option for visiting the historical park. Visitors would be able to access select areas on their own for personal reflection and learning. A nonprofit organization or concessioner could provide for visitor services such as lodging, meal service, tours, and merchandise sales, if a non-federal partner is identified to share the cost of rehabilitating historic structures for these services. Select historic buildings and building clusters have been identified for potential future overnight visitation by the general public.

The NPS would recommend the recognition of highly significant resources to further highlight their regional, national, and potential international significance to the general public. New designations and changes to existing designations could include expanding the current National Natural Landmark status, local marine managed area, National Register of Historic Places designation for an archeological district, and/or traditional cultural property, Wild and Scenic River designation for Waikolu Stream, and World Heritage designation. All new and updated designations would involve consultation with federal, state, and local agencies and partners.

The NPS would recommend a boundary modification to Kalaupapa National Historical Park to promote long-term protection of nationally significant resources along the North Shore Cliffs. The boundary modification would include Pelekunu Preserve and a portion of the Pu‘u O Hoku Ranch. These new areas may be managed as a “Preserve” whereby access is maintained and hunting, fishing, and gathering is allowed. Congressional legislation would be required to authorize this boundary modification.

The intent of resources management would be to maintain and enhance the integrity of resources through active management and stewardship opportunities with partners, visitors, and service groups.

Management Zones

The management zones for the preferred alternative are applied to the landscape to identify an area's predominant use and desired future conditions. Specific boundaries of the management zones are provided in Figure 3.4. The following description identifies the locations and details for the application of management zones in alternative C.

Integrated Resource Management Zone

The integrated resource management zone would encompass most of the peninsula, including the Kauhakō Crater, entire marine area, 'Ōkala and Huelo Sea Bird Sanctuaries, Pu'u Ali'i Natural Area Reserve, and some cliff areas below 500 feet.

Wao Akua (Place of the Spirits) Zone

The wao akua zone generally corresponds to the boundaries of the North Shore Cliffs National Natural Landmark within the park. It would include cliff areas above 500 feet, including the Pu'u Ali'i Natural Area Reserve.

Operations Zone

The operations zone would include portions of the Kalaupapa Settlement, including staff housing and maintenance areas. It also includes the airport and road to the well and water tanks.

Engagement Zone

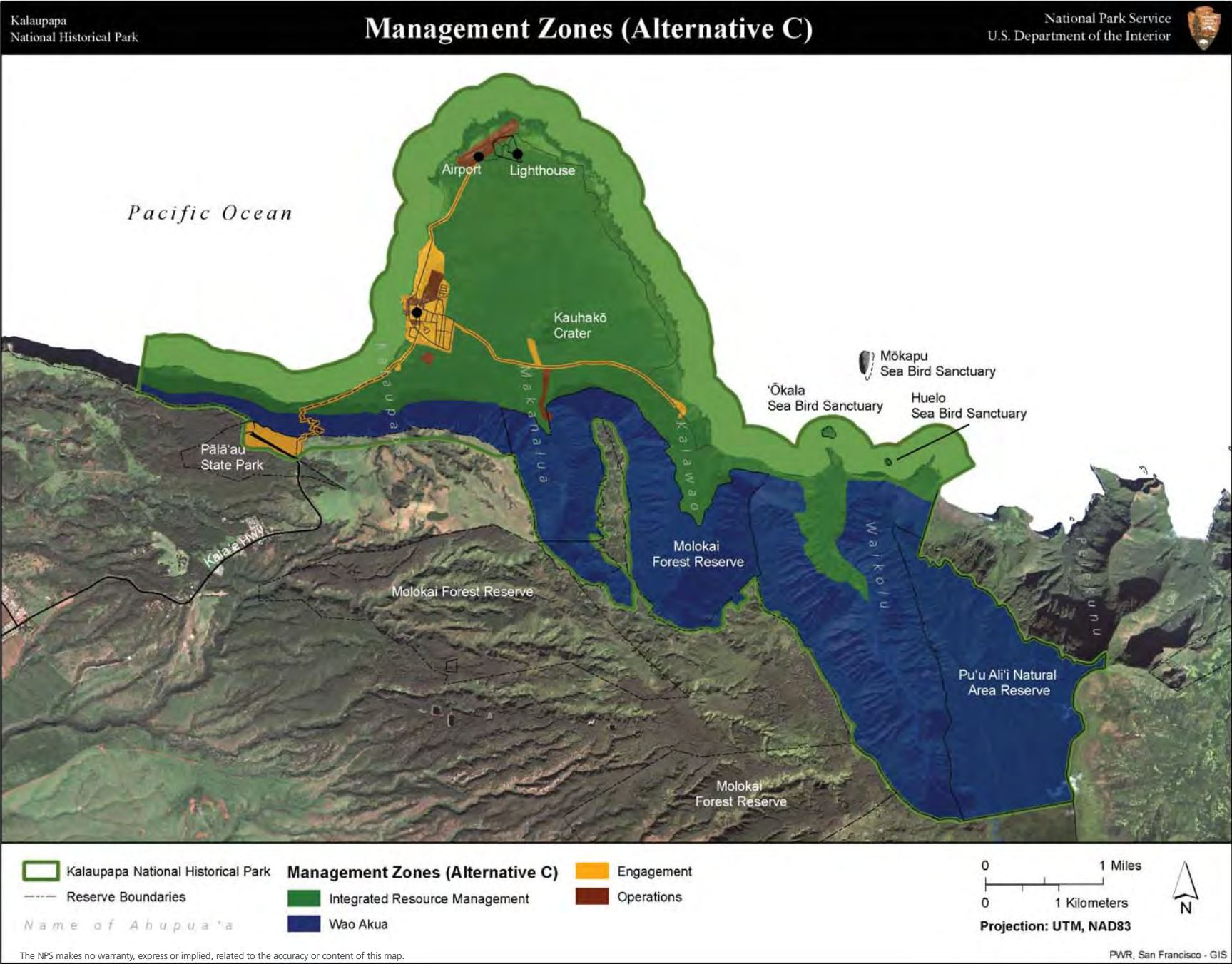
The engagement zone would include the area of Pālā'au State Park within the boundary of Kalaupapa NHP, the majority of the Kalaupapa Settlement, cemeteries to provide access for 'ohana, and Kalawao, including the churches, the memorial, and Judd Pavilion. The engagement zone access corridors would extend approximately 25 meters on either side of road centerline in all cases. These corridors would include the pali trail corridor, Airport Road and Kamehameha Street corridor, and Damien Road corridor to Kalawao and Judd Park, and Kauhakō Crater Road. Alternative C provides increased areas for visitor engagement as compared to alternative B, in order to promote resource stewardship through hands-on activities and personal engagement.

Unescorted access would be allowed in all areas of the engagement zone. In order to access areas to the east of Kalaupapa Settlement within the engagement zone, visitors would need to receive an orientation and entry pass.



Gravesite at the Kauhakō Crater. NPS photo.

Figure 3.4 Alternative C: Preferred Alternative Management Zones



Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP. The actions and strategies in this section are in addition to those outlined in the “Actions Common to All Alternatives” section.

Kalawao

In the near and long-term, Kalawao would function much as it does today and as described in the “Actions Common to All Alternatives” section. In addition, the NPS would allow unescorted public access to Kalawao on Damien Road to visitors who obtain an entry pass at the NPS orientation center at Paschoal Hall. Prior to receiving the entry pass to Kalawao, first-time visitors would be oriented to the history of Kalaupapa and the historic park rules and regulations. Unescorted public access would provide greater opportunities for visitors to see and experience Kalawao on the windward side of the peninsula.

Kalaupapa Settlement

In the near term, Kalaupapa Settlement would function much as it does today and as described in the “Actions Common to All Alternatives” section.

In the long-term, Kalaupapa Settlement would be managed as a cultural landscape with characteristics that illustrate its history and national significance. The settlement’s landscape characteristics would be preserved, including the overall spatial organization and layout, circulation systems such as roads and trails, the historic buildings and structures, and the small-scale features that include the personal touches of patients and kōkua. The NPS would allow unescorted public access to the settlement from the pali trail and within the settlement to the cattle guard near the airport and cattle guard on Damien Road to Kalawao.

While the overall character of the settlement would be preserved, the function and uses of some of the neighborhoods and many of the historic structures in Kalaupapa Settlement would change. The goal and long-term vision is to concentrate similar uses into specific neighborhoods and localized areas within the settlement. This would allow for greater operational efficiencies and promote safety and security for staff, partners, and visitors. The NPS would seek to

maintain the functions of many of the buildings at Kalaupapa due to their characteristic building types or rehabilitate buildings for compatible future uses. In this effort, the GMP team surveyed the buildings and distinct areas of the Kalaupapa Settlement and identified appropriate uses for those areas.

The following description provides guidance for the future use and treatment of clusters within the settlement. This guidance is flexible and is meant to be helpful in making decisions about future functions of buildings and clusters. In the future, park managers may have additional information or conditions may change for individual structures and building clusters so that a different use or treatment is decided as a better solution.

Buildings, structures and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve their congregations and visitors with religious affiliations to the churches. These include St Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, and the Church of Jesus Christ of Latter-day Saints.

Existing and future park partners could use and co-manage historic buildings at the Bishop Home, along Kamehameha Street, in the central residential area of the settlement, and in the beach house area. The Bishop Home could serve as a nondenominational retreat facility if nonfederal partner contributions were secured. Park partners would share in funding historic preservation work and cyclic maintenance necessary for these historic structures and areas. Park partners are envisioned to be agencies, institutions, nonprofit organizations, volunteer work groups, school groups, and religious entities whose missions aligns with the purpose of Kalaupapa NHP.

Communal areas that would provide for group activities for park staff, partners, and visitors would be located in compatible historic facilities. These include, but are not limited to, McVeigh Social Hall, Mother Marianne Library, Paschoal Hall, Lion’s Club Ocean View Pavilion, and Judd Park Pavilion.

Some buildings and clusters would be used to interpret the lives of patients and kōkua at Kalaupapa. A select few residential homesites of patients could serve as interpretive exhibits, such as Kenso Seki’s homesite and Ed Kato’s studio. Historic residential homesites in the main residential area and other specific historic structures would be stabilized as exterior exhibits in the event that a

use is not identified. Other important historical figures at Kalaupapa such as Bernard Punikaia and Richard Marks could have their stories featured as exhibits at Paschoal Hall or Hale Mālama.

Areas for visitor use would include: 1) buildings for visitor orientation, and 2) buildings and clusters for concession or nonprofit operated visitor services. Paschoal Hall would function as the primary interpretive and orientation center and multipurpose space. It would be a hub for orienting visitors when they first arrive at the settlement. Paschoal Hall would house interpretive exhibits and could be used for film screenings, presentations, and other group functions. Mother Marianne Library could function as a resource center about Kalaupapa and for volunteer orientation and training. At the base of the pali trail upon entering the settlement, the slaughterhouse and bleacher area would be a staging area for incoming and outgoing tour groups and visitors.

The park would also explore ways to provide a variety of visitor services housed in compatible historic buildings and clusters, and operated by a concession or nonprofit organization. The rehabilitation of structures for visitor services would require securing nonfederal partner contributions and could be incrementally phased in over time. Fuesaina's Bar, the cafeteria, and the Kalaupapa Store could be used for food and beverage services, general groceries, books, and merchandise sales. The Visitors' Quarters, Bay View, Staff Row, and McVeigh could be used for overnight lodging for visiting groups and individuals. The DOH administration building could be used for concessions offices, and select storage and maintenance facilities would need to be identified for concessions use. Buildings identified for potential future visitor use would continue to be stabilized until funds are found for their rehabilitation.

NPS staff housing and temporary staff housing would be located into the residences along the south side of Damien Road (including the Quonset), the main residential and central residential areas, and beach houses. These areas

would serve as the primary areas for staff housing. Housing in these areas and possibly other locations would support approximately 69 full-time employees and additional temporary or visiting staff. Park operations would include headquarters, offices, maintenance, and storage areas. Park offices would be located in the NPS headquarters, police headquarters, the old stone church, Hale Mālama, and DOH care facility. Maintenance and warehouse facilities would be located along the Damien Road waterfront, motor pool area, recycling center, and pier area.



Boys at Kalaupapa, early 1900s. Photo courtesy of Damien Museum.

Peninsula and Kauhakō Crater

The peninsula and Kauhakō Crater would continue to be managed for their cultural, terrestrial, geologic, and marine resource values. The NPS would focus on research, monitoring, and management activities that promote long-term stewardship of the 'āina. Public access to the peninsula would require an NPS or partner escort in order to protect the area from potential adverse uses and activities. Unescorted public access to the rim of Kauhakō Crater from Damien Road would be allowed to visitors who have an entry pass obtained at the NPS orientation center.

Pālā'au State Park

Visitor facilities at the Kalaupapa Overlook at Pālā'au State Park would be improved.

The NPS would establish a kiosk that provides interpretive and orientation information for visitors seeking to learn about Kalaupapa and those who descend the pali trail to Kalaupapa. Visitors would continue to have free and unescorted access on the premises of Pālā'au State Park within the boundary of Kalaupapa NHP.

Management Structure, Partnerships, and Agreements

Same as "Actions Common to All Alternatives" plus the following additions included in this section.

Once DOH departs Kalaupapa, it is envisioned that the NPS would assume full management of Kalaupapa's resources, visitor use, and operations and would continue to manage Kalaupapa in cooperation with DHHL, DLNR, and DOT through cooperative agreements, lease agreement, and possible acquisition and/or transfer of land and resources to the NPS.

Cooperative Agreements

Existing cooperative agreements with DOH, DLNR, DOT, and the lease with DHHL would continue.

Department of Health Partnership

The NPS and DOH would continue to collaborate and update the transition plan that would guide the turnover of management responsibilities for visitor use, historic structures and facilities, and operational responsibilities.

Department of Hawaiian Home Lands Partnership

In the long-term, the NPS would continue to have use of buildings and facilities at Kalaupapa. Ownership of the buildings would transfer from DOH to DHHL once the DOH departs Kalaupapa. The NPS and DHHL would update the lease and could extend the lease for longer than its current end date in 2041. The NPS and DHHL could develop a cooperative agreement to define roles and responsibilities for the long-term care and use of the Kalaupapa Settlement and DHHL lands within the park boundary. The cooperative agreement with DHHL would be effective upon DOH's departure.

As part of the stewardship and partnership emphasis in the preferred alternative, the NPS would consult with DHHL for the development of educational, stewardship, and cultural programs. These programs would highlight the story of forced isolation from 1866–1969 and native Hawaiian history and traditions related to the many stories of Kalaupapa and would promote the ethic and practice of *mālama i ka 'āina*.

The NPS may continue to act on the enabling legislation direction to explore land donation or exchange with DHHL during the life of the GMP.

Homesteading

The lands owned by DHHL at Kalaupapa and leased to the NPS are currently co-managed by the NPS and DOH in consultation with DHHL. The primary

intent of NPS management of DHHL lands is to preserve and perpetuate Kalaupapa's stories of the Hansen's disease patient community and the 'āina. Once the patient community is no longer living at Kalaupapa, and the DOH terminates the operation at Kalaupapa, the NPS would manage Kalaupapa in close cooperation and consultation with DHHL.

Questions from concerned citizens about native Hawaiian homesteading on DHHL lands at Kalaupapa have centered on possible use of historic lo'i systems at Waikolu Valley, which are actually on DLNR lands. Few people proposed homesteading on the Kalaupapa peninsula due to the unique and compelling story of forced isolation of the people of Hawai'i afflicted with leprosy from 1866–1969, its remote location, the thousands of unmarked gravesites, and the historic landscape. Concerned people include patient residents, 'ohana of patient residents, kama'āina of Kalaupapa, native Hawaiians, Molokai residents, and members of the general public. At every public meeting held for this GMP, people who commented on the topic of homesteading either strongly supported or did not support it at Kalaupapa. Those who supported the idea, including native Hawaiian beneficiaries, felt that it was the right of native Hawaiians, especially the kama'āina of Kalaupapa, to homestead on their home lands. A majority of people who commented opposed homesteading. Many stated that traditional homesteading is not compatible with preserving and protecting the story of forced isolation and the sacredness of Kalaupapa. There were also concerns about the extremely high cost of maintaining a homesteading community in a geographically isolated location.

Department of Hawaiian Home Lands has assigned special land conservation designations for its lands at Kalaupapa that discourage homesteading and encourage perpetuation of the special nature and historical significance of the Hansen's disease settlement. DHHL has not zoned the lands for homesteading. Under the provisions of the lease between the NPS and DHHL "DHHL shall have the right to withdraw from the operation of this lease all or any portion of the demised land for the purposes of the Hawaiian Homes Commission Act" which includes making lands available for homesteads (General Lease No. 231, 1992, p. 5). However, in the event DHHL withdraws land or terminates the lease before its expiration in 2041, the NPS would be entitled to full compensation for the NPS's investment in improvements to the property which is estimated to be approximately \$40 million. Further, DHHL would need to give the NPS five years notice of a withdrawal and provide an opportunity for the State of Hawai'i Department of Health and patients to submit their concerns. Thus,

in order to allow homesteading, the conditions of the general lease would need to be modified and/or DHHL would need to formally withdraw lands under the provisions in the general lease which would affect the lease rental (currently the NPS pays DHHL \$230,000 per year for the lease rental.)

The NPS does not have the authority to regulate homesteading; rather the NPS can only make recommendations within this GMP. The NPS recommends that no homesteading occur in the Kalaupapa Settlement. If DHHL were to allow homesteading in the future, the NPS would recommend that such activity be limited and that the homesteaders be engaged in activities that support the purpose of the park.

The DHHL *Moloka'i Island Plan* (2005) states, "The character of Kalaupapa would be retained as a unique community whose legacy is to be defined by its wide range of historical use." Major factors influencing land use decisions at Kalaupapa include preserving and perpetuating the living legacy of Hansen's disease residents, interest of the NPS to retain long-term involvement with Kalaupapa, improvements to infrastructure, limited access, beatification of Mother Marianne Cope, and canonization of Father Damien (*Moloka'i Island Plan* p. 6-3, 6-4). The plan's identified land uses within the boundaries of Kalaupapa National Historical Park include 621 acres zoned as "Special District," which includes the settlement area; 7 acres zoned as "Community Use"; 5 acres zoned as "Commercial" within Pālā'au State Park; 609 acres zoned as "Conservation" along the cliffs; and approximately 38 acres at Pālā'au State Park within the NPS boundary zoned as "Special District." See DHHL *Moloka'i Island Plan* 2005, Kalaupapa-Pālā'au Preferred Land Use Plan.

Considering DHHL's plans for Kalaupapa, the general lease, and the purpose of Kalaupapa NHP, the intent of DHHL and NPS management is to preserve and perpetuate the legacy of the Hansen's disease community while also supporting native Hawaiians. The NPS supports enrichment and advancement of native Hawaiians through three provisions in the Act that established Kalaupapa National Historical Park: 1) native Hawaiians have second right of refusal after patient residents for any income-generating visitor services; 2) qualified native Hawaiians receive hiring preferences for staff positions at Kalaupapa National Historical Park; and 3) the NPS shall provide training opportunities for native Hawaiians to develop skills for staff positions and for the provision of visitor services. These three mechanisms provide special opportunities for

native Hawaiians to be employed at Kalaupapa NHP for the purposes of park management, operations, and visitor services.

To further the DHHL and NPS goals at Kalaupapa, the NPS would recommend partnering with DHHL to create programs and activities for native Hawaiians related to the purpose of the park. Stewardship programs could include the continued rehabilitation of Hawaiian sites and preservation of historic structures and landscapes associated with the Hansen's disease community within the DHHL lands. Educational programs could include themes that focus on wellness and healing and Hawaiian traditions at Kalaupapa. Agreements for management of facilities and lands to support these programs would be necessary to clearly outline each agency's roles and responsibilities. It is the intent of the NPS to cooperate, collaborate, and partner with DHHL so that Hawaiians and all people can learn about the important stories and traditions associated with Kalaupapa.

Department of Land and Natural Resources, Department of Transportation, and R. W. Meyer, Ltd. Partnerships and Churches

The NPS would work collaboratively with DLNR, DOT, and R. W. Meyer, Ltd. to update or enter into new agreements for long-term management of Kalaupapa NHP based upon the intent of the preferred alternative.

The agreement with DLNR would focus on shared management of cultural, natural and marine resources within the park administered by DLNR, including the Mākanalua, Kalawao, and Waikolu ahupua'a. The NPS may continue to act pursuant to the enabling legislation regarding land donation or exchange with DLNR during the life of the GMP.

The agreement with DOT would continue to focus on providing safe air transport to Kalaupapa and preserving the historic buildings and features on DOT land.

The National Park Service would enter into a lease or other agreement with R. W. Meyer, Ltd. to continue to allow access for staff and visitors on the pali trail through R.W. Meyer, Ltd. land and to pursue shared resource management goals in the long-term.

Cooperative agreements with the Roman Catholic Church in the State of Hawai'i, the Hawai'i Conference Foundation, and the Church of Jesus Christ of

Latter-day Saints would also continue as long as they are viable and would be renewed for management of churches and church properties within Kalaupapa NHP. It is expected that the religious institutions will seek a continued presence at Kalaupapa and/or interest in partnering with the NPS for the long-term care of the churches and related facilities.

Cultural Resources

In addition to the management strategies in the “Actions Common to All Alternatives” section, the NPS would preserve cultural resources through engagement with partners, visitors, and service groups for visitor learning and enjoyment. The NPS would focus cultural resource treatments on stabilization, preservation, and rehabilitation, to ensure the long-term preservation of significant historic structures and landscape characteristics, especially related to the period from 1866–1969. Historic structures could be adapted to accommodate visitor use and support operations of the national historical park. Opportunities would be provided for visitors to participate in onsite living cultural activities. The NPS would expand an already active cemetery preservation program that may include conducting formal investigations to identify and quantify additional gravesites, marking cemeteries, and marking gravesites.

Values, Traditions, and Practices of Traditionally Associated People

The NPS would enhance the ethnography program with additional staff and collaboration with partners focused on patients, their ‘ohana, kōkua, and kama‘āina. Ethnographic work would focus on conducting formal and informal oral



Top: Paschoal Hall activity, 1950s. Photo courtesy of IDEA Archives. Middle: Paschoal Hall rehabilitation, 2011. NPS photo. Bottom: Paschoal Hall rehabilitation complete, 2012. NPS photo.

histories, documentation, and research of existing and past cultural traditions and peoples associated with Kalaupapa.

Archeological Resources

The NPS would increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeological district and/or a traditional cultural property designation. The NPS would manage and increase hands-on learning, research, stabilization, and other preservation treatments of archeological resources through stewardship activities.

The resources related to early native Hawaiian habitation and use within the historical park is vast, complex, and remarkably intact. Native Hawaiian features from the pre-settlement period would receive preservation treatments, including stabilization, rehabilitation, and restoration. The NPS would collaborate with partners to ensure the long-term protection of features that contribute to the archeological record and cultural landscape. The opportunities for rehabilitation and restoration projects are numerous and could include work on the heiau, agricultural rock walls, holua slide, invasive vegetation clearing, and reintroduction of traditional plants.

Historic Structures

Historic structures refers to buildings and structures that are contributing to the Kalaupapa Settlement National Historic Landmark, were constructed between 1866 and 1969, or are otherwise listed or are eligible for listing on the National

Register of Historic Places. The NPS would follow the Secretary of Interior's Standards for Treatment of Historic Properties.

A phased strategy that considers historic preservation goals and management needs would guide the treatment of individual buildings. Kalaupapa's NHL-contributing historic structures would be stabilized, preserved, and rehabilitated for current and future uses, including visitor facilities, partner uses, park operations, and as interpretive exhibits as funding allows. At a minimum, all NHL-contributing historic structures would be documented in historic structures reports and stabilized to prevent further loss of historic fabric. The NPS would maintain the integrity of the NHL and address high priority needs before turning to activities that are less essential.

The preferred alternative identifies appropriate uses and treatments for each historic building within the park. Specific functions for neighborhoods and individual buildings are identified in the Kalawao and Kalaupapa Settlement section on page 107. The NPS considered the existing use of each building, whether the existing use is compatible with the long-term future of the park, and whether a more appropriate and necessary use would be desirable. Some structures would be adaptively used. The conditions of the existing historic buildings at Kalaupapa vary widely, and require different treatments depending on their condition and intended future function. For each building, its existing condition, historical significance, and future function was assessed, and an appropriate treatment was identified.

All historic preservation treatments would be conditional on the availability of funding. In general, the NPS would prioritize stabilization of NHL-contributing historic structures before moving to more intensive rehabilitation projects. Based on previous experience, the NPS would use best practices in stabilizing historic buildings and improving their conditions for use while minimizing costs. Most historic preservation projects in the preferred alternative would be performed by non-NPS construction contractors. However, many small scale

stabilization and preservation projects could be done by Kalaupapa's historic preservation program and are therefore not reflected in the cost tables. Several non-historic outbuildings (such as garages and storage sheds) with no anticipated future use will not receive any project funds.

Once buildings have been preserved or rehabilitated, they would receive cyclic maintenance.



Hale Mālama curatorial facility blessing ceremony, 2005. NPS photo.

Phased Approach:

Phase 1 includes stabilization and preservation of essential NHL-contributing historic structures managed by the NPS that are in poor and fair condition and have an immediate and necessary use. These buildings include staff housing residences and necessary outbuildings. Phase 1 also includes rehabilitation of historic maintenance structures (such as workshops and warehouses) for operation of the park's historic preservation program. Several stabilization projects would be completed by NPS staff and would require minimal costs for completion.

Phase 2 addresses the park's needs during and after the DOH's departure from Kalaupapa and is expected to occur over many years. Historic buildings necessary for park operations, partner use, staff housing, community use, and visitor services would be preserved and rehabilitated depending on the condition of the structure. During Phase 2, the DOH will transfer management responsibilities of the remaining historic buildings to the NPS. At a

minimum, all NHL-contributing historic structures received from the DOH would be documented and stabilized until a future function is feasible. This set of structures includes buildings that are identified for possible future concessions and visitor lodging.

Phase 3 includes rehabilitation of identified historic buildings that could be used for visitor services and occurs after the DOH's departure from Kalaupapa. The rehabilitation treatments in Phase 3 build on the stabilization work previously completed in Phase 1 and 2 for these structures. These buildings

would function as part of a concessions operation. The operation could be run by a nonprofit or for-profit entity. Implementation of Phase 3 would require securing non-federal partner contributions and could be incrementally phased in over time.

The NPS would strive to meet these goals while working in partnership with the park's state, religious, and other for-profit and nonprofit partners. Several historic preservation projects would require securing funding from non-federal partners. In addition, a key component of alternative C is to involve stewardship groups in appropriate historic preservation projects through hands-on learning activities. Groups could assist in preservation work to help offset NPS costs.

Many of Kalaupapa's historic structures are in vulnerable locations along the ocean shore within the 100-year floodplain. These structures are at-risk from tsunamis, hurricanes, sneaker waves, storm surges, flooding, and sea level rise. The NPS would document and seek to maintain the integrity of NHL contributing structures along the ocean shore and use them as described in Alternative C. In the event of a catastrophic loss of historic structures, the NPS would monitor the remaining structures and would make decisions on a case-by-case basis to determine the future management of impacted buildings. The historic buildings could be rehabilitated, treated to increase their resiliency to future events, or they could be abandoned, and their functions could be relocated. Replacement structures may be warranted under some scenarios.

The NPS recognizes the dynamic nature of planning for and managing Kalaupapa's historic structures. The NPS will maintain an adaptive management philosophy, considering new opportunities and risks as they arise and reprioritizing historic preservation projects as appropriate.



Lava bench tidepool on Kalaupapa's rugged northeast coast. NPS photo.

Cultural Landscapes

The NPS would improve the overall condition of Kalaupapa's documented cultural landscapes within the boundary of Kalaupapa NHP including the Kalaupapa and Kalawao settlements and the Molokai Light Station. In the preferred alternative, the NPS would focus on large-scale cultural landscape preservation and treatment projects through assistance from partners and stewardship groups. The NPS would actively support hands-on learning that works to preserve historic character and assure compatible rehabilitation of the cultural landscape.

The cemeteries in Kalaupapa NHP serve as the final resting place for thousands of Hansen's disease victims and the kōkua who assisted them. As such, they are important places in the history of Kalaupapa and for the thousands of descendants with ancestors who were exiled at Kalaupapa. As memorials, Kalaupapa's cemeteries would be cared for with utmost respect. The NPS would continue active management and care of known cemeteries, including ongoing stabilization, and preservation treatments of known gravesites.

The NPS would develop a cultural landscape report that identifies long-term strategies to reduce fragmentation and incremental loss of cultural landscape features and prescribes preservation treatments for landscape characteristics and features. The NPS would increase support for documentation and research related to Kalaupapa's cultural landscape features, including research on identifying cultural traditions expressed in the landscape. Initially, the NPS would focus on stabilization of landscape features, so that resources are not lost. The NPS would then rehabilitate selected areas and landscape features that illustrate Kalaupapa's many histories. These areas could include patient residential gardens. Selected areas could be adaptively used, as described in the Kalaupapa Settlement section, for public use and learning. The NPS would also maintain selected viewsheds to enhance understanding of the larger landscape, particularly from overlooks and viewpoints. The NPS would expand the nursery program to include fruit trees,

legacy trees, and additional rare and endangered plants and work to manage fruit and legacy trees in coordination with the natural resources management program.

A key component of the long-term preservation of Kalaupapa's cultural landscapes is coordination and collaboration with a variety of partnership entities focused on the purpose of Kalaupapa NHP. The hands-on work and labor to stabilize, preserve and rehabilitate landscape features and characteristics within Kalaupapa NHP is an effort that the NPS cannot do alone, and partnership programs and projects would support both the long-term preservation and maintenance of Kalaupapa while also instilling in individuals the value of stewarding the Kalaupapa 'āina. The possibilities for partnership programs and projects are numerous and could include an education institute, rock wall restoration, vegetation clearing, and maintenance of ethnobotanical gardens.

Museum Collections

Collections items would continue to be documented, preserved, and managed following the most current museum management plan. Acquisition of items and development of the collection would follow the most recent scope of collections for Kalaupapa NHP.

In order to better understand and manage the full range of items related to Kalaupapa, both within the NPS collection and within the collections of other entities, the NPS would collaborate with partners in managing, documenting, and conducting research related to the collections. The NPS would continue to consult with patients and 'ohana to better understand objects in collections. The NPS could partner with repositories to house Kalaupapa museum

collections as well as identify Kalaupapa-related collections housed in offsite repositories. The NPS and its partners would develop digital tools, finding aids, and media products that support research and offer creative ways for visitors to interact with the collections both onsite and offsite. Museum collection items could be displayed in exhibits within historic structures and at the visitor center as appropriate. Where ownership of collections is undetermined, the NPS would work with partners, including the State of Hawai'i, to identify ownership and make long-term arrangements for the conservation of these items.

Natural Resources

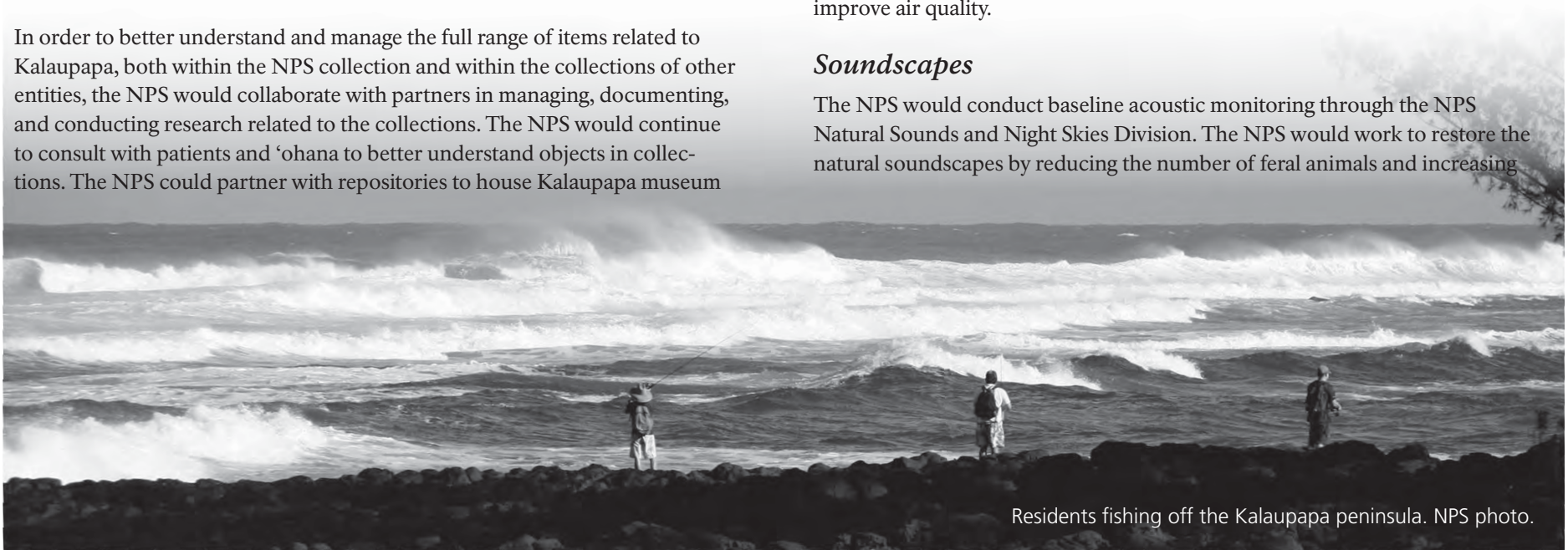
In addition to the management strategies in the "Actions Common to All Alternatives," alternative C would expand the research and monitoring programs to better understand ecosystem processes using both traditional and contemporary methods. The NPS would involve partners and stewardship groups in natural resource management activities.

Air Quality

The NPS would work with national, state, and local entities to better understand air quality at Kalaupapa and implement Molokai and NPS initiatives that improve air quality.

Soundscapes

The NPS would conduct baseline acoustic monitoring through the NPS Natural Sounds and Night Skies Division. The NPS would work to restore the natural soundscapes by reducing the number of feral animals and increasing



Residents fishing off the Kalaupapa peninsula. NPS photo.

the number of native species in the park. The soundscape levels in developed areas would be quantified so that future uses and sound levels are compatible with the historic, cultural, and contemplative character of the park. This would include working to control modern human noises that may impact the soundscape, such as aircraft noise related to construction, machinery, and air tours.

Lightscapes

The NPS would work to improve natural dark night sky conditions, protect the park from light pollution, and reduce electrical power usage by using sustainable design and technologies in the park. The NPS would conduct baseline night sky and lightscapes monitoring in order to quantify the current conditions.

Water Resources

The NPS would continue monitoring and research of water resources to identify high water quality areas, such as the ocean, streams, the crater lake, and wetlands. These high water quality areas would be protected and preserved, and poor water quality areas would be improved where possible. The NPS would work with partners outside the park that utilize and manage water resources to improve water quality and flows. The NPS would also continue to maintain and operate the water treatment and distribution system for drinking water.

Marine Resources

The NPS would explore establishing a managed area within the marine portions of the park, in consultation with DLNR and community partners, to include areas with high fish biomass and/or other important marine resources. Monitoring and research would continue using both traditional and contemporary methods to track status and trends of fisheries and marine wildlife and conditions in the intertidal zone and coastal reefs. The NPS would work to restore select marine areas, which could include enlisting stewardship groups to help remove alien species.

Soils and Geologic Resources

The NPS would continue monitoring of geological resources and would manage geologic resources as a component of natural systems and viewsheds. The NPS would continue monitoring of soil erosion and landslides, would mitigate for soil erosion and landslides, and take preventative measures to stabilize sensitive and erodible areas, as feasible.

Vegetation

In addition to the management strategies in the “Actions Common to All Alternatives” for vegetation management, the NPS would continue and expand the vegetation monitoring program to track status and trends of plant species in the historical park. The nursery program would be expanded to include fruit trees, legacy trees, and additional rare and endangered plants. Management of culturally significant vegetation would be done in coordination with the cultural resources staff, including carrying out an integrated pest management plan. The NPS would also support traditional agricultural practices and encourage visitor and service group participation.

Wildlife

Management of wildlife would focus on reducing nonnative wildlife species within the park and improving native habitat for native birds and other native wildlife. This includes fencing and removing feral ungulates in management units of the park and increasing efforts to reduce nonnative small mammals (such as mongoose) from the Kalaupapa Settlement. The NPS would also establish a monitoring program to track wildlife status and trends.

Fishing, Hunting, and Gathering

NPS regulations would continue to apply to the marine area of the park and on land to the extent consistent with the NPS real property interests or pursuant to cooperative agreements.

In the near term as in the “Actions Common to All Alternatives,” the DOH regulations and patient resident rules concerning fishing, hunting, and gathering would continue until the DOH departs Kalaupapa. See Appendix G for the DOH’s rules and regulations governing all visitors to Kalaupapa Settlement.

In the long-term, the NPS would work cooperatively with the appropriate state agencies to continue to manage marine resources within the park. The NPS would work cooperatively with the State of Hawai‘i and community partners to manage marine resource use and also ensure the sustainability of the resources for future generations. The NPS would also look to cooperative models for fishing best practices, such as those at Mo‘omomi, Ā‘ihihi Kīna‘u, and Kaho‘olawe.

In the long-term, the State of Hawai'i would continue to manage recreational/subsistence hunting and the NPS would work cooperatively with the State of Hawai'i and partners to establish new regulations for safety above and below the 500 foot elevation.

The NPS would also engage partners and service groups in preservation activities that support traditional cultural uses.

Scenic Resources

The NPS would provide visitors with opportunities for scenic views that encourage appreciation and enjoyment of Kalaupapa National Historical Park. The NPS would partner with stewardship groups to remove invasive nonnative vegetation that obscures or impacts significant views and features.

Interpretation and Education

The NPS would focus the content of interpretive and educational programs on the park's updated interpretive themes that were developed as part of this GMP effort and through the public planning process. They are described in chapter 2.

The NPS would greatly expand the growing interpretation and education division over time, including hiring staff to support a range of interpretive opportunities, including onsite interpretation, educational programs, and outreach programs to reach people who may not be able to visit the park. Most programs would be focused onsite with an emphasis on hands-on stewardship and learning opportunities that contribute to the preservation of Kalaupapa's resources. In addition, the NPS would involve patient residents, 'ohana, and kama'āina as cultural interpreters to tell the story of Kalaupapa. NPS staff, commercial guides, docents, and partners would be trained to convey accurate information about Kalaupapa's history, patient community, and Hawaiian culture.

A key component of alternative C is the support for group visitation engaged in hands-on learning to assist the park in improving resource conditions. Through activity, experience, and service, these special park visitors would be engaged in the long-term care of Kalaupapa's history and 'āina. A focus on youth groups would help to share Kalaupapa's unique history with future generations and promote a stewardship ethic of mālama 'āina for the long-term care of Kalaupapa NHP.

Stewardship groups could be engaged in a wide variety of park projects.

Resource projects could include supervised rehabilitation of historic buildings and cultural landscape features, nonnative plant removal, rare and endangered plant propagation and restoration, inventory and monitoring projects, and feral animal control and habitat restoration to benefit native wildlife. Cultural programs could include perpetuating native Hawaiian traditions and practices at Kalaupapa. Youth groups could be engaged in media and outreach programs, such as service learning activities and creating social media to increase awareness and interest in Kalaupapa.

In the long-term, the NPS and its partners would provide facility-based interpretive programs, interpretive media, digital experiences, onsite demonstrations, and opportunities for people to interact with NPS interpretive staff and partners at the park. Interpretive media and programs would be developed, such as publications, exhibits, a film, educational websites, and a walking tour. Digital experiences, such as computer and web-based programs, would provide contemporary strategies to reach and connect with broader and more diverse audiences both outside and within the park. Demonstrations by NPS staff, partners, and experts would provide visitors with a greater understanding of the Kalaupapa's resources. Demonstrations could include archeological excavations, historic building rehabilitation, rare and endangered plant propagation and restoration, and marine and terrestrial inventory and monitoring. The interpretive staff would collaborate with the resources programs to align the direction of the programs and benefit from shared information and resources.

Paschoal Hall would function as the primary interpretive and orientation center and multipurpose space. It would be a hub for orienting visitors when they first arrive at the settlement. Paschoal Hall would house interpretive exhibits and could be used for film screenings, presentations, and other group functions. All visitors would be required to visit Paschoal Hall for an orientation and before travelling to other areas of the park.

Interpretive information, such as wayside panels, would be sited at key locations throughout the park. Signs and interpretive waysides would be improved to provide clear and accurate information to visitors. A park-wide wayfinding and site identification plan would guide the development of signage and wayside panels for visitor enjoyment and learning. Select patient homesites and buildings, historic and natural features, and scenic viewing areas would provide visitors with a varied and in-depth understanding about Kalaupapa's cultural

and natural history. Museum collections items could be displayed as exhibits for interpreting Kalaupapa's Hansen's disease community and native Hawaiian history and traditions.

Outreach programs would be targeted to youth and communities on Molokai and throughout Hawai'i. The NPS would develop curriculum-based educational programs and materials, such as lesson plans and traveling educational exhibits about Kalaupapa. This could be done in partnership with educational institutions in Hawai'i and abroad.

An updated long-range interpretive plan would be developed to plan for the future of the park's interpretive and educational goals. The plan would include identifying visitor experience goals, developing subthemes of the interpretive themes, and more detailed planning for specific sites within the park. It would provide recommendations about interpretive media, interpretive facilities, personal services, and direction for a wide range of interpretive and educational programs and partnerships.

Visitor Use and Experience

In the near term, same as the "Actions Common to All Alternatives," visitor use would continue to be managed by DOH and NPS, and DOH rules and regulations for visitation would continue in order to provide a well-maintained community for the patient residents and to protect their privacy. In the long-term, it is anticipated that the NPS would manage visitor use and visitor facilities.

The term "visitors" is meant to encompass the wide variety of people who do not reside at Kalaupapa. Visitors could be general visitors who do not have a personal connection to the park. Visitors would include people who come to Kalaupapa to participate in specialized activities, such as school groups programs and stewardship activities. Visitors also include people who have personal connections to Kalaupapa, including family members and descendants of patients and kama'āina. All people would be welcome to visit Kalaupapa.

In order to preserve Kalaupapa's serenity, sacredness, and sense of isolation in the long-term, visitor rules and regulations would be designed to provide a variety of high quality visitor experiences focused on learning about Kalaupapa's history, reflection, and stewardship. Activities for visitors would be both

structured and unstructured in order to accommodate a range of visitor needs and desires that are compatible with the purpose of the park. Visitor experience would emphasize personal reflection, contemplation, culture, and history.

The NPS would partner with entities to provide visitors with opportunities to participate in hands-on stewardship activities that contribute to the preservation, rehabilitation, and restoration of resources. To make this long-term transition in visitor use, the NPS would need additional documentation and planning to implement the GMP guidance, such as a visitor use management plan. Additional planning could address all aspects of visitor use and regulations, including number of visitors, orientation and access, overnight use, and user capacity. Additional documentation could include the facility capacity of existing infrastructure, including water, sewer, waste disposal, recycling, transportation, and electrical systems, historic buildings, as well as updated pillow counts. The quantity and breadth of visitation affects multiple areas of park management, and more detailed planning will be necessary for structuring visitation at Kalaupapa in the future.

Number of Visitors

In the long-term, the number of visitors allowed per day would change. The number of visitors allowed would be determined and managed by: 1) the capacity of facilities to provide high quality visitor experiences, 2) limits on numbers of visitors through concessions contracts and commercial use authorizations, 3) an entry pass system, and 4) user capacity guidance contained in this GMP, see the "User Capacity" section. The NPS would manage visitation to ensure the preservation of Kalaupapa's qualities that are most valued: the special spirit of the people and their stories, the sacred mana and spirituality, the cultural landscape and historic surroundings, the peace and quiet, and the feeling of isolation and solitude.

The capacity of historic building, facilities, and infrastructure at Kalaupapa is finite and would not substantially increase. When facilities and systems need replacement or improvements, the capacity would generally be maintained at current levels. The NPS would have the priority for occupying and using facilities in order to maintain park operations followed by park partners. The remainder of overnight accommodations could be used for overnight visitors and operated by a concessioner or nonprofit entity. The "Kalaupapa Settlement" describes the projected uses for areas and historic buildings and facilities.

The NPS would work with concessioners and commercial operators to set limits on the number of visitors who purchase commercial services as part of their visit to Kalaupapa NHP. These limits would be identified in concessions contracts and commercial use authorizations. Limits on users would be instituted to manage the number of people who enter the park by mule, who use concession-led activities (such as tours), and who overnight at the park. For example, the commercial use authorization for access by mule allows 20 visitors to enter the park on the mule train per day. This limit is necessary to maintain the trail and bridges in good condition, and this limit or a similar one would continue in the future. A commercial use authorization or concessions contract would designate the number of people allowed on tours per day. It would also designate the number of people allowed to overnight in the park through a concession operation. In the event that it would not be financially viable for a concession to operate visitor services, a nonprofit entity approved by the NPS could operate these services.

An entry pass system would be established to provide structured access to portions of Kalaupapa NHP which would provide greater opportunities for more people to learn about, see, and experience Kalaupapa. Foot access from the top of the pali would be allowed to the Kalaupapa Settlement for day use by Molokai residents and general visitors. This would allow Molokai residents and visitors the opportunity to regularly visit the park and would seek to strengthen the connection between topside Molokai and the Kalaupapa's people and 'āina.



Air access to Kalaupapa would also be allowed, and people not associated with a commercial tour or lodging could visit the park as a day-use visitor.

Days could also be designated by the park for unlimited use for special events. These special events could be associated with the churches, such as St. Damien's Day, and days for families, such as "Ohana Days." These events require substantial staff involvement and coordination and also put pressure on facility capacities and transportation within the park. For these reasons, there would be no more than four special event days allowed for unlimited visitor use per year. In the event that there is increased pressure to hold special event days, the park would consider adjusting limits based upon staff availability and user capacity standards.

Orientation and Entry Pass

Orientation information would be provided on the internet, at offsite locations, and at key entrance points within the park boundary. Visitor information on the internet and at offsite locations would prepare visitors for their trip to Kalaupapa. An orientation and interpretive exhibits could be at the Ho'olehua Airport. The NPS would consider establishing an NPS presence for visitor orientation in Kaunakakai and in partnership with other state agencies or entities. Orientation information would be located at a kiosk at Pālā'au State Park and topside trailhead and at the bottom of the pali trail upon entering the Kalaupapa Settlement. Information would also be provided at the Kalaupapa Airport for those arriving by plane.



Left: Volunteers from Kaneohe Congregational Church help with vegetation removal. Right: Papaloa Cemetery. NPS photos

All visitors wishing to enter the Kalaupapa Settlement and other areas of the park would be directed to Paschoal Hall or other facility to receive a required entry pass and orientation to the park. The orientation would include introducing visitors to the purpose and significance of Kalaupapa and conveying rules and regulations so that visitors are respectful and safe during their visit. Special provisions for repeat visitors could be established. Visitors using the free day-use option would need to ensure they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.

An entry pass system would be established for all visitors to Kalaupapa Settlement and other areas of the park. The purpose of an entry pass system would be to protect resources, to orient visitors, and to monitor and evaluate visitor use. The entry pass would describe the conditions for visitation and regulations for use at Kalaupapa; visitors could be cited if they violated the regulations. The entry pass system would be instituted gradually, monitored, and designed so that visitor use does not exceed the capacity of facilities or alter the character of Kalaupapa NHP.

Access within Kalaupapa

In the long-term, the NPS would manage visitor access within Kalaupapa in order to protect resources, provide high quality visitor experiences, and promote visitor safety within the park. Escorted and unescorted access within the park would be allowed after visitors are oriented to the park and receive an entry pass at Paschoal Hall.

The NPS received comments from people expressing a desire to experience areas of Kalaupapa on their own terms. These visitors wanted personal space to honor the patients and native Hawaiians who lived and died at Kalaupapa and opportunities for personal reflection and solitude.

The NPS would allow unescorted access to select areas within the park to provide self-guided opportunities for those seeking to learn about Kalaupapa on their own. Visitors would have unescorted access within the Engagement Zone from Pālā'au State Park to Kalaupapa Settlement and to Kalawao. Visitors would have free and unescorted access on the premises Pālā'au State Park within the boundary of Kalaupapa NHP and down the pali trail and to the limit of the Kalaupapa Settlement. After receiving an entry pass, visitors would be allowed unescorted access within Kalaupapa Settlement to the cattle guard by

the airport consistent with the boundary for sponsored visitors. After receiving an entry pass, visitors could walk or travel unescorted on Damien Road to Kalawao, including Saint Philomena Church and Judd Park. Allowing visitors to travel to Kalawao would provide access for family members to visit the memorial on their own. Unescorted access would be allowed to the rim of Kauhakō Crater, to provide visitors with an opportunity to hike to the high point on the peninsula, see the crater lake, and learn about the geology and cultural resources related to the crater. Increased ranger patrols along Damien Road and Kalawao would be necessary.

Visitors would need an NPS, partner, or commercial guide to access all other locations within the park below the 500 foot elevation. These areas encompass the Molokai Light Station, peninsula, and Waikolu Valley.

Areas above the 500 foot elevation in the Wao Akua Zone are steep and largely inaccessible. Visitors in these areas are generally hunters, and they would continue to need a valid hunting permit. Access to Kalaupapa through the Wao Akua Zone would be discouraged and could be prohibited to ensure safety and compliance with the entry pass system.

Age Limit

Children are currently not allowed to visit Kalaupapa in order to maintain the privacy and well-being of the patient community. In the near-term, the NPS will honor the wishes of the Kalaupapa Patients Advisory Council to direct the policy on visitation by children. Currently, children under age 16 would not be allowed as directed by the Kalaupapa Patients Advisory Council, and the council could decide to change the age limit if they desired.

When there is no longer a patient community at Kalaupapa, allowing youth to visit as part of group activities would expose children to Kalaupapa's history and significance. The intent of the preferred alternative is to create future stewards of Kalaupapa, and instilling in youth a genuine understanding and experience of Kalaupapa is the first step to developing a conservation ethic and continuing cultural traditions at Kalaupapa. In the long-term, the age restriction would be lifted to allow visitation by children, though this policy would be periodically evaluated and could be changed. Children under the age 16 would be required to have an adult escort in the park. This requirement would

be established for children's safety within the park and to ensure that children respect visitor rules and regulations.

Overnight Use

Limited overnight use would be offered for organized groups and park partners. Select historic buildings and facilities have been identified for overnight use and the areas are described in the "Kalaupapa Settlement" section.

Organized groups would be engaged in stewardship and learning activities, and park partners would include those with pre-existing associations and ancestral connections to Kalaupapa. These types of partnerships encompass family members of deceased patients seeking to tend to their ancestors' graves, church members participating in religious services, and youth involved in stewardship programs. The NPS would manage overnight use, and the NPS could delegate management responsibilities to partners, including agencies, concessions, and nonprofit organizations.

Overnight use by the general public would be explored to serve those seeking a multiple day visit. Visitor accommodations would need to meet basic life safety codes and would provide a more in-depth experience of Kalaupapa. Several commenters for this GMP indicated that their overnight visits to Kalaupapa allowed them to have a greater understanding and appreciation of the significance of Kalaupapa. The rehabilitation of historic buildings for public overnight use would require securing nonfederal partner contributions. Camping would not be allowed in Kalaupapa NHP.

Recreational Activities

Visitor activities at Kalaupapa would be focused on learning and experiencing the history of Kalaupapa as a settlement for Hansen's disease patients, as a home to ancient native Hawaiians, and a place rich in geological and ecological resources. Recreational activities that detract from Kalaupapa's special character and are not compatible with the park's purpose would be prohibited. Prohibited activities could include scuba diving, geocaching, and skateboarding. Appropriate recreational uses could be identified in the superintendent's compendium.

Commercial Visitor Services

Same as "Actions Common to All Alternatives" plus:

The goal for commercial operations at Kalaupapa would be to provide for visitor's basic needs and appropriate visitor services that enrich visitors' experiences at Kalaupapa. The intent of visitor services would be to promote safe and suitable services that are compatible with the purpose of Kalaupapa NHP.

In the long-term, concessioners or nonprofit organizations would assist the NPS in providing a range of visitor services. After patients have exercised their first right of refusal, native Hawaiians would be given a second right of refusal for revenue-producing visitor services as stated in the General Lease No. 231 with DHHL. This would allow native Hawaiians special opportunities in being involved in Kalaupapa's visitor services and financially benefitting from such opportunities.

Commercial services could include tours, mule rides, shuttle services, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging. In the event that these services are not profitable, a nonprofit entity could assist the park with providing visitor services.

The NPS would continue to support a cooperating association in offering educational materials to visitors.

Sustainable Practices and Responses to Climate Change

In addition to the management strategies in the "Actions Common to All Alternatives," alternative C would increase documentation and monitoring efforts to understand the effects of climate change, including assessing the vulnerability of cultural and natural resources. The NPS would involve partners and stewardship groups in monitoring efforts.

The NPS would conduct scenario planning and explore adaptation strategies for resources with partners and subject matter experts. Resource adaptation options could include: benign neglect; increasing resilience and protection, physical relocation, pre-loss documentation, and interpretation of climate

change consequences. Potential climate change adaptation actions may affect decisions about visitor use and facilities management. Decisions would be made on a case-by-case basis depending on the significance, condition, and vulnerability of the resource(s).

The park would formally study the feasibility of consolidating energy generation in one or more locations, incorporating the data and recommendations from such sources as the 2010 National Renewable Energy Laboratory report. Through value analysis, the park would determine the most advantageous renewable source or sources, including solar, solar hot water, wind, geothermal, and others. Among sites to be considered would be topside Molokai, on certain building roofs, and other areas that can be screened from sensitive viewsheds. The park would also implement energy conservation practices, such as natural ventilation, strategic shading, and occupancy sensors, as well as structural retrofits and equipment testing and upgrading.

The park would also pursue third party power purchasing agreements with utility companies and other entities to maximize cost savings.

The park would implement water conservation policies and actions. This could include monitoring and restricting potable water usage for non-cooking and non-cleaning activities. The park would also study options for recycling gray water.

The fleet would be reduced to the minimum number of vehicles required for maintenance operations and visitor services. To the extent possible, vehicles that do not use fossil fuels would be procured.

Access and Transportation Facilities

Same as “Actions Common to All Alternatives” plus:

Land Access and Pali Trail

In addition, NPS would enhance the pali trail by clearing vistas, establishing rest stops, and defining places for mules to pass along the trail. The NPS would continue to assist the local community with the trail planning adjacent to the park on topside Molokai.

In the long-term, the pali trail would be open for access to Kalaupapa. The NPS would partner with others for trail maintenance, including the mule ride operator, Na Ala Hele of DLNR, and volunteer groups. See the “Visitor Use and Experience” section for more details.

Air Access and Kalaupapa Airport

In the long term, the Kalaupapa Airport would be open for public access to Kalaupapa. Visitors would be directed to Paschoal Hall where they would receive an orientation with visitors allowed to enter the settlement for orientation and to obtain an entry pass. See the “Visitor Use and Experience” section for more details.

Kalaupapa Roads and Trails

The NPS would develop a transportation plan for visitor and operational transportation. It would address universal accessibility, the removal of duplicative roads, and areas where access could be restricted for resource protection. The transportation plan would address historical integrity of the road network, preservation treatments, and could be done collaboratively with a cultural landscape report.

The character of roads throughout the Kalaupapa Settlement would be maintained, including road width, shoulder treatments, materials, and alignments to assure compatibility with the historic character. Deteriorated unpaved roads could be improved and stabilized with techniques that maintain the unpaved character but improve driving conditions, such as soil hardening or surfacing aggregate instead of asphalt or gravel.

The NPS would replace and/or establish directional signs necessary for safety and orientation.

Operations

Operational Facilities

Same as “Actions Common to All Alternatives”

Safety and Security

Same as “Actions Common to All Alternatives” plus:

In the long-term, the NPS would increase ranger patrols along Damien Road and to Kalawao. Ranger patrols on the pali trail would shift in focus from citing visitors who do not have a “sponsor” and who are under age 16, to a focus on visitor protection, providing information, and visitor safety.

Staffing

Same as “Actions Common to All Alternatives” plus:

Alternative C would be implemented with the current staffing level (40 base funded) plus 17 full-time equivalent staff (FTEs). The NPS also maintains approximately 12 temporary positions funded by projects.

New positions would be necessary for the expected substantial increase in NPS’s operations to manage the historical park once the DOH departs. NPS staff would replace specific DOH functions for work on historic structures, site operations, and management of visitor use. New staff would be required to support the treatment, operations, and cyclic maintenance for the historic buildings and structures. An interpretation and education division would be created to orient visitors to the park and share Kalaupapa’s history with a much broader audience at Kalaupapa and at select offsite locations. A volunteer program would be developed to manage group activities and those engaged in stewardship, educational, spiritual, and native Hawaiian cultural programs. Additional administrative staff would coordinate concessions, volunteer activities, and provide support for budgeting and human resources. Additional resource staff would provide necessary support to the archeology, anthropology, and vegetation management programs.

New positions would include a budget analyst, human resources specialist, administrative technician, volunteer/concessions coordinator, archeological/ anthropological technician, horticulturalist, chief of interpretation, interpretive ranger, education specialist, two visitor use assistants, carpenter, painter, utility systems repair operator, high voltage electrician, plumber, maintenance worker, and custodian.

In the long-term, the NPS would evaluate facility capacities, update the housing plan, and consider allowing family members of NPS staff, concessions, and partners if there is available housing space and infrastructure to accommodate them at Kalaupapa. Based on this analysis and planning, the NPS would

develop rules related to staff, concessions, and partner family members residing at Kalaupapa. The NPS would not build additional housing or substantially increase the capacity of infrastructure to support family members in the park.

Table 3.8 Alternative C Staffing by Division

Alternative C Staffing by Division	Base Funded
Management and Administration	3+4 new
Cultural Resources	5+1 new
Natural Resources	6+1 new
Facilities and Maintenance	19+7 new
Visitor Protection	6
Interpretation and Education	1+4 new
Total Staff	57

Cost Estimates

Annual Operating Costs

This alternative would be implemented with an additional 17 FTE as described above. These positions would add approximately \$1,060,000 to the operating base for alternative C. Additional operations and maintenance costs related to capital investments would be \$885,000. The total annual operating costs for alternative C would be approximately \$6,175,000 per year.

Table 3.9 Alternative C Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	17 FTE (Total 57 FTE)
Additional Staffing Costs	\$1,060,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$885,000
Total Annual Operational Costs	\$6,175,000

One-time Capital Costs

The costs to implement alternative C focus on ensuring the long-term preservation of Kalaupapa's resources, promoting stewardship of the 'āina, and connecting people with the history of Kalaupapa NHP.

The majority of costs are for historic preservation treatments to Kalaupapa's historic buildings and structures. Historic preservation treatments include stabilization, preservation and rehabilitation. Historic structures and facilities costs also include improvements to facilities and infrastructure to eliminate health and safety hazards and to address structural deficiencies and deferred maintenance. The costs also include resource management programs, visitor use, and interpretive and educational programs. Costs reflect all proposals of alternative C that could be implemented over time.

Projects are identified under three different phases and align with the historic preservation strategy for historic buildings and structures described in the Cultural Resources section. Under alternative C, the following project types would be included in each phase:

Phase 1 projects are considered essential, total \$16,085,000, and include:

- stabilization of NPS managed NHL-contributing structures, features, and archeological sites
- natural resource management projects
- basic visitor services and long-range interpretive planning
- life, health, and safety-related projects
- phase 1 improvements to failing electrical system
- rehabilitation of the Kalaupapa trail
- rehabilitation of essential historic buildings for maintenance and park operations
- preservation of historic residences used for staff housing

Phase 2 projects total \$16,020,000 and include:

- stabilization of NHL contributing-structures transferred from the DOH to the NPS, including buildings identified for future concession operation and visitor lodging
- natural resource monitoring projects

- preservation and rehabilitation of historic buildings for visitor services, community use, maintenance, park offices, and staff housing
- interpretive exhibits and media
- phase 2 improvements to electrical system
- repaving the road system
- federal share of rehabilitation to historic church buildings and residences for partner use

Phase 3 projects total \$1,680,000 and would occur in the long-term when there is no longer a patient community at Kalaupapa. Implementation of these projects would require securing non-federal partner contributions. Phase 3 projects include:

- NPS share of rehabilitation costs for roughly 10 historic buildings for basic visitor services operated by a concession or nonprofit organization.

NPS costs for Phase 1, 2, and 3 would total: \$33,785,000. Partner contributions for shared projects would total \$6,085,000, including \$4,400,000 for Phase 1 and 2 for projects relate to religious institution work on historic church buildings and other buildings for other partner uses, and \$1,685,000 for Phase 3 concession operated basic services. The gross cost estimate, including partner contributions, would total \$ \$39,870,000. (Note: all costs are in 2012 dollars).



Kalaupapa residence in the McVeigh neighborhood. NPS photo.

Table 3.10 Alternative C (Preferred Alternative) One-time Costs (in dollars)

Project Description	Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)									
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites. Conduct ethnographic research and develop an historic structures report(s).	1,120,000	1,290,000	760,000						250,000
Natural Resources: Fence areas to reduce feral ungulates and reduce vegetation to protect the settlement									190,000
Interpretation, Education, and Visitor Information: Update long-range interpretive plan, develop interpretive exhibits and displays, and develop virtual and off-site educational programs						180,000			105,000
Safety / Hazardous Waste: Inspect fire suppression system, conduct hazardous materials assessment, conduct projects identified in fire management plan									1,230,000
Infrastructure: Rehabilitate electric system, maintain pump house and fuel storage					10,000	2,240,000			
Access: Continue to rehabilitate the pali trail			740,000						
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	60,000	340,000	3,380,000		90,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing and partner use	10,000	670,000	1,330,000						
Visitor Services and Community Use: Rehabilitate Paschoal Hall and the Lion's Club Pavilion for community and visitor use			200,000	1,890,000					
TOTAL PHASE 1	16,085,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	1,775,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)									
Cultural Resources / Historic Preservation: Museum catalog backlog, museum upgrades, preserve historic structures	445,000		190,000						150,000

Alternative C: Preferred Alternative

Project Description		Historic Stabilization	Historic Preservation	Historic Rehabilitation	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construction	Facility Removal	Other Project (non-facility)
Natural Resources: Monitor air quality and soundscapes, upgrade nursery, and explore marine managed area designation										140,000
Interpretation: Produce park film and interpretive exhibits for historic structures										850,000
Infrastructure: Re-pave roads, rehabilitate electrical system, produce visitor transportation plan							3,220,000			100,000
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations		70,000	60,000	1,440,000		115,000	890,000			
Partner Use: Stabilize, preserve, and rehabilitate selected buildings and residences for partner use (NPS share)		15,000	300,000	1,260,000		10,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing		5,000	1,760,000	3,830,000						
Visitor Services and Community Use: Rehabilitate Craft and Storage Building, McVeigh Hall, and restrooms for community and visitor use. Construct waysides and kiosk at the Kalaupapa Overlook.				860,000	250,000			20,000		40,000
TOTAL PHASE 2	16,020,000	535,000	2,120,000	7,580,000	250,000	125,000	4,110,000	20,000	0	1,280,000
PHASE 3 (Facility rehabilitation for concession operations and public use—Long-term)										
Concession Operations (Commercial or Non-profit): Preserve and rehabilitate various historic buildings for basic visitor services (NPS share)			180,000	1,500,000						
TOTAL PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0	0
ALTERNATIVE C TOTALS										
PHASE 1	16,085,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	0	1,775,000
PHASE 2	16,020,000	535,000	2,120,000	7,580,000	250,000	125,000	4,110,000	20,000	0	1,280,000
PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0	0
PHASES 1, 2, AND 3	33,785,000	1,725,000	4,600,000	15,490,000	2,140,000	225,000	6,530,000	20,000	0	3,055,000
Additional Partner Contributions	\$6,085,000	25,000	1,070,000	3,570,000	190,000	50,000	0	0	0	1,180,000
Total with Partnership Funding	\$39,870,000	1,750,000	5,670,000	19,060,000	2,330,000	275,000	6,530,000	20,000	0	4,235,000

The National Park Service will also evaluate proposed facility investments prior to project approvals using the best scientific information available related to climate change and other possible scenarios to ensure the long-term sustainability of these investments. Due to potential vulnerabilities of some of the park's facilities, it is feasible that the National Park Service may conclude that such financial investments for facilities would be unwise and that other options would be considered or potentially the project would not be pursued or implemented.

Cost estimates for alternative C are identified below in Table 3.10 and follow the guidance outlined in the “One-time Capital Cost” section under “Actions Common to All Alternatives.”

Action Plans, Studies, and Agreements

A number of specific action plans, studies, and agreements would be developed to implement alternative C. Some of these items would require additional special project funding or increases to the operating base funding. Plans for actions with potential to affect the environment would require formal analysis of alternatives in compliance with the National Environmental Policy Act, National Historic Preservation Act, and related laws. Such documents would reference and be tiered to alternative C. The following plans and studies would be required to implement alternative C:

- Administrative history
- Archaeological survey and documentation, including NRHP nomination, if applicable
- Cooperative management agreement with Department of Hawaiian Home Lands
- Cultural landscape report
- Historic resources study
- Historic structures report(s)
- Long-range interpretive plan
- Renewable energy feasibility study
- Scenario and adaptation planning related to climate change
- Soundscape management plan
- Transition management plan
- Transportation plan
- Visitor use management plan

Boundaries and Land Protection

Lands within the Kalaupapa National Historical Park Boundary

Lands and waters within the authorized boundary of Kalaupapa NHP are predominantly owned by the State of Hawai'i DLNR, DHHL, and DOT. A private entity, R. W. Meyer, Ltd also owns lands at the top of the pali within the park boundary. Together, these lands, waters, and improvements are managed by the National Park Service through cooperative management agreements, a lease, and a memorandum of understanding. Public Law 95-565 authorizes the Department of Interior to acquire these lands with the consent of the owner. Should the state or private landowner express an interest, the NPS would be open to exploring acquisition options via one of the legislatively authorized means. For state lands, the enabling legislation authorizes acquisition through donation or exchange. For privately owned lands within the boundary of the park, legislation authorizes acquisition through donation, exchange or purchase from a willing seller. The NPS would continue to follow the park's current land protection plan.

Lands Adjacent and Close to Kalaupapa National Historical Park

General management plans must address “indications of potential modifications to the external boundaries of the unit” to comply with the 1978 National Parks and Recreation Act. For Kalaupapa NHP, the Hawai'i Area Studies conducted by the NPS in 2000 were reviewed for this planning effort. These studies analyzed the conditions of adjacent and nearby lands to determine opportunities for their long-term protection and the suitability and feasibility of adding these lands to the national park system. Based on the completeness and comprehensiveness of the Hawai'i Area Studies, it has been determined that the analysis provided by the studies meets the requirements of the 1978 National Parks and Recreation Act to assess potential boundary modifications.

The Hawai'i Area Studies completed in 2000 that fulfilled the legislative direction of Public Law 105-355, Sec. 511 contained two studies for lands on Molokai: 1) the “Kalaupapa Settlement Boundary Study Along the North Shore to Hālawā Valley, Molokai,” and 2) the “Study of Alternatives—Hālawā Valley, Molokai.” The NPS reviewed the studies and determined the studies' findings continue to be valid today. The study areas are suitable additions to the national

park system because they possess nationally significant resources. The study areas are feasible additions to the national park system because they are feasible to administer, considering size, configuration, ownership, costs, and other factors. Designating these areas as part of the national park system and management by the NPS would provide the most effective long-term protection of the areas and would provide the greatest opportunities for public use. The recommended areas would complement and enhance Kalaupapa NHP's legislated purpose "to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features" (Public Law 95-565, Sec. 102).

The NPS determined that two areas within the Hawai'i Area Studies boundary merit additional consideration for inclusion within the national park system since the Hawai'i Area Studies were completed in 2000. Two major landowners, The Nature Conservancy and the Pu'u O Hoku Ranch have expressed their support for a boundary modification to include their lands and willingness to transfer their lands to the NPS.

Alternative C, the NPS preferred alternative, recommends external boundary modifications to support the long-term protection of nationally significant resources within the North Shore Cliffs National Natural Landmark and upper Hālawā Valley. The proposed boundary additions for alternative C include Pelekunu Preserve and a portion of Pu'u O Hoku Ranch. These areas may be managed as a "Preserve" whereby hunting, fishing, and gathering would be allowed in accordance with State of Hawai'i rules and regulations. Two options for national park designation could be considered: 1) North Shore Cliffs National Preserve and 2) Kalaupapa National Historical Park and Preserve. In either option, it is assumed that Kalaupapa NHP staff would manage the proposed new unit. These actions would require Congressional legislation to designate the new lands as a national preserve. Alternatively, legislation could state that parcels are only added to the preserve upon federal acquisition.



View from the Kalaupapa peninsula looking east along the North Shore cliffs towards Pelekunu Preserve. NPS photo.

Landownership within the proposed boundary area could be both public and private. Private landowners within the newly designated areas could retain their property and would have the option of selling either a full or partial interest (e.g. easement) in their property to the National Park Service. Owners of private lands adjacent to Kalaupapa and within the proposed additional lands may have concerns about possible park expansion. It is important to understand that if, in the future, Congress were to pass an act to authorize a boundary adjustment; the NPS would only acquire private lands from willing landowners. The NPS would recommend that acquisition by condemnation or eminent domain would not be authorized. All ownership and access rights would be

respected and remain in place. No private property rights would be diminished as a result of Congress authorizing a boundary adjustment. Maui County would retain local land use jurisdiction for all lands that remain in private ownership within the newly established national preserve.

The national preserve would be managed in collaboration with native Hawaiian entities that support best practices related to management of Hawai'i's natural and cultural resources, including adaptive management, non-regulatory codes of conduct, community involvement, and education. The NPS would continue its role in the East Molokai Watershed Partnership to protect the best remaining native forest watershed areas on the East Molokai Mountains.

The intent of this proposed boundary modification is to preserve, in perpetuity, the majestic geology, outstanding scenery, native terrestrial flora and fauna, and native Hawaiian archeological resources and cultural values of the North Shore Cliffs areas while allowing appropriate and sustainable uses.

Pelekunu Preserve

Pelekunu Preserve consists of 5,259 acres managed by The Nature Conservancy. The Conservancy purchased the property in 1986 from the Moloka'i Ranch to create the preserve. The lands encompassed by the preserve consist of 19 parcels. While the Nature Conservancy owns the significant majority interest in these parcels, there are other parties, including Queen Emma Foundation

Figure 3.5 North Shore Existing Conditions

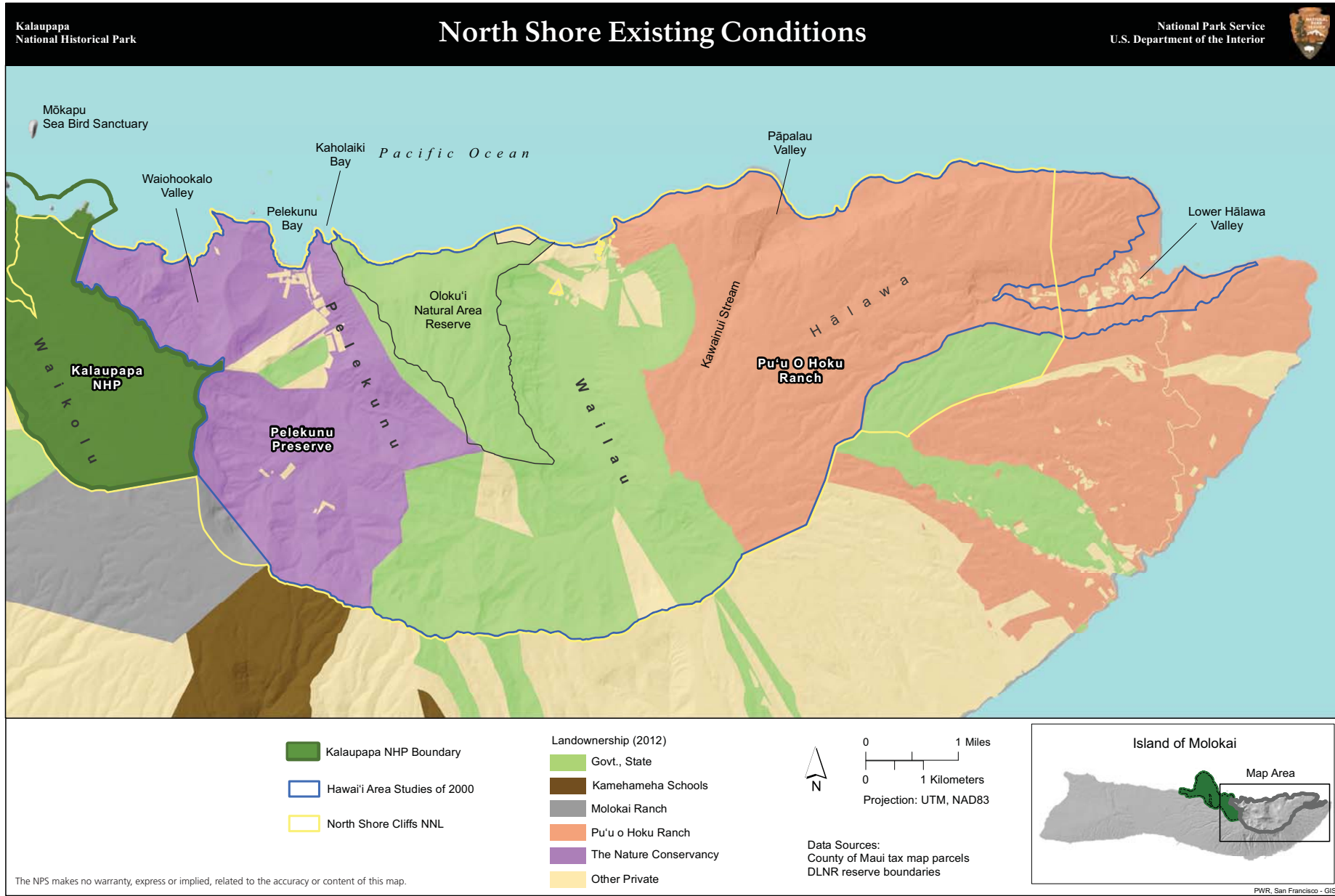
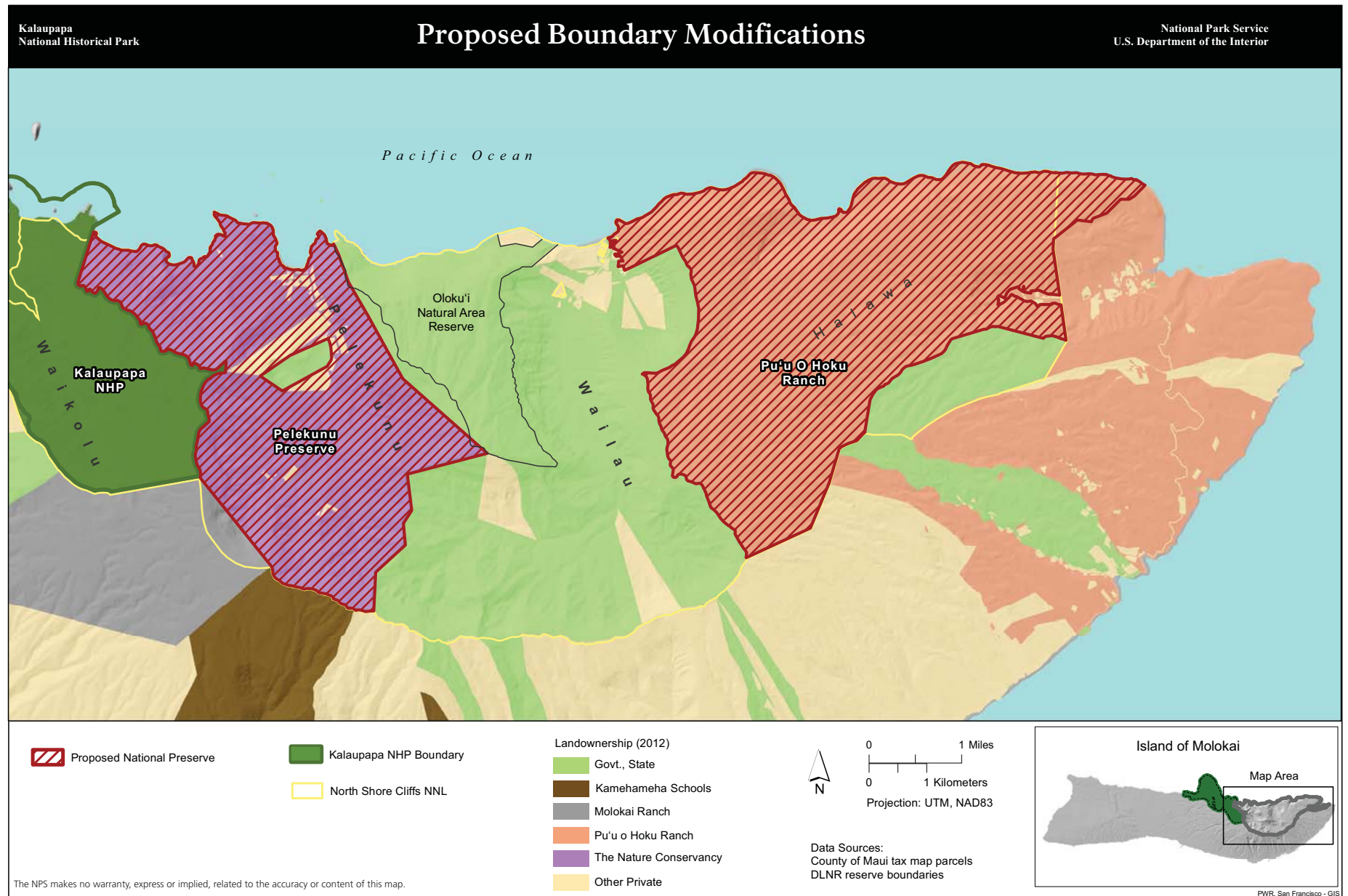


Figure 3.6 Proposed Boundary Modifications

Alternative C: Preferred Alternative



and the Francis H. I. Brown Trust, that own varying undivided minority interests in them as well.

Pelekunu Preserve encompasses Pelekunu watershed including Pelekunu Stream, its tributaries, a protected lowland rainforest, and verdant sea cliffs. At the coast, the preserve extends westward beyond Pelekunu Valley to include the smaller Waiohookalo Valley and its stream system. To the east the preserve terminates in the spectacular horseshoe shaped Kaholaiki Bay. Pelekunu Stream contains nearly all of Hawai‘i’s native aquatic fauna, including the rare hihiwai, a native freshwater snail, and five fish species collectively referred to as ‘o‘opu. The Pelekunu Stream is one of the last and longest free-flowing streams in the State of Hawai‘i in near pristine condition; it is a prime example of an increasingly rare aquatic natural community and contains a full complement of native aquatic fauna. Because of its isolation, Pelekunu Valley has largely escaped modification from contemporary activities such as ranching, reforestation, agriculture, and tourism, all of which have transformed other parts of Molokai.

Pelekunu contains a rich array of archeological features that illustrate how native Hawaiians lived and farmed in the Ko‘olau District of Molokai. The valley bottom and upland tributaries were heavily terraced with stone walls for kalo production. Together with the presence of heiau and house sites, the archeological remains tell of a once thriving community in Pelekunu Valley.

The Nature Conservancy has expressed support for a NPS boundary modification to include Pelekunu Preserve and a willingness to sell TNC’s interest in Pelekunu Preserve to the NPS. TNC would use the funds from the sale of Pelekunu Preserve to establish an endowment for Molokai biodiversity conservation. TNC and the other owners could maintain ownership of shared parcels.

In addition to The Nature Conservancy lands in the Pelekunu watershed, approximately 40 small parcels are privately owned near the outlet of Pelekunu Stream, totaling about 310 acres. Private property rights would continue as they are today, unless property owners are interested in selling their property to the National Park Service. The State of Hawai‘i also owns approximately 125 acres which could be managed through a cooperative management agreement.

Pu‘u O Hoku Ranch

Pu‘u O Hoku Ranch is one of the largest private landholdings in the eastern portion of Molokai, of which 8,434 acres are in areas that have been previously

studied by the NPS as part of the Hawai‘i Area Studies. The Ranch contains five miles of rugged coastline, dramatic sea cliffs, forested mountains, the Pāpalaua Valley and Kawainui Stream, and the upland portions of the Hālawā Valley watershed. Approximately 7,120 acres of the Pu‘u O Hoku Ranch are located within the North Shore Cliffs National Natural Landmark designation. For the portion of the Ranch included in the “Kalaupapa Settlement Boundary Study Along the North Shore to Hālawā Valley, Molokai,” the studies’ findings indicated that the Pu‘u O Hoku Ranch is nationally significant for its geological and terrestrial ecological resources and for its archeological resources associated with native Hawaiian habitation and use. The study determined that the ranch is a feasible addition to the national park system and the “superior” alternative for the long-term preservation along the North Shore. The Pu‘u O Hoku Ranch ownership has expressed interest in the long-term preservation of 7,341 of the ranch through inclusion in the national park system. The designation of these lands as part of a national preserve would realize this vision. Transfer of these lands could occur via donation or sale. If by sale, the landowner has indicated an interest in establishing an endowment for Molokai biodiversity conservation with funds from the sale of the property.

Pu‘u O Hoku Ranch’s 1,093 acres that encompass the northeastern area of the Hālawā watershed and lower Hālawā Valley are not included in the proposed national preserve. Other conservation strategies are being considered by the Pu‘u O Hoku Ranch to support the long-term preservation of the cultural, natural and scenic values of the lower Hālawā Valley.

Other Areas Considered for Boundary Adjustment

Other areas surrounding the park were considered for analysis as part of this GMP, they include: 1) Pālā‘au State Park lands not currently within the boundary, 2) Kahanui watershed, 3) Pālā‘au trailhead easement to highway 460, 4) Mōkapu Island, and 5) Wailau. Further analysis of these lands was determined to be unnecessary. These lands were not included in this proposed boundary modification because of one or more of the following rationales: 1) current management by the State of Hawai‘i is adequate, 2) there is limited potential for safe visitation and management, 4) there are contingencies regarding community consent for federal management, 5) current landowners are not willing to sell or lease lands to the National Park Service.

Alternative D

Alternative D focuses on the personal connections to Kalaupapa through visitation by the general public. It is the most open to general visitation and aims to protect Kalaupapa's diverse resources and integrity. Visitors would be provided with the most individual freedom to learn about Kalaupapa's people and history through a direct experience. Visitors would be encouraged to explore and immerse themselves in the historic setting. However, as in alternatives A, B, and C, all current DOH rules and regulations would apply as long as there is a patient community at Kalaupapa.

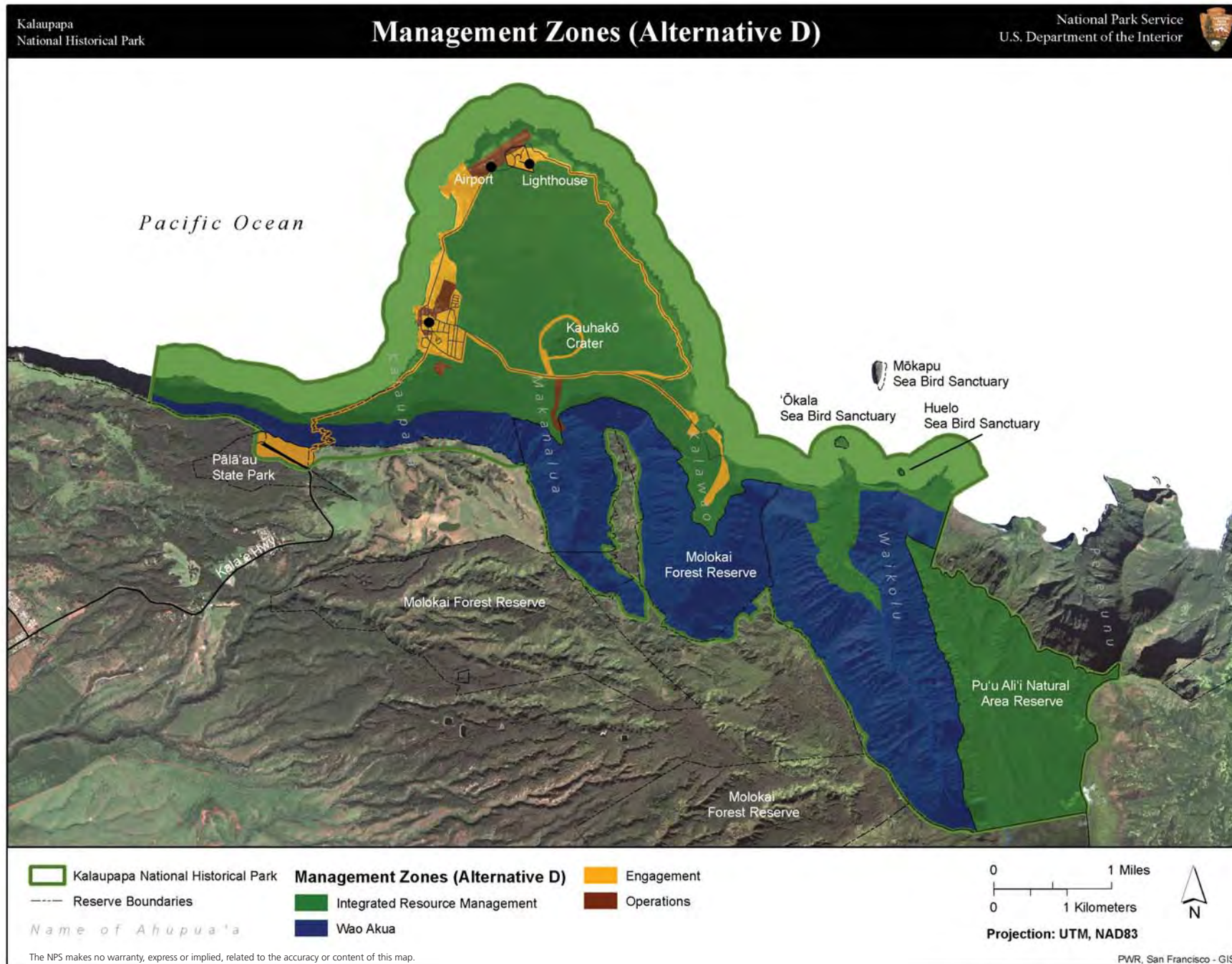
Under alternative D, Kalaupapa's many resources would be managed to protect, maintain, and in some cases, enhance their integrity. These resources include Kalaupapa's cultural landscape, historic structures, and many natural resources. Most of Kalaupapa's historic buildings and facilities would be for visitor use and park operations. The NPS would recommend the designation of highly significant resources to ensure their long-term preservation while also bringing more recognition of their regional, national, and international significance to the general public. New designations and changes to existing designations could include expanding the current National Natural Landmark status, local marine managed area, National Register of Historic Places designation for an archeological district, and/or traditional cultural property, Wild and Scenic River designation for Waikolu Stream, and World Heritage designation.

In the long-term, visitor use rules and regulations would allow for a range of visitor opportunities to learn about and experience Kalaupapa. The cap of one hundred visitors per day would be lifted. Agreements with partners would need to be renegotiated and renewed to reflect the intent and actions of this alternative. The visitors would be provided structured and unstructured activities and allowed to explore areas of Kalaupapa on their own. Organized tours for the general public would be provided. The age restriction would be lifted; however, this would be reevaluated periodically. Demonstrations on resource protection and preservation activities for visitors could be a component of interpretation.

Under alternative D, the interpretation and education division would be established and would involve residents, 'ohana, and kama'āina as cultural interpreters to tell the story of Kalaupapa. Overnight use for the general public would be



Dramatic lighting accentuates the ocean view from the pali trail rising nearly 1,700 feet up the cliffs. Photo by T. Scott Williams, NPS.



explored. A concession or a nonprofit organization would provide for visitor services, such as lodging, meal service, tours, and merchandise sales. This alternative has the highest visitation levels among the three action alternatives.

Management Zones

The management zones for alternative D are applied to the landscape to identify an area's predominant use and desired future conditions. Specific boundaries of the management zones are provided in Figure 3.7. The following description identifies the locations and details for the application of management zones in alternative D.

Integrated Resource Management Zone

The integrated resource management zone would be the same as alternative B and C, excluding additional areas zoned for engagement.

Wao Akua (Place of the Spirits) Zone

Same as alternative B

Operations Zone

Same as alternative C

Engagement Zone

The engagement zone would be largest in alternative D as compared to the other alternatives. The engagement zone would include all areas as described in alternative C, plus the rim of the Kauhakō Crater, road corridors on the east side of the peninsula from the Molokai Light Station to Kalawao, Wai'ale'ia Valley south of Kalawao, and the coastal and beach area from Kalaupapa Settlement to the airport. The Iliopii and Papaloa areas would be closed to visitor access during monk seal pupping seasons.

Unescorted access would be allowed in all areas of the engagement zone. In order to access areas to the east of Kalaupapa Settlement within the engagement zone, visitors would need to receive an orientation and entry pass.

Management of Specific Areas within Kalaupapa NHP

The following section presents an overview of the management strategies and uses for highlighted areas of Kalaupapa NHP. The actions and strategies in this section are in addition to those outlined in the "Actions Common to All Alternatives" section.

Kalawao

Same as alternative C

Kalaupapa Settlement

In the near term, Kalaupapa Settlement would function much as it does today and as described in the "Actions Common to All Alternatives" section.

In the long-term, Kalaupapa Settlement would be managed similar to alternative C, although some uses of historic buildings would be different which are described below.

Buildings, structures, and associated areas within Kalaupapa Settlement that are owned by religious institutions and co-managed with the NPS through cooperative agreements would continue to be used for religious purposes and serve



Labor Day picnic, Judd Park, Kalawao, 1952. Kalaupapa Historical Society Photo Collection.

their congregations and visitors with religious affiliations to the churches. These include St. Francis Church and St. Elizabeth Chapel, Kanaana Hou Church, Bishop Home, and the Church of Jesus Christ of Latter-day Saints.

Existing and future park partners could use and co-manage historic and non-historic buildings, including the DOH Care Facility and the beach houses. It would be a goal for park partners to share in funding historic preservation work and cyclic maintenance necessary for these historic structures and areas. Park partners are envisioned to be agency partners, institutions, nonprofit organizations, volunteer work groups, school groups, and religious entities whose missions align with the purpose of Kalaupapa NHP.

Communal areas that would provide for group activities for park staff, partners, and/or visitors would be located in compatible historic facilities. These include, but are not limited to McVeigh Social Hall, Mother Marianne Library, Paschoal Hall, and the Lion's Club structure.

Several buildings and clusters would be used to interpret the lives of patients and kōkua at Kalaupapa in the form of exterior exhibits and some interior exhibits. The main residential area, a portion of Bay View, and a portion of McVeigh would be stabilized as exterior exhibits and then rehabilitated once a use is identified. Stabilizing these historic buildings would ensure their protection, though unoccupied and unused buildings would be at a greater risk of neglect and deterioration over time. The residential homesites of patients could serve as interpretive exhibits, such as Kenso Seki's homesite and Ed Kato's studio.

Areas for visitor use would include: 1) buildings for visitor orientation, and 2) buildings and clusters for concession or nonprofit operated visitor services. Mother Marianne Library would function as the primary visitor orientation and resource center. Upon entering the settlement at the base of the pali trail, the slaughterhouse and bleacher area would serve as a staging area for incoming and outgoing tour groups and visitors. A concession or a nonprofit organization would operate Fuesaina's Bar, the cafeteria, and the Kalaupapa Store for food and beverage services, general groceries, books, and merchandise sales. In the long term, overnight lodging options for visiting groups and individuals would be explored, with the goal of building collaborative partnerships for the rehabilitation of the Visitors' Quarters, a portion of Bay View, and a portion

of McVeigh for overnight use. These buildings would continue to be stabilized until funds are identified for their rehabilitation.

NPS staff housing and temporary staff housing would be located in the residences along Kamehameha Street, the south side of Damien Road, and portions of Staff Row and the central residential area. Housing in these areas and possibly other locations would support approximately 72 full-time employees and additional temporary or visiting staff. Park operations would include headquarters, offices, maintenance, and storage areas. Park offices would be located in the DOH administration building, the NPS headquarters, police headquarters, the old stone church, and Hale Mālama. Maintenance and warehouse facilities would be located along the Damien Road waterfront, motor pool area, recycling center, and pier area.

Peninsula and Kauhakō Crater

The peninsula and Kauhakō Crater would continue to be managed for their cultural, terrestrial, geologic, and marine resource values. The NPS would focus on research, monitoring, and management activities that promote long-term stewardship of the 'āina. For alternative D, access to the loop trail around the peninsula would be permitted by the general public. There could be the establishment of new trails including one to Kalawao using the Old Damien Road. In addition, there could be minimal directional signs along the peninsula trail. Public access to the Kauhakō Crater would be allowed and a loop trail around the crater could be included as an option under alternative D. Directional signs to the crater could also be provided.

Pālā'au State Park

Alternative D has its strongest interpretive and educational features within the park boundaries. The development of an interpretive kiosk and exhibits at Pālā'au State Park would be offered. The Kalaupapa Overlook could be enhanced to provide additional interpretive information, exhibits, and facilities. Ho'olehua airport could include media exhibits that would not require NPS staffing. Visitors would continue to have free and unescorted access on the premises of Pālā'au State Park within the boundary of Kalaupapa NHP.

Management Structure, Partnerships, and Agreements

Same as alternatives C and D

Cultural Resources

In addition to the management strategies in the “Actions Common to All Alternatives” section, the NPS would emphasize cultural resource preservation, rehabilitation, and selective restoration of historically significant features. Certain buildings would be rehabilitated to accommodate visitor facilities while keeping the historic context. Alternative D would provide visitors with a direct experience of historic features and quality interpretation. The built environment would be preserved and enhanced to provide an immersion experience. Visitors would be offered opportunities to engage in onsite living cultural activities. All cemeteries would be marked and there would be formal investigations to identify and quantify additional gravesites, restore some gravesites, and provide access for related families to these sites.

Values, traditions, and practices of traditionally associated people (also known as ethnographic resources) would be managed the same as alternatives B and C. Historic structures would be managed the same as alternative C.

Archeological Resources

In addition to the “Actions Common to All Alternatives” guidance, the NPS would increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeological district and/or a traditional cultural property designation. It would support demonstration projects that would be



Top and Middle: Before and after images of grave marker preservation at Siloama Church. Bottom: Gravesites at Kauhakō Crater. NPS photos.

designed specifically for visitor learning and reflection. There would be an increase in interpretation of archaeological sites and areas that are within the public zones of the park would be highlighted for visitors to experience.

Cultural Landscapes

In addition to the “Actions Common to All Alternatives” guidance, alternative D would be similar to alternative B with the following additions. Selected areas and landscape features that illustrate Kalaupapa’s many histories would be rehabilitated and restored. These areas could include patient residential gardens as well as ethnobotanical gardens. Selected areas that represent the cultural landscape could be adaptively used. Selected viewsheds could be maintained to enhance understanding of the larger landscape and re-create the views that previously existed.

Museum Collections

In addition to the “Actions Common to All Alternatives” guidance, in alternative D, museum collections items would be on display as exhibits within historic structures and at the visitor center, as appropriate. Implementation of the Scope of Collection would occur to direct acquisition and collection development. In addition, Kalaupapa-related collections that are housed in offsite repositories would be identified and the development of finding aids to implement.

Natural Resources

Air quality, soundscapes, lightscapes, water resources, soils and geologic resources, wildlife, scenic resources, fishing, hunting and gathering would be managed the same as alternatives B and C. Vegetation would be managed the same as alternative B. In addition,

the NPS would support demonstration projects about traditional uses for visitor learning.

Marine Resources

Same as alternatives B and C, the NPS would explore establishing a managed area within the marine portions of the park, in consultation with DLNR and community partners, to include areas with high fish biomass and/or other important marine resources. Monitoring and research would continue and would use both traditional and contemporary methods to track status and trends of fisheries and marine wildlife and conditions in the intertidal zone and coastal reefs. In addition, for alternative D, demonstrations of marine management techniques such as monitoring would be offered.

Interpretation and Education

The NPS would focus the content of interpretive and educational programs on the park's updated interpretive themes that were developed as part of this GMP effort through the public planning process.

The NPS would greatly expand its growing interpretation and education division, including hiring staff to support a range of interpretive opportunities,

including onsite interpretation, educational programs, and limited outreach programs to reach people who may not be able to visit the park. The focus of alternative D would be on educational efforts for the onsite visitor learning and enjoyment. The interpretation and education division would be the largest under alternative D and would provide the broadest range of learning and educational opportunities. These learning opportunities would be available through escort and self-guided tours. The NPS would involve patient residents, 'ohana, and kama'āina as cultural interpreters to tell the story of Kalaupapa.

Similar to alternative C, the NPS would provide facility-based interpretive programs, interpretive media, digital experiences, and on-site interpretive information and wayfinding. Paschoal Hall would function as the primary interpretive and orientation center.

An updated long-range interpretive plan would be developed to plan for the future of the park's interpretive and educational goals. The plan would include identifying visitor experience goals, developing subthemes of the interpretive themes, and more detailed planning for specific sites within the park. It would provide recommendations about interpretive media, interpretive facilities, personal services, and direction for a wide range of interpretive and educational programs and partnerships. Alternative D would develop outreach materials and programs targeted on Molokai and Hawai'i. Curriculum-based educational



Kalaupapa Settlement across 'Awahua Bay. NPS photo.

programs and materials would be developed for lesson plans and traveling educational exhibits about Kalaupapa.

Visitor Use and Experience

Alternative D provides the widest range of visitor experiences within Kalaupapa. NPS would manage the visitor use and visitor facilities under this alternative. There would be organized tours for the general public. Visitors would not be as restricted and would be allowed the most freedom to explore areas of Kalaupapa on their own. There would be both structured and unstructured activities available for visitors. Paschoal Hall would serve as a visitor facility within the settlement. The emphasis on the visitor experience would be personal reflection, contemplation, culture, and history.

The number of visitors, orientation and entry pass system, access within Kalaupapa, age limit, and recreational activities would continue as in the common to all alternatives and would be very similar to alternative C. In addition, visitors would be allowed to access more areas on their own as part of the larger engagement zone. This includes unescorted access on the loop trail around the peninsula, loop trail around the crater, and to Wai‘ale‘ia Valley.

Overnight Use

Same as alternative C, plus overnight use could be the most extensive under this alternative.

Commercial Visitor Services

Same as alternatives B and C

Sustainable Practices and Responses to Climate Change

Same as alternatives B and C

Access and Transportation Facilities

In addition to the guidance in the “Actions Common to All Alternatives” section, land access, the pali trail, and Kalaupapa’s roads and trails would be managed the same as alternative C.

Air Access and Kalaupapa Airport

In the long-term, the Kalaupapa Airport would be open for public access to Kalaupapa. See the “Visitor Use and Experience” section for more details. Alternative D would include allowing larger planes with a limit of 20 passengers to use the Kalaupapa airport. Emergency fire responses at the airport would be required to meet the increased limit.

Kalaupapa Roads and Trails

Alternative D would also establish a new trail to Kalawao using the Old Damien Road. There would be an established trail created to the Wai‘ale‘ia waterfall. The loop trail around Kauhakō Crater would also be created. The unpaved road around the peninsula would be adapted to allow for pedestrian access with minimal signage.

Operations

Operational Facilities

Same as “Actions Common to All Alternatives”

Safety and Security

Same as alternatives B and C

Staffing

Alternative D would be implemented with the current staffing level (40 base funded) plus 20 full-time equivalent staff (FTEs). The NPS also maintains approximately 12 temporary positions funded by projects.

New positions would be necessary for the expected substantial increase in NPS management operations once the DOH departs and public visitation increases. NPS staff would replace specific DOH functions for site operations, manage-



Surveying Waikolu Stream. NPS Photo.

ment of the visitor use, and maintenance of historic buildings. An interpretation and education division would be created to share Kalaupapa’s history with a much broader audience in Hawai‘i and nationally and fulfill the educational outreach component of alternative D.

New positions would include a budget analyst, human resources specialist, and administrative technician for management and administration; an archeological/anthropological technician for cultural resources; a horticulturalist for natural resources; a chief of interpretation, interpretive ranger, education specialist, and visitor use assistant for interpretation and education; and a carpenter, painter, utility systems repair operator, high voltage electrician, plumber, maintenance workers, and custodian.

In the long-term, the NPS would evaluate facility capacities, update the housing plan, and consider allowing family members of NPS staff, concessions, and partners if there is available housing space and infrastructure to accommodate them at Kalaupapa. Based on this analysis and planning, the NPS would develop rules related to staff, concessions, and partner family members residing at Kalaupapa. The NPS would not build additional housing or substantially increase the capacity of infrastructure to support family members in the park.

Table 3.11 Alternative D Staffing by Division

Alternative D Staffing by Division	Base Funded
Management and Administration	3+3 new
Cultural Resources	5+1 new
Natural Resources	6+1 new
Facilities and Maintenance	19+10 new
Visitor Protection	6
Interpretation and Education	1+5 new
Total Staff	60

Cost Estimates

Annual Operating Costs

This alternative would be implemented with an additional 20 FTE as described above. These positions would add approximately \$1,330,000 to the operating base for alternative D. Additional operations and maintenance costs related to

capital investments would be \$885,000. The total annual operating costs for alternative D would be approximately \$6,445,000 per year.

Table 3.12 Alternative D Operational Costs

Annual Operational Costs	
Annual Operational Costs	\$4,230,000
Additional Staffing (FTEs)	20 FTE (Total 60 FTE)
Additional Staffing Costs	\$1,330,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$885,000
Total Annual Operational Costs	\$6,445,000

One-time Capital Costs

The costs to implement alternative D focus on ensuring the long-term preservation of Kalaupapa’s resources, promoting stewardship of the ‘āina, and connecting people with the history of Kalaupapa NHP.

The costs include preservation and rehabilitation of historic structures and features, as well as improvements to facilities and infrastructure to eliminate health and safety hazards and to address structural deficiencies and deferred maintenance. Since this alternative includes the highest level of rehabilitation, this alternative would have the greatest reduction in deferred maintenance. The costs include resource management programs, visitor use, and interpretive and educational programs. Costs reflect all proposals of alternative C that could be implemented over the life of the general management plan.

One-time costs for alternative D include similar projects as described under alternative C. The difference in costs between alternative C and D is that alternative D would include more projects related to visitor services, interpretation, and education.

Projects are identified under three different phases. Under alternative D, the following project types would be included in each phase:

Phase 1 projects are considered essential: this category includes cultural resource/historic preservation treatments that are necessary to ensure the long-term integrity of NHL-contributing structures; as well as life, health, and safety-related projects; infrastructure and access maintenance; and basic visitor services. Phase 1 projects total \$16,645,000. Most of this total cost is attributed to rehabilitation of historic structures and rehabilitation of the electric system.

Phase 2 includes projects that require significant historic building upgrades; non-historic structure (including infrastructure) rehabilitation; and additional cultural resources and interpretation and education projects. Phase 2 projects total \$15,380,000. Most of this cost is from historic preservation of NHL-contributing structures and additional rehabilitation work for the electric system, the re-paving of roads, and the use of non-historic structures for operations.

Phase 3 includes projects for a concession operation managed by a nonprofit or for-profit entity in the long term, when there is no longer a patient community at Kalaupapa. Implementation of these projects would require securing non-federal partner contributions. Phase 3 projects total \$1,680,000, representing the NPS share of rehabilitation costs for historic buildings for visitor services.

NPS costs would total \$33,705,000. Additional partner contributions for shared projects would total \$5,215,000. Most of these projects relate to religious institution work on historic church buildings and other buildings for other partner uses. The gross cost estimate, including partner contributions, would total \$38,920,000. (Note: all costs are in 2012 dollars).

Cost estimates for alternative D are identified below in Table 3.13 and follow the guidance outlined in the “One-time Capital Cost” section under “Actions Common to All Alternatives.”

Action Plans, Studies, and Agreements

Same as alternative C

Boundaries and Land Protection

Same as Actions Common to All Alternatives



Top: St. Philomena Church, date unknown. Photo courtesy of Hawai'i State Archives. Bottom: Visitors outside St. Philomena Church today. NPS photo.

Table 3.13 Alternative D One-time Cost Estimates (in dollars)

Project Description	Historic Stabiliza- tion	Historic Preserva- tion	Historic Rehabilita- tion	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construc- tion	Facility Removal	Other Project (non-facility)
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)									
Cultural Resources: Stabilize, preserve, and rehabilitate historic structures, cultural landscape features, and archeological sites. Conduct ethno-graphic research, develop an historic structures report(s), and conduct data recovery for archeo-logical resources.	1,120,000	1,290,000	760,000						810,000
Natural Resources: Fence areas to reduce feral ungulates and reduce vegetation to protect the settlement									190,000
Interpretation, Education, and Visitor Infor- mation: Update long-range interpretive plan, develop interpretive exhibits and displays, replace waysides, and develop off-site educational programs						180,000			105,000
Safety / Hazardous Waste: Inspect fire sup- pression system, conduct hazardous materials assessment, conduct projects identified in fire management plan									1,230,000
Infrastructure: Rehabilitate electric system, main- tain pump house and fuel storage					10,000	2,240,000			
Access: Continue to rehabilitate the pali trail			740,000						
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations	60,000	340,000	3,380,000		90,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing	10,000	670,000	1,330,000						
Visitor Services and Community Use: Reha- bilitate Paschoal Hall and Lion's Club Pavilion for continued community and visitor use			200,000	1,890,000					
TOTAL PHASE 1	16,645,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	2,335,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)									
Cultural Resources: Museum catalog backlog, museum upgrades, rehabilitate historic structures	690,000		190,000						150,000

Project Description		Historic Stabiliza- tion	Historic Preserva- tion	Historic Rehabilita- tion	Historic Rehabilitation for Public Use	Maintain Non-historic Facility	Rehabilitate Non-historic Facility	New Construc- tion	Facility Removal	Other Project (non-facility)
Natural Resources: Monitor air quality and soundscapes, upgrade shade house nursery, and explore marine managed area designation										140,000
Interpretation: Produce park video and interpretive exhibits for historic structures										850,000
Infrastructure: Re-pave roads, rehabilitate electrical system, produce visitor transportation plan							3,220,000			100,000
Operations: Stabilize, preserve, and rehabilitate facilities for maintenance and NPS operations		70,000	60,000	1,440,000		105,000				
Partner Use: Stabilize, preserve, and rehabilitate residences and other structures for partner use (NPS share)		15,000	300,000	1,260,000		10,000				
Housing: Stabilize, preserve, and rehabilitate historic buildings for permanent and temporary staff housing		10,000	1,760,000	3,830,000						
Visitor Services and Community Use: Preserve or rehabilitate Craft and Storage Building, McVeigh Hall, and various restrooms for community and visitor use. Construct waysides and kiosk at the Kalaupapa Overlook.				860,000	250,000			20,000		40,000
TOTAL PHASE 2	15,380,000	785,000	2,120,000	7,580,000	250,000	125,000	3,220,000	20,000	0	1,280,000
PHASE 3 (Facility rehabilitation for concession operations and public use—Long-term)										
Concession Operations (Commercial or Non-profit): Preserve or rehabilitate various historic buildings for basic visitor services (NPS share)			180,000	1,500,000						
TOTAL PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0	0
ALTERNATIVE D TOTALS										
PHASE 1	16,645,000	1,190,000	2,300,000	6,410,000	1,890,000	100,000	2,420,000	0	0	2,335,000
PHASE 2	15,380,000	785,000	2,120,000	7,580,000	250,000	125,000	3,220,000	20,000	0	1,280,000
PHASE 3	1,680,000	0	180,000	1,500,000	0	0	0	0	0	0
PHASE 1, 2 AND 3	33,705,000	1,050,000	5,360,000	17,420,000	15,700,000	225,000	6,830,000	20,000	0	3,615,000
Additional Partner Contributions	\$5,215,000	0	535,000	3,310,000	190,000	0	0	0	0	1,180,000
Total with Partnership Funding	\$38,920,000	1,050,000	5,715,000	19,230,000	15,890,000	225,000	6,830,000	20,000	0	4,795,000

Alternatives Summary Table

For more detailed descriptions of the actions, see the alternatives descriptions in this chapter.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Overall Concept Summary			
<p>As long as patients live at Kalaupapa, the National Park Service (NPS) will manage Kalaupapa in cooperation with the Department of Health (DOH) and its other partners to maintain and preserve the character of the community. NEAR-TERM guidance, referred to below in the summary, addresses this time period. LONG-TERM guidance is the time period when patients no longer reside at Kalaupapa and the DOH ceases operations within the park.</p>			
<p>Alternative A, no action, assumes that existing programming, facilities, staffing, and funding would generally continue at current levels to protect the values of Kalaupapa NHP in the near term.</p> <p><i>Additional concept guidance:</i></p> <p>Continue existing agreements with agencies and organizations.</p> <p>No long-term guidance for visitation and use of historic buildings after Department of Health (DOH) departs Kalaupapa.</p>	<p>Alternative B focuses on maintaining Kalaupapa’s spirit and character by limiting visitation to the park.</p> <p><i>Additional concept guidance:</i></p> <p>Similar to Alternate A, but provides future guidance for managing Kalaupapa once DOH leaves.</p> <p>Manage resources to protect and maintain.</p> <p>Maintain most existing rules and regulations, including visitation limits of 100 people per day and age restrictions.</p> <p>Provide highly structured general public visitation.</p> <p>Develop extensive outreach program to share Kalaupapa’s history off-site.</p>	<p>Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa’s lands in collaboration with the park’s many partners.</p> <p><i>Additional concept guidance:</i></p> <p>Manage Kalaupapa’s diverse resources from mauka to makai to protect and maintain their character and historical significance.</p> <p>Provide hands-on stewardship activities for service and volunteer work groups to have meaningful learning experiences, while contributing to the long-term preservation of resources.</p> <p>Provide general public visitation. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap.</p>	<p>Alternative D focuses on personal connections to Kalaupapa through visitation by the general public.</p> <p><i>Additional concept guidance:</i></p> <p>Manage resources for long-term preservation through NPS-led programs.</p> <p>Focus on learning about Kalaupapa’s people and history through direct experience, exploration, and immersion in the historic setting.</p> <p>Provide highest level of visitation among alternatives. Visitor regulations would change, including allowing children to visit Kalaupapa with adult supervision and removing the 100 person per day visitor cap.</p>

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Management Structure, Partnerships, and Agreements			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none"> • As long as patients live at Kalaupapa, continue to manage Kalaupapa in cooperation with DOH and its other partners to maintain and preserve the present character of the community. • DOH—continue to manage operations related to the care of the patient community and DOH staff support. • DOH—continue to govern Kalawao County under Hawai‘i Revised Statute 326. • Continue existing cooperative agreements with DOH, DLNR, DOT and the lease agreement with DHHL. • Continue cooperative agreements with religious institutions as long as they are viable. <p>LONG-TERM Common to All:</p> <ul style="list-style-type: none"> • Work collaboratively with DOH, DHHL, DLNR, and DOT to determine NPS, state and county governance of Kalaupapa when DOH departs. • NPS and DHHL could renegotiate and renew the lease before it expires in 2041. • Work collaboratively with DLNR, DOT, religious institutions, and R. W. Meyer Ltd. for long-term management of lands and resources within Kalaupapa NHP boundary. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none"> • Partner with state and local agencies, adjacent landowners, and organizations for resource protection and interpretive and educational programs. 			
See Common to All	<p>For alternatives B, C, and D in the LONG-TERM:</p> <ul style="list-style-type: none"> • Assume full management of visitor access, activities, and overall management of Kalaupapa. • Collaborate with DOH and update the transition plan that would guide the turnover of management responsibilities for visitor use, historic structures and facilities, and operational responsibilities. • The NPS and DHHL would develop a cooperative agreement to define roles and responsibilities for the long-term care and use of the Kalaupapa Settlement and DHHL lands. • Recommend that homesteading not occur in Kalaupapa NHP. If DHHL were to allow homesteading in the future, recommend that it would be limited and that the homesteaders be engaged in activities that support the park purpose. 		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Cultural Resources			
(Cultural resources include kūpuna and their stories, archeological resources, historic buildings, and cultural landscapes)			
Common to All: <ul style="list-style-type: none"> • Conduct cultural resource projects, monitoring programs, baseline studies, inventories, and interpretation of cultural resources. • Stabilize and preserve cultural landscape features that contribute to the National Historic Landmark designation on a case-by-case basis. • Continue active management and care of known cemeteries, including ongoing stabilization of grave sites. • Continue ethnography program / research through oral histories and informal discussions. • Preserve archeological sites for their interpretive and research values and traditional cultural activities. • Employ a range of historic preservation treatments to protect historic structures. • Document and preserve museum collections items as part of the archives and manuscript collections. 			
See Common to All	Emphasize cultural resource, inventory, documentation, preservation and research, especially ethnographic research with ‘ohana.	Emphasize cultural resource, inventory, documentation, preservation, rehabilitation, and selective restoration of historic features. Collaborate with partners and service groups to ensure the long-term protection of historic features from the Hansen’s disease era and those related to early native Hawaiian habitation and use. Increase stewardship activities and hands-on learning opportunities related to the protection and preservation of archeological resources, historic structures, cultural landscapes, and museum collections.	Emphasize cultural resource, inventory, documentation, preservation, rehabilitation, and selective restoration of historic features. Preserve and enhance the built environment to provide an immersion experience. Visitors would be offered opportunities to engage in on-site living cultural activities.
Values, Traditions, and Practices of Traditionally Associated People (Also Referred to as Ethnographic Resources)			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none"> • Enhance the ethnography program with additional staff and collaboration with partners focused on patients, their ‘ohana, kōkua, and kama‘āina. • Focus on conducting formal and informal oral histories, documentation, and research of existing and past cultural traditions and peoples associated with Kalaupapa. 		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Archeological Resources			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Increase preservation and research of archeological sites including preparing a National Register of Historic Places nomination for a potential Kalaupapa peninsula archeological district and/or a traditional cultural property designation.		
Historic Structures and Cultural Landscapes			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Develop and implement historic structures report(s) for all historic structures that contribute to the National Historic Landmark; develop a cultural landscape report.• Efforts would be made to identify, stabilize, and mark grave sites and provide access for families.• Maintain an adaptive management philosophy, considering new opportunities and risks and reprioritizing historic preservation projects when needed. In the event of a catastrophic loss of historic structures, the NPS would make decisions on a case-by-case basis to determine the future management of impacted buildings.• Non-historic structures could be stabilized, maintained, remodeled, and adaptively reused for operations, or allowed to deteriorate until they become a safety hazard, and removed.		
See Common to All	Focus on stabilization. As possible, rehabilitate historic structures for visitor facilities, partner uses, park operations, and interpretive exhibits.	At a minimum, stabilize all NHL-contributing historic structures. Guide the treatment of individual buildings through a phased strategy that considers historic preservation goals and management needs. Historic preservation treatments include stabilization, preservation, rehabilitation, and adaptive use. Use historic structures for visitor facilities, partner uses, and park operations and use select historic structures for interpretive exhibits. Select historic structures would remain in a stabilized condition until partnership arrangements are made to secure funding for long-term treatment and use.	Same as alternative C
Museum Collections			
See Common to All	Provide ways for visitors to interact with the collections onsite and offsite.	Same as alternative B plus: Collaborate with partners in managing, documenting, and conducting research related to the collections.	Same as alternative C

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Natural Resources			
Common to All: <ul style="list-style-type: none">• Implement natural resource management program: research, inventory, monitoring, feral animal control, fencing, hunting, rare species stabilization, and incipient alien species removal.• Continue active participation and pursuit of East Molokai Watershed Partnership goals.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Expand research and monitoring programs to better understand ecosystem processes using both traditional and contemporary methods.		
See Common to All	Same as alternative C	Involve partners and stewardship groups in natural resource management activities.	Offer demonstrations of resource management techniques.
Vegetation			
See Common to All	Continue vegetation monitoring program and expand nursery program	Continue and expand the vegetation management program.	Same as alternative B
Wildlife			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Focus on reducing nonnative wildlife species and improving native habitat for native birds and other native wildlife.• Establish a monitoring program to track wildlife status and trends.		
Marine Resources			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Explore the establishment of a marine managed area in consultation with DLNR and community partners to encompass significant resources.		
See Common to All	No additional guidance in alternative B	Work to restore select marine areas, which could include enlisting stewardship groups to help remove alien species.	Demonstrations of marine management techniques such as monitoring would be offered.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Fishing, Hunting, and Gathering			
NEAR-TERM Common to All: <ul style="list-style-type: none">NPS regulations would continue to apply in the marine area of the park; Fishing, hunting and gathering on the Kalaupapa peninsula would also continue to be managed according to State of Hawai‘i and Kalawao County laws and regulations. Public hunting is allowed per DLNR regulations in the Molokai Forest Reserve area within the park and Pu‘u Ali‘i Natural Area Reserve.Pursuant to DOH regulations, Patients and other residents of Kalaupapa are currently allowed to collect salt and gather plant resources.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">Work cooperatively with the State of Hawai‘i and community partners to manage marine resource use and also ensure the sustainability of the resources for future generations.Look to existing cooperative models for fishing best practices, such as Mo‘omomi, Ā‘hihi Kīna‘u, and Kaho‘olawe models.Hunting would continue to be managed according to State of Hawai‘i laws. The NPS would work cooperatively with State of Hawai‘i and partners to establish new regulations for safety above and below the 500-foot elevation.Engage partners and service groups in preservation activities that support traditional cultural uses.		
Wild and Scenic River			
Common to All: <ul style="list-style-type: none">Recommend updating the national rivers inventory to add Culture and History to Waikolu Stream’s outstandingly remarkable valuesEvaluate and/or complete a suitability analysis related to wild and scenic river designation of Waikolu Stream.			
Interpretation and Education			
NEAR-TERM Common to All: <ul style="list-style-type: none">Maintain park website, exhibits, waysides, and park brochure to share the park’s history with the public and to orient visitors to Kalaupapa NHP.Continue to develop interpretation and education division and limited interpretive programs and activities.The private patient-run tour company and allied organizations and institutions would continue to provide most on-site interpretation and education.Continue and expand outreach programs on topside Molokai.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">Update the long-range interpretive plan for the future of the park’s interpretive and educational goals.Develop curriculum-based educational programs and materials.Provide outreach programs for youth and communities.Develop interpretive media, such as publications, exhibits, a film, educational websites, and a walking tour.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	LONG-TERM OVERALL GUIDANCE: Focus most educational efforts offsite and through extensive outreach efforts to allow people to learn about Kalaupapa without actually visiting the site.	LONG-TERM OVERALL GUIDANCE: Focus most educational efforts on on-site visitor learning and enjoyment opportunities that contribute to the preservation of Kalaupapa's resources. Stewardship groups could be engaged in a wide variety of park projects. Group visitation engaged in hands-on learning would assist the park in improving resource conditions.	LONG-TERM OVERALL GUIDANCE: Focus most educational efforts on onsite visitor learning and enjoyment. Alternative D would provide the broadest range of learning and educational opportunities for traditional visitors that are by escort or self-guided.
Interpretation and Education Division			
See Common to All	Build on the growing interpretation and education division, including hiring staff.	Greatly expand the growing interpretation and education division over time, including hiring staff. Involve residents, 'ohana and kama'āina as cultural interpreters to tell the story of Kalaupapa.	The interpretation and education division would be the largest under alternative D and would provide the broadest range of learning and educational opportunities. Involve residents, 'ohana and kama'āina as cultural interpreters to tell the story of Kalaupapa.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Visitor Orientation and Interpretive Facilities			
See Common to All	<p>Convert Mother Marianne Library to a visitor orientation facility.</p> <p>Construct a visitor contact station inside the park boundary at Pālā‘au State Park to provide visitor engagement.</p>	<p>Paschoal Hall would be used as the orientation facility. Mother Marianne Library could function as a resource center for volunteer orientation and training.</p> <p>An information kiosk would be constructed inside the park boundary at Pālā‘au State Park.</p> <p>Improve signs and interpretive waysides. Site interpretive information, such as wayside panels, at key locations throughout the park.</p> <p>Select patient homesites, historic and natural features, and scenic viewing areas would provide visitors with a varied and in-depth understanding about Kalaupapa’s cultural and natural history.</p>	Same as alternative C
Visitor Use and Experience			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none"> • Continue DOH visitation rules and regulations to provide a well-maintained community for the patient residents. • Continue to manage visitor protection and facilities that support visitation. • General public visitation would be limited to 100 people per day as specified in the enabling legislation and desired by the Kalaupapa Patients Advisory Committee. • Visitation would be day-use only, and visitors would continue to need an escort. • No entrance fees; continue fees for service such as the mule ride and tours. • Children under the age of 16 would not be allowed. • Patient residents and DOH and NPS staff would continue to sponsor family, friends, and nonresident staff for day and overnight stays. • DOH would continue to manage the visitor permit and sponsorship system. • DOH would continue to prohibit recreational uses that are not compatible with the purpose of the park. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none"> • No public camping within Kalaupapa NHP, including Waikolu Valley, due to concerns about resource protection and safety. • Visitors would continue to have free and unescorted access on the premises of the Pālā‘au State Park within the boundary of Kalaupapa NHP. 			

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	LONG-TERM: Focus on information and interpretation for the public off-site.	LONG-TERM: Visitor rules and regulations would be designed to provide a variety of high quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship. Visitor activities would be structured and unstructured to accommodate visitor needs and desires that are compatible with the purpose of the park. Visitors would be able to explore areas of Kalaupapa on their own. Visitors could participate in hands-on stewardship activities that contribute to the preservation, rehabilitation, and selective restoration of resources.	LONG-TERM: Visitor rules and regulations would be designed to provide a variety of high quality visitor experiences focused on learning about Kalaupapa’s history, reflection, and stewardship. Provide the widest range of traditional visitor experiences within Kalaupapa. Visitor activities are structured and unstructured. Visitors would be able to explore areas of Kalaupapa on their own.



Visitors prepare for a mule ride down the pali trail. NPS photo.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Number of Visitors			
See Common to All	<p>LONG-TERM:</p> <p>Maintain current cap for general public visitation—limited to 100 people per day at any one time.</p> <p>Visitation would be through tours managed by concessions and commercial use authorizations.</p> <p>More opportunities to visit Kalaupapa would be available on specific days, such as family days, for special events for people with ancestral connections to Kalaupapa.</p>	<p>LONG-TERM:</p> <p>The number of visitors allowed per day would change and would be determined and managed by:</p> <ul style="list-style-type: none"> • capacity of facilities • limits through concessions contracts and commercial use authorizations, • an entry pass system • user capacity guidance <p>Work with concessioners and commercial operators to set limits on the number of visitors who purchase commercial services as part of their visit to Kalaupapa NHP.</p> <p>An entry pass system would be established to provide structured access to portions of Kalaupapa NHP.</p> <p>Foot access from the top of the pali would be allowed to the Kalaupapa Settlement for day use by Molokai residents and general visitors.</p> <p>Air access to Kalaupapa would also be allowed, and people not associated with a commercial tour or lodging could visit the park as a day-use visitor.</p>	<p>LONG-TERM:</p> <p>Same as alternative C</p>
Orientation			
See Common to All	<p>For alternatives B, C, and D in the LONG-TERM:</p> <ul style="list-style-type: none"> • Provide orientation information on the internet, at off-site locations, and at key park entrance points to help prepare visitors for their trip to Kalaupapa. • Orientation and interpretive exhibits could be at the Molokai Ho‘olehua Airport. • Consider establishing an NPS presence for visitor orientation in Kaunakakai and in partnership with state agencies or other entities. • Provide orientation information at topside trailhead, bottom of the pali trail upon entering the Kalaupapa Settlement, and at the Kalaupapa Airport. 		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	<p>Provide in-depth educational materials at the staffed Pālā‘au State Park facility.</p> <p>Visitors wishing to enter the Kalaupapa Settlement would receive required orientation at Mother Marianne Library or other park facility.</p> <p>Visitors would need to ensure that they leave the park by dusk, unless they have arrangements for overnight accommodations within the park.</p>	<p>An entry pass system would be established for all visitors to Kalaupapa Settlement and other areas of the park.</p> <p>Visitors wishing to enter the Kalaupapa Settlement and other areas of the park would receive required orientation and required entry pass at Paschoal Hall or other park facility.</p> <p>Visitors using the free day-use option would need to ensure they leave the park by dusk, unless they have arrangements for overnight accommodations within the park. Special provisions for repeat visitors could be established.</p>	Same as alternative C
Access within Kalaupapa NHP			
See Common to All	<p>For alternatives B, C, and D:</p> <ul style="list-style-type: none"> • Areas above the 500 foot elevation in the Wao Akua Zone are largely inaccessible. Hunters would continue to need a valid state hunting permit. • Access from outside the park through the Wao Akua Zone to the peninsula would be discouraged and could be prohibited to ensure safety and compliance with the entry pass system. 		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	<p>LONG-TERM:</p> <p>Visitors would be allowed to have unescorted access within the settlement.</p> <p>Visiting Kalawao and all other parts of the park would require an escort.</p>	<p>LONG-TERM:</p> <p>Visitors would have escorted and unescorted access after they obtain a required park orientation and an entry pass at Paschoal Hall.</p> <p>Visitors would have free and unescorted access in the Engagement Zone, down the pali trail, and to the limit of the Kalaupapa Settlement.</p> <p>Visitors would be allowed to travel from the Kalaupapa Settlement to Kalawao, the top of Kauhakō Crater, and access the memorial on their own.</p> <p>Visitors would need an NPS, partner, or commercial guide to access all other locations below the 500 foot elevation.</p>	<p>LONG-TERM:</p> <p>Same as alternative C, plus:</p> <p>Visitors would be allowed to access more areas on their own as part of the larger engagement zone, including the loop trail around the peninsula, loop trail around Kauhakō Crater, and trail to Wai‘ale‘ia Valley.</p>
Age limit			
See Common to All	<p>LONG-TERM:</p> <p>Children under the age of 16 would not be allowed to visit Kalaupapa.</p>	<p>LONG-TERM:</p> <p>When there is no longer a patient community at Kalaupapa, the age restriction would be lifted to allow visitation by children.</p> <p>Children under the age 16 would be required to have an adult escort for safety purposes and enforcement of visitor rules and regulations.</p>	<p>LONG-TERM:</p> <p>Same as alternative C</p>

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Overnight Use			
See Common to All	<p>LONG-TERM:</p> <p>There would be limited overnight use. Visitors who have a pre-existing association and/or ancestral connections to Kalaupapa would be allowed overnight access.</p> <p>Limited overnight use by the general public would be explored.</p>	<p>LONG-TERM:</p> <p>Same as Alternative B, plus:</p> <p>Limited overnight use would be offered for organized groups and park partners.</p> <p>Overnight use by the general public would be explored.</p>	<p>LONG-TERM:</p> <p>Same as Alternative C, plus: Overnight use could be the most extensive under this alternative.</p>
See Common to All	<p>For alternatives B, C and D:</p> <ul style="list-style-type: none">• The NPS would manage overnight use, and the NPS could delegate management responsibilities to partners, including agencies, concessions, and nonprofit organizations.• Select historic buildings and facilities have been identified for overnight use and the areas are described in the “Kalaupapa Settlement” section.• The rehabilitation of historic buildings for public overnight use would require securing nonfederal partner contributions.• Visitor accommodations would need to meet basic life safety codes.		
Commercial Visitor Services			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none">• Continue commercial activities operated by patient residents for tours and Fuesaina’s Bar. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none">• Continue commercial use agreement with the mule ride operator.• Provide organized tours for the general public.• Continue to support a cooperating association to operate the bookstore for educational and merchandise sales.• Continue to follow guidance from Public Law 95-565 which provides patients a first right of refusal to provide revenue-producing visitor services, including such services as providing food, accommodations, transportation, tours, and guides; and the General Lease No. 231 with DHHL that gives second right of refusal to native Hawaiians for revenue-producing visitor service after patients have exercised their first right of refusal. This would allow native Hawaiians special opportunities in being involved in Kalaupapa’s visitor services and financially benefitting from such opportunities.			

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	For alternatives B, C, and D in the LONG-TERM: <ul style="list-style-type: none">• Concessioners or nonprofit organizations would assist the NPS in providing a range of visitor services.• Commercial services could include tours, mule rides, shuttle services, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging.		
Sustainable Practices and Responses to Climate Change			
Common to All: <ul style="list-style-type: none">• Strive to reduce energy dependency by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices• Use science, adaptation, mitigation, and communication in meeting the park’s goals for sustainable practices and responses to climate change• Seek to minimize motor vehicle use by staff, volunteers, and visitors in order to reduce gas consumption and carbon emissions• Continue bicycle use• Continue community recycling program• Monitor possible climate change effects• Engage in the NPS Climate Friendly Parks program and Climate Action Plan• Encourage a “pack-in, pack-out” policy for all visitors• Continue to install photovoltaic panels in selected areas on a limited basis such that visual impacts to the cultural landscape are minimized.• Consider the feasibility of a comprehensive energy conservation strategy, including the consolidation of renewable energy generation equipment in one or more locations.			
See Common to All	For alternatives B, C, and D: <ul style="list-style-type: none">• Increase documentation and monitoring efforts to understand the effects of climate change, including assessing the vulnerability of cultural and natural resources.• Involve partners and stewardship groups in monitoring efforts.• Conduct scenario planning and explore adaptation strategies for resources with partners and subject matter experts.• Formally study the feasibility of consolidating energy generation in one or more locations. Determine the most advantageous renewable source(s), including solar, solar hot water, wind, geothermal, and others.• Implement energy conservation practices, such as natural ventilation, strategic shading, and occupancy sensors, as well as structural retrofits and equipment testing and upgrading.• Implement water conservation policies and actions.• Reduce vehicle fleet to the minimum number required for maintenance operations and visitor services.		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Access and Transportation Facilities			
<p>NEAR-TERM Common to All:</p> <ul style="list-style-type: none"> • Continue DOH permitted options for entering the park – enter by foot or mule on pali trail or by plane into Kalaupapa Airport. <p>NEAR-TERM and LONG-TERM Common to All:</p> <ul style="list-style-type: none"> • No new transportation routes or methods of access would be constructed or allowed. • Continue to maintain the historic pali trail for foot and mule traffic. • Offer to assist the local community with trail planning adjacent to Kalaupapa NHP on topside Molokai. • The Kalaupapa Airport would continue to serve the transportation needs of the Kalaupapa community and visitors to the park. • Encourage the DOT and FAA to provide safe and adequate access without increasing pressure on Kalaupapa’s way of life, and work with commercial tour flight operators to continue avoiding flight paths in airspace over the settlement. • Continue to prohibit sea access for visitors in the one-quarter mile ocean corridor within the park. Special events within the ¼ mile ocean corridor would require a special use permit. • Limit water access to the barge for general supplies and project materials to Kalaupapa and to official NPS boat access. • The NPS would not support a ferry service to Kalaupapa. • Reduce transportation by motor vehicles within Kalaupapa. • Whenever possible, historic roads and trails would be used, adapted, and re-used. 			
See Common to All	<p>For alternatives B, C, and D:</p> <ul style="list-style-type: none"> • Enhance the pali trail by clearing vistas, establishing rest stops, and defining places for mules to pass along the trail. 		

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	No additional guidance in alternative B	<p>LONG-TERM:</p> <p>Open the pali trail for public access to Kalaupapa.</p> <p>Partner with others for trail maintenance.</p> <p>Allow public access from Kalaupapa Airport to the settlement.</p> <p>Develop a transportation plan for visitor and operational transportation. It would address universal accessibility, the removal of duplicative roads, and areas where access could be restricted for resource protection.</p> <p>Maintain the character of roads throughout the Kalaupapa Settlement to assure compatibility with the historic character.</p> <p>Replace and/or establish directional signs for safety and orientation.</p>	<p>LONG-TERM:</p> <p>Same as alternative C, plus:</p> <p>Allow larger planes with a limit of 20 passengers to use the Kalaupapa airport. Emergency fire responses at the airport would be required to meet the increased limit.</p> <p>Establish a new trail to Kalawao using the Old Damien Road.</p> <p>Establish a trail to the Wai'ale'ia waterfall.</p> <p>Create a loop trail around Kauhakō Crater.</p> <p>Adapt the unpaved road around the peninsula to allow for pedestrian access with minimal signage.</p>



Kalaupapa Settlement, early 1900s. Photo Courtesy of the Bishop Museum.

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
Operations			
NEAR-TERM Common to All:			
<ul style="list-style-type: none">Continue to use historic structures and facilities by patient residents, DOH, NPS, and partners.Continue to maintain all NPS managed administrative facilities.Continue to share administrative facilities with DOH where feasible.NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.			
NEAR-TERM and LONG-TERM Common to All:			
<ul style="list-style-type: none">New facilities would only be considered if adaptive re-use of existing structures is clearly not feasible for the required function.Continue to manage infrastructure, including the water, sewage, communication, and trail system. Assist Maui Electric in managing the electrical distribution system. Improve the water system for water conservation measures.Safety and security would continue to be a high priority. Integrate operational leadership concepts and strategies into all aspects of management.<ul style="list-style-type: none">Continue current partnerships with emergency management agencies, including Maui County Police and Fire and Coast Guard for search and rescue operations, air medical transport, and law enforcement. Emergency medical services would include first responder capability.Continue to medically evacuate individuals with life threatening emergencies by air transport to the nearest medical facilities.Adapt and modify the current DOH emergency management plan to meet the needs of the changing Kalaupapa community.Continue to implement the 2011 fire management plan and update as needed.			
See Common to All	For alternatives B, C, and D in the LONG-TERM: <ul style="list-style-type: none">Increase ranger patrols along Damien Road and to Kalawao.Ranger patrols on the pali trail would shift in focus from citing visitors who do not have a “sponsor” and who are under age 16, to a focus on visitor protection, providing information, and visitor safety.		
Boundaries and Land Protection			
Common to All:			
<ul style="list-style-type: none">Continue to act on the enabling legislation (Public Law 95-565) that authorizes the Department of the Interior to explore acquisition, land donation, or exchange with DHHL, DLNR, and other landowners within the boundary of the park.The findings of the Hawai‘i Area Studies that fulfilled the direction of Public Law 105-355, Sec. 511 would continue to be valid, and Congress could decide to act on the study’s findings which determined that management by the NPS and designating these areas as part of the national park system would provide the most effective long-term protection of the area and provide the greatest opportunities for public use.			

ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C (PREFERRED)	ALTERNATIVE D
See Common to All	<p>For alternatives B and C:</p> <p>Lands Adjacent and Near to Kalaupapa National Historical Park</p> <ul style="list-style-type: none">• Recommend that Pelekunu Preserve and a portion of Pu‘u O Hoku Ranch be added to the national park system through transfer by donation or sale.• These areas could be managed as a “Preserve” whereby hunting, fishing, and gathering would be allowed in accordance with State of Hawai‘i rules and regulations.• Two options for national park designation could be considered: 1) North Shore Cliffs National Preserve and 2) Kalaupapa National Historical Park and Preserve.• These actions would require congressional legislation to designate the new lands as a national preserve.• Landownership within the proposed boundary area could be both public and private.• All ownership and access rights would be respected and remain in place. No private property rights would be diminished as a result of Congress authorizing a boundary adjustment.• Maui County would retain local land use jurisdiction for all lands that remain in private ownership within the newly established national preserve.• Private landowners within the newly designated areas would have the option of retaining their property or selling either a full or partial interest (e.g. easement) in their property to the National Park Service. Recommend that acquisition by condemnation or eminent domain would not be authorized.• Kalaupapa NHP staff would manage the proposed new preserve in collaboration with native Hawaiian entities that support best practices related to management of Hawai‘i’s natural and cultural resources, including adaptive management, non-regulatory codes of conduct, community involvement, and education. The NPS would continue its role in the East Molokai Watershed Partnership to protect the best remaining native forest watershed areas on the East Molokai Mountains.	See Common to All	



St. Philomena Church in Kalawao.
NPS photo.

Table 3.15 Summary of Costs

Project Description	Alternative A	Alternative B	Alternative C	Alternative D
PHASE 1 (Essential: necessary resource preservation projects; life, health, safety; stabilization and preservation of historic structures for operations and housing)				
Cultural Resources	2,350,000	3,370,000	3,420,000	3,980,000
Natural Resources		190,000	190,000	190,000
Safety / Hazardous Waste	30,000	1,230,000	1,230,000	1,230,000
Infrastructure	2,260,000	2,250,000	2,250,000	2,250,000
Access	740,000	740,000	740,000	740,000
Operations	3,800,000	3,810,000	3,870,000	3,870,000
Housing (historic buildings for NPS and patient resident housing)	7,400,000	1,430,000	2,010,000	2,010,000
Interpretation, Education, and Visitor Information		515,000	285,000	285,000
Community Use	120,000	620,000	2,090,000	2,090,000
TOTAL PHASE 1	16,700,000	14,155,000	16,085,000	16,645,000
PHASE 2 (Facility upgrades for operations and infrastructure, enhancement of facilities for visitation and community use)				
Cultural Resources	365,000	1,050,000	785,000	1,030,000
Natural Resources		140,000	140,000	140,000
Infrastructure	3,230,000	3,320,000	3,320,000	3,320,000
Operations	815,000	3,215,000	2,575,000	1,685,000
Partner Use		1,065,000	1,585,000	1,585,000
Staff Housing (historic buildings for NPS housing)	2,910,000	4,835,000	5,595,000	5,600,000
Interpretation	70,000	755,000	850,000	850,000
Community Use and Visitor Services	440,000	2,470,000	1,170,000	1,170,000
TOTAL PHASE 2	7,830,000	16,850,000	16,020,000	15,380,000

Project Description	Alternative A	Alternative B	Alternative C	Alternative D
PHASE 3 (Concessions—Long-term)				
Concession Operations (Commercial or Nonprofit)		1,210,000	1,680,000	1,680,000
TOTAL PHASE 3		1,210,000	1,680,000	1,680,000
OVERALL TOTALS				
PHASE 1	16,700,000	14,155,000	16,085,000	16,645,000
PHASE 2	7,830,000	16,850,000	16,020,000	15,380,000
PHASE 3		1,210,000	1,680,000	1,680,000
PHASES 1, 2, AND 3	24,530,000	32,215,000	33,785,000	33,705,000
<i>Additional Partner Contributions</i>	<i>900,000</i>	<i>4,434,000</i>	<i>6,085,000</i>	<i>5,215,000</i>
<i>Total with Partnership Funding</i>	<i>25,430,000</i>	<i>36,650,000</i>	<i>39,870,000</i>	<i>38,920,000</i>
Annual Operating Costs (FY 13)	\$4,230,000	\$4,230,000	\$4,230,000	\$4,230,000
Additional Staffing (FTEs)	0 FTE (Total 40 FTE)	14 FTE (Total 54 FTE)	17 FTE (Total 57 FTE)	20 FTE (Total 60 FTE)
Additional Staffing Costs	\$0	\$810,000	\$1,060,000	\$1,330,000
Additional Operations and Maintenance Costs Related to Capital Investments and Other Projects	\$0	\$885,000	\$885,000	\$885,000
Total Annual Operating Costs	\$4,230,000	\$5,925,000	\$6,175,000	\$6,445,000



Molokai lighthouse. NPS photo.

User Capacity

Overview

General management plans are required to include identification of and implementation commitments for user capacities for all areas of a national park unit. The National Park Service defines user capacity as the type and level of use that can be accommodated while sustaining the quality of resources and visitor opportunities consistent with the purpose of a national park unit.

For the purpose of this plan, user capacity would address visitor use and use by patient residents, DOH, and NPS staff. User capacity depends upon a variety of factors including facility space, physical and logistical constraints, resource resiliency, and desired conditions for resources and visitor experiences. In managing for user capacity, a variety of management tools and strategies would be employed, including regulating the number of people in the Park and managing the levels, types, behaviors, and patterns of visitor use in order to protect the condition of the resources and quality of the visitor experience. The ever-changing nature of visitor use requires a deliberate and adaptive approach to user capacity management involving monitoring, evaluation, actions (managing visitor use), and adjustments to ensure a unit’s values are protected.

The foundations for making user capacity decisions in this GMP are the purpose, significance, special mandates, and management zones associated with the park. The purpose, significance, and special mandates define why the park was established and identify the most important resources, values, and visitor opportunities that would be protected and provided. The management zones in each action alternative describe the desired resource conditions and visitor experiences, including appropriate types of activities and general use levels, for different locations throughout the park. The zones, as applied in the alternatives, are consistent with, and help the National Park Service achieve, its specific purpose, significance, and special mandates. As part of the National Park Service’s commitment to implement user capacity, the park staff would abide by these directives for guiding the types and levels of visitor use that would be accommodated while sustaining the quality of park resources and visitor experiences consistent with the purposes of the park.

Managing Use Levels

There are a variety of logistical and facility constraints that must also be considered in determining appropriate types and levels of use at Kalaupapa. Because Kalaupapa is an isolated peninsula on a remote Hawaiian Island, all aspects of human use must be considered. Food, materials, and garbage must be transported by barge, plane, or by foot or mule on the pali trail. Access to Kalaupapa is difficult and foot access on the pali trail is physically challenging. The mule rides down the trail and air access are costly. Boat access is not allowed, unless through a special use permit, because of unsafe mooring options within the park. The lack of medical services, difficulties in responding to an emergency for large numbers of visitors, as well as fire safety need to be considered in management of user capacity.

The limited number and size of facilities also set the side boards for determining overall user capacity at Kalaupapa NHP. These facilities include buildings, structures, the pali trail, utilities, and supporting infrastructure. The overnight capacity of the buildings and the capacity of the water and sewage systems have been identified through data gathering for this GMP. Through this planning process, it has been determined that the number and size of these facilities and systems to support more people would not substantially increase. When facilities and systems need replacement or improvements, the facilities would generally be maintained to support current levels of use. Table 3.16 provides a summary of facility capacities; the capacities of facilities and infrastructure are described in more detail in the Affected Environment chapter.

Table 3.16 Facility Capacity

Overnight Lodging	Lodging facilities can support a maximum of 368 people per night, based on a pillow count of available bed space within the residential buildings at Kalaupapa Settlement.
Water System	The water system could support a maximum of 300 people per day, based on available water and the cost benefits of converting diesel to solar power for the pumping and water treatment systems.
Sewage System	The sewage system could support a maximum 300 people per day, based on the septic and cesspool systems and professional judgment of NPS maintenance staff.

Within the context of Kalaupapa NHP's limited facility capacities, guidance for the park's overall user capacity addresses both visitor use (including day visitors, sponsored overnight guests, and potential overnight visitors) and current patient resident and DOH and NPS staff. The patients, DOH, and NPS have priority for occupying facilities in order to maintain the patient resident community and operations. Once the DOH departs Kalaupapa, NPS would continue to have priority for occupying and using facilities in order to maintain park operations. Under all alternatives, visitor use levels would generally stay the same in the near term while the DOH continues its operations at Kalaupapa. In the long-term, facilities would no longer be occupied by patient residents and DOH staff, which would allow for possible visitor use of more facilities.

Alternative Management Strategies for Managing Use Levels

The enabling legislation for Kalaupapa NHP contains provisions to respect the special needs of the patients residing at Kalaupapa and provides direction for the number of visitors allowed to visit Kalaupapa in one day. For the purposes of this plan, a visitor is anyone who does not reside at Kalaupapa. One of the provisions states, "So long as the patient may direct, the Secretary shall not permit public visitation to the settlement in excess of one hundred persons in



The pali trail. NPS photo.

any one day" (16 USC 410jj-5). This cap on visitation has been in place since 1980 when the park was established, and the Patient Advisory Council directed that the limit be maintained. It must also be noted that visitation over the last eight years has averaged 25–29 people per day. As part of this GMP, user capacity is being considered within the context of the limit of 100 visitors per day as well as in the long-term when the numerical limit on visitation could change or be removed.

User capacity would be managed through one or more of the following management strategies: 1) limits on users through commercial use authorizations, concessions contracts, and contracts or agreements with organizations as described in alternatives B, C, and D in the "Number of Visitors" section; 2) entry pass system that manages access to the park and within the park in alternatives C and D in the "Orientation and Entry Pass" section, and 3) through indicators and standards for alternatives B, C, and D as described below. In addition to visitor limits, the NPS would also manage user capacity through the general management plan's qualitative descriptions of desired resource conditions, visitor experience opportunities and general levels of development and management, which are in the management zones.

The following table outlines how user capacity would be managed under the four alternatives.



Planning team at Kauhakō Crater. NPS photo.

Table 3.17 User Capacity for Alternatives A, B, C, and D

	Alternative A	Alternative B	Alternative C	Alternative D
Near Term: Maximum Number of Visitors per Day	100 visitors per day managed by DOH	Same as alternative A	Same as alternative A	Same as alternative A
Near and Long-term:		Indicators and standards guide user capacity	Same as alternative B	Same as alternative B
Long-term: Number of Visitors per Day		100 visitors allowed per day through concessions contracts, agreements with organizations and partners, and commercial use authorizations.	Number of visitors per day is based on facility capacities. Entry pass system allows for monitor- ing visitor use and determining if changes are needed. Concessions contracts, agreements with organizations and partners, and/or commercial use authorizations set numerical limits on number of visitors.	Same as alternative C
Long-term: Number of Overnight Visitors		Number of overnight visitors does not exceed 100 visitors and is set by avail- able bed space and limited through concessions contracts, agreements with organizations and partners, and/ or commercial use authorizations.	Number of overnight visitors is set by available bed space and limited through concessions con- tracts, agreements with organizations and part- ners, and/or commercial use authorizations.	Same as alternative C

Indicators, Standards, Monitoring, and Management Strategies

In addition to these important directives, this GMP includes indicators and standards for Kalaupapa NHP. Indicators are measureable variables that would be monitored to track changes in resource conditions and visitor experiences. Standards are management decisions about the minimum acceptable condition for indicators. The indicators and standards help the NPS ensure that desired conditions are being attained, supporting the fulfillment of the park's legislative and policy mandates. The GMP also identifies the types of management actions that would be taken to achieve desired conditions and related legislative and policy mandates. NPS staff would monitor indicators to determine if standards were being exceeded using techniques that could include monitoring of visible impacts to trails or resources as part of regular and volunteer patrols, establishing systematic resource assessments, and monitoring vandalism. NPS

staff could also review general information collected with respect to accidents, visitor complaints, and the functionality of the entry pass system.

As shown in Figure 3.8, user capacity decision-making is a form of adaptive management. With any use on public lands comes some level of impact that must be accepted. Therefore, it is the responsibility of the State of Hawai'i and the National Park Service, as the managers of Kalaupapa NHP, to decide what level of impact is acceptable and what actions are needed to keep impacts within acceptable limits. The monitoring component of this user capacity process helps test the effectiveness of management actions and provides a basis for informed adaptive management of public use. The indicators and standards included in this plan would generally not change in the future. However, as monitoring of Kalaupapa NHP's conditions continues, managers may decide to modify, add, or delete indicators if better ways are found to measure important changes in resource and social conditions. The results of Kalaupapa NHP's

monitoring efforts, related visitor use management actions, and any changes to Kalaupapa NHP's indicators and standards would be available for public review. It should be noted that revisions to indicators and standards would potentially be subject to compliance with NEPA, NHPA, and other laws, regulations and policies.

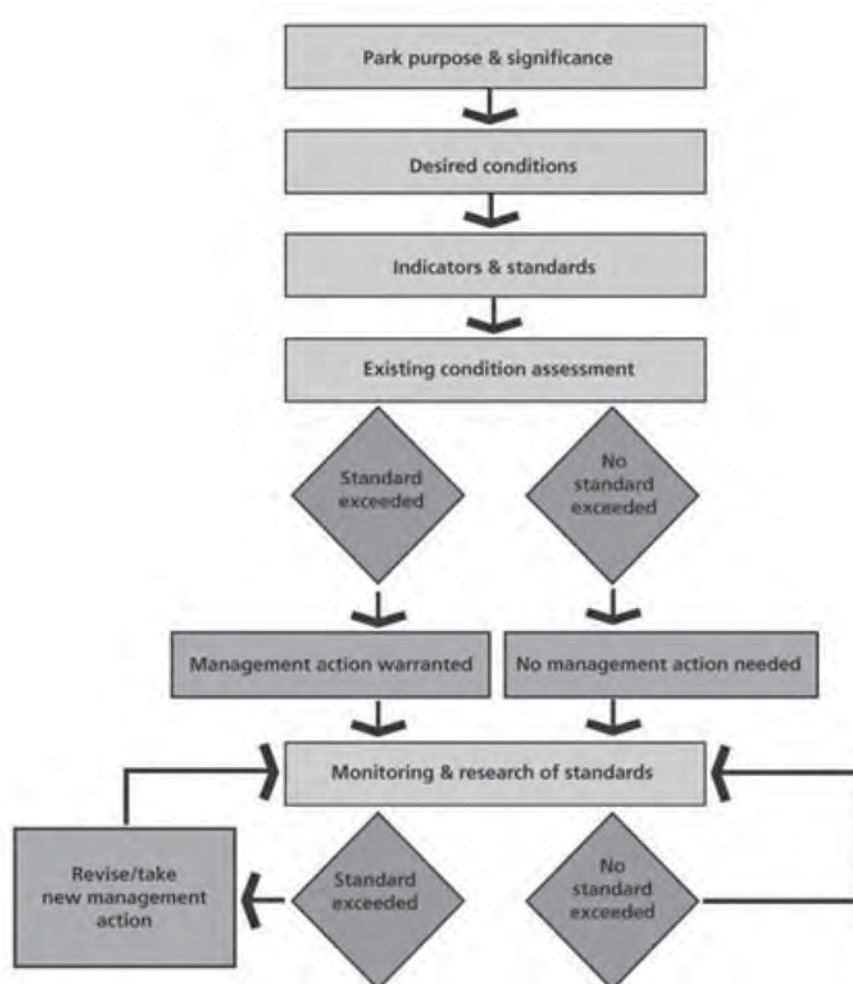


Figure 3.8 User Capacity Framework

The priority indicators for Kalaupapa NHP are associated with the following issues:

- Incidents of human-caused damage or alteration to archeological resources
- Maintenance work orders to repair historic structures damaged by visitors
- Human disturbance to special status species
- Condition of the pali trail
- Visitor crowding
- Unauthorized visitor access in limited areas

The planning team considered many potential issues and related indicators that would identify impacts of concern, but those described below were considered the most significant, given the importance and vulnerability of the resource or visitor experience affected by visitor use. These indicators and standards help translate the broader qualitative descriptions of desired conditions into measurable conditions.



Recent view toward post office and court house. NPS photo.

Table 3.18 Indicators, Standards, Related Monitoring, and Potential Future Management Strategies

Indicator	Standard	Monitoring	Potential Management Actions
Indicator 1: Human-caused Damage to Archeological Resources			
Zones: Integrated Resource Management, Engagement, Wao Akua Zones			
Number of incidents of human-caused damage or alteration to archeological resources including digging, graffiti, rock art, rock stacking, moving resources, and looting	No incidents of damage or alteration reported in one year	Resource management monitoring projects and/or ranger patrols, complaints about human-caused damage	Education, signage, increase patrols, place natural barriers, reroute visitor access, selective closures, take appropriate law enforcement actions
Indicator 2: Visitor Damage to Historic Structures			
Zone: Engagement			
Number of maintenance work orders (beyond normal wear and tear) to repair historic structures damaged by visitors	No more than ten maintenance work orders per year	Monitoring number of maintenance work order to repair historic structures damaged by visitors and/or regular housing inspections	Education, signs, citations, require visitors to pay for repairs
Indicator 3: Human Disturbance to Special Status Species			
Zones: Integrated Resource Management, Engagement, Wao Akua Zones			
Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)	Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)	Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)	Number of incidents of human disturbance to special status species (such as monk seals, green turtles, birds, protected plant species)
Indicator 4: Condition of Pali Trail			
Zone: Engagement Zone			
Condition class assessment or comparable categorical metric	Condition of trail has a condition rating of fair or above	Resource management monitoring projects and/or ranger patrols. Monitoring could include photo documentation at several locations on the trail.	Visitor information, signs, rehabilitate social trails, place natural barriers, repair trail using more resistant materials, coordinate with mule operation, limit number of mules and users
Indicator 5: Visitor Crowding			
Zones: Integrated Resource Management, Engagement, Wao Akua Zones			
Number of complaints relating to crowding and noise intrusions as logged by incident reports, staff or visitor complaints, and comment cards	No more than five total complaints about crowding or noise per month	Ranger patrols, tracking staff and visitor complaints	Education, signs, stagger visitation at high use areas, manage larger groups, set limits on number of people on tours and/or number of tours
Indicator 6: Unauthorized Visitor Access in Limited Areas			
Zones: Integrated Resource Management, Wao Akua, Operations Zones			
Number of incidents of unauthorized visitor access in limited areas	No more than 10 incidents per year for unauthorized visitor access in limited areas	Ranger patrols	Education, signs, improve orientation information, citations, reroute visitor access

Alternatives and Actions Dismissed from Further Consideration

The Council on Environmental Quality guidelines for implementing the National Environmental Policy Act (NEPA) requires federal agencies to analyze all “reasonable” alternatives that substantially meet the purpose and need for the proposed action. Under NEPA, an alternative may be eliminated from detailed study for the following reasons [40 CFR 1504.14 (a)]:

- “technical or economic infeasibility”: the inability to meet project objectives or resolve need for the project
- duplication of other less environmentally damaging alternatives
- conflicts with an up-to-date valid plan, statement of purpose and significance, or other policy; therefore would require a major change in that plan or policy to implement
- environmental impacts too great

The following alternatives or actions were considered during the alternatives development phase of the project, but were rejected because they met one or more of the above criteria.

Termination of NPS Management of Kalaupapa NHP

The NPS leases land from Department of Hawaiian Home Lands and maintains cooperative agreements with Department of Land and Natural Resources, Department of Health, Department of Transportation, and religious institutions at Kalaupapa for the long-term protection and preservation of lands and resources within the boundary of the park. DHHL, DLNR, DOT, and DOH priorities and funding are directed at fulfilling their individual agency missions.

The legislative mandate for Kalaupapa NHP states that the Secretary of Interior shall administer the park. With the approval of the owner(s) and through cooperative agreements, the Secretary may expend federal funds to preserve resources, provide visitor services, and operate the park. The NPS is fulfilling this legislative mandate through its many agreements with partners and park operations since the park’s establishment in 1980.

During the planning process, the idea of terminating NPS management at Kalaupapa NHP surfaced in public and state agency partner meetings. It was suggested that NPS consider the idea and potential impacts and consequences of termination.



Puahi Street in the Kalaupapa Settlement. The Quonset dormitory is on the right. NPS photo.

This action was dismissed from further consideration because impacts and consequences of terminating NPS management at Kalaupapa NHP would be large-scale, conflict with the purpose and significance of Kalaupapa NHP and current plans, and would contradict the legislative mandate for Kalaupapa NHP. In addition, the vast majority of comments received from patients, the public, and partners support NPS's continued management role at Kalaupapa.

Camping

Camping is currently prohibited at Kalaupapa NHP. Visitation and overnight use is managed by DOH and guided by the patient's council. Overnight use is limited to individuals sponsored by a patient resident, DOH staff, and/or NPS staff, and there is no overnight use available for the general public.

Camping at Kalaupapa was introduced as an idea in public scoping meetings held during the planning process. Some members of the public advocated for camping as a less expensive option for overnighting in the park compared to concessions run overnight lodging in the historic buildings. Some individuals desired options for camping in Kalaupapa Settlement, Waikolu Valley, and other locations throughout the park.

Camping was initially included in the draft alternatives in the form of group camping at designated locations within the settlement and managed through a permit system. Public comments received during the public review of the draft alternatives did not support the idea of camping. Many patients and other individuals feel that camping is a recreational activity that is incompatible with the purpose of the park which is focused on history, culture, and learning.

Establishing designated camping areas and building support facilities, including restrooms, would require new construction and introduce a new land use in the National Historic Landmark. Protecting and preserving the character of Kalaupapa NHP is a primary purpose of the park. In addition, federal funding is limited, and the planning team prioritized rehabilitation of historic buildings

over building new lodging or camping areas. For these reasons, camping was dismissed from further consideration.

New Access to Kalaupapa

In the 1860s, Kalaupapa was identified as the location to isolate Hansen's disease patients because of its remoteness and treacherous access by sea and

land. At the time, primary access to Kalaupapa was by sea, and there was a treacherous trail connecting Kalaupapa to the topside of Molokai. In 1889, the pali trail was established as the primary trail connection to topside, and the airport was constructed in the 1930s. Air access became the fastest and most used access to Kalaupapa beginning in the 1950s.

Today, the limited access to Kalaupapa is a signature part of why Kalaupapa has been able to maintain its historic character and ambiance. It is difficult to travel to Kalaupapa, which inherently deters many people from attempting to visit the park. Travel to Kalaupapa is part of the experience.

During the planning process, new forms of access were proposed to provide easier access for patients, staff, visitors, and the transport of goods and materials to Kalaupapa. The new forms were a tram from topside Molokai and/or constructing a road from topside Molokai to the settlement. These two types of access were considered in the context of preservation of the historic character of Kalaupapa.

These actions were dismissed from further consideration because they would dramatically alter the historic character of Kalaupapa NHP and would introduce new uses and challenges to managing a small isolated community. They would also be costly to construct and maintain over the long-term.



The pali trail. NPS photo.

Identification of the Environmentally Preferred Alternative

In accordance with NPS Director's Order-12, Conservation Planning, Environmental Impact Analysis and Decision-making, the NPS is required to identify the "environmentally preferred alternative" in environmental documents. The environmentally preferred alternative is "the alternative that will promote the national environmental policy expressed in NEPA (Sec 101 (b))".

The environmentally preferred alternative is determined by applying the criteria suggested in the National Environmental Policy Act (NEPA) of 1969, which is guided by the Council on Environmental Quality. The criteria outlined in NEPA Sec. 101(b) considers:

1. Fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations;
2. Assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
3. Attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences;
4. Preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice;
5. Achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and
6. Enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources.

The Council on Environmental Quality states that the environmentally preferable alternative is "the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026–46 FR 18038)." According to NPS NEPA Handbook (DO-12), through identification of the environmentally preferred alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and

must clearly state through the decision-making process the values and policies used in reaching final decisions.

After the environmental consequences of the alternatives were analyzed, each alternative was evaluated to see how well the goals from NEPA section 101(b) listed above are met.

The following discussion summarizes the analysis and presents the rationale for the selection of the environmentally preferred alternative.

Alternative A is the no-action alternative and assumes that management, programming, facilities, staffing, and funding would generally continue at their current levels in the near term. The emphasis of the no-action alternative would be to protect the values of Kalaupapa NHP without substantially increasing park operations. Resource preservation and protection would continue to be a high priority for NPS management of Kalaupapa NHP.

Alternative A does not meet Criteria 1 because this alternative does not provide long-term guidance for the National Park Service to manage Kalaupapa after the Department of Health leaves Kalaupapa. Under alternative A, Criteria 2 and 3 would be met to a lesser degree than the other action alternatives because Kalaupapa would generally be managed at the current staffing and funding levels. This would limit the creation of new programs and park operations. The management of natural and cultural resources under alternative A would occur on an as-needed basis rather than providing active planned management of the area (Criteria 4). Alternative A does not fully meet Criteria 5 to the same extent as the action alternatives because it has fewer opportunities for visitor experiences and does not afford the same level of active resource and visitor use management. With limited planning and program funding, alternative A would not meet Criteria 6 as well as the other action alternatives which provide more opportunities for long-range planning and management.

Alternative B focuses on Kalaupapa's special or sacred places and maintaining Kalaupapa's spirit and character. Kalaupapa's diverse resources would be managed to protect, maintain and enhance their integrity. Visitor use and experiences at Kalaupapa would be similar to existing conditions. The NPS would develop an extensive outreach program to share Kalaupapa's history with a wide audience at offsite locations.

This alternative would fulfill resource preservation goals (Criteria 1 and 4) and sustainability goals (Criteria 3 and 6) because visitation to Kalaupapa would be more limited than with other the alternatives. Much of the educational and interpretative information about Kalaupapa would be provided at offsite locations. Infrastructure and services needed for visitors would be minimal resulting in focused preservation of resources. Alternative B would meet Criteria 2 by providing safe, healthful, productive and esthetically and culturally pleasing surroundings. Alternative B meets Criteria 5 to a lesser degree than the other action alternatives in that visitation opportunities are the most restricted under this alternative.

Alternative C, the preferred alternative, emphasizes stewardship of Kalaupapa's lands to ensure the long-term preservation of Kalaupapa's history and ecological integrity. Kalaupapa's diverse resources would be managed from mauka to makai to protect and maintain their character and historical significance. These diverse resources include the cultural landscapes associated with the Hansen's disease era, the historic buildings, cemeteries, and the intangible resources including stories, customs, and living traditions. These diverse resources also include native Hawaiian archeological sites, the natural and dramatic geology of Kalaupapa, and the terrestrial and marine resources.

The emphasis on stewardship to ensure the long-term preservation of both the cultural and natural resources of Kalaupapa fulfills resource preservation

goals, Criteria 1 and 4. This alternative also emphasizes rehabilitation of historic buildings for administrative and visitor facilities fulfilling sustainability goals, Criteria 3 and 6. Alternative C meets visitor experience goals (Criteria 2 and 5) in that it allows for group and general public visitation. Most visitors would be engaged in stewardship and hands-on learning activities providing a quality experience while visiting Kalaupapa. **Taken as a whole, this alternative is the environmentally preferred alternative because it would best meet all six goals in the National Environmental Policy Act.**

Alternative D would focus on personal connections to Kalaupapa through visitation by the general public. Kalaupapa's diverse resources would be managed to protect and maintain their integrity. Visitors would have the freedom to learn about Kalaupapa's people and history through direct experience, exploration, and immersion in the historic setting.

This alternative fulfills the preservation goals (Criteria 1 and 4) because resources would be managed through stewardship opportunities with partners, visitors, and service groups. Sustainability Criteria 3 and 6 would be met to a lesser degree than the other action alternatives in that alternative D would allow for greater development of visitor and administrative facilities. Alternative D meets the visitor experience goals (Criteria 2 and 5) because it allows for a greater number of opportunities for the general public to visit Kalaupapa.



Wedgetail shearwater. NPS photo.



Marine biologists conducting intertidal algae survey. NPS photo.

Section 106 Summary

Section 106 of the National Historic Preservation Act (16 USC 470 e seq.) requires (1) that federal agencies consider the effect of their projects on historic properties eligible for the National Register of Historic Places, and (2) that agencies give the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Office an opportunity to comment on projects. As required by Section 110 of the National Historic Preservation Act, federal land management agencies survey cultural resources on lands under their jurisdiction and evaluate these resources by applying criteria for the National Register of Historic Places. A number of surveys, inventories, and studies have been completed or are ongoing, and further resource evaluation and documentation will continue in Kalaupapa NHP.

For this GMP, the NPS is using the process and documentation required for the preparation of an EIS to comply with Section 106 of the National Historic Preservation Act in lieu of the procedures set forth in 36 CFR §§ 800.3 through 800.6. (36 CFR § 800.8 (3)(c)).

The NPS initiated Section 106 consultation with the State of Hawai'i Historic Preservation Division (SHPD), ACHP, and consulting parties in April 2009 during the public scoping period for this GMP/EIS. The NPS consulted with these entities again in 2011 during the public review of the draft alternatives.

For the purposes of Section 106, the entire Kalaupapa NHP is the area of potential effect. The NPS has identified historic properties within the area of potential effect that may be affected by the proposed undertaking. The NPS will continue to consult with the SHPD, ACHP, Native Hawaiian organizations, and other consulting parties related to the effects of undertakings on historic properties during the public review of the draft GMP/EIS. Additional Section 106

reviews would be necessary to implement site specific actions proposed in the GMP/EIS.

Undertakings that have the potential to effect resources eligible for or listed on the National Register of Historic Places such as preservation work on archeological sites, historic structures, and cultural landscape features will meet all procedural requirements specified in 36 CFR 800.



Siloama Church. NPS photo.

In the interim, no historic properties would be inalterably changed without consultation with the SHPD and ACHP, as appropriate.

Copies of this draft GMP/EIS have been distributed to the state of SHPD, ACHP, and interested parties for review and comment related to compliance with section 106 of the National Historic Preservation Act.

The preliminary determination of effect to cultural resources for the preferred alternative is “no adverse effect.” Additional Section 106 reviews may be necessary to implement site specific actions, including rehabilitation, in the preferred alternative to ensure consistency with the Secretary’s Standards for the Treatment of Historic Properties as stated in 36 CFR § 800.5 (3)(b). A final determination of effect to historic properties for the purposes of Section 106 will be included in the final GMP/EIS.

Summary of Impacts

Table 3.19 below provides a summary of the environmental impacts of implementing each alternative, organized by impact topic. See Chapter 5 for the complete analysis of environmental consequences.

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Cultural Resources				
Values, Traditions, and Practices of Traditionally Associated People (also referred to as ethnographic resources)	Beneficial Cumulative impacts would be minor to moderate long-term adverse and beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Archeological Resources	Beneficial Cumulative impacts would be minor to moderate long-term adverse and beneficial	Same as Alternative A	Same as Alternative A	Minor long-term adverse and beneficial Cumulative impacts would be minor to moderate long-term adverse and beneficial
Cultural Landscapes	Beneficial Cumulative impacts would be minor adverse long-term and beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Historic Structures	Minor to major long-term adverse Cumulative impacts would be beneficial and minor long-term adverse	Beneficial and minor to moderate long-term adverse Cumulative impacts would be beneficial and minor to moderate long-term adverse	Same as Alternative B	Same as Alternative B
Museum Collections	Beneficial Cumulative impacts would be beneficial	Beneficial with minor to moderate long-term adverse Cumulative impacts would be beneficial	Same as Alternative B	Same as Alternative A

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Natural Resources				
Air Quality	Minor short-term adverse Cumulative impacts would be negligible	Beneficial and negligible Cumulative impacts would be beneficial	Beneficial and negligible Cumulative impacts would be negligible and beneficial	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse and beneficial
Soundscapes	Beneficial Cumulative impacts would be minor to moderate short- and long-term adverse	Beneficial and minor long-term adverse Cumulative impacts would be negligible	Same as Alternative B	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse
Lightsapes	Beneficial Cumulative impacts would be negligible	Same as Alternative A	Same as Alternative A	Same as Alternative A
Water Resources and Hydrologic Processes	Beneficial and minor long-term adverse Cumulative impacts would be minor to major long-term adverse	Same as Alternative A	Beneficial and minor short- and long-term adverse Cumulative impacts would be minor long-term adverse	Same as Alternative C
Marine Resources—Coastal Reef, Habitats and Wildlife	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse and beneficial	Beneficial and minor long-term adverse Cumulative impacts would be beneficial and negligible	Beneficial and minor long-term adverse Cumulative impacts would be minor long-term adverse and beneficial	Beneficial and minor long-term adverse Cumulative impacts would be moderate long-term adverse and beneficial
Soils and Geologic Resources and Processes	Minor long-term adverse Cumulative impacts would be minor Long and short-term adverse	Beneficial Cumulative impacts would be minor Long- and short-term adverse	Same as Alternative B	Same as Alternative B
Biological Resources -Habitat, Wildlife, and Vegetation	Beneficial Cumulative impacts would be minor to moderate long-term adverse	Same as Alternative A	Same as Alternative A	Same as Alternative A

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Special Status Species	Minor to moderate short- and long-term adverse and beneficial Cumulative impacts would be minor to moderate short- and long-term adverse	Minor to moderate short- and long-term adverse and beneficial Cumulative impacts would be beneficial	Minor to same as Alternative B	Minor to same as Alternative B
Fishing, Hunting, and Gathering	Minor to major long-term adverse and beneficial Cumulative impacts would be minor long-term adverse and beneficial	Major long-term adverse and beneficial Cumulative impacts would be beneficial and negligible	Negligible to minor long-term adverse and beneficial Cumulative impacts would be minor long-term adverse and beneficial	Negligible to minor long-term adverse and beneficial Cumulative impacts would be moderate long-term adverse and beneficial
Wild and Scenic Rivers	Beneficial Cumulative impacts would be negligible to moderate long-term adverse	Same as Alternative A	Same as Alternative A	Same as Alternative A
Scenic Resources	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Interpretation and Education, Visitor Use				
Interpretation and Education	Beneficial and minor long-term adverse Cumulative impacts would be minor to moderate long-term adverse	Beneficial Cumulative impacts would be beneficial	Same as Alternative B	Same as Alternative B
Visitor Use and Experience				
Visitor Use and Experience	Minor to major long-term adverse Cumulative impacts would be minor to major long-term adverse	Beneficial and minor to moderate long-term adverse Cumulative impacts would be beneficial	Moderate to major long-term adverse and beneficial Cumulative impacts would be beneficial	Beneficial Cumulative impacts would be beneficial
Commercial Visitor Services	Moderate to major long-term adverse Cumulative impacts would be minor to major long-term adverse	Beneficial Cumulative impacts would be minor to major long-term adverse and beneficial	Same as Alternative B	Same as Alternative B

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Sustainable Practices and Response to Climate Change				
Sustainable Practices and Response to Climate Change	Beneficial Cumulative impacts would be negligible and beneficial	Beneficial Cumulative impacts would be beneficial	Same as Alternative B	Same as Alternative B
Access and Transportation Facilities				
Land Access and Pali Trail	Negligible to moderate long-term adverse Cumulative impacts would be negligible to minor long-term and adverse	Negligible to moderate long-term adverse to minor beneficial Cumulative impacts would be negligible to minor long-term adverse	Minor to moderate long-term beneficial Cumulative impacts would be negligible to minor long-term adverse	Minor to moderate long-term beneficial Cumulative impacts would be negligible to minor long-term adverse
Air Access and Kalau-papa Airport	Negligible to minor beneficial and adverse Cumulative impacts would be negligible to minor adverse and long-term	Negligible to minor beneficial and adverse Cumulative impacts would be negligible to minor long-term adverse	Beneficial and long-term negligible to minor and adverse Cumulative impacts would be negligible to minor long-term adverse	Beneficial and long-term negligible to minor and adverse Cumulative impacts would be negligible to minor long-term adverse
Sea Access	Negligible Cumulative impacts would be negligible	Negligible Cumulative impacts would be negligible	Negligible Cumulative impacts would be negligible	Negligible Cumulative impacts would be negligible
Roads and Trails	Negligible to minor long-term adverse Cumulative impacts would be negligible to minor long-term beneficial and adverse	Beneficial Cumulative impacts would be negligible to minor long-term beneficial and adverse	Beneficial Cumulative impacts would be negligible to minor long-term beneficial and adverse	Beneficial Cumulative impacts would be negligible to minor long-term beneficial and adverse
Operations	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Land Use	Negligible to beneficial Cumulative impacts would be negligible	Same as Alternative A	Same as Alternative A	Same as Alternative A
Safety and Security	Beneficial Cumulative impacts would be minor long-term adverse	Same as Alternative A	Same as Alternative A	Same as Alternative A

RESOURCE	ALTERNATIVE A	ALTERNATIVE B	ALTERNATIVE C	ALTERNATIVE D
Socioeconomics				
Impacts to demographics	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Economic Impacts to Influence Area	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A
Impacts to Social Characteristics	Beneficial Cumulative impacts would be beneficial	Same as Alternative A	Same as Alternative A	Same as Alternative A



Dramatic sunrise over the Kalaupapa peninsula. Photo by Jeffrey Mallin.



Affected Environment 4



St. Philomena Church. Photo courtesy of Hawai'i State Archives.

The purpose of this chapter is to describe the physical, biological, cultural, and social environments of Kalaupapa National Historical Park (NHP), including human uses that could be affected from implementing any of the alternatives described in the preceding chapter. This chapter contains topics that were identified as important issues by the public and the agencies during scoping. It also contains additional background data relevant to both readers and NPS managers.

Description of Project Area

Detailed information related to management authorities, jurisdictions, land-ownership, designations, special mandates, and cooperative agreements can be found in the foundation document in Chapter 2.



K'oa (fishing shrine) at Wai'ale'ia Valley, Molokai. Photo by Stokes, ca. 1909. Photo courtesy of Bishop Museum.

Cultural Environment

NPS Management Policies 2006 categorizes cultural resources as archeological resources, cultural landscapes, historic structures, museum objects, and ethnographic resources. Kalaupapa NHP is rich in all categories of cultural resources and is a designated national historic landmark. More information about the NHL designation is located in Chapter 2.

Values, Traditions, and Practices of Traditionally Associated People (also referred to as ethnographic resources)

Many layers of human history can be found on Kalaupapa peninsula, and these layers are expressed in complex cultural landscapes with associated ethnographic resources. These include the landscapes and resources associated with the native Hawaiian community who inhabited the peninsula prior to 1866; those of displaced Hawaiians, who initially relocated to other areas of the peninsula until their ultimate departure in the late 1890s. The central ethnographic resources are those associated with the patient population both at Kalawao and Kalaupapa from 1866–1969.

Ethnographic resources are deeply woven into the fabric of Kalaupapa's culture and history; in traditional Hawaiian stories and ancient sites; in the peninsula's history as a leprosy colony; in the stories patients tell; in the many historical buildings, churches, and cemeteries; and in the scenic and cultural landscapes. These aspects all contribute to Kalaupapa's significance as a place that is connected to people—both past and present—a place with a compelling story to tell to the world.

Traditionally Associated People

NPS defines traditionally associated people as a group that has been associated with the park for at least two generations (40 years) and who has held an interest in the resources of the park before the park's establishment. Traditionally associated people are typically different from other park visitors in that they ascribe value and significance to ethnographic resources—including places

and material culture—that are connected to their history, development, and existence as a community.

Due to the unique history of the park and the age of the current patient population, NPS recognizes that the patient residents are the park's most valuable resource: their stories, knowledge, and personal experience of the cultural and historical landscape are important to document while they are still alive. In 2009 the park started a formal ethnography program to gather information about resources and historic properties, and to conduct individual and group consultation to aid in park planning and management. The patients' stories will be a valuable resource for education, interpretation, and research and will help direct the long-term future of Kalaupapa. Currently NPS consults with the patient community in general, as well as with the Patient Advisory Council, a council of seven patients who represent the broader patient community.

Description of the Patient Community at Kalaupapa

As of March 2013, there are fewer than 20 patients on the Kalaupapa registry, ranging in age from 72 to 90. (The registry does not include patients who were released prior to 1969, or who left Kalaupapa after 1969, when the segregation law was lifted.) The current patient community was admitted to Kalaupapa, many of them as children, between 1936 and 1969.

All patients on the registry are assigned a residence in the settlement, although several patients live on other islands for most of the year and only stay in their homes at Kalaupapa occasionally. Due to health reasons, several patients live at Hale Mōhalu, the Hansen's disease ward at Leahi Hospital in Honolulu, and they rarely visit Kalaupapa. Most of the patients are retired, though some continue to work part-time. Almost all of the patients are mobile and most are able to drive around the settlement. Statistically there have traditionally been more male than female patients. The gender distribution has shifted in recent years, however, and now female community members outnumber male.

The ethnic composition of the patient population today is predominantly Pacific Islander and Asian, including Hawaiian, Sāmoan, Portuguese, Filipino, or Japanese descent.

The religious make-up of the patient community follows the historic pattern, with the Catholic Church receiving the largest membership, followed by the Kalawina (Congregationalists) and the Mormon Church. Though there was a small Buddhist community begun in the 1920s, there are no remaining Buddhists at Kalaupapa today. The Catholic Church and the Kalawina Church continue to hold weekly services at Kalaupapa and monthly services at Kalawao.



Ben Pea and David Kupele sitting on the porch of Bay View Home at Kalaupapa. Photo by A. Law.

Resource Use by the Patient Community

When the patients were young they were taught to fish and gather resources by the older patients in the community: a pattern that repeated itself at Kalawao and Kalaupapa. They explored the mountain valleys and streams of Waihānau, Wai'ale'ia, and Waikolu for sustenance and recreation. From Waikolu Stream the patients gathered hīhīwai (a freshwater limpet), 'o'opu (a native Hawaiian fish), prawns, and watercress. The mountain valleys provided seasonal fruits like mango, guava, and mountain apples. From Waikolu Valley patients gathered yellow and white ginger and the fragrant maile vine that they would weave into lei to wear to dances at Paschoal Social Hall, at lū'au, and at other festive occasions. From the ocean, all kinds of fish were

caught along with crab, lobster, he'e (squid), and 'opihi (saltwater limpet). Other delicacies collected from the sea were edible limu (seaweeds), shellfish, and wana and hā'uke'uke (varieties of sea urchin). The rocky depressions and shallow pools along the northern coast of the peninsula yielded salt during the hot summer months. The ocean was their bread basket and the foods harvested supplemented meals at the group homes: for the predominantly Hawaiian or part-Hawaiian patients, fish and other ocean delicacies were ties to their cultural identity.

Other areas of the peninsula provided plants, mostly nonnatives used for food, cultural purposes, medicine, and healing. The kīkānia is an example of a special plant associated with the Kalawao area and the patient community. It is a thorny nonnative with striking orange-colored fruit that once grew wild in the open spaces at Kalawao. It is no longer as abundant today, but scattered patches can still be seen across the road from Siloama Church. Strung into lei, the orange kīkānia has become symbolic of Kalaupapa. It is rare these days to see a kīkānia lei at festive occasions outside of the settlement.

Hunting with guns was a later tradition. It was illegal for patients to own guns until the early 1950s, and kōkua did not hunt until the mid-1990s. In earlier years, patients hunted pigs and goats with dogs or by catching the young animals. Deer arrived in the park in 1984 and are hunted by kōkua today. Patients no longer hunt but kōkua share their excess meat with those who request it. The tradition of giving fish, salt, and other resources to widows, the elderly, and others in need is rooted in Hawaiian culture. This tradition continues in the patient culture, where both patients and kōkua share fish with patients who can no longer fish or who no longer have access to fish. Especially now, when most patients are unable to fish due to health reasons or age, they depend on kōkua to supply them with the food resources that represent their cultural values.

Current resource use by the patients is limited by their age and physical ability to access gathering sites. The one gathering practice that is still accessible to most patients is the collection of salt along the rocky northern coast. None of the patients fish or hunt any longer.

Pre-settlement Native Hawaiian Community

The displacement of the pre-settlement Hawaiian community between 1865 and 1895 contributed to a loss of ancestral connections to the land and a loss of cultural knowledge and traditions relating to the landscape. Hawai'i did not have a written language until 1829, when missionaries formalized an alphabet.

Much of the history of the peninsula was therefore preserved in stories, and the disruption of the oral tradition by the removal of the native Hawaiian community resulted in a fragmented history with incomplete information about earlier cultural resources and significant sites.

The NPS is learning more about the native Hawaiians who lived on the peninsula prior to 1866. The NPS wishes to identify descendants of the displaced Hawaiian community who once were associated with the park's cultural and natural resources. In the future, the NPS hopes to consult with these descendants about park resources and management.



Kalaupapa Arts and Crafts Store. NPS photo.

Other Associated Groups

Other groups associated with the park include state and federal kōkua (employees), who work and live on the peninsula to support the patient community. Many of the kōkua have a connection to topside Molokai: they were born and raised topside or have family there, and they travel back and forth on weekends when not in the settlement for work.

Also significant to the park are families with loved ones buried at Kalaupapa, as well as the many families and friends of both patients and kōkua who have visited Kalaupapa over the years, and who have an established relationship with the Kalaupapa community.

Previous Ethnographic and Oral History Research

While many historical accounts depict early life in the Kalawao and Kalaupapa Settlements, limited ethnographic research or oral history work was conducted in the 19th or early 20th centuries. This was likely due to the misperceptions, social stigma, and fear surrounding Hansen's disease. Most early research efforts were focused on learning more about the disease and its transmission and on finding a cure.

Table 4.1 Summary of known ethnographic and oral history research to date

Time period	Oral Historian	Description of Activities
Late 1930s	Ernie Pyle	Pyle visited Kalaupapa and wrote about his observations. Approximately 13 articles were published in the Honolulu Advertiser between December 27, 1937 and January 8, 1938. An adaptation of these articles was also published in Home Country by Scripps-Howard.
1967	Ted Gugelyk	Demographic social science research project as part of master's thesis in Sociology. Published in 1970 in the Journal of Health and Social Behavior (Gugelyk and Bloombaum 1979). Gugelyk and Dr. Bloombaum interviewed 90 of the 128 in the mid-1970s. In 1979, Gugelyk and Bloombaum published <i>The Separating Sickness, Ma'i Ho'oka'awale</i> .
1970s	'A'ala Roy, Dr. Ishmael Stagner and the Mormon Church	Conducted interviews with patients in both Hawaiian and in English and collected historic photos of Kalaupapa. As part of the Oral History Program at Brigham Young University-Hawai'i, four interviews were recorded with Kalaupapa patients in 1979 and 2004 to document church history in Hawai'i.
1980s	Anwei Skinsnes Law	The interviews comprise three volumes of transcribed materials and were also video-taped. Most of the interviews were conducted with patient residents, but recordings also include interviews with staff, as well as other individuals associated with the settlement, and officials who were instrumental in bringing the NPS to Kalaupapa.
1993	Valerie Monson	Reporter for <i>The Maui News</i> , recorded interviews in detailed field notes, which produced more than 120 stories.
2000	Jennifer Cerny	Master's thesis in cultural heritage studies. Work identified plants in the cultural landscape and described the value ascribed to them by patients in utilitarian, symbolic, and aesthetic terms.
2000–05	Langlas 2006; Langlas, McGuire, and Juvik 2008; Juvik 2007	The main objectives of the study were to document the Kalaupapa community as it existed then (2000–05) and to determine how the community had evolved since 1969, when the segregation law was lifted and patients were free to come and go from the peninsula.
2010–present	NPS	Ongoing ethnography collection, most of which is related to NPS projects, undertakings and management.
2010–present	Daviana McGregor	Oral histories presently in progress, focusing on lineal descendants of Kalaupapa kama'āina.



Injection, X-Ray, and Dentist's Office, 1930s. Photo by Franklin Mark.

Archeological Resources

The Kalaupapa region is composed of the peninsula of Kalaupapa (also called Makanalua peninsula), the land shelf of Nihoa to the east, and Waikolu Valley to the west—is a layered complex of archeological sites, diverse in type and representative of the full historical continuum from pre-contact to the present day. Due to its physical isolation and lack of modern development on the peninsula, it is one of the most intact archeological complexes in Hawai‘i.

In 1976, several individual archeological sites and structures within Kalawao County were identified in the National Historic Landmark and the National Register of Historic Places. The archeological sites have also been recognized in the enabling legislation for Kalaupapa NHP.

Of the 8,719 acres of land in Kalaupapa NHP, 669 acres have been surveyed for archeological resources. To date, researchers have documented 567 archeological sites. Of the documented sites, all are eligible or listed on the National Register of Historic Places. Resource types include both pre-contact and historic house sites and complexes; agricultural sites such as lo‘i (pond fields) and kula (dryland) field systems; and ritual sites such as ko‘a (shrines dedicated to fishing), heiau (temples), and possibly church remains.

Native Hawaiians lived a rich life on the peninsula before and during the establishment of the leprosy settlement in 1866. Archeological discoveries from Kalaupapa dating prior to 1866 are described below according to a chronology for human occupation of the island developed by anthropological archeologist Mark D. McCoy (2007).

Foundation Period: AD 800–1200

Four dateable samples from Molokai correspond to the Foundation Period, though their dates are contested. Two of the samples are from the Kalaupapa peninsula, and both come from non-site contexts. One is cave charcoal of unknown taxa and the other is marine shell. It is unclear whether they truly reflect human activity during the Foundation Period: their dates can be rejected under “strict chronometric hygiene standards” (Spriggs and Anderson 1993), yet other evidence from the paleoenvironmental record in the Kalaupapa region supports human occupation in this time frame (McCoy 2007).

Early Expansion Period: 1200–1400

Two agricultural features at Kalaupapa have been dated to this period. A charcoal sample from a terraced lo‘i in Waikolu Valley, revealed in an exposed stratigraphic sequence, was found just below the pond field deposits and is believed to be the product of human efforts to clear the land before cultivation. Kirch’s survey work on the peninsula in 2000 uncovered evidence of small-scale sweet potato cultivation in dryland (kula) fields during this early expansion period (Kirch 2002).

Late Expansion Period: 1400–1650

A robust dataset from Kalaupapa indicates that Hawaiians intensified their development of the region’s kula fields for agriculture from AD 1450 to AD 1550. They delineated the fields— which cover approximately six miles at Kalaupapa today and are collectively known as the Kalaupapa Field System—with low, single-course, loosely stacked rock walls that ran parallel to prevailing trade winds. Separate research by McCoy indicates that from AD 1440 to AD 1650, inhabitants were also engaged in establishing heiau as ritual sites on the peninsula (McCoy 2006).

Proto-historic Period: 1650–1795

A battle on the Kalaupapa peninsula, recorded through mo‘olelo, is thought to have occurred in the 17th century at the dawn of the proto-historic period (Summers 1971). The windward Ko‘olau district, which includes Kalaupapa, sought access to fishing grounds on the leeward Kona side during winter months to avoid the treacherous seasonal north shore swells. A battle ensued between the moku (chiefs) of the two districts. The style and form of the Kalaupapa site known as Makapulapai suggest that it is a burial complex for the remains of the Ko‘olau warriors who fought in this battle (Manning and Neller n.d. and McCoy 2005). Such a burial monument is rare in the Hawaiian Islands, but one is also found at Keahou on the island of Hawai‘i.

The Kalaupapa region provides 39 of Molokai’s 89 dateable samples from the proto-historic period. Scientific data, primarily from McCoy’s research, support the view that island societies were dynamic and in great political flux during this time (McCoy 2006). At Kalaupapa, archeologists note a density of small shelters at the peninsula’s north end, in contrast to the blend of site sizes and types found on most of the peninsula. This suggests it was “a zone clearly

used for agriculture but never permanently occupied,” and is a pattern consistent with chiefly authority over the daily life of maka‘āinana (McCoy 2007).

Early Historic Era: 1795–1866

The historic period begins at a time of two major changes in Hawai‘i: the political unification of the islands under Kamehameha I and the first European contact. The early historic era in Kalaupapa begins at the turn of the 19th century with these changes and ends with the 1866 establishment of the leprosy settlement.

Our understanding of this era comes largely from written records, specifically letters and logs left by missionaries and explorers that describe the Kalaupapa landscape and activities of the kama‘āina (inhabitants). Records from the Great Māhele—a land tenure law that for the first time required people to claim and describe their lands in writing—shed light on the lives of the maka‘āinana and other facets of Hawaiian society in the middle of the century (1846–53).

Archeological investigations of this era at Kalaupapa are limited. One describes a brief midcentury intensification of the Kalaupapa field system in order to grow sweet potatoes and other foods for shipment to California gold miners (Athens 1989; Ladefoged 1990; Goodwin 1994).

Transitional Era: 1866–95

This era encompasses three decades of social transition at Kalaupapa, from 1866, when the first Hansen’s disease patients arrived, to 1895, when the Hawaiian monarchy forced the last native occupants to depart. Archeologists have not targeted this brief era for research. However, preliminary research by Viernes-Stein for the NPS (in preparation) indicates that the kama‘āina did not see a government mandate as sufficient reason to break their ties to the land.

The earliest Hansen’s disease exiles were taken in by the kama‘āina of the region until their homes grew full and their resources scant (Remy 1893). It is

known that while some native residents left upon establishment of the “leper settlement” in 1866, the last ones departed only when the Hawaiian Kingdom made its final land exchange offer in 1895. Kalaupapa kama‘āina received lands in the Kainalu and Waialua areas of Molokai.

Kalawao Settlement: 1866–1900s

Kalawao was the initial site of the leprosy settlement in 1866. Though eclipsed by Kalaupapa Settlement in the early 1900s, Kalawao remained occupied to some extent until its Baldwin Home for Boys closed in 1932. Historical records offer plentiful information about Kalawao during this period. Recent archeological investigations focused on household sites at Kalawao provide details of daily life, including bottle glass worked to serve as a blade tool (Flexner 2010). Park archeologists continue to find a noteworthy density of such worked glass.

Kalaupapa Settlement: 1888–present

In 1888, the Bishop Home for Girls was established at Kalaupapa, “named after its benefactor, Charles Reed Bishop, a wealthy Protestant Honolulu banker, capitalist, philanthropist, and widower of Bernice Pauahi Bishop, last of the Kamehamehas” (Greene 1985: 180). The Bishop Home at Kalaupapa provided a leeward setting with drier weather and easier access to the boat

landing than Kalawao. Shortly thereafter, patients and kōkua began to migrate from Kalawao to Kalaupapa. Residents built new structures at Kalaupapa out of materials taken from abandoned structures at Kalawao. Kalaupapa quickly became the peninsula’s primary place of residence and activity, and so it remains today.

Though still a living community, Kalaupapa is also appropriate ground for archeological research. An archeological survey that focused in part on Kalaupapa identified remnants of house sites (Somers 1985). Archeological mitigation measures in the settlement area have also revealed subsurface archeological sites, sometimes in conjunction with buildings still in active use. Archeol-



Heiau at Makanalua, 1909. Photo by Stokes, courtesy of Bishop Historical Society.

ogy of the present has not been engaged in any concentrated effort thus far at Kalaupapa.

Cultural Landscape Resources

Kalaupapa NHP contains two cultural landscapes managed by the NPS. These resources are already part of the national historic landmark district. Each has distinct periods of significance, physical characteristics, and features that define its significance and value. These landscapes include: 1) the Kalaupapa and Kalawao settlements for which the park was established and 2) the Molokai Light Station.

Kalaupapa and Kalawao Settlements

Kalaupapa and Kalawao settlements are managed as a single cultural landscape with both designed and vernacular characteristics. The landscape is historically significant because it retains many of the physical resources and landscape characteristics associated with the establishment, development, and operation of the settlement for the treatment of individuals with Hansen's disease between 1866 and 1969. The historical context and significance of the cultural landscape is documented in the National Historic Landmark nomination. Cultural landscape characteristics and features that remain today and relate to that significance include the natural systems and features that historically provided the framework for establishment and development of the settlement; the overall spatial organization of the settlement, which reflects both historic vernacular elements and historic design components; circulation systems such as roads and trails that reflect historic patterns of movement across the peninsula and within the settlement; buildings and structures (addressed under historic structures); the arrangement of buildings and structures to create residential neighborhoods and functional areas; and small-scale features that add character and meaning to the landscape.



Farming on the Kalaupapa peninsula, 1930s. Photo by Franklin Mark.

Natural Systems and Features

The physiographic features and natural systems that historically influenced initial establishment of the settlement at Kalawao and the relocation to Kalaupapa after 1900 are still prevalent today. The primary natural landform that spatially defines the cultural landscape of Kalaupapa is the large, relatively level peninsula on the north side of Molokai. The peninsula is bounded by the ocean and a rocky shoreline and is isolated by towering cliffs rising 2,000 feet on the south side of the peninsula. These cliffs continue to invoke feelings of drama and awe and contribute to the sense of profound isolation that dominates the settlement.

Other natural features that were important in the lives of the patients at Kalaupapa continue to influence the physical character of the landscape and carry strong cultural associations for people today. These features include the range of pre-contact remnants and structures located throughout the entire peninsula; Kauhakō Crater and the associated lake, lava tubes, and caves; marine areas for fishing and salt collection; the navigable shoreline; Waikolu Stream as a source of water; the upper valleys that historically provided materials and natural resources for building and sustaining a settlement; natural sounds; dark night skies; and the open areas that were used for agricultural production.

Spatial Organization

Kalawao Settlement

The initial settlement landscape developed at Kalawao was vernacular in character. With no facilities, many exiles adaptively sought shelter in existing structures in the vicinity. During this period, the landscape around Kalawao was generally open in character, reflecting long periods of habitation, agricultural use, and grazing. As the early Hansen's disease settlement took form and new facilities were constructed, the settlement concentrated new development along the road that provided access to the other side of the peninsula.

The arrival of Saint Damien in 1873 marked the beginning of major social and physical improvements in the settlement. By the late 1880s, Kalawao had grown to include approximately 430 buildings, including residential cottages, a store, the Federal Hospital, the Baldwin Home for Boys, administrative offices, and churches, as well as a water system, a relatively large garden, and groves of fruit trees. However, as efforts increased to isolate the patients, improve the quality of patient care, and increase the number of patients treated, the Kingdom of Hawai'i instituted measures to relocate the settlement from Kalawao on the windward side of the peninsula to Kalaupapa on the leeward side. Patient relocation and concurrent construction occurred in phases from the late 1890s until the 1930s: during this period, most of the existing Kalawao buildings were dismantled and the materials used for construction in Kalaupapa.

Around 1930, the Baldwin Home for Boys completely relocated from Kalawao to their new complex in Kalaupapa. Eventually the only buildings to remain in Kalawao were St. Philomena Church and its rectory and Siloama Church. Today the spatial organization at Kalawao is defined by Damien Road, the two churches and associated yard areas, gravesites, and the remnant structures asso-

ciated with two major historic complexes: the Federal Hospital and the Baldwin Home for Boys.

Kalaupapa Settlement

Historically, the spatial organization at Kalaupapa Settlement was influenced by land use activities associated with patient care and the institutional requirements of the state government, which administered the facility and provided services to the community. The initial spatial organization of the settlement as developed and modified over the years is the most dominant historical pattern remaining in the cultural landscape we experience today.

As Kalaupapa Settlement grew, the underlying pattern of development followed the orthogonal grid common to many towns, with streets running roughly perpendicular to each other. Single buildings, as well as complexes of buildings—such as those of McVeigh and Bay View group homes—were arranged around the grid. Buildings were sited perpendicular to the street, resulting in an orderly appearance typical of any American small town. The exception to this pattern is the Bishop Home, which has a 45-degree orientation to the grid, and the new Baldwin Home, which was located away from the grid to the south of the settle-



Left: Aerial view of Kalaupapa, 1941. Photo by Jerome Baker, courtesy of Bishop Historical Society. Right: Aerial view of Kalaupapa today. NPS photo.

ment. There the large dormitory building was oriented with its long axis parallel to the slope of the site.

Within the settlement, land uses were clustered to consolidate functions and services for the patients. For example, many of the industrial buildings and activities were located near the boat landing; these included warehouses, a power plant, laundry, carpenter shop, oil house, and other basic services for operation and maintenance. The character of the industrial area is distinct from the rest of the settlement: the buildings are laid out in the same pattern, but without the open spaces between buildings that are typical of the settlement. Although the buildings are set back from the major streets, the space between them is minimally adequate for vehicle and equipment access.

A core area of services for the community was not far from this industrial area and featured a store, provision room, post office, court room, poi shop, and visitors' quarters for family members and friends. The Catholic Church and the Protestant Church were centrally located. Low rock walls enclosed the church yards, and the grounds included ornamental plantings. Large areas along the shoreline on the north end of the settlement were used for gravesites and cemeteries.

Many of the individual cottages and patient residences in Kalaupapa were located in the eastern portion of the settlement, and most were oriented north-south along the streets. The exception to this was the row of cottages along Damien Road, which ran east-west to Kalawao. Many of the cottages had enclosed yards, and the majority also had a small garden space, either wrapping around the porch and the foundation of the house, or sited directly adjacent to the house. Several doctors, nurses, and staff responsible for the care of the patients resided in one of the five main residential complexes, known as Staff Row, located directly south of the McVeigh Home.

In addition to the individual cottages, a number of distinct residential clusters within the settlement were established to care for the patients and members of the community: the Bishop House, the earliest established home, was created to care for young girls and women sent to the settlement; the Bay View Home, established for both men and women, was devoted to the care of the old, the infirm, and the blind; the Baldwin Home (removed in the 1950s) focused on the care of young boys; and the McVeigh Home, built in 1910, was first established as the Home for White Foreigners but by July 1914 other people of different

nationalities lived there. It was destroyed by fire and rebuilt in the 1930s. These building clusters were largely self-contained and were major structuring components in the settlement landscape.

Today, despite a number of changes such as the loss of historical plantings, the removal of historical rock walls, and the general loss of individual structures and outbuildings, Kalaupapa Settlement still exhibits historical spatial organization and broad patterns of development. The loss of plantings and structures throughout the settlement has been incremental, but has resulted in an overall loss of physical complexity within the settlement and the creation of more open space. In spite of these changes, however, many of the key elements that define the spatial organization of the settlement persist. For example, the physical landforms that delineate and isolate the peninsula remain, and many of the extant early roads and formal walkways within the settlement continue to provide a framework for circulation. Individual cottages still stand along the narrow roads surrounding state facilities and community services, like the store, gas station, post office, and library. Four of the five primary housing clusters also remain—the McVeigh Home, the Bishop Home, Staff Row, and the Bay View Home—although they have been altered to varying degrees.

McVeigh Home

Located in the northeastern portion of Kalaupapa Settlement, the McVeigh Home complex historically consisted of a central dining hall, a pavilion, large dormitories for men and women, and 19 individual cottages situated along narrow driveways, extending east and west from the primary access road. This road ran south to staff quarters and north to the airstrip. Within this area, the landscape reflected a hierarchy of spaces and uses from very private, personal use in the cottages, to communal facilities (such as a dining and recreation room pavilion) in the center of the complex. Formal vegetation patterns helped distinguish communal areas. Private cottages were often more informal and individualistic with shade trees, fruit trees, and various types of foundation plantings extending into the yard. The McVeigh Home complex retains virtually all of its original spatial organization, including the locations of structures, circulation systems, and even land use patterns from the 1929 reconstruction period that followed the 1928 fire.

Bishop Home

Centrally located in the settlement, the Bishop Home was one of the most distinctively landscaped residential clusters in Kalaupapa. Historically the Bishop

Home contained as many as 19 buildings, including a chapel and convent, an infirmary, several cottages, a dining room and kitchen, a dormitory, a heating plant, and a laundry. Most of the structures were clustered on a high point in the center of the grounds. The entire lot was enclosed on all four sides by a 4-foot dry-laid rock wall, and within the property the complex was delineated by a wood fence. A large wooded area extended between the rock wall and fence on the northeast side of the property. Primary access consisted of a stone gate and formal tree-lined drive, bordered by rock walls, which began at the corner of School and Puahi streets and culminated in a loop with a flag pole in the center. An inner cluster of structures, including the convent and the chapel, was encircled by another driveway. Pedestrian circulation within this cluster was also formal, following straight lines and right angles. Ornamental vegetation bordered the pathways, roads, and buildings, lending character and definition to the landscape. Monuments to Saint Marianne and Saint Damien were located along Puahi Street on the Bishop Home grounds. Today, the Bishop Home, although missing many of the original structures, retains the original circulation system, the interior focus on the chapel and convent, and large portions of the outer wall surrounding the entire lot.

Bay View Home

The Bay View Home complex historically included ten primary structures: the Manager's Cottage, four dormitories, a dining room, a kitchen, a heating plant, a chapel, and a laundry. All of these structures were arranged in a formal symmetrical plan, on a relatively broad expanse of grass. The dispensary was located just north of this complex across Damien Road. With the exception of the dispensary, structures were oriented toward the center of the complex and were built largely in the Hawaiian plantation style, adapted to institutional needs. The entire complex was fenced on three sides to the shoreline, limiting access. Walkways within the complex were paved and laid out in formal and direct routes linking buildings, and a paved road provided access along the west side of the complex, leading to the main dining hall. In the very early days of the Bay View Home, vegetation was formal yet sparse, with individual trees and hedges lining the edges of paths and roadways.

Baldwin Home

Located at the base of the pali trail on the south edge of the settlement, the new Baldwin Home for Boys historically included a large dormitory, a recreation room, cottages, a chapel, and a rather large grove of papaya and banana trees. The Baldwin Home was shut down in 1950 and the structures were removed

the following year. In some cases these structures were re-located elsewhere within the settlement (such as the residence now located on the southeastern corner of Puahi Street and Damien Road).

Circulation

General access to Kalaupapa peninsula and historic patterns of circulation within Kalaupapa Settlement remain largely intact and in use today. Damien Road remains the primary route between Kalawao and Kalaupapa Settlements. At Kalawao, many of the historic circulation routes and features were abandoned or actively removed after the settlement moved to Kalaupapa. In some cases, roads that were left in place remain as fragments or remnants obscured by encroaching and invasive vegetation. In areas where use continued, circulation remains largely intact. This includes pedestrian circulation in the form of paved walkways at St. Philomena and Siloama churches.

Circulation within Kalaupapa Settlement is structured by an irregular road grid that provides access to all developed areas. This pattern has been in place throughout the expansion of the settlement. A decade-long improvement program began in 1935 to standardize Kalaupapa's system of roads. The project included the repaving of streets, driveways, parking areas, and a portion of the road to the airport: much of this system remains today as the primary circulation network.

Major extant circulation systems and features with historical significance include the pali trail; Puahi Street, which links the trail to the settlement; the Kalaupapa airstrip; Damien Road; Kamehameha Street, which connects the airport and lighthouse to the settlement; the eastern coastal road; and the network of roads, driveways, and sidewalks within Kalaupapa Settlement. Site-specific circulation systems related to neighborhoods and building clusters also remain, such as the roads and walkways at the Bay View Home, Bishop Home, McVeigh complex, and Staff Row.

Vegetation

Historically, vegetation in Kalawao and Kalaupapa Settlements served a variety of purposes. Certain plants were cultivated for cultural reasons, including crops that held ethnic value or those grown for food and/or raw materials. Hedges were established for privacy and "independence" by patients healthy enough to live autonomously; trees and shrubs sheltered homes from seasonal winds

and created viable microclimates; and the government agencies administering the settlement believed that ornamental plantings could promote community health and well-being. This attention to aesthetics is said to have improved after Brother Dutton's arrival in the mid-1880s, and it is a key characteristic of the settlement landscape during the historical period.

While there have been significant losses in historical vegetation—such as the disappearance of uniform plantings between building complexes—other original plantings remain. Fruit trees and ornamentals are found in nearly every yard and building complex. Original ornamental trees and shrubs can also be found throughout the settlement, and include the African tulip tree, as well as crown flower, hibiscus, ironwood, and kamani. Additionally, a large number of historical hedgerows still exist at Kalaupapa. Hedgerows include mixed plantings, typically of wiliwili, panax, and croton. These extant plants reveal aspects of daily life, community values, and cultural preferences in the settlement.

Historical garden areas and ornamental vegetation planted at Kalawao disappeared relatively quickly after the 1900 move to Kalaupapa. Today, plantings at St. Philomena and Siloama are maintained, and some remnant vegetation remains at the site of the old Baldwin Home, where there is still a large stand of eucalyptus, as well as a line of coconut trees along the southern and eastern boundaries of the complex. Lands to the north, south, and east of the developed area of Kalawao were released to succession when they were no longer used for agriculture. As a result, the majority of the Baldwin Home site has been reclaimed by forest. Additionally, a majority of the land to the east of Kaiulani Street is no longer residential and has also been released to succession. Today, remaining historic vegetation at Kalawao includes a variety of fruit trees such as mango, avocado, breadfruit, tamarind, banana, papaya, citrus, Surinam cherry, guava, litchi, coffee, and coconut.



Kalaupapa graveyard, early 1900s. Photo courtesy of Damien Museum.

Small-scale Features

Numerous small-scale features remain and are located throughout the landscape. Structures such as statuary, cisterns, monuments, and memorials lend detail and character to the physical landscape and possess utilitarian, decorative, and spiritual importance. Notable examples include Mother Marianne's Grave; the Saint Damien Monument; the Mother Clinton Monument; the Statue of the Sacred Heart of Jesus in front of the St. Francis Catholic Church; the Baldwin Home Grotto; the Grotto at St. Francis Catholic Church; church

bells; Kamehameha Street stone culverts; building ruins and the foundations of non-extant structures; dry-laid masonry rock walls; cemetery markers and monuments; and additional features within the Bishop Home, including the cistern, bake oven, and flag pole.

Cemeteries

NPS considers a cemetery to be a site in the landscape, defined by a grouping of grave markers. The cemeteries in Kalaupapa NHP serve as the final resting place for thousands of Hansen's disease victims and the kōkua who assisted them. Archival documents describe the rapid rate at which early Kalawao patients died, and the shallow and unmarked graves in which some were buried (Greene 1985). The 1946 tsunami and vegetation overgrowth have further

reduced the number of marked burials in the settlement. The known cemeteries are located in each of the ahupua'a on the peninsula: Kalawao, Makanalua, and Kalaupapa.

In 2003–2004 the Western Archeological and Conservation Center of the NPS completed a cemetery survey to establish a baseline inventory of all known grave markers in the park. This survey recorded a total of 1,180 individual markers and built on a 1991 directory of grave markers. In this project, burials from existing markers were documented to replace several records destroyed along with the Old Hospital in a July 1990 fire.

While there are 1,180 markers recorded to date, this does not preclude the possibility that more markers and/or cemeteries may still be identified in the future. The list of 1,180 grave markers was entered into the List of Classified Structures (LCS) database along with associated condition assessments in 2007. As part of regular monitoring, in 2011, condition assessment updates were completed on all of the grave markers included in the LCS.

The grave markers vary in size and style. Some are raised and others flush with the ground, and they exhibit various forms, such as that of a cross, a post, a pillow, or an obelisk. They include mausolea, tomb vaults, hakka urn houses, temporary grave markers, and simple slabs covering the entire grave. Materials used to construct the grave markers include wood, rough lava stone, concrete, iron pipes, bronze plaques, granite, marble, and sand. The condition of the markers ranges from excellent to unrepairable. Recent graves are adorned with leis, plastic flowers, and other tributes.

The NPS cares for all marked cemeteries by clearing vegetation and maintaining the ground cover, enabling easier access. The NPS also restores grave markers by repairing broken markers, re-stacking stone rubble masonry, re-setting tilted markers, leveling settled grave slabs, clearing overgrown vegetation from tombs, and repairing damage from roots.

Historic Buildings and Structures

An historic structure is defined by NPS Director's Order # 28: Cultural Resource Management as "a constructed work, usually immovable by nature or design, consciously created to serve some human activity." Historic structures include "buildings and monuments, dams, millraces and canals, nautical vessels, bridges, tunnels and roads, railroad locomotives, rolling stock and track, stockades and fences, defensive works, temple mounds and kivas, ruins of all structural types, and outdoor sculpture." For the purposes of this GMP, historic buildings are defined as enclosed structures with walls and a roof, consciously

erected to shelter residential, industrial, commercial, agricultural, or other human use, and constructed and used in Kalawao and Kalaupapa Settlements.

Historic buildings and structures are listed in the NPS List of Classified Structures (LCS). The LCS is an evaluated inventory of all historic and prehistoric structures in which the NPS has, or plans to acquire, legal interest.

When the Kalaupapa Leprosy Settlement historic district was declared a National Historical Landmark (NHL) in 1976, over 400 buildings stood in the area. Over the years, several buildings were lost due to weather-related

deterioration and termite infestation. Upon establishment of Kalaupapa NHP in 1980, NPS completed an inventory of the historic buildings. Knowing that not all buildings could be saved, the NPS targeted approximately 200 historic buildings for preservation. At the same time, the NPS has identified historic buildings which were not listed in 1980, but which contribute to the historic district's character and setting.

Buildings are of four major types: state constructed residential, administration/industrial, religious, and patient-built structures. Despite their different uses, nearly all the buildings share an architectural cohesion that is the result of a consistent handling of form, material, and style. Similarly, the marked cemeteries in the

park display relatively consistent use of materials, construction styles, and techniques.

Most of the historic buildings at Kalaupapa were erected by the State of Hawai'i Department of Health. Additionally, patients constructed various buildings and structures, ranging from garages, pig sties, and chicken coops to cottages on the beach that offered rest and recreation outside their institution-provided facilities. Despite the maintenance challenges, most of the historic buildings and structures still stand as visible testaments to the needs and strengths of the Hansen's disease patients. To effectively recount how patients shaped their lives on the peninsula, it is important to preserve and maintain these small but significant patient-built elements.



Kenso Seki Residence. NPS photo.

Materials and Stylistic Features

The specific materials, style, and floor plan of the buildings depend largely on the period of construction. Different construction phases at Kalaupapa resulted in distinct subcommunities of types, each with its own standardized plans and building components.

The oldest architectural type still visible at Kalaupapa is expressed in the small cottages, most of which are less than 400 square feet in size. These were built in the early 1900s out of materials taken from buildings abandoned in Kalawao. While the cottages do not stand in an obvious grouping today, they can still be seen in some residential areas. Their form is distinctive and was once much more prominent in the settlement. They are similar in layout and construction to the early housing built by Hawai'i sugar planters for immigrant laborers during the expansion of the industry in the late 1890s and early 1900s. They feature single or double-pitch gable roofs with wood shingle roofing and eaves that extend to cover a porch that spans the front. The interior layout is limited to two or three spaces, though outbuildings such as wash houses, workshops, and outhouses add functional space.

Mid-period buildings constructed between 1919 and the 1930s expand on this early housing type and reflect many features of standard plans produced by the Hawai'i Sugar Planters Association. Now known as the Hawaiian plantation style, this architectural approach draws on the single-wall construction tradition with girts on the exterior for added lateral stability. The roofs are hipped with overhanging eaves that extend in front to cover a porch. Window and door openings appear singly or in pairs, with multi-pane sashes. Features such as columns, cornices, and moldings may be added to this basic design.

After World War II, residences at Kalaupapa were typically built in the style known as "Hicks Homes," a standardized, pre-fabricated housing type popular in Hawai'i at the time. This style is named for Hicks Construction, which offered many of these homes in a catalog of floor plans. Customers found the

catalogs appealing because they served as a "one-stop-shop" for all house construction needs: Hicks provided all necessary documents to expedite financing and would even assist in obtaining a building permit. Hicks Homes were also attractive because they were marketed aggressively, resulting in a large number of homes that held their value.

Hicks Homes are similar in construction to the previous housing types described: they possess single wall tongue-and-groove exterior load-bearing walls and single-wall tongue-and-groove non-load bearing interior partitions. The Hicks Homes also differ from the earlier housing in their larger

size and greater number of amenities. They were intended for sale to the general public as entirely self-contained family homes and as such have living rooms, bedrooms, kitchens, and bathrooms compliant with City and County of Honolulu building codes, as well as a complete kitchen compliant with Federal Housing Administration (now U.S. Department of Housing and Urban Development) standards for arrangement, counter space, and cabinet space. They were also provided with utility connections for a clothes washer. This is in contrast to the older houses at Kalaupapa that may not have complied with building codes or required cooking and laundry facilities, which were provided in central dining halls and laundries. Many Hicks Homes remain, particularly along the south side of Damien Road, with a few interspersed among



The Bay View Home kitchen serves as the park's Natural Resource Management office. NPS photo.

the older dwellings in the central and main residential areas. These quintessential postwar houses are contribute to the historic character of the place.

Residential Buildings

Today almost all residential buildings exist at Kalaupapa Settlement. They include individual homes and group living homes. Both kinds are typically single-story, wood-frame buildings sitting one to 2.5 feet above grade on post foundations with rock or concrete footings. The layout is usually a simple massing of rectilinear spaces accessed from an open porch.

Individual Residences

Residential buildings are mostly detached single-family dwellings, but seven residential buildings are group homes. Most are of wood-frame construction with sloped wood or composition shingle, or built-up bituminous roofing.

Group Homes

Most of the group homes are similar in construction to the plantation style cottages, but on a much larger scale. The first five were built around 1916, four at Bay View and one at Baldwin Home in the southwest corner of Kalaupapa Settlement. Of these five only three remain. The other two group homes were built in 1929 at McVeigh at the northeast corner of the settlement. Another group home, identical to the others, was built at Bishop Home. This main structure is surrounded by auxiliary buildings such as wash houses, laundries, utility buildings, and storage sheds.

One remaining dormitory, at Bay View, is a Quonset building left at Kalaupapa by the Navy after World War II. The steel-framed, corrugated half-cylinder structure is one of two in the national historical park (the other served as the lumber storehouse).

The McVeigh Home and Bay View Home complexes remain relatively intact with both their main structures and many outbuildings still standing. The group home at Bishop Home no longer exists, but the concrete foundations are still extant. The only remnants of the Baldwin Home are the entry gate pillars and building foundations.

Patient-built Buildings

Using their own funds and labor, the patients constructed simple, small buildings for their own use. These wood-framed vernacular buildings included garages, sheds, animal shelters, and beach houses. Some were constructed on stone or concrete foundations, others were built with a concrete slab on grade, and still others—typically garages—were without a floor.



Top to bottom: 1. Quonset hut dorm. 2. Craft and Storage Building (former Bakery). 3. St. Francis Catholic Church. 4. Marks Beach House, East Peninsula. NPS photos.

Administrative/Industrial Buildings

Kalaupapa Settlement's fame as a Hansen's disease treatment facility came partly from the Hawaiian and territorial government's efforts to build facilities that met the social and functional needs of patients. These included social gathering places as well as commercial services.

Paschoal Hall, the most important community building, stands prominently at the center of the settlement. It is distinguished by its size and its location in an open space, surrounded by tall palms. Built in 1916, the hall is a key historical feature illustrating Kalaupapa's administrative philosophy of improving patients' quality of life. It has been used for dances and to show movies, and it has served as a venue for live entertainment and a space to host other community events. This landmark structure retains the basic elements of its original plantation style architecture, such as tongue-and-groove vertical wood siding, slider windows, stile-and-rail doors, a truncated hip roof, and concrete footings. Notably, its interior once included a balcony with a railing (no longer present) that kept patients and non-patients separated from each other.

McVeigh Social Hall is today the main venue for most of the community activities at Kalaupapa. It sits at the center of the McVeigh Home complex located at the northeast corner of the settlement. The hall has recently been reroofed and repainted on the exterior. Another social hall was the Women's Social Club. It was converted to the bakery in the mid-1930s and is now known as the Craft Shop. This is a small wood-framed building with gable roof covered with wood shingles.

In addition to the social halls, several ethnic groups built their own gathering places during the 1900–30s period of expansion and community improvement. These included the Americans of Japanese Ancestry (AJA) Benevolent Society Hall, the Chinese Clubhouse, and the Filipino

Meeting House. AJA Hall is the only building that remains from this group. It currently serves as the museum and bookstore for park visitors and is operated by the Kalaupapa Historical Society with the assistance of Pacific Historic Parks.

Other remaining civic buildings are the U.S. Post Office, Kalaupapa Store, Mother Marianne Library, gas station, and the Department of Health administrative office. These are residential in scale and distinguished by their location in the community's core, near the pier. Additionally the post office, store, and gas station are notable for their concrete construction. The library and the administrative office are built of concrete masonry units, and their design is modern, in contrast to the architecture in the rest of the community.

The industrial area includes buildings that house the maintenance functions of the settlement, including storage of facilities repair and maintenance materials, the wood fabrication shop, automotive and equipment repair shops, and garages for vehicles and grounds maintenance equipment. Most of the industrial buildings do not reflect the plantation style in their size, appearance, or materials. They also lack distinctive embellishments, except for the main warehouse next to the pier, which features decorative plaster in the Art Deco style.

They are generally constructed on concrete slabs on grade or built on concrete piers set directly in the ground. With exterior walls of concrete or unit masonry, they are large and rectilinear, with flat or simple gable roofs of corrugated metal and few if any distinctive elements. Standard door openings (pedestrian doors) with stile and rail doors are present, and large sliding doors and side-hinged barn doors allow access for fork-lift handled loads. Storage sheds and vehicle and equipment shelters are generally without doors or walls, enabling easy access to large materials and equipment. Windows on large buildings that house industrial



Top to bottom: 1. Bay View Home Residence. 2. Recreation Hall in the McVeigh Home complex. 3. Yonemuri Residence. 4. Driveway leading to the Bishop Home. NPS photos.

shops are steel-framed with awning sashes. The lumber storehouse is a Quonset hut, which were commonly used in the Pacific by the military.

Religious Buildings

Places of worship played a significant historical role at both Kalawao and Kalaupapa Settlements and continue to be important to the remaining patients and community. The primary religious congregations are Catholic, Protestant, and Mormon. Over time each congregation has occupied several religious structures, as original buildings fell into disrepair or were enlarged to accommodate growing parishes.

Old Stone Church

The oldest remaining church structure on the peninsula was built at Kalaupapa in 1853, during the pre-settlement period. It was built in the form of a typical Calvinist missionary meeting house, with a simple rectangular volume, gable roof, and thick rubble masonry walls made of lava rock with coral lime mortar and deeply set, double-hung windows. Although the configuration and openings have changed significantly due to varied uses—it has served alternately as a jail, a repair shop, a warehouse, and a storage space for fire engines—its original exterior walls remain. It now functions as the NPS Ranger Station.

Siloama

On December 23, 1866, 35 people gathered to organize a Protestant congregation at Kalawao. The church structure was dedicated in 1871. Siloama means “Church of the Healing Spring.” It was rebuilt in 1880, altered numerous times, and completely reconstructed in 1966. This austere structure was the first Protestant church erected for the exiled Hansen’s disease patients. The white wood-frame structure rests on concrete pilings and is one-story with a gabled portico. It has six double-hung windows, a small steeple, a gabled roof of corrugated metal, horizontal

channel siding, and corner boards. Despite a complicated history, Siloama remains highly significant to the community for its historical and symbolic associations with the trials and spiritual life of the earliest Hansen's disease residents of Kalawao.

St. Philomena

The first Catholic Church on the peninsula, St. Philomena was built near Siloama at Kalawao in 1872, in a simple Gothic style. Erected in successive stages using both stone and wood, the church has a bell tower and gabled roofs. The original wood portion on the west side features double-hung windows. Along both sides of the primary building volume, which was built later, numerous triple-hung windows illuminate Gothic arch recesses. The building is associated with Saint Damien, who preached there and led much of the construction of the church. It was completed after his death.

Kanaana Hou

The Kanaana Hou Church at Kalaupapa was built by the United Church of Christ in 1915 in a modified Arts and Crafts Stick style. Laid out in the shape of a Greek cross, the wood-framed structure rests on a foundation of stone, concrete, and wood posts. It has a large bell tower, gabled portico, numerous double-hung windows, tongue-and-groove siding, and a cross-gable wooden shingle roof. Architectural details include Gothic arched louvers and large dentils in the bell tower, plus many chamfered buttresses. The Church recently underwent restoration work in 2004.

St. Francis

The current Catholic congregation worships at St. Francis Church in Kalaupapa, built in 1908. An Italian Gothic style building of reinforced concrete, it is noteworthy as an early example of this type of construction in such a remote location. It has a corner bell tower with gothic arches and double-hung windows, colored-glass quatrefoil windows, side buttresses, and a steep corrugated metal roof.

Latter-day Saints (LDS) Church

The LDS Church at Kalaupapa was built in 1940 in a modified plantation style with a low gable roof of composition shingles. It features plywood and batten siding, and sliding windows. All other buildings previously associated with the LDS Church at Kalawao and Kalaupapa have been removed.



Molokai Light Station. Photo by Rob Ratkowski, NPS.

Molokai Light Station

The Molokai Light Station is a historic district located on the extreme northern tip of Kalaupapa peninsula. The district surrounds a majestic 138-foot lighthouse, which guides mariners sailing from the west through the narrow and dangerous Kaiwi Channel that separates the islands of Molokai and O'ahu. Light from the station can be seen up to 28 miles away. The light station was operated by lighthouse keepers and resident Coast Guardsmen for 57 years, until it was automated in 1966.

In 1982, the lighthouse was listed in the National Register of Historic Places as the U.S. Coast Guard Molokai Lighthouse. In 2010, a cultural landscape inventory for the Molokai Light Station was completed and included documentation of the cultural landscape comprising the property.

The period of significance for the Molokai Light Station begins in 1908, when construction of the lighthouse began, and ends in 1955 when the last addition was made to the wash house. The Molokai Light Station is historically significant at a state level for its association with

maritime history, transportation, commerce, and social history. It is also significant as an example of maritime architecture and as an illustration of changing light station design during the 20th century.

Cultural landscape characteristics and features that convey the significance of the historical Molokai Light Station include natural systems and features, spatial organization, land use, vegetation, buildings and structures, circulation, and archeological sites.

The rich history that has shaped the site is displayed through a number of extant structures associated with the development of the 23-acre complex. In addition to the lighthouse, there are four other utilitarian and residential buildings, a concrete water storage tank, and a lava rock wall constructed in 1916 to define the property and control encroachment from ranging cattle. These structures are sited both for functional and operational purposes and in response to natural conditions. The organization of the buildings, the formal connection between buildings with pedestrian walkways and roads, and the use of vegetation to delineate space and screen the property from the weather are all key aspects of the design of the small development. Many of these landscape characteristics continue to convey the historical character, landscape patterns, structures, vegetation, and features associated with Molokai Light Station between 1908 and 1955.

The Molokai Light Station also contains archeological features such as foundations, concrete piers, stone walls, and a fence. These historical remnant structures are evidence of other uses and activities associated with the Molokai Light Station during the period of significance and may hold interpretive value. The site also includes many native Hawaiian structures and features, including stone walls, enclosures, and a heiau. These features played an important role in the physical development of the site and may have influenced past land use. Many of these features, including the stone wall enclosures, illustrate re-use or manipulation by the light station keepers and their families.

Museum Collections

The NPS began active management of the museum collections at Kalaupapa NHP in 1987. The collections illustrate the compelling story of the Hansen's disease community, and they preserve and document the nationally significant natural and cultural resources in the park. Most of the collected materials represent the late 20th-century experiences of patient residents in the settlement. However, as NPS continues to inventory park resources, a growing portion of the collection consists of archeological artifacts and representative natural specimens. The park's Scope of Collections Statement, updated in 2010, reflects these changes. In 2006 the park prepared a Museum Management Plan and began construction of Hale Mālama, a storage and research facility for the collections at Kalaupapa NHP. The Museum Preservation Maintenance Plan (Housekeeping Plan) and the Integrated Pest Management Plan were com-

pleted in 2009 and 2010 respectively; these plans provide specific guidance to address the care and preservation of the park museum collection.

Cultural and Historical Collection

The cultural and historical collection preserves objects and archival materials representing the history, archeology, and ethnology of Kalaupapa. The cultural collections at the park currently comprise approximately 200,000 objects, 35 linear feet of cataloged archival materials, and 27 linear feet of uncataloged archival materials.

Types of archival material in the collections include the following:

Field records for archeological projects, natural resource activities, and historic preservation efforts at the park;

- NPS operational records;
- Records of community organizations;
- Personal papers of patient residents, workers, and visitors; and
- Rare books and manuscripts that have a history of use in the settlement, or are associated with park projects or eminent figures.

The park library contains other rare books that either duplicate museum copies or have tangential association with the park. Library holdings include out-of-print books, technical references, and administrative documents.

Though the majority of the collection derives from the late 20th century, a full range of time periods is represented.

Pre-1866—Native Hawaiian items from before European contact include animal bone, lithic material, shell fragments, and other organics. Historical records document commerce, land use patterns, and daily life of the kama'āina of Kalaupapa.

Early Historic Era, 1795–1866—The park's reference library has photocopies of some of the māhele or land claim proceedings that hint at life on the peninsula prior to the 1850s. The museum collection contains a relatively small number of artifacts and an archive representing this time period.

Transitional Era, 1866–95—The museum collection also contains a relatively small group of artifacts and an archive representing this time period.

Kalawao Settlement Period, 1866–ca. 1900—The collection includes building fragments and architectural features, such as the original cross from the steeple of St. Philomena Church. NPS preserves and stores several items related to Saint Damien’s life at Kalawao. The collection additionally contains catalogued artifacts from sites that can be dated after European arrival in Hawai‘i (1778–1866), including charcoal, basalt, and shell, as well as more modern materials such as beads, buttons, and glass and iron fragments.

Kalaupapa Settlement Period, 1888–present—Archival materials in the collection represent the changing lives of patient residents with the growth of the community, the addition of amenities, increasingly effective treatments, and, finally, the lifting of restrictions. The collection includes oral histories, photographs, medical technology and equipment, artwork created by patients, and personal effects such as clothing, jewelry, and modified tools. Also included are personal papers and documentary materials of patients, former state employees, and clergy; and organizational records from Kalaupapa’s social, religious, and administrative groups.

Kalaupapa Park Period, 1980–present—This collection includes photographs and mementos created from Saint Damien Day in 1989, the beatification in 1995, and the canonization celebration in 2009. Recent examples of documentary acquisitions include memorabilia (photographs, programs, posters) from the 50th wedding anniversary of Paul and Winifred Harada, color photographs of the filming of the movie *Molokai*, the exhumation of Saint Marianne, the centennial commemoration of Saint Damien’s death, and the canonization of Saint Damien in Rome in October 2009.



Kalaupapa museum collection items. Top to bottom: 1. Spoon modified to be held by someone who has difficulty grasping. 2. Painting by patient resident Ed Kato. 3. Handmade casting net. 4. Flip top can opener made by Kenso Seki, gift for Ed Kato. NPS photos.

Items created by patients are an especially important component of this collection. They are classified as “Ethnology” for their unique place in the story of Kalaupapa. From the artworks painted by Ed Kato and Henry Nalaieleua, to the can openers devised by Kenso Seki, to the doilies crocheted by Sarah Benjamin, these objects hold great potential for exhibits and research.

Natural History Collection

The biological collections include a partial inventory of plants, herpetology specimens, insects and arachnids, marine invertebrates, and shells from the Kalaupapa region. All field records associated with specimens collected by researchers at Kalaupapa NHP are retained as part of the museum collection, regardless of the disposition of the specimens. Some items are owned by the NPS, some are on loan, and some belong to the State of Hawai‘i.

Public Access to Collections

All research is encouraged, regardless of educational level. A primary concern at Kalaupapa NHP is that archival collections may contain patient-specific medical information that is privacy-protected under the Health Insurance Portability and Accountability Act (HIPAA) of 1996. Oral history interviews at the park may have specific restrictions issued by the interviewee that must be honored.

The park has completed a Digital Imaging Project through the NPS Harpers Ferry Center, creating 300 high-resolution digital images of park museum collection objects.

Access to information regarding the cemeteries is available by contacting the Hawai‘i Department of Health to obtain patient birth-death records or by contacting the park staff.

Natural Environment

The park's natural environment consists of local weather patterns, air quality, sound, and light, as well as geological, terrestrial, aquatic, and marine resources. These elements in turn are influenced by human activities. In addition, threats and stressors impact park ecosystems: examples include invasive species, diseases and pathogens, pollutants, fire, habitat degradation, cyclic variation, and changes in weather and climate.

Weather patterns in the park are typical of a subtropical to tropical environment with mountainous regions in close proximity to the ocean. Wind, rain, and temperature are relatively mild and do not vary much throughout the course of the year. The environmental quality of the air, soundscape, and light settings are excellent and typical of remote areas with minimal human presence.

Geological resources within the park include a portion of the north shore cliffs, intervening valleys, a volcanic crater with a crater lake, lava tubes, caves, and offshore islets. The cliffs within and to the east of the park are some of the highest sea cliffs in the world. These cliffs are all that remain of the southern rim of an extinct volcano after the northern half of the caldera slid into the ocean. Following this cataclysmic event, the Kalaupapa peninsula was created by the eruption of Pu'u 'Uao, approximately 230,000 years ago (Stearns and Macdonald 1947).

The terrestrial resources span numerous habitats from 'ōhi'a rainforest on the Pu'u Ali'i plateau, to the valleys of Waihānau and Wai'ale'ia, the north shore cliffs, Kauhakō Crater, the coastal lowland, the coastal spray area, and the offshore islets of Huelo and 'Ōkala. The terrestrial fauna and flora identified in the park include over 30 federally listed threatened and endangered species of plants and animals. Introduced animals include deer, feral goats, feral pigs, mongoose, rats, cats, and dogs. Kauhakō Lake contains an unusual microbial and invertebrate fauna. Lava tubes and caves on the peninsula also contain endemic invertebrate species and incompletely inventoried flora and fauna.

The aquatic resources include several freshwater streams which are at least partially within Kalaupapa. Most of Waihānau, Wai'ale'ia, and Waikolu streams are in the park, except for the headwaters. Wainēnē, Anapuhi, Waiohookalo, Keawanui, Ka'ili'ili, and Pelekunu streams have headwater sections that are

within the park. Of the streams within the park in their entirety, only Waikolu is considered perennial along its entire watercourse. Other streams may have perennial seeps and ponds, but much of the watercourse may be dry for portions of the year. Waikolu Stream contains five native diadromous fish species, native snails, and shrimp. Surface water and groundwater withdrawn from Waikolu Stream is the source of most of the water for the western half of Molokai. Water diversion has been shown to negatively impact native fauna and is therefore a concern in terms of park resources. An anchialine pool exists within the park and was historically modified for use as a fishpond (although it is no longer kept up).

Significant marine resources exist within the surrounding marine water boundary, extending as far as one-quarter mile offshore. These include endangered species (for example, the monk seal and humpback whale), threatened species (such as the green sea turtle), and well-preserved high-wave-energy coral reef communities, including marine intertidal and fish resources.

Resource management priorities encompass the inventory and monitoring of resource conditions, the preservation of native ecosystems and the native species that inhabit them, as well as the control of nonnative species. These tasks are cooperatively managed with the State of Hawai'i and other adjacent landowners and community groups as a major strategy for resource protection.

Weather

The local weather patterns at Kalaupapa influence the geological, terrestrial, and aquatic resources within the park. Weather on the island is principally impacted by wind, rain, and air and sea temperatures.

Kalaupapa is on the windward side of Molokai and receives trade winds from the northeast that blow almost constantly across the park. Averaging 14 mph, the trades help to maintain a generally moderate tropical climate (Remote Automatic Weather System [RAWS] 1993–2010). On typical days when the trade winds are absent, the weather grows hotter and more humid.

Rainfall varies with the topography. On the peninsula mean annual rainfall is 30 inches, plus or minus 13 inches (RAWS 1993–2010). The Pu'u Ali'i 'Ohi'ale Plateau and Waikolu Valley are the wettest spots in the park with an annual rainfall of 80 to 120 inches (Juvik, Juvik, and Paradise 1998).

Over the course of the year, temperatures range from 56° to 94° F with an average of 76 °F. Humidity ranges from 62% to 87% with an average of 75% (RAWS unpublished data, 1993–2010). During spring, summer, and fall, daytime temperatures average 75°F, with evenings slightly cooler. In the winter months of December through March, night temperatures may drop to the upper 50s. Ocean temperatures range from 71°F in late winter to early spring to 80°F in the late summer to early fall. The average annual temperature in the ocean around the peninsula is 76°F (NPS unpublished data, 2005–2010).

Environmental Quality: Air, Sound, and Light

The air quality, soundscapes, and light environment all have an effect on the resources in the park. These factors can alter the location and abundance of plants and animals in the landscape.

Air Quality

At Kalaupapa NHP, the combination of minimal development, isolated topography, and near constant trade winds provides for generally good air quality throughout the year. Kalawao County consistently ranks near the top in air quality among counties in the U.S.

A potential source of impact on air quality at the park is Kīlauea Volcano on the island of Hawai‘i, which emits sulphur dioxide (SO₂) that can spread throughout the islands during periods of trade wind stagnation. The volcano has been erupting continuously since January 3, 1983, with occasional spikes in SO₂ emissions in 1983, 1987, and 2010 (U.S. Geological Survey 2009). The volcano’s vent emissions have increased since 2008. However, since neither the NPS nor the State of Hawai‘i monitors air pollutants on Molokai, the volcano’s effect on air quality at Kalaupapa NHP has not been quantified. Kalaupapa NHP is categorized as a Class II area under the federal Clean Air Act. A moderate pollution increase is considered legally acceptable at parks in this class.

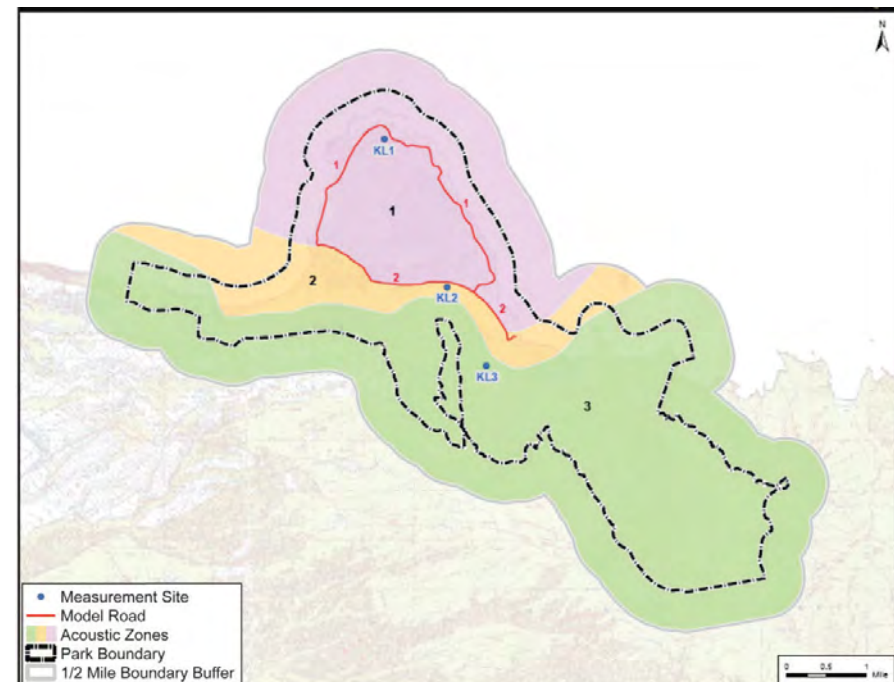
Soundscape

A soundscape is made up of all the sounds in an area, including those inaudible to the human ear. It usually includes both human-caused sounds, such as people’s voices and engine noise, and natural sounds such as wind, waves, and birdsong.

The natural part of the soundscape is a key element of the visitor experience in national parks. It is also vital for maintaining healthy ecosystems, because to survive and reproduce, wildlife must be able to hear and recognize sounds such as mating calls, territorial claims, and warnings of danger from predators. At Kalaupapa NHP, where the sea is close at hand and 92% of the land is either shrubland or evergreen forest, natural sounds emanate from all areas of the landscape.

A “Baseline Ambient Sounds Level Report” was prepared in 2006 to provide baseline information on sound quality that can be drawn upon for future air tour management plans. Limited sound level monitoring was conducted in three zones. These three zones were distinguished mainly by differences in vegetation and climate, and also took park management zones and commercial air tour routes into consideration. (Lee et al. 2006). These three zones are: Zone 1: the peninsula, Zone 2: the base of the cliffs, and Zone 3: the cliffs, valleys, and Pu‘u Ali‘i NAR (See Figure 4.1).

Figure 4.1 Acoustic Zones



The study found Kalaupapa to be a relatively quiet place, with noise levels lower than 20 decibels throughout much of the park. Around the main road and at the airport, which are the primary areas of human activity, machinery and vehicle use, levels can be 45 decibels or higher. Sounds documented in the study included aircraft of all types (tour, commercial, general aviation, and military); motor vehicles; noise from hikers; and people talking.

Lightscapes

A natural lightscape is an environment undisturbed by artificial light, with clean air that allows a direct experience of the cycles of sun, moon, stars, and sky conditions. At Kalaupapa both residents and visitors value the dark night skies that can be seen readily from undeveloped parts of the park. Wildlife benefits from maintenance of a natural lightscape, and minimizing lighting helps to conserve energy. However, in developed areas of the park appropriate levels of artificial lighting are part of the infrastructure needed for wayfinding and safety. In making management decisions about lighting at Kalaupapa NHP, the NPS seeks to strike a balance among all these factors.

Geological Resources

Landforms and Geological Processes

Lands within Kalaupapa NHP consist of the relatively flat Kalaupapa peninsula, Nihoa (a traditional land unit west of Kalaupapa), three interior valleys, and the rim of the adjacent cliffs or pali. All of these landforms were the result of dramatic volcanic and erosional processes that occurred over hundreds of thousands of years.

Molokai was formed by the eruption of two shield volcanoes, Mauna Loa to the west and Kamakou to the east. Their southern flanks slope gently to the sea in the typical manner of shield volcanoes. However, their northern flanks have been truncated by great cliffs rising up to 3,000 feet high. The sea cliffs of Molokai's north shore were formed when the northern third of Kamakou (also called the East Molokai Volcano) suddenly collapsed and slid into the sea. This was a geological event of cataclysmic proportions, involving about 600 cubic miles of island falling along a 25-mile-long landslide that tumbled as far as 120 miles offshore (Yokose 2002). The landslide was so fast and powerful that the last 80 miles of its 120-mile run was uphill, climbing 900 feet up from the Hawaiian Deep, the great undersea depression created by the weight of the islands.

Displacement of this much material generated a 2,000-foot-high tsunami that inundated the rest of Molokai and the nearby island of Lānaʻi. Scientists date this geologic event at around 1,400,000 years ago (Satake et al. 2002).

About 230,000 years ago, long after Mauna Loa and Kamakou became extinct, another small shield volcano rose from the sea floor and joined against the north cliffs. This volcano, named Puʻu ʻUao, formed a relatively flat triangle of land through continuous flows of pāhoehoe lava (Stearns and Macdonald 1947). The resulting peninsula was named Kalaupapa. Kalaupapa peninsula is an area of approximately five square miles, stretching two miles from the cliffs to the tip, and 2.5 miles east to west at the base of the cliffs. The rim of the volcano remnant rises over 420 feet, forming Kauhakō Crater with a crater lake at the bottom that is more than 800 feet deep (Donachie et al. 1999). Most of the lava discharged northward through a large lava tube that is now collapsed. Several other tubes are exposed at the sea where they have been eroded to form natural bridges, blow holes, and other scenic forms (Stearns and Macdonald 1947).

Soils

The soils at Kalaupapa are derived from basalt flows from the Kauhakō Crater (Clague et al. 1982). The soils are rocky, silty clay loam; the typical profile consists of topsoil from 0 to 5 inches (0–13 cm) below the surface and subsoil ending at bedrock at 12 inches (30 cm) below the surface (McCoy and Harts-horn 2007). The soils from the Kalaupapa series occupy most of the central Makanalua ahupuaʻa and the eastern and western slopes of the Kauhakō Crater; slopes range from 3% to 25% (Natural Resources Conservation Service map).

A much wetter ecological zone skirts the southern edge of the peninsula with colluvial soils distributed in valley bottoms and along the base of cliffs (Foote et al. 1972). These colluvial soils are derived directly from the cliffs above and are typically stony, well-drained, and of silty clay. Their depth ranges from 5 to 6.6 feet (1.5 to 2 meters) to bedrock.

Haleʻiwa soils underlie the southern portion of the Kalaupapa Settlement, the lowlands of Kalawao, the valley drainages, and drainages roughly parallel to the pali. Topsoil is silty clay, showing evidence of tillage or other disturbance to the soil profile, ranging from 10 to 18 inches deep; soils become rockier with depth. Topsoils are moderately susceptible to wind erosion and well-drained. Bedrock

is typically more than 80 inches deep. These silty clays formed from the basic igneous material that eroded in the principal stream drainages.

The vegetated coastal areas of the peninsula have Jaucas Series soils, which are deep, fast-draining, and highly permeable sands formed in calcareous sand deposits with coral and shell fragments. The sands demarcate the extent of the agricultural fields of the native Hawaiians who settled on Kalaupapa prior to the historic period.

The trade winds blow nearly continually from the northeast and are a constant erosional force. Evidence indicates that much of the Kalaupapa peninsula was forested prior to 1500, affording soils a degree of protection from wind erosion. With the present low-stature exotic vegetation, soils closest to the windward side of the island may demonstrate the effect of increased wind erosion following the clearing of forests for agricultural use. Soils closer to the windward coast of the island have decreased levels of nitrogen, magnesium, calcium, carbon, and phosphorus compared to the central and leeward portions of the

peninsula. These conditions could be an artifact of the vegetation conversion by native Hawaiians (McCoy and Hartshorn 2007).

Soils at higher elevations reflect the steep topography of the land. The State Forest Reserve is dominated by two soil types: rock outcrop land that is mainly exposed bedrock, and rough mountainous land, which is characterized by steep valley walls and a very thin soil mantle (Foote et al. 1972). Soils of the Pu‘u Ali‘i Natural Area Reserve tend to be either rough mountainous land or tropaquods consisting of steep land, gulches, and mountainsides.

Terrestrial Resources

The terrestrial environment at Kalaupapa NHP is divided into seven general terrestrial habitat areas (Figure 4.2): the Pu‘u Ali‘i plateau, the valleys of Waihānau and Wai‘ale‘ia, the north shore cliffs, Kauhakō Crater, the coastal lowland, the coastal spray area, and the offshore islets of Huelo and ‘Ōkala. The plateau, valley, cliff, and islet areas are specially designated by the state and/or



Aerial view of Kalaupapa. The North Shore Cliffs are on the left, the islets are in the foreground, and the Kauhakō Crater and Molokai Light Station can be seen on the left and right sides of the peninsula, respectively. NPS photo.

federal government for their resource value. The major terrestrial habitats, their predominant vegetation, and designations are described below.

Terrestrial Habitats

Pu‘u Ali‘i Plateau—State of Hawai‘i Natural Area Reserve (NAR), 1,329 acres. The Pu‘u Ali‘i plateau is in the southeast corner of the park at an elevation of 2,500 to 4,222 feet. It supports one of the best examples of Hawaiian montane wet forest or ‘ōhi‘a rainforest in Hawai‘i and is an essential habitat for rare and endangered native forest birds, including the Molokai creeper (*Paroreomyza flammea*). A representative portion of the Molokai summit, Pu‘u Ali‘i lies between Pelekunu and Waikolu valleys. This area is managed through a cooperative agreement with the State of Hawai‘i’s Department of Land and Natural Resources. The area is designated a Natural Area Reserve by the state, and access is limited.

The Pu‘u Ali‘i region is considered one of the Special Ecological Areas of Kalau-papa NHP. Eight natural vegetation communities have been identified in the Pu‘u Ali‘i NAR. These include ‘ōhi‘a/mixed shrub montane wet forest, ‘ōhi‘a/montane wet shrubland, mixed fern/mixed shrub montane wet cliffs, ‘ōhi‘a/‘ōlapa montane wet forest, ‘ōhi‘a/uluhe lowland wet forest; uluhe lowland wet shrubland; Hawaiian intermittent stream, and ‘ōhi‘a/uluhe montane wet forest (Hawai‘i Heritage Program 1989). Several of these communities are also found on the adjacent Pelekunu Preserve (TNC 2003).

Roughly 160 plant species were documented in the Pu‘u Ali‘i NAR in 2003 (Wood and Hughes 2003). Seventy percent of these species are considered native to Hawai‘i. Surveys by Wood et al. (2005) documented at least 43 new plants within the NAR. Approximately 34 species within the NAR and surrounding area are considered rare plant taxa.

Waihānau and Wai‘ale‘ia Valleys—State of Hawai‘i Molokai Forest Reserve, 1,562 acres. The forest reserve is dominated by nonnative plant species, particularly in the lower and middle elevation areas from 500 feet to approximately 1,000 feet (State of Hawai‘i, Division of Forestry and Wildlife [DOFAW] 2009). Common nonnative species found in the forest reserve include Christmas berry (*Schinus terebinthifolius*), java plum (*Syzygium cumini*), strawberry guava (*Psidium cattleianum*), kukui (*Aleurites moluccana*), kiawe (*Prosopis pallida*), and lantana (*Lantana camara*).

The vegetation within the upper elevation areas (higher than 1,500 feet) of Wai‘ale‘ia Valley (Kalawao unit of the reserve) is largely uncharacterized, however scattered native species have been reported along the upper eastern ridge of the valley (DOFAW 2009). Native species noted in Wai‘ale‘ia Valley include uluhe (*Dicranopteris linearis*), *Carex sandwicensis*, hala (*Pandanus* sp.), ‘ha‘iwale, (kanawao ke‘oke‘o, *Cyrtandra* sp.), ‘ōhi‘a lehua, and alena (*Boehmeria grandis*) (Funk 1991). The upper elevation area of Waihānau Valley, just outside the park boundary, was noted to have high species richness by Hughes et al. (2007). Native plants documented by Funk (1991) in Waihānau Valley include: naupaka kuahiwi (*Scaevola procera*), ‘ōhi‘a lehua (*Metrosideros polymorpha*), kolokolo kuahiwi (*Lysimachia maxima*), and kopiko ‘ula (*Psychotria hawaiiensis*).

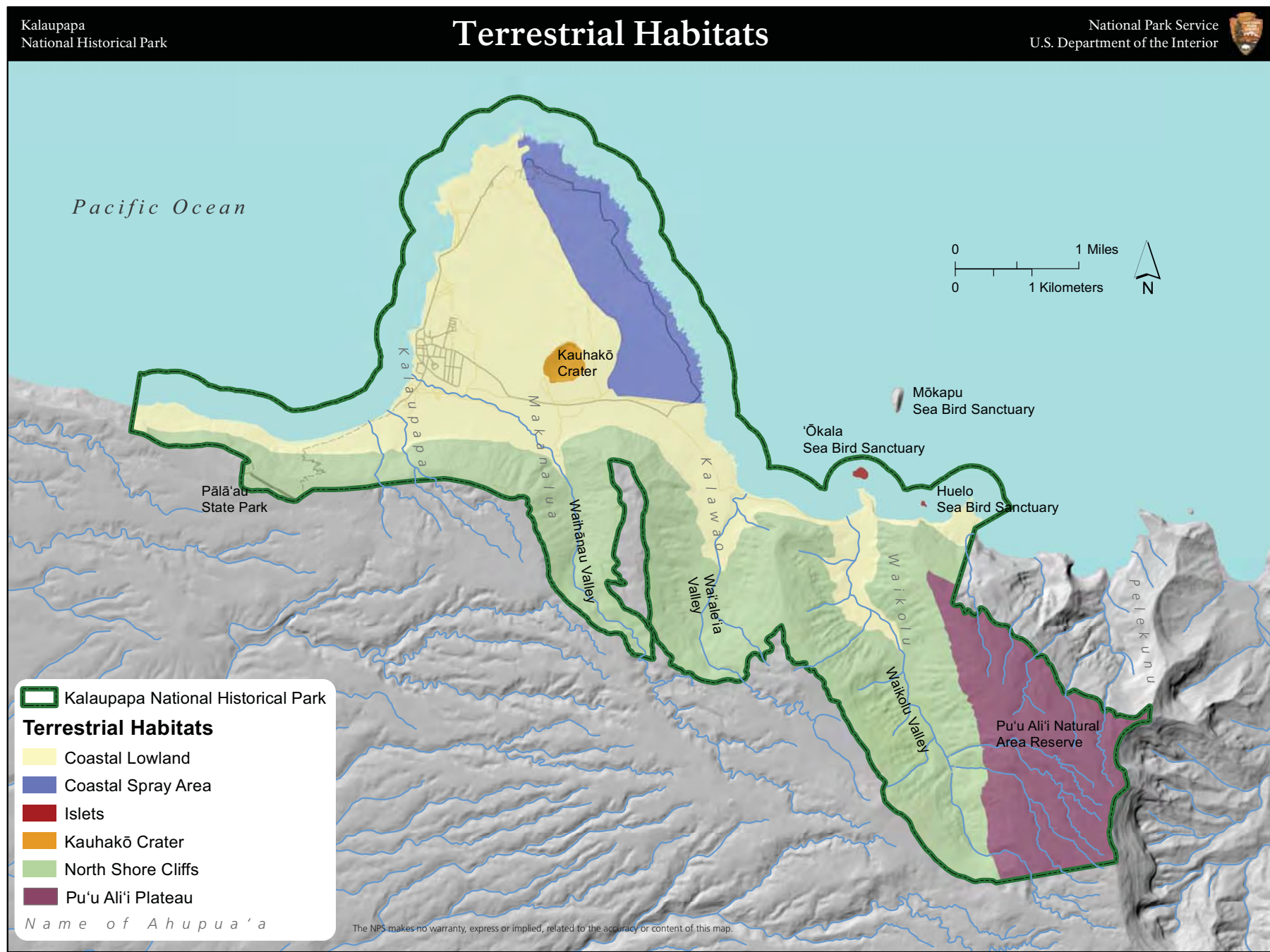
The Forest Reserve Area is managed by the State of Hawai‘i Department of Land and Natural Resources, Division of Forestry and Wildlife as a public hunting unit for pig, goat, deer, and game birds.

North Shore Cliffs—NPS North Shore Cliffs National Natural Landmark (NNL), 27,100 total acres with 5,085 acres in the park above the 500-foot contour line. The 2,000- to 3,000-foot cliffs (pali) separate the peninsula from the rest of the island of Molokai. In many places native plants survive, due to the steepness of the cliffs and the inaccessibility to goats, deer, and pigs. The cliffs along the entire northeast coast were designated a National Natural Landmark in 1972.

Vegetation in the NNL differs from the western and eastern sides of the park. In the western portion of the NNL, from Nihoa to the western boundary of Waihānau Valley, the vegetation is composed of nonnative forest, dominated by Christmas berry and java plum. Lantana and other nonnative shrubs and grasses are also common in this area.

The flora in Waikolu Valley, on the eastern portion of the NNL, is composed of mostly native species, but the lower elevation areas have all been modified by human use. The valley floor is dominated by common guava (*Psidium guajava*), java plum, white ginger (*Hedychium coronarium*), Boston fern (*Nephrolepis* sp.), lantana, and sourbush (*Pluchea carolinensis*). Flowering native plant species on steep, lower valley walls include fragrant flatsedge (*Cyperus odoratus*), manyspike flatsedge (*Cyperus polystachyus* var. *polystachyus*), euphorb (*Euphorbia celastroides*), ‘ōhi‘a lehua (*Metrosideros polymorpha*), lama (*Diospy-*

Figure 4.2 Terrestrial Habitats



ros sandwicensis), *Canthium odoratum*, au (*Hedyotis acuminata*), kopiko ‘ula, kopiko (*Psychotria mariniana*), Hawai‘i false nettle (*Boehmeria grandis*), and olonā (*Touchardia latifolia*). Native fern species noted in Waikolu Valley include one-tooth wood fern (*Dryopteris unidentata*), uluhe (*Dicranopteris linearis*), rough maidenhair (*Adiantum hispidulum*), bracken fern (*Pteridium aquilinum* var. *decompositum*), ama‘u (*Sadleria pallida*), and Gaudichaud’s halberd fern (*Tectaria gaudichaudii*).

Kauhakō Crater—141 acres. The crater contains a low-elevation summer deciduous dry forest. Historically, botanists described the crater as “one of the finer examples of dryland forest remaining on Molokai or elsewhere in the Hawaiian Islands” (Medeiros et al. 1996) containing an area of “pristine native lowland forest” that is “unexcelled elsewhere in Hawai‘i” (Linney 1987). The species composition in the crater was formerly noted as comparable to the south slope of Haleakala on the island of Maui, a region which has similar annual precipitation (Medeiros et al. 1996).

Previous studies and inventories in Kauhakō Crater and the surrounding environs have documented a total of 134 vascular plant species. Most of the species in the crater (72%) were introduced to the Hawaiian Islands (Medeiros et al. 1996). Surveys in the crater (Medeiros et al. 1996; Linney 1987) identified the following dominant plant communities: ironwood (*Casuarina equisetifolia*), naupaka (*Scaevola sericea*), lantana scrub with dwarf forest, roadside weeds, ‘ohe makai/hala pepe (*Reynoldsia/Pleomele*), remnant forest, Java plum/Christmas berry forest, and lantana/sourgrass (*Digitaria insularis*) thicket.

Coastal Lowland—2,701 acres. The majority of the vegetation in the lowland coastal area is composed of nonnative species. Guava, Christmas berry, lantana, and java plum are common.

The highest percentage of native vegetation is found at Kūka‘iwa‘a peninsula. The flora of Kūka‘iwa‘a peninsula is composed of approximately 76 plant taxa, of which 21 are endemic and 19 are indigenous. The remaining 36 plants species at Kūka‘iwa‘a are nonnative, and four of these are Polynesian introductions (LeGrande 2002; Wood 2008).

Two vegetation communities are identified on the Kūka‘iwa‘a peninsula. A littoral coastal vegetation community occurs in the ocean spray zone. Native halophytic (salt-adapted) plant species that occur in this community include mau‘u

‘aki‘aki (*Fimbristylis cymosa*), Faurie’s panicgrass (*Panicum fauriei* var. *carteri*), seacliff tetramolopium (*Tetramolopium sylvae*), ‘āhinahina (*Artemisia australis*), ko‘oko‘olau (*Bidens hillebrandiana* subsp. *polyccephala*), and ‘ae‘ae (*Bacopa monnieri*). A single pistillate shrub of the rare hoawa (*Pittosporum halophilum*) also occurs in the littoral coastal vegetation community on the eastern side of the peninsula. This individual represents the only known naturally occurring plant of this species still extant on the main island of Molokai (Wood 2008).

The second vegetation community at Kūka‘iwa‘a is a relic coastal forest dominated by hala (*Pandanus tectorius*), alahe‘e (*Psydrax odorata*), and lama. Associated relic components occur around the back gulches and low ridges of the peninsula with populations of the native trees ohe makai (*Reynoldsia sandwicensis*), ulupua (*Nestegis sandwicensis*), and ‘ōhi‘a lehua, as well as native shrubs and herbs such as ‘ākia (*Wikstroemia* sp.), makou (*Peucedanum sandwicense*), ‘ko‘oko‘olau (*Bidens molokaiensis*), and globe schiedea (*Schiedea globosa*) (LeGrande 2002; Wood 2008).

The NPS initiated the Kūka‘iwa‘a Restoration Project (KRP) to restore fenced portions of the coastal habitat. The overall plant community at the KRP is being modeled after the loulou (*Pritchardia hillebrandii*) coastal forest on Huelo, which is only 0.3 miles (500 meters) to the west. Both common and rare native plant taxa are being outplanted at the site including hoawa, loulou, dwarf naupaka (*Scaevola coriacea*), and hāhā (*Cyanea* sp.) (LeGrande 2002; Wood 2008). Additional native species have been outplanted in the lowland coastal area between Wai‘ale‘ia Stream and Ka‘aia. These include ‘ko‘oko‘olau, globe schiedea, and ohe makai, as well as several threatened and endangered species.

Coastal Spray Area—766 acres. Compared to other coastal areas throughout the main Hawaiian Islands, the coastal spray area at Kalaupapa NHP supports a diverse and extensive native coastal vegetation community. For this reason, the coastal spray area of the eastern coast of the Kalaupapa peninsula has been identified as a Special Ecological Area. The relatively intact nature of this area is largely due to the minimal amount of human contact in this environment (Canfield 1990). However grazing by ungulates, cultivation practices, the introduction of alien vegetation, and other activities have altered the vegetation that historically occurred here.

Two lichens, two ferns, and 66 flowering plant species have been identified in this area. Of this total, 25 species are native. Nonnative species comprise the

largest percentage of the plants in the coastal spray area. Fourteen nonnative species documented in the coastal spray zone are considered noxious by the state Department of Agriculture (DOA). Nonnative plants are concentrated along the roadsides in the area; the most abundant nonnative plants in the zone are Bermuda grass (*Cynodon dactylon*) and Henry's crabgrass (*Digitaria adscendens*). Mau'u 'aki'aki are the most common native species.

Offshore Islets—9.1 acres. The offshore islets “represent the last strongholds where some of the rarest lowland and coastal plant species in the archipelago occur in natural populations” (Wood 2008). Both Huelo and 'Ōkala islets support unusual relict vegetation and rich native species diversity. However, the native flora on the offshore islets is threatened by competition with nonnative plant taxa, landslides, possible rat predation (only 'Ōkala), and loss of reproductive vigor.

Approximately 24 native plant taxa have been recorded on Huelo Islet, of which 16 are endemic and eight are indigenous to the Hawaiian Islands. An additional 18 nonnative plants occur on the islet (Hughes et al. 2007; Wood 2008). Huelo is considered one of the most pristine natural areas in Hawai'i, likely because it never supported permanent human occupants (NPS 1990a). Wood (2008) has described Huelo as the “most botanically significant islet in the Hawaiian chain” because it contains one of the two loulou coastal forests remaining in the Hawaiian Islands. The other loulou forest is located on the remote island of Nihoa.

The loulou forest on Huelo is approximately 20,000 square feet in size and is composed of an estimated 224 mature loulou trees. The trees form a dense canopy on the upper slopes and small cliff terraces of the islet (Wood 2001; Wood and LeGrande 2002; Wood 2008).

Along the borders of the palm forest, a diversified shrubland encircles the islet. This shrubland is dominated by 'akoko (*Chamaesyce celastroides* var. *amplectens*). Several additional taxa of native shrubs, sedges, grasses, vines, and herbs occur in the shrubland and on the vertical basalt cliff walls (Wood 2008).

Numerous invasive plants, including lantana and sourbush, have been noted invading forest margins and upper cliff terraces on Huelo (Swenson 2008).

Huelo also supports several rare native plants. It is the only islet that has representatives of pāpala (Charpentiera) and the 'pua 'ala (*Brighamia rockii*, Table 4.2). The islet is also home to hoawa, Schiedea globosa, and the rare 'ānaunau (*Lepidium bidentatum*) (Wood 2008).



Working in the *Pritchardia hillebrandii*,
Molokai Islets. NPS photo.

On 'Ōkala, roughly 33 native plant taxa have been recorded, of which 15 are endemic and 18 are indigenous to Hawai'i. It has the highest native plant diversity of all the Hawaiian Islets. Twenty-six additional nonnative species occur on the islet (Hughes et al. 2007; Swenson 2008; Wood 2008). The predominant vegetation community on 'Ōkala is a mixed native shrubland of low-stature species.

'Ōkala is the only islet in the Hawaiian Islands that has the indigenous tree species keahi (*Nesoluma polynesianum*) or any member of the genus *Tetramolopium*. The endangered dwarf naupaka also occurs on the islet. 'Ōkala supports other rare native plants, such as ko'oko'olau and kolomona (*Senna gaudichaudii*); however, several invasive plant species have established, including Christmas berry, java plum, lantana, and sourbush (Swenson 2008; Wood 2008).

Caves and Lava Tubes—Throughout the park, there are nearly 20 known lava tubes and caves. They are remnants of larger caves plugged by siltation, breakdown, or subsequent lava flow. Most of these caves are parts of three lava tube systems. The caves contain uninventoried flora

and fauna, and also may contain cultural resources from past human use. Other caves may exist because the pāhoehoe lava characteristically forms roofed-over channels as it flows. There may also be caves in the cliffs above the peninsula, but they await discovery.

Terrestrial Wildlife

Vertebrates

The Hawaiian hoary bat (*Lasiurus cinereus semotus*) is the only terrestrial mammal considered native in the Hawaiian Islands. Frasher et al. (2007) detected Hawaiian hoary bat once within a forested area in the eastern portion of the North Shore Cliffs NNL. A second detection occurred just outside of Kalaupapa NHP at the Pālā'au State Park picnic area. The entire park, however, was not surveyed during the inventory. According to park staff, Hawaiian hoary bat are active at dusk and dawn during the spring season at the summit of the Kalaupapa Cliff Trail, which is near the location of the second bat detection (Frasher et al. 2007).

Native birds, including kakawahie (*Paroreomyza flammea*), olomao (*Myadestes lanaiensis*), ou (*Psittirostra psittacea*), crested honeycreeper (*Palmeria dolei*), and the black mamo (*Drepanis funerea*), are all thought to be extinct—or in the case of the crested honeycreeper, extirpated—from Molokai and the park. 'Īwi (*Vestiaria coccinea*) is rarely seen on Molokai, however, it was sighted at Pu'u Ali'i in 2004 during the Hawai'i Forest Bird Survey. Three native bird species ('apapane, maui amakihi, and 'ī'iwi) and 12 nonnative bird species were detected during the surveys in 2005. The nonnative species present were barn owl (*Tyto alba*), black francolin (*Francolinus francolinus*), common myna (*Acridotheres tristis*), house finch (*Carpodacus mexicanus*), Japanese bush-warbler (*Cettia diphone*), Japanese white-eye (*Zosterops japonicus*), northern cardinal (*Cardinalis cardinalis*), nutmeg mannikin (*Lonchura punctulata*), red-billed leiothrix (*Leiothrix lutea*), skylark (*Alauda arvensis*), spotted dove (*Streptopelia chinensis*), and white-rumped shama (*Copsychus malabaricus*). Japanese white-eye was the most abundant species, and 'ī'iwi, barn owl, and skylark were the rarest species. All of these species had previously been observed in the park.

Three of the common migratory shorebirds—the Pacific golden plover, ruddy turnstone, and wandering tattler—are regularly observed at Kalaupapa, and occasionally sanderlings and bristle-thighed curlews are found foraging on the beaches. Seabirds typically found on the cliffs and offshore islets include black noddies, great frigatebirds, red-tailed tropicbirds, wedge-tailed shearwaters, and white-tailed tropicbirds (Table 4.2). The rare Hawaiian petrel (*Pterodroma sandwichensis*) was spotted several times in recent years flying around the park at night, but no nesting areas have been documented.

Few surveys have been conducted to examine the distribution of reptiles and amphibians at Kalaupapa NHP. Kraus (2005) found only stump-toed gecko (*Gehyra mutilate*) in the crater. This nonnative species is common on all the main Hawaiian Islands (McKeown 1996). Other reptiles and amphibians collected in the North Shore Cliff NNL include stump-toed gecko, house gecko (*Hemidactylus frenatus*), Indo-Pacific gecko (*Hemidactylus garnotii*), tree gecko (*Hemidactylus typus*), and rainbow skink (*Lampropholis delicata*). Moth skink (*Lipinia noctua*) was also collected from this area, but persists there only in small numbers. Cane toad (*Bufo marinus*) may also occur in this area. House gecko and mourning gecko (*Lepidodactylus lugubris*) are also abundant in the lowland coastal area (Kraus 2005). During the survey of Huelo Islet, Duvall (2000) collected specimens of the moth skink, which inhibits the leaf litter among the native loulu palms (Kraus 2005). Mourning gecko were also collected on the islet (Duvall 2000).

Introduced mammals include the feral ungulates (axis deer [*Axis axis*], goats [*Capra hircus*], pigs [*Sus scrofa*]), as well as mongoose (*Herpestes javanicus*), black rats (*Rattus rattus*), cats (*Felis catus*), and dogs (*Canis familiaris*). The feral ungulates are a significant threat to the natural resources at Kalaupapa NHP. Of these, axis deer are believed to be the most damaging. Throughout the Hawaiian Islands ungulate activity results in various impacts including land erosion; stream and reef siltation; spread of invasive plants and diseases; loss of native, threatened, and endangered plant and animal species; and degradation of native species' habitat.

Both the National Park Service and the Department of Health carry a special Wildlife Control Permit, given by DOFAW, for controlling problem pig and deer within the park. The cooperative agreement between the NPS and DLNR includes guidance for managing feral animals within the park boundary. The NPS undertakes animal control activities to regulate feral animal control populations within fenced management units containing sensitive cultural or natural resources. All participants must possess a state hunting license and be a signatory on the permit, even if not bearing arms.

Invertebrates

Insect and invertebrate species lists for the park are the consequence of incidental surveys only. The most extensive list was created for the native forests of the Pu'u Ali'i area. Native invertebrates on this list include the Hawaiian happyface spiders (Theridion grallator), crickets (gryllids), flies (drosophilids),

tornatellinids (land snails), and succineids (land snails) (DOFAW 1991). Four species of achatinellid land snails have been reported near the Pu‘u Ali‘i NAR since 1972. Nonnative invertebrates are more common in the lowest elevations of the Pu‘u Ali‘i NAR, likely due to their association with feral animals. Unidentified slugs have been documented in the NAR. No other known invasive invertebrates were noted during the survey (DOFAW 1991).

The indigenous isopod *Australophiloscia societatis* was collected in a forested area of Wainahau Stream (Rivera et al. 2002). It is unknown which additional species of insects and other invertebrates are present within the Molokai Forest Reserve—rare species are known to occur in the vicinity. While no surveys for insects and invertebrates exist for the Coastal Spray zone, three rare bee species are known from the nearby Mo‘omomi Preserve. These may be present in coastal areas of Kalaupapa NHP. Opportunistic surveys on Huelo Islet collected three endemic species of moths including *Hypomocoma* sp. (Cosmopterigidae), *Mestelobes* sp. (Crambidae), and *Philodoria* sp. (Gracillariidae). A single nonnative moth, *Erechthias minuscula* (Tineidae), was also collected (Bishop Museum 2008). A taxonomic list of invertebrate species occurring in the lowland coastal area does not exist, however Legrande (2002) noted the following arthropods during her survey: the leptogenys ant (*Leptogenys falcigera*), brine fly (*Ephydra millbrae*), and *Haematolocha rubescens* (Trematoda: Haematolechidae).



Monk seals on the beach at Kalaupapa. NPS photo.

Table 4.2 below lists special status species (plants, birds, mammals, and invertebrates) thought to occur within Kalaupapa NHP. Records are collated from an “Assessment of Natural Resources and Watershed Conditions for Kalaupapa NHP” (Fung Associates and SWCA 2010). Species marked “C” indicate Candidate Species, or those that are actively being considered for listing as endangered or threatened under the Endangered Species Act; “E” denotes Endangered; “T”, Threatened; “SE” are those species listed as endangered by the State of Hawai‘i; and “SOC” are designated Species of Concern by the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service, due to species status and/or threats.

Aquatic Resources

Kalaupapa NHP contains several watersheds, associated streams, and marine coastal areas within the boundary. This park is one of the few in the national park system where water can be tracked from its source in the watershed down to the sea. The freshwater ecosystem within Kalaupapa also includes palustrine (wetland), lacustrine (lake), and riverine (river) habitats, along with ephemeral ponds.

Watersheds

Three watersheds—Waihānau, Wai‘ala‘ia, and Waikolu—lie mostly within Kalaupapa NHP. The watersheds bear the names of their principal drainages.

Waihānau watershed drains Waihānau Valley, Kauhakō Crater, the west half of the peninsula including Kalaupapa Settlement, and the Nihoa area to the west park boundary. A single well in Waihānau Valley supplies water to the residents of Kalaupapa. The watershed’s principal drainage, fed solely by surface runoff, is the intermittent Waihānau Stream, which descends from the back of the valley and skirts the south side of the settlement. The stream is diverted near its headwaters by the DHHL, causing it to be dry for most of the year (GK & Associates 1991). Data from NPS gauges indicates that the stream only flows 4% of the time near the mouth of the stream.

Wai‘ale‘ia watershed drains Wai‘ale‘ia Valley and the eastern half of the peninsula, including Kalawao. Its principal drainage is Wai‘ale‘ia Stream, another intermittent stream fed only by surface runoff. This stream only flows 37% of the time, with no diversions or wells extracting water within the watershed.

Table 4.2 Special Status Species

Species Name	Common Name	Status	Organism	Park Locality
<i>Chelonia mydas</i>	Green sea turtle or honu	T	marine reptile	Marine
<i>Megaptera novaeangliae</i>	Humpback whale or kohola	T	marine mammal	Marine
<i>Monachus schauinslandi</i>	Monk seal or 'ilio holo i ka uaua	E	marine mammal	Marine
<i>Lasiurus cinereus semotus</i>	Hawaiian hoary bat	E	terrestrial mammal	Cliffs and Pala'au
<i>Manduca blackburni</i>	Blackburn's sphinx moth	E	insect	Unknown
<i>Megalagrion pacificum</i>	Pacific Hawaiian damselfly	E	insect	Waikolu
<i>Myadestes lanaiensis</i>	Molokai thrush or oloma'o	E	avifauna	Pu'u Ali'i
<i>Paroreomyza flammea</i>	Molokai creeper or kākāwahie	E	avifauna	Pu'u Ali'i
<i>Pterodroma sandwichensis</i>	Hawaiian petrel	E	avifauna	Pu'u Ali'i
<i>Puffinus auricularis newelli</i>	Newell's shearwater	T	avifauna	Pu'u Ali'i
<i>Vestiaria coccinea</i>	'i'iwi	SE	avifauna	Pu'u Ali'i
<i>Bidens wiebkei</i>	ko'oko'olau	E	plant	Cliffs
<i>Brighamia rockii</i>	pua'ala	E	plant	Islets
<i>Canavalia molokaiensis</i>	'āwikiwiki	E	plant	Pu'u Ali'i
<i>Centaurium sebaeoides</i>	Lavaslope centaury or 'āwiwi	E	plant	Coastal
<i>Clermontia oblongifolia</i> ssp. <i>brevipes</i>	'oha wai	E	plant	Pu'u Ali'i
<i>Cyanea dunbarii</i>	hāhā	E	plant	Forest Reserve
<i>Cyanea procera</i>	hāhā	E	plant	Pu'u Ali'i

Species Name	Common Name	Status	Organism	Park Locality
<i>Hedyotis mannii</i>	pilo	E	plant	Pu'u Ali'i
<i>Hesperomannia arborescens</i>	-----	E	plant	Pu'u Ali'i
<i>Hibiscus arnot-tianus</i> ssp. <i>immaculatus</i>	-----	E	plant	Forest Reserve
<i>Melicope reflexa</i>	alani	E	plant	Pu'u Ali'i
<i>Panicum fauriei</i> var. <i>carteri</i>	Carter's panicgrass	E	plant	Kukaiwaa Peninsula
<i>Peucedanum sandwicense</i>	makou	T	plant	Islets
<i>Phyllostegia hispida</i>	-----	E	plant	Pu'u Ali'i
<i>Phyllostegia mannii</i>	-----	E	plant	Pu'u Ali'i
<i>Plantago princes</i> var. <i>laxiflora</i>	kuahiwi laukahi		plant	Pu'u Ali'i
<i>Platanthera holochila</i>	-----	E	plant	Pu'u Ali'i
<i>Ranunculus mauianus</i>	makou	C	plant	Pu'u Ali'i
<i>Scaevola coriacea</i>	dwarf naupaka	E	plant	Islets
<i>Sesbani tomentosa</i>	'Ōhai	E	plant	Nursery and outplanting locations along east coast of Kalaupapa Peninsula
<i>Stenogyne bifida</i>	-----	E	plant	Pu'u Ali'i
<i>Tetramolopium rockii</i> var. <i>rockii</i>	-----	T	plant	Coastal
<i>Zanthoxylum hawaiiense</i>	a'e	E	plant	Pu'u Ali'i

Waikolu watershed drains Waikolu Valley and is a major water resource for the island of Molokai. Its principal drainage, the perennial Waikolu Stream, is fed by surface water, perched aquifers, and water retained by subsurface dikes. Since 1960, Molokai Irrigation System has diverted water from Waikolu to serve agricultural customers and acreage in central Molokai. By state statute, Molokai Irrigation System must reserve two-thirds of the water drawn from Waikolu for Hawaiian homesteaders (Santo 2001). Molokai Irrigation System has drilled six wells in the Waikolu area beginning in 1971 and continuing into the mid-1990s to supplement water extracted from the diversion dams (State of Hawai‘i, Division of Water and Land Development 1994). The water is transported through the 5.1-mile Waikolu Tunnel (Brasher 1996) at a rate of roughly 4.5 million gallons per day (Way et al. 1998). Molokai Irrigation System stores 1.4 billion gallons from Waikolu stream in the Kualapu‘u Reservoir on topside Molokai (State of Hawai‘i, Division of Water and Land Development 1994).

Water diversion is known to have adverse impacts on native fauna, which have been documented at Waikolu Stream (Brasher 2003). Consequently, the existing diversion of stream water is a factor that must be weighed in assessing resource management options at Kalaupapa NHP.

Aquatic Habitats

Streams

Streams or riverine habitats are surface waters that flow downslope either perennially or intermittently. Perennial streams flow year-round and can be either continuous or interrupted with dry sections during certain times of the year (Polhemus 1992). The mouth of the stream, however, is flowing constantly throughout the year, whereas intermittent streams contain flowing water for only part of the year. Biologically, intermittent streams usually lack all of the fish species present in perennial streams (Cowardin et al. 1979).

Eight named streams plus two unnamed streams occur within the boundaries of Kalaupapa NHP (Table 4.3 and Figure 4.3). The principal drainages include Waikolu, Wai‘ale‘ia, and Waihānau streams. Waikolu and Waihānau streams were identified as a “Candidate Streams for Protection” in the Hawai‘i Stream Assessment (Hawai‘i DLNR Cooperative Park Service Unit 1990). In 1993, Waikolu Stream was listed as eligible for Wild and Scenic River designation and included in the National Rivers Inventory. See appendix D for additional Wild and Scenic River analysis of Waikolu Stream.

On the eastern edge of the park, there are several streams which are at least partially within Kalaupapa. Wainēnē, Anapuhi, Waiohookalo, and two unnamed streams have headwater sections that are within the park, although these may be seasonal or intermittent. All these streams provide aquatic habitat and are considered perennial by the state (though “perennial” may mean only permanent pools and not a continuous flow to the sea along the entire watercourse).

Table 4.3 Streams

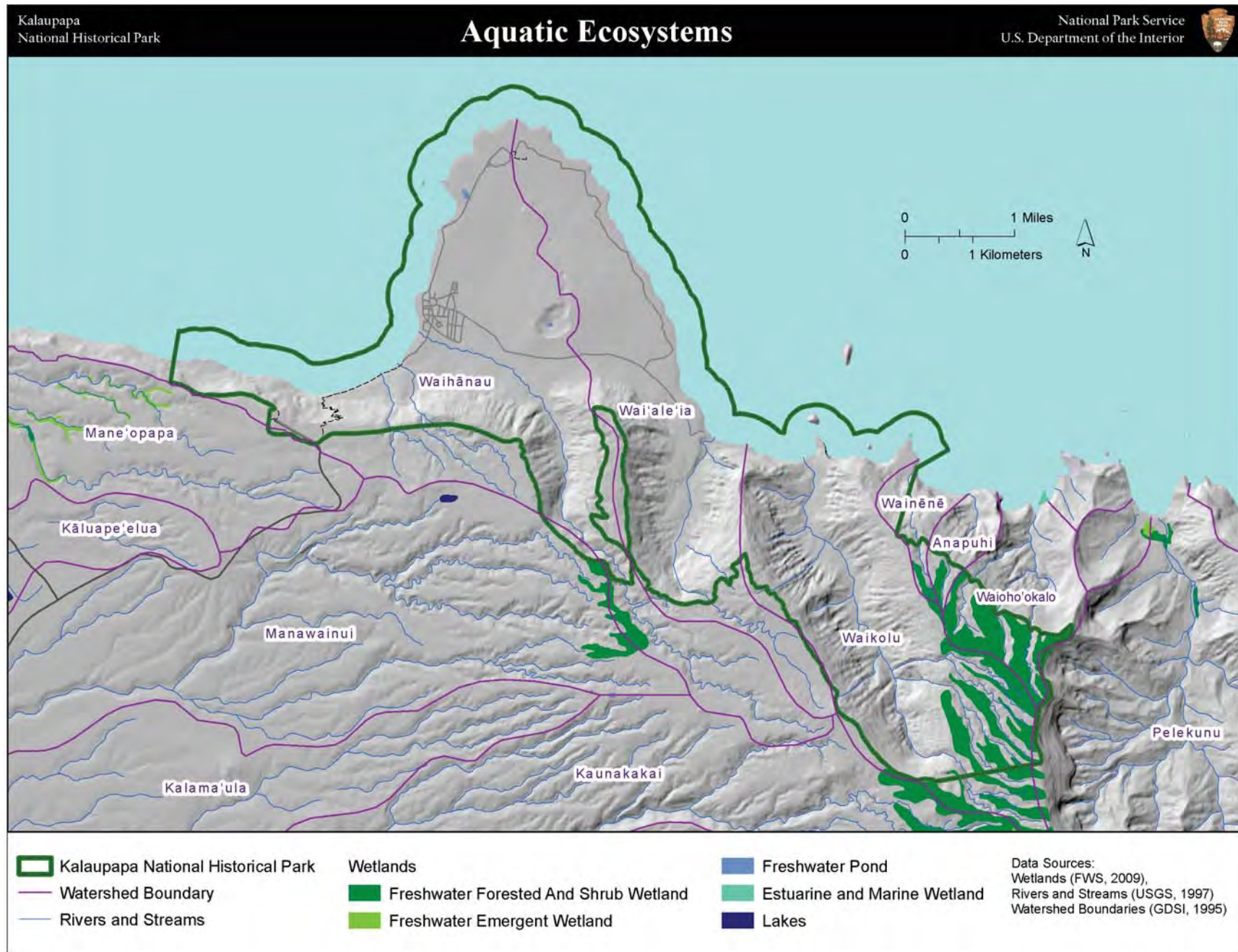
Stream Name	Length (miles)	Watershed	Notes
‘Awahua	1.7	Waihānau	Only lower reach within Kalaupapa
Pūwāhi/Keōlewa	3.3	Waihānau	Only lower reach within Kalaupapa
Waihānau	8.4	Waihānau	Mostly within Kalaupapa except for headwaters
Wai‘ale‘ia	5.9	Wai‘ale‘ia	Mostly within Kalaupapa except for headwaters
Waikolu	15.8	Waikolu	Mostly within Kalaupapa except for headwaters
Wainēnē	1.3	Wainēnē	Only partially within Kalaupapa
Anapuhi	1.2	Anapuhi	Only headwaters within Kalaupapa
Waioho‘okalo	5.1	Waioho‘okalo	Only headwaters within Kalaupapa
Unnamed	0.3	Keawanui	Only headwaters within Kalaupapa
Unnamed	0.5	Ka‘ili‘ili	Only headwaters within Kalaupapa

Source: Table modified from Fung Associates and SWCA 2010

Wetlands

Palustrine habitats are still, non-tidal wetlands that are usually less than 6 feet deep (Cowardin et al. 1979). They may be located coastally or inland, and at high or low elevations. There are approximately six wetland classes that have been identified within the park. One is in the coastal area, and the remaining five wetlands are in Waihānau Valley and the Pu‘u Ali‘i Natural Area Reserve (NAR) (Cowardin et al. 1979; Fung Associates and SWCA 2010). The majority of palustrine wetland area is in the Pu‘u Ali‘i NAR with approximately 645 acres at elevations ranging from 2,500 to 4,222 feet. The actual presence of these upper elevation wetland classifications, however, “has not been confirmed in the field” (Fung Associates and SWCA 2010).

Figure 4.3 Aquatic Ecosystems



The one coastal seasonal wetland (2.2 acres) occurs between Kalaupapa Settlement and the airport. Due to the low elevation and drainage pattern, it floods during periods of high rain. Road construction in the 1970s is believed to have cracked the water table in this area, decreasing its natural holding capacity (Wyban 1993). At times the salt content in these wetlands rises above that of a typical river or lake, so it is not clear whether they are true freshwater wetlands.

Lake Kauhakō

Lake or lacustrine habitats are still waters in basins with a depth exceeding 6 feet. Natural lacustrine habitats are rare in Hawai‘i, with only four naturally formed freshwater lakes known to exist (Polhemus 1992). Notable among these is Lake Kauhakō, which lies at the bottom of Kauhakō Crater’s inner pit on the Kalaupapa peninsula.

With a depth estimated at 814 feet, Lake Kauhakō is the fourth deepest lake in the United States. It has the greatest relative depth (ratio of depth to surface area) of any lake in the world, with a surface area of approximately 37,675 square feet (Donachie et al. 1999). Brackish water near its surface transitions to marine water at depths greater than 10 feet (Maciolek 1975; Donachie et al. 1999), therefore in technical terms it is not a true freshwater lake. However, there is no recent evidence to suggest that Lake Kauhakō has an open connection to the sea, even though it sits at sea level and is in close proximity to the Pacific Ocean.

Ponds

An anchialine pool exists within the park to the east of ‘Īliopi‘i beach and was historically modified for use as a fishpond (Wyban 1993). The fishpond is no longer maintained, although some concrete structures remain in the vicinity. Wyban (1993) suggested that the pond, named ‘Īliopi‘i Pond, was constructed early in the 20th century by a doctor living on the peninsula. The brackish pond measures 164 feet in diameter. Historically, this pond may have been as large as 984 feet by 492 feet, but road construction has since split the water body in two. Hawaiians traditionally modified wetlands by constructing fishponds and cultivating taro (U.S. Fish and Wildlife Service 2007), and there are limited indications that ‘Īliopi‘i Pond may have been built on the site of an ancient fishpond that was formerly connected to the ocean by an ‘auwai kai (saltwater channel).

Aquatic Wildlife

Waikolu Stream contains five native diadromous fish species, native snails, and shrimp that spend part of their early life cycle in the ocean before returning to the stream as juveniles.

The lower reaches of Waikolu Stream contain a plentiful and diverse group of native animals (Table 4.4). This portion of the stream provides habitat for all five native fish species or o‘opu (*Awaous guamensis* [o‘opu nakea], *Sicyopterus stimpsoni* [o‘opu nopili], *Lentipes concolor* [o‘opu alamo‘o], *Eleotris sandwicensis* [o‘opu akupa], and *Stenogobius hawaiiensis* [o‘opu naniha]). Waikolu Stream is home to one of the highest densities of these stream gobies in Hawai‘i and also supports a large population of the native Hawaiian stream snail or hihiwai (*Neritina granosa*).

Hawaiian stream insects primarily inhabit the algae or moss mats on rocks wetted by the stream and include several endemic damselfies and the green darner dragonfly. The North American net-spinning caddisfly (*Cheumatopsyche pettiti*) has also become an important part of the diet of native stream fish (Konratieff et al. 1997).

Organisms in the coastal wetland and riverine habitats at Kalaupapa NHP include insects such as the introduced dragonfly (*Orthemis ferruginea*) and an introduced aquatic backswimmer (*Anisops kuroiwae*) (Evenhuis and Eldredge 1999). Historically it is believed that the ‘ama‘ama or striped mullet (*Mugil cephalis*) and the āholehole or Hawaiian flagtail (*Kuhlia sandwicensis*) were raised in the fishpond (Wyban 1993). The vegetation in and surrounding the fishpond, which is to the east of ‘Īliopi‘i beach, is primarily nonnative sourbush. The isolated plants and animals in Lake Kauhakō appear restricted to its shallow surface layer: nutrients in the upper 10 feet support a dense and highly productive phytoplankton community (Maciolek 1982; Donachie et al. 1999; Halliday 2001). Invertebrates in the lake include the native paleomonid shrimp (*Palaemon debilis*), which is exceedingly abundant and is common in anchialine pools throughout Hawai‘i (Mitchell et al. 2005). Maciolek (1982) noted that the endemic ‘opae ‘ula or red anchialine shrimp (*Halocaridina rubra*) were observed in the lake historically, but has not been recently seen. Insects around the lake include an introduced aquatic backswimmer (*Anisops kuroiwae*), shore fly (*Ephydrid*) larvae, beetles (*Coleoptera*), and damselfly (*Zygoptera*) larvae (Evenhuis and Eldredge 1999). In 1995, a single damselfly (*Megalagrion xan-*

Table 4.4 Characteristic Stream Animals

Hawaiian, Common Name(s)	Scientific Name	Origin	Stream Location			
			Waihānau	Wai'ale'ia	Waikolu	Waiohookalo
Fishes (Gobies)						
‘o‘opu nākea	<i>Awaous guamensis</i>	I		X	X	X
‘o‘opu akupa	<i>Eleotris sandwicensis</i>	E			X	
āholehole	<i>Kuhlia sandvicensis</i>	E			X	
‘o‘opu ‘alamo‘o, ‘o‘opu hi‘ukole	<i>Lentipes concolor</i>	E		X	X	X
‘o‘opu nōpili	<i>Sicyopterus stimpsoni</i>	E		X	X	X
‘o‘opu naniha	<i>Stenogobius hawaiiensis</i>	E			X	
Crustaceans						
‘ōpae kala‘ole	<i>Atyoida bisulcata</i>	E		X	X	X
‘ōpae ‘oeha‘a	<i>Macrobrachium grandimanus</i>	E			X	
Tahitian prawn	<i>Macrobrachium lar</i>	N		X	X	
Mollusks						
lymnaeid snail	<i>Lymnaeid sp.</i>	N			X	
hīhīwai	<i>Neritina granosa</i>	E		X	X	X
Amphibians						
cane toad	<i>Bufo marinus</i>	N		X		
Insects						
green darner dragonfly	<i>Anax junius</i>	I			X	
	<i>Limonia advena</i>			X	X	
Blackburn’s damselfly	<i>Megalagrion blackburni</i>	E			X	X
beautiful Hawaiian damselfly	<i>Megalagrion calliphya</i>	E			X	
Hawaiian upland damselfly	<i>Megalagrion hawaiiense</i>	E		X	X	X
blackline Hawaiian damselfly	<i>Megalagrion nigrohamatum nigrolineatum</i>	E			X	
Pacific Hawaiian damselfly	<i>Megalagrion pacificum</i>	E		X	X	
orangeblack Hawaiian damselfly	<i>Megalagrion xanthomelas</i>	E	X		X	
Origin: E = Endemic, I = Indigenous, N = Nonnative.						

Source: Riverine Habitats from Fung Associates and SWCA, 2010



Top: Waihānau stream beneath the bridge into the Kalaupapa Settlement.
Bottom: NPS scientist measuring flow rate in Waihānau stream. NPS photos.

thomelas, a candidate endangered species) larva was seen along the margins of the lake but no adults have been observed or collected since.

Marine Resources

Kalaupapa NHP's seaward boundary extends one-quarter mile offshore. Two distinct marine habitats, the intertidal zone and the coastal reefs, lie inside the boundary. Park waters shelter the endangered Hawaiian monk seal and humpback whale, the threatened green sea turtle, protected marine mammals such as the Hawaiian spinner dolphin, and well-preserved reef communities of coral, fish, and invertebrates. The ocean portion of the park also includes two islets, 'Ōkala and Huelo, which serve as seabird sanctuaries, and one rocky pinnacle, Nāmoku, on the northwestern section of the peninsula.

Marine Habitats

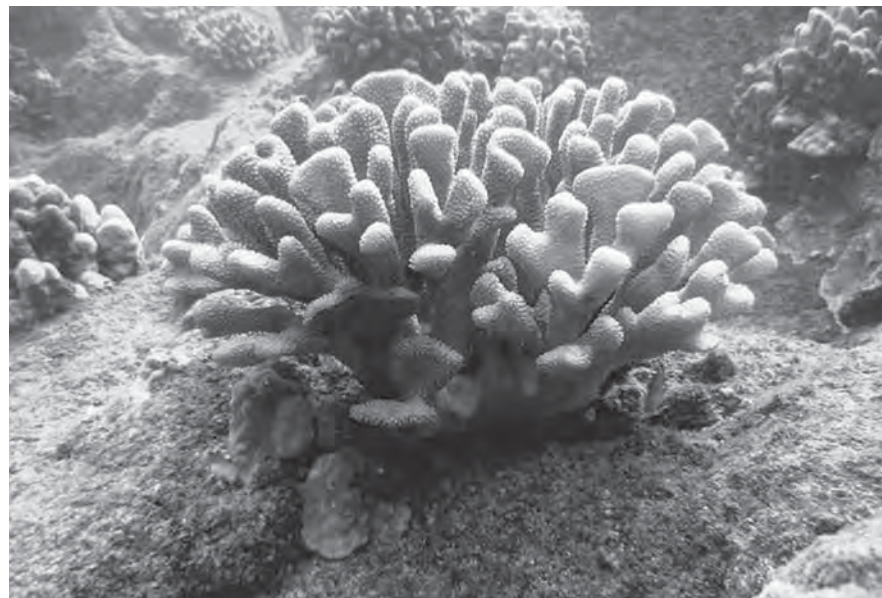
Intertidal Zone—The intertidal zone wraps around the peninsula to cover a total area of 0.22 square miles. Like other exposed northern shores throughout Hawai'i, it includes sandy beaches, cobble and boulder beaches, sea cliffs, raised benches, and tide pools. The eastern portion, from the mouth of Waikolu Stream to Kahi'u Point, is exposed to trade wind-driven waves; it is a high-wave-energy area with steep high cliffs and basalt boulder beaches. The western half, from Kahi'u Point to 'Awahua Beach, is characterized by medium wave energy during most of the year, lower cliffs, and sandy beaches (Eichenlaub 2001; Minton and Carnevale 2006). However the western half experiences the highest wave energy during the northwestern winter swells.

Coastal Reef—About 2.9 square miles of coastal reef lie in park waters. This habitat is composed mainly of coral reef communities on hard bottoms and sandy bottoms to a depth of 130 feet. Reef life here must withstand not only the northeast swells generated by trade winds that blow about 75% of the time, but also the larger North Pacific swells generated by winter storms (Aucan 2006). The hard-bottom habitat is dominated by large basalt boulders and basalt pavement with individual coral colonies dotting the seascape. In general, the marine species are typical of coastal reef environments, but occasionally pelagic species are observed within the one-quarter mile boundary due to the proximity of deep oceanic waters.

Marine Life

A small population of endangered monk seals (*Monachus schauinslandi*) hauls out on local beaches to give birth ("pup"), molt, or rest. Monk seals are increasing in numbers in the main Hawaiian Islands, and the population at Kalaupapa is one of the larger populations outside of the Northwestern Hawaiian Islands. The main Hawaiian Islands population is estimated at around 152 individuals, 10% of which are found at Kalaupapa (Baker et al. 2011). Threatened green sea turtles occur in the park where they forage and nest when beach conditions are suitable. Endangered humpback whales transit through the park boundaries from December to May each year.

The intertidal habitat at the park supports 326 known species in an invertebrate community that is similar to that of other windward intertidal zones in the Hawaiian Islands (Godwin and Bolick 2006). Arthropods are the most prevalent group and more than half of these are decapod crustaceans. 95 species of mollusks—mostly gastropod snails—are known to be present. Minton and Carnevale (2006) note that "Hawaiian opihi [at Kalaupapa] are numerous and large, among the largest observed in the main eight Hawaiian Islands." Echino-



Pocillopora edyouxi coral. NPS photo.

derms are abundant and diverse; researchers discovered two new species of sea cucumber at the park in 2004 (Godwin and Bolick 2006).

Introduced species in park intertidal waters include nine invertebrates and the spiny red algae *Acanthophora spicifera*; these species are present elsewhere in Hawai'i. None are considered invasive by Godwin and Bolick (2006).

The coastal coral reef communities at Kalaupapa are dominated by turf algae (69% of the area), corals (9%), fleshy macroalgae (8%), sand (8%), and coral-line algae (5%). A total of 28 coral species are known to inhabit park reefs. The dominant species are cauliflower (*Pocillopora meandrina*), lobe (*Porites lobata*), sandpaper rice (*Montipora patula*), rice (*M. capitata*), and antler (*Pocillopora eydouxi*) corals. These five species represent 91% of the coral cover observed in the coastal reefs at Kalaupapa NHP.

Among the 39 macroalgal species identified to date at the park, the dominant species are fleshy red algae (Rhodophyta), the brown algae (*Padina australis*, *Lobophora variegata*, and *Dictyota acutiloba*), and blue-green cyanobacteria.



Volunteers assist park staff in removing invasive seaweed. NPS photo.

A total of 143 marine fish species are known in park waters. More species occur over the coral reef than over sandy areas (Beets et al 2006). The territorial black fin chromis (*Chromis vanderbilti*), which feeds on plankton, accounts for 58% of all individuals. The top 10 most abundant species are primarily damsel fishes (family Pomacentridae) and surgeonfishes (family Acanthuridae). Both species of introduced snappers—ta'ape (*Lutjanus kasmira*) and to'au (*L. fulvus*)—are present on the coastal reefs in low numbers, as well as the introduced grouper, roi (*Cephalopholis argus*).

Kalaupapa has one of the healthiest fish populations in the eight main islands of Hawai'i, probably because fishing pressure is relatively light. Fish populations at Kalaupapa are similar in terms of numbers and size to some of the fish communities in the remote Northwestern Hawaiian Islands (Friedlander et al. 2008).

Contemporary Resource Use

Fisheries

National Park Service regulations apply in the marine area of the park – from the mean high water mark to ¼ miles offshore. Pursuant to the park's enabling statute, the NPS regulations covering fishing or the use of other wildlife resources do not apply to the patients. Except of as provided in 36 CFR 2.3, the NPS has adopted the State of Hawai'i fishing laws and regulations. In addition, State of Hawai'i fishing laws and regulations apply as a matter of state law. The Superintendent of the park may impose additional use limits or closures within the marine area of the park. Also, NPS law enforcement rangers who are deputized by the County of Kalawao may enforce County laws within the boundaries of the park. Fishing rules and regulations vary for patients, employee residents (kōkua), and visitors.

Pursuant to DOH regulations, Patients are exempt from state laws regarding gear type, seasonal closure, bag limits, and size limits. Community sentiment, however, opposes the sale of any fisheries catch, especially outside of the settlement. Community rules specifically prohibit employees from scuba diving except on behalf of the NPS marine research program.

Pursuant to DOH regulations, visitors on boats may not fish or even travel within the county or park boundaries unless they are sponsored by patients or kōkua of Kalaupapa. If sponsored they must follow state law regarding seasonal

closures, bag limits, gear types, and size limits. These more modern fishing practices, however, are discouraged by patients and kōkua and viewed as disrespectful of the stewardship ethic that is currently in place. It should be noted that commercial activities within the park boundary, such as charter dive boats and fishing vessels, are subject to the requirements of the park's enabling legislation which states that patients have a "first right of refusal to provide revenue-producing visitor services" (Public Law 96-565, Section 107).

Pursuant to DOH regulations, onshore visitors must have a park-based sponsor. Visitors may only pole fish from shore and they may not use nets or spears, pick 'opihi (Hawaiian limpets), or scuba dive at any point on Kalaupapa/Makanalua peninsula. The current rule limits outside visitors from most fishing activities and picking 'opihi (See Appendix G: Instructions for Visitors).

Hunting and Gathering

The State of Hawai'i, Department of Land and Natural Resources, Division of Forestry and Wildlife (DOFAW) has jurisdiction over recreational/subsistence hunting above 500 feet in the park. This area encompasses the designated Molokai Forest Reserve and Pu'u Ali'i Natural Area Reserve. Anyone with a valid state of Hawai'i hunting license may hunt in this area.

Pursuant to DOH regulations, Patient and worker residents are allowed to gather plant resources for lei, medicine, ceremonies, and cultural and community events. Guidelines and/or a permit process have not yet been established for subsistence plant collecting or gathering plant materials for cultural use. Visitors are prohibited from gathering plants within the park.

Pursuant to DOH regulations, Patient and worker residents of Kalaupapa are allowed to collect salt. Visitors are allowed to pick salt but may only do so in the company of their sponsor, who must either be a patient or worker resident. This is because the salt picking areas are beyond the boundaries of where visitors may travel without an escort. No bag size or other limits have yet been set on salt collecting, though salt may not be sold or sent out of Kalaupapa for sale.

Fishing and salt collecting are areas of special concern for the patients because they have seen past abuses by visitors, kōkua, and by some patients themselves. The perception among patients and others who fish is that there are fewer fish now than there were fifteen years ago (Langlas 2006).

Threats and Stressors

The primary threats and stressors to the park's ecosystems include natural events and human-related impacts. Natural events such as earthquakes, hurricanes, tsunamis, fire from lightning, landslides, and severe storms are typically acute disturbances that can alter ecosystems over a short time period. Most of these disturbances are random events that are difficult to predict.

Human-related impacts such as the introduction of invasive species, diseases and pathogens, habitat loss/degradation, pollution, fire, diversion of water, excessive resource use, and changes to local weather patterns as a result of global climate change (see section below on climate change) tend to be chronic influences over longer time periods. Many of these disturbances are currently occurring and can be mitigated to some degree through management activities.

Invasive species are recognized as a major threat to native ecosystems and to the survival of threatened and endangered species (Pimental 2005). Invasive species compete with native flora and fauna, carry diseases, affect trophic structure, change fire regimes, alter nutrient cycling patterns, modify surface runoff of water, and alter biodiversity (Vitousek 1990; D'Antonio and Vitousek 1992; Vitousek 1992; Belt Collins Hawai'i Ltd. 2008). At Kalaupapa NHP the invasive species are separated into categories, including feral ungulates, nonnative plants, and small nonnative mammals.

Many of the threats and stressors mentioned previously work synergistically to impact the ecosystems. For example, soil erosion by rilling and gullyng is exacerbated through disturbance by feral animals or indirectly by the reduction in the protective cover of native vegetation. Reduced cover by herbaceous plants in turn increases soil-raindrop impact, increasing the amount of sedimentation in runoff water. Wild fire has not occurred in recent memory and the abundance of nonnative plants has created an enormous fuel load, presenting a threat to buildings and remnant pockets of native vegetation in coastal areas and in Kauhakō Crater. Most of the threats and stressors can be mitigated at the local level.

Climate Change

Scientific research shows that global climate change is underway. Climate change is defined as “a change of climate attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods” (United Nations Framework Convention on Climate Change 1992). As this alteration to the atmosphere accelerates, scientists race to collect and analyze a ceaseless and ever-changing stream of interrelated data. While they can now identify and predict some impacts of climate change, other potential effects remain poorly understood or unrecognized. The future impacts will depend on how fast temperatures change, and whether human society can mitigate emissions of greenhouse gases before earth’s ecosystems reach critical thresholds.

This is a far-reaching and long-term issue that will affect Kalaupapa NHP’s resources, visitors, and management far beyond the 15- to 20-year timeframe of this general management plan. In preparing this plan for Kalaupapa NHP, NPS seeks strategies to minimize the park’s contribution to climate change, and maximize the park’s ability to adapt to climate change impacts.

Regional and Local Projections

According to a 2009 report by the United States Global Change Research Program (USGCRP), major impacts on island regions will include reduced availability of freshwater, coastal inundation due to sea-level rise and coastal storms, and disruption of traditional tourism due to changes in coastal and marine ecosystems. In the Pacific Island region, residents can also expect hotter weather, more frequent heavy downpours, and larger amounts of rain in the summer (USGCRP 2009).

Since 1993, average and maximum air temperatures on the peninsula have increased, accompanied by more extreme patterns of hotter summers and cooler winters. There has also been a slight decrease in overall rainfall since 1993, and in recent years there have been extended dry periods (e.g. 2003 and 2012) followed by heavy rains (NPS 2013). In the future, it is anticipated that precipitation will decline further due to the restriction in cloud formation from the increased frequency of the trade wind inversion layer in Hawai‘i (Cao et al.

2007). Another area of concern is storm frequency and extreme precipitation events, which are both expected to increase in certain areas of Hawai‘i, despite the decrease in overall annual precipitation (Chu, Chen, and Schroeder 2010). Ultimately, these changes in local weather patterns will alter climate in Hawai‘i, and thus affect upland forest characteristics, groundwater resources, and surface stream flow (Giambelluca et al. 2008).

Sea surface ocean temperatures recorded by the National Marine Fisheries Service (NMFS) for Koko Head, Oahu (1956–92) and corrected Integrated Global Ocean Services System—National Meteorological Center (IGOSS–NMC) at the same location (1992–2012) indicate that overall temperatures have increased by more than 0.5°C since 1956. Ocean cooling has occurred since 2005, and this has been corroborated by temperature meters within the park. Over a longer time period, however, ocean temperatures are expected to continue rising due to increased CO₂ emissions and the concomitant increase in atmospheric temperatures (Intergovernmental Panel on Climate Change [IPCC] 2007).

Ocean chemistry is expected to change with increasing CO₂ emissions (IPCC 2007). In particular, pH is expected to decrease resulting in more acidic conditions and negatively impacting organisms (e.g. corals, mollusks, sea urchins, etc.) that secrete a calcium carbonate skeleton. The latest projection is that by 2050, coral reef ecosystems will reach a tipping point and corals will be unable to calcify and grow (Hoegh-Guldberg et al. 2007). Kalaupapa began monitoring pH in 2009 as part of the Pacific Island Network Inventory and Monitoring Program, but to date no temporal pattern has emerged.

Since Kalaupapa is a coastal park, sea level rise may inundate low-lying natural and cultural resources such as nesting and nursing habitat for threatened and endangered species, historic structures, and archeological sites. Higher storm tides may result in more frequent flooding, coastal erosion, and reduction in the freshwater lens. In addition, marine organisms such as corals that rely on light penetration will be negatively impacted by rising sea levels (Guidry and Mackenzie 2012). Globally, sea level is rising at the rate of 0.13 inches per year, although this rate has been accelerating in recent years (Church and White 2011). In Hawai‘i, sea level has risen over 5 inches since 1918 (Firing and Merrifield 2004). This rise in sea level is expected to accelerate in the future with melting of the polar ice caps and thermal expansion of the ocean with increasing water temperature.

Carbon Footprint of Kalaupapa NHP

In 2007, the NPS analyzed the carbon footprint of Kalaupapa NHP using a greenhouse gas emissions inventory model developed by the U.S. Environmental Protection Agency (EPA) and the NPS. The findings provided a rough initial look at the carbon footprint of Kalaupapa NHP and established a baseline against which future emissions could be measured. The results showed that purchased electricity is the largest contributor to greenhouse gases at the park. Emissions from solid waste disposal, stationary combustion, mobile combustion, refrigeration, and other greenhouse gas sources were significantly lower. The park will conduct future monitoring and analysis using the same Climate Leadership in Parks tool to compare results against the 2007 baseline.

Most of the data for the calculations was taken from existing reports and records. Data types included the amounts of electricity purchased, waste sent to the landfill, and fuels consumed. Road counter data and visitor use surveys provided additional information. Examples of data are shown in Table 4.5.

Table 4.5 Purchased Electricity, Waste and Consumed Fuels, 2007

Stationary Combustion	4,694 gallons of diesel fuel to run a generator at the Pump Station that provides fresh water to all parties in the settlement
	495 gallons of diesel fuel used by DOH to run generators at the Kalaupapa Nursing Facility and State Kitchen during power outages
Purchased Electricity	1,365,200 kilowatt-hours of electricity, purchased from Maui Electric Company for the entire Kalaupapa Settlement
Mobile Combustion	26.98 metric tons of carbon equivalent (MTCE) due to purchased air travel
	2.5 MTCE due to helicopter use
	1.08 MTCE for air travel purchased by State of Hawai'i
Solid Waste	100.74 short tons annually

Table 4.6 Emissions Results by Sector: Metric Tons Carbon Dioxide Equivalent (MTCO₂E)

Park Unit	Stationary Combustion	Purchased Electricity	Mobile Combustion	Refrigeration	Waste	Other Green House Gas Sources	Gross Emissions
Park Operations	13	14	19	2	9	30	87
Visitors	0	0	4	0	0	0	4
State of Hawai'i	1	281	17	3	9	1	313
Contractors	0	4	7	0	3	1	16
Other Permitted Activities	0	17	17	2	0	0	36
Gross Emissions	14	316	65	8	21	32	456
Net Emissions*	14	316	65	8	21	32	
* Net Emissions = Gross Emissions - Carbon Sequestration							

Visitor Use and Experience

The easiest and most affordable way to experience Kalaupapa NHP is to view it from the Kalaupapa Overlook at Pālā'au State Park. There is no age restriction or limitation on numbers of visitors within Pālā'au State Park. The majority of visitors to Kalaupapa drive to the overlook where there is ample parking, NPS interpretive exhibits with disabled access, hiking trails, and restroom facilities.

Visitation to the Kalaupapa peninsula requires an entry permit. The federal law that established the park allows the patient population to limit the total number of public visitors and to make other rules about park usage. Currently the visitor limit is set at 100 persons per day. Patient rules also prohibit access by anyone under the age of 16.

The state DOH controls and manages park access. State law requires all visitors to obtain a DOH permit three business days in advance in order to enter the settlement and the historical park. While anyone can view the park from overlooks within the park boundary or overhead flights, to get a DOH permit and gain physical access to Kalaupapa peninsula, a visitor must fall into one of the following categories:

Sponsored guest—Kalaupapa residents can sponsor family and friends as visitors. Residents who sponsor guests may be former Hansen's disease patients, state employees, or NPS employees.

Commercially guided tourist—Damien Tours, the commercial tour vendor at the park, obtains permits for registered tour participants with the DOH.

Volunteer—Park volunteers are involved through NPS sponsorship and obtain permits through the DOH.

In calculating visitation numbers, the NPS considers overlook viewers at Pālā'au as actual visitors. They constitute the vast majority of park visitors. Other viewers included in the visitor count are those who stop at Waikolu Overlook in the Molokai Forest Reserve, as well as people who view the park from helicopters.

Visitor Opportunities

Commercial Tours

The only official tour in the settlement is offered by Damien Tours, a company owned and operated by a patient. Tours are scheduled Monday through Saturday, 10am–1:30pm. Visitors arrive by plane, or on foot or by mule from the trail. Damien Tours picks them up and drops them off using re-purposed school buses. Tour guides escort the visitors around Kalaupapa and Kalawao. Stops along the way include Saint Marianne's former gravesite, St. Francis Church in Kalaupapa, the Bookstore, Fuesaina's Bar, the heiau along Damien Road, St. Philomena's Church in Kalawao, and finally Judd Pavilion at Kalawao for a lunch break. Guides offer interpretive information at each stop.

The Kalaupapa Guided Mule Tour is a type of commercial tour that provides an alternative way to access the park and the settlement tour. The mule ride starts and ends outside park boundaries and coordinates with the Damien Tour. Visitors who engage the Kalaupapa Guided Mule Tour to access the park are offered informal interpretation at the mule ride headquarters and on the ride itself by the muleskinners. Each year the park issues a commercial use authorization to the mule ride.

Overnight Use

No overnight use by the general public is allowed. Overnight stays at Kalaupapa are restricted to sponsored guests of residents and are limited to a total of 13 days in a three-month period. The only lodging available is through the Department of Health Visitor Quarters. Current charges are \$10 per person per night. No campground facilities exist and patient rules do not allow camping anywhere in the settlement.

Visitor Facilities and Services

Visitor facilities at Kalaupapa NHP are quite limited. No restaurants are located in the park. The NPS approved commercial use authorization for mule ride operations offers boxed lunches to trail riders, but all other visitors must bring their own lunches. A small general store serves patients, park staff, and DOH employees, however the store is not accessible to tour participants. Sponsored visitors are only allowed to purchase a soda, juice, water, or candy.

Fuesaina's Bar is always open when the Damien Tour Bus customers enter the park, and tourists may purchase soft drinks and snacks. Persons with proper identification can purchase beer and wine. The bar is open 4–8pm Monday, Wednesday, and Saturday, and also opens between the hours of 9 and 11 am for the bus tour. The park's cooperating association, Pacific Historic Parks, operates a bookstore that is open Monday through Saturday, 10am–2pm, to coordinate with bus tour times.

No medical services are available to visitors. In emergency situations, on-call medical staff arrange an air ambulance service.

Opportunities for People with Disabilities

The Kalaupapa Overlook located inside the NPS boundary at Pālā'au State Park features an accessible, paved trail for wheelchair-bound persons. This overlook is accessible by vehicle. Parking for up to 60 vehicles, accessible restrooms, and a campground are provided and maintained by the state park.

Access to and around the peninsula is extremely difficult for those in wheelchairs. There are no chair lifts at the Kalaupapa, Hoolehua (topside), or Honolulu airports. The trail down the pali to Kalaupapa is completely inaccessible to persons with disabilities. The settlement tour requires people to get on and off the bus on their own, and the only public restroom with wheelchair access is at the airport, Paschoal Hall, and the Curatorial/Museum building. St. Philomena Church has a small metal entry ramp, but it is not ADA compliant, and one step must still be overcome to get inside the building. The bookstore is slated to have accessible ramps installed.

Hiking Opportunities

Visitors who are officially registered with Damien Tours can hike down the pali trail on their own and wait for the tour bus at the base. Topside, a short trail at Pālā'au State Park provides hiking access to the Kalaupapa Overlook through land that is part of the Kalaupapa NHP. Other hiking opportunities can be found topside with Molokai Museum and Cultural Center at the restored R. W. Meyer Sugar Mill, and with The Nature Conservancy (TNC) starting at Waikolu Valley. The TNC hike proceeds through Kamakou Preserve to the Pelekunu lookout.

Visitation Overview Total park visitation is calculated based on the following estimates:

- number of visitor permits granted by DOH
- number of visitors at the Kalaupapa Overlook at Pālā'au State Park
- number of other visitors, including jeep tours at Waikolu Overlook

Between 1996 and 2012, Kalaupapa Settlement averaged approximately 9,000 visitors per year (Figure 4.4). In 2010, visitor counts to Kalaupapa Settlement were low because of the high cost of airfare and a bridge washout on the pali trail that halted visitor access for several months. Between 1996 and 2012, Kalaupapa NHP averaged 59,000 visitors per year; this figure includes visits to the Kalaupapa Overlook at Pālā'au State Park (Figure 4.5). In 2009 and 2010, visitor counts to the Kalaupapa Overlook at Pālā'au State Park are low due to counting errors. According to state officials who track international and domestic arrivals to the islands, an average of 68,749 passengers per year arrived on Molokai between 2004 and 2010 (Figure 4.6).

Visitor Survey

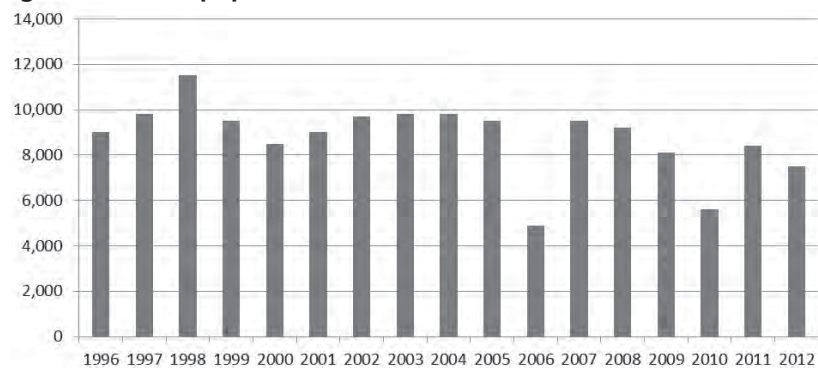
In 2010 and 2011, a visitor study was conducted to more fully understand and document visitation to Kalaupapa NHP. The following information is the executive summary of the Kalaupapa NHP Visitor Study (Le and Hollenhorst 2011).

The report profiles a systematic random sample of Kalaupapa NHP (NHP) visitors on April 12, 2010 and from November 29, 2010 to February 7, 2011. A total of 386 questionnaires were distributed to visitor groups. Of those, 292 questionnaires were returned, resulting in a 75.7% response rate.

Group size and type—Sixty-five percent of visitor groups consisted of two people and 12% were in groups of four or more. Fifty-eight percent of visitor groups consisted of family groups.

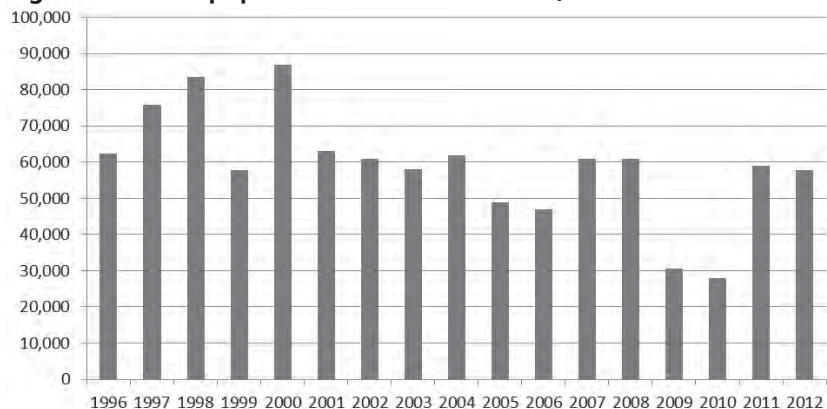
State or country of residence—United States visitors were from 40 states, Washington D.C., and Guam, and comprised 86% of total visitation during the survey period, with 21% from Hawai'i and smaller portions from 39 other states, Washington D.C., and Guam. International visitors were from 12 countries and comprised 14% of total visitation.

Figure 4.4 Kalaupapa Settlement Annual Visitation 1996–2012



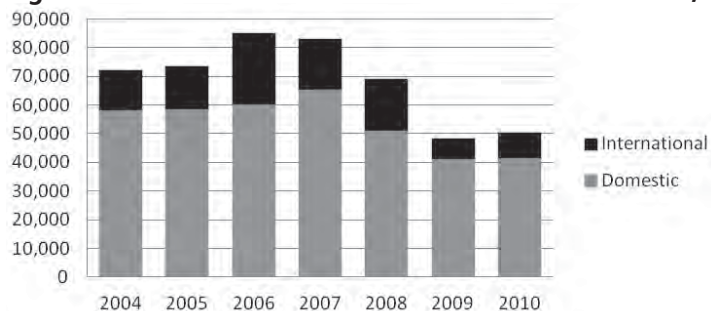
Source: State of Hawai'i, Department Of Health, Hansen's Disease Branch.

Figure 4.5 Kalaupapa NHP Annual Visitation, 1996–2012



Source: NPS Public Use Statistics Office.

Figure 4.6 Molokai Domestic and International Arrivals, 2004–10



Source: Hawai'i Department of Business, Economic Development, and Tourism (DBEDT).

Frequency of visits—Eighty-seven percent of visitors were visiting the park for the first time in their lifetime.

Age, gender, ethnicity, and race—Forty-eight percent of visitors were aged 46–65 years, 3% were aged 15 years or younger, and 16% were 66 years or older. Fifty-six percent of visitors were female. Two percent were Hispanic or Latino. Eighty-nine percent of visitors were White and 9% were Asian.

Educational level and household income and size—Forty-four percent of respondents had completed a graduate degree. Eighteen percent of visitors had an income of \$100,000–\$149,000. Sixty percent of visitors had two people in their household.

Physical conditions—Eight percent of visitor groups had members with physical conditions that affected their ability to access or participate in activities and services.

Awareness of park prior to visit—Twenty-four percent of visitor groups were aware of park's co-management by NPS and the State of Hawai'i Department of Health.

Information sources—Most visitors (88%) obtained information about the park prior to their visit through other websites (47%), and most (85%) received the information they needed. Sixty-nine percent of visitor groups would use the park website to obtain information for a future visit

How visit fit into travel plans—For 70% of visitor groups, the park was one of several destinations, and for 22%, the park was the primary destination.

Primary reason for visiting the area—Six percent of visitor groups were residents of Molokai. The most common primary reasons for visiting Molokai among non-resident visitor groups were to visit the park (37%) and visit other attractions on Molokai (35%). For 83% of visitor groups the primary reason for visiting the park was to learn about the general history of Kalaupapa peninsula.

Services used in nearby communities—Ninety-three percent of visitor groups obtained support services topside Molokai.

Transportation—Eighty-five percent of visitor groups used one vehicle to arrive at the park.

Overnight stays—Sixty-six percent of visitor groups stayed overnight at Kalaupapa NHP or topside Molokai, of which 50% stayed one night. Eighty-three percent of visitor groups stayed in lodges, hotels, motels, cabins, bed and breakfasts, etc.

Length of visit in park—The average length of visit was 4.5 hours. Forty-seven percent spent five or more hours in the park.

Activities on this visit—The most common activities were visiting historically significant sites at the park (69%), taking the Damien Tour (66%), and visiting Kalaupapa Overlook (64%).

Visitor services and facilities—The visitor services and facilities most commonly used by visitor groups were the restrooms (83%), Damien Tour (73%), and visitor center bookstore (60%).

Protecting park attributes, resources, and experiences—The cultural, natural, and scenic resources receiving the highest combined proportions of “extremely important” and “very important” protection ratings were scenic views (94%); natural features, such as wildlife, plants, and clean air (91%); and historic buildings associated with the Hansen’s disease settlement (88%).

Expenditures—The average visitor group expenditure (inside the park and topside Molokai) was \$2,212. The median group expenditure (50% of groups spent more and 50% of groups spent less) was \$1,716, and the average total expenditure per person (per capita) was \$1,089.

Preferred activities on future visit—Ninety-six percent of visitor groups were interested in tours/programs. Of those, 80% were interested in ranger-led programs and 69% in self-guided tours.

Topics and methods of learning about the park—Ninety-eight percent of visitor groups were interested in learning about the park on a future visit, of which 86% were interested in the history of the Kalaupapa and Kalawao settlements. Ninety-eight percent of visitor groups were interested in learning about the park features through ranger-led programs (84%), outdoor exhibits (79%), and indoor exhibits (70%).

Overall quality—Most visitor groups (74%) rated the overall quality of facilities, services, and recreational opportunities at Kalaupapa NHP as “very good” or “good.” Seven percent of groups rated the overall quality as “very poor” or “poor.”



Volunteers clear vegetation around gravesites. NPS photo.

Interpretation and Education

People who visit Kalaupapa NHP via a commercial tour or as sponsored guests can learn about the settlement’s history through tours, exhibits, and publications available on-site. Topside visitors enjoy wayside exhibits at Kalaupapa Overlook and at the top of the pali trail. Interested people elsewhere can explore Kalaupapa’s compelling story through the internet and various publications.

Kalaupapa NHP has limited educational staff assigned to interact with visitors and conduct outreach and education. NPS Cultural Resource

Management staff and one interpretive ranger specialist regularly provide interpretive programs to the public and groups about the history of Kalaupapa through presentations and formal exhibits. In addition, special tours exist for a variety of special interest groups and family members of Hansen’s disease patients who have passed away. The park currently lacks funding for a formal interpretive program.

Exhibits

Kalaupapa Overlook at Pālā‘au affords an excellent orienting view of the Kalaupapa peninsula, settlement, and sea cliffs surrounded by ocean. Wayside exhibits share information about Hansen’s disease, the unique history of the

settlement, and the pali trail. At Kalaupapa and Kalawao settlements, Kalaupapa Airport, and along Damien Road, wayside exhibits interpret structures and features significant to the area's cultural history.

The bookstore displays items from the park's museum collection and historical photographs. Visitors can buy theme-related books and souvenirs offered for sale by the nonprofit cooperating association, Pacific Historic Parks.

Exhibits are also available for visitors at Paschoal Hall, McVeigh Hall, and inside the St. Francis Catholic Church Social Hall.

Publications

The official NPS brochure is available to all visitors to Kalaupapa at the bookstore or at the staging area for the mule ride. Brochures are also available at the Molokai Visitors Bureau and by request via e-mail or regular mail.

Internet

Kalaupapa NHP maintains a web site (www.nps.gov/kala) and blog that provides information about Kalaupapa as well as a virtual tour of the park. The park releases frequent web-based announcements for special events and stories related to Kalaupapa NHP.

Education

Since children under the age of 16 are not allowed in the park, no official tours for school or youth groups are provided. Numerous state and local high school volunteer groups and religious groups visit Kalaupapa throughout the year to learn about the peninsula and its people and to provide community service, such as exotic plant removal and the introduction of native plant species. Park staff attend special youth events, such as Molokai High School's annual career day and Earth Day events, and NPS offers associated educational programs and materials. Kalaupapa NHP employees are assigned to give specific outreach programs to a wide variety of organizations in Hawai'i.

Access and Transportation

Transportation to Kalaupapa NHP is possible by foot, mule, or plane. A barge transports food and other goods to the community once or twice a year in late summer when the sea is calm. While a road system does exist on the peninsula, no roads link the peninsula to the rest of Molokai.

Roads

Roughly 9 miles of paved roads and 40 miles of unpaved roads thread through the peninsula portion of the park. Both personal and government vehicles are delivered to the peninsula by barge.

The paved roads permeate Kalaupapa Settlement and link it to the airport terminal. A gravel road (Damien Road) connects Kalaupapa to Kalawao. An unimproved road skirts the peninsula between Kalawao and the airport, and other unimproved roads follow the fence lines. On topside Molokai, travelers approach the upper rim of the park and the head of the pali trail via Kalae Highway (Hwy 470).

This Highway also delivers visitors to the very popular Kalaupapa Overlook, which is inside the park boundary. There is a parking area at the trail head to the overlook. The state DOT maintains the highway, which links Kalaupapa NHP and Pālā'au State Park to the main town of Kaunakakai, about 10 miles away. Visitors arriving for the pali trail park on the highway shoulder and access the trailhead via an unimproved road through private land. NPS is responsible for maintaining the access road according to the terms of a memorandum of understanding with the landowner, R. W. Meyer Ltd.

Air

Kalaupapa is part of the federally subsidized Essential Air Service, a program which ensures that small communities receive a minimal level of scheduled air service at an affordable price. The Hawai'i DOT maintains the airstrip and buildings at the Kalaupapa airport. Flights are scheduled from Honolulu, O'ahu; Kahului, Maui; and Hoolehua, Molokai. The seven-minute flight from Ho'olehua on topside Molokai occurs two to three times per day, weather permitting, and provides the main access in and out of Kalaupapa. The FAA restricts the size of aircraft authorized to land at Kalaupapa to nine-passenger planes or smaller.

An air freight company delivers to Kalaupapa throughout the week as needed. Mail is also delivered by contract air service, Monday through Saturday.

The park experiences frequent non-access related air traffic, including military helicopter use of the airport for training purposes and commercial scenic air tours. These overflights Commercial air tours and overflights at Kalaupapa must follow FAA rules that state an aircraft maintain an altitude of at least 1600 feet above ground level.

Trail

Visitors registered with Damien Tours are permitted to hike or ride mules down the steep 3.5-mile pali trail that links topside Molokai to the settlement. The trail has a 1,700-foot elevation change, 26 switchbacks, and is often muddy. It is a very strenuous hike and can be very slippery.

Kalaupapa Dock

In 2012 the NPS completed the stabilization and repair of the Kalaupapa dock, which ensures that vessels can continue to safely deliver supplies to Kalaupapa. Exposure to seawater and wave impact had caused extensive damage to the Kalaupapa pier and the bulkhead and breakwater were failing structurally. To ensure delivery of supplies essential to operate and maintain Kalaupapa via small barge, repairs and improvements were made to the bulkhead wall toe, dock toe, breakwater, and pier.



Facilities, Management, and Operations

Facilities

Facilities are predominantly historic buildings and structures and are also described in the “Cultural Environment” section of this chapter. Facility owners at Kalaupapa NHP include the State of Hawai‘i, the NPS, patients, and religious institutions. Most of the buildings at the park are classified as historic structures. Approximately 95 buildings and structures are privately owned; these include garages, outbuildings, beach houses, or churches and related structures held by religious entities. The remaining buildings belong to the State of Hawai‘i through its departments: the DOT owns the airport’s terminal and maintenance facility, and the other approximately 150 buildings, including most residences and community facilities, belong to the DOH.

Management responsibility for these facilities is distributed differently than ownership, however. As the patient population at Kalaupapa has diminished, the DOH has incrementally transitioned building management responsibilities to the NPS.

In the future DOH will take over ownership of patient-owned buildings at Kalaupapa. The beach houses, Fuesaina’s Bar and accompanying storehouse, as well as most garages, sheds, and outbuildings have traditionally been passed



Left: Opening of Labor Day sports activities at Kalaupapa Pier, 1953. Kalaupapa Historical Society Photo Collection. Right: Restoration of Kalaupapa Pier, 2012. NPS photo.

down or sold from patient to patient. According to the State of Hawai'i attorney general, all patient-owned buildings that are not passed down or sold to another patient will become DOH property.

A complete list of structures at Kalaupapa NHP is listed in Appendix E.

Administrative Facilities

The park headquarters and the offices and support facilities for all park divisions are in Kalaupapa Settlement. The NPS facilities in the settlement also include staff housing. Due to the remote location and difficult access to Kalaupapa, nearly all employees live on-site. In the settlement, the park uses and maintains many of the infrastructure and operational facilities, though DOH retains ownership. NPS owns the lighthouse and the seven outbuildings and two residences also located at the 23-acre light station.

Utilities

NPS maintains the systems for water, recycling, and composting at Kalaupapa and is partially responsible for electricity, telecommunications, sewage, and solid waste disposal. Maui Electric is responsible for the primary electrical power distribution system. As the patient population declines and DOH ends its service as settlement administrator, NPS will continue to take on more responsibility for critical systems. The NPS's current role in utilities at Kalaupapa is discussed briefly below.

Water

NPS maintains the community's water supply and distribution system. Facilities include the 50-horsepower submersible pump and pump house, a hypochlorinator injection pump that adds 12.5% liquid chlorine to the water, three storage tanks, and a distribution system with 138 service connections. In 2009, Kalaupapa NHP won the honor of best-tasting water in the state in a contest sponsored by the DOH Safe Drinking Water Branch and the American Water Works Association.

The system draws 255 gallons of water per minute from a 500-foot-deep well in Waihānau Valley, using a submersible pump powered by a diesel generator. After an injection pump also powered by diesel treats the water, it is routed to

three storage tanks for distribution to the settlement. The system serves 100 to 150 people per day through 138 service connections.

A 2004 audit reported unusually high water use at Kalaupapa (Department of Energy 2004), which is thought to be the result of a serious water leak. As of 2009, water use remained quite high at 58,652 gallons per day (21.4 million gallons annually). The main source of the leak may be inside the two water storage tanks. A major overhaul of both water storage tanks has been funded.

In 2004, Kalaupapa's water delivery system was calculated to cost the park 88 cents per 1000 gallons. Cost is driven by the price for diesel, which in 2004 was \$1.83 per gallon. From 2004 to 2011, diesel costs tripled. NPS has determined that converting from diesel to solar power—which would result in considerable cost savings—is feasible only if water use can be reduced to below 30,000 gallons per day. At that level the water system would have a carrying capacity of up to 300 people per day (Department of Energy 2004).

Sewage

The park installed septic systems upgrades in 2007–08 at sites throughout the park that receive high use. The majority of single family residences and office buildings are on a cesspool system. NPS is solely responsible for the maintenance of these septic systems and cesspools.

Table 4.7 shows the upgraded sites and their septic system capacities. The septic and cesspool capacity at Kalaupapa can handle at least 200 visitors plus 100 residents according to the Kalaupapa Chief of Maintenance.

Electricity

Maui Electric Company provides electricity. The entire service area, the Kalaupapa peninsula, is on one meter and serves approximately 237 buildings. Maui Electric has been negligent in maintaining the electrical distribution system and transmission lines within the settlement, while Maui Electric has done a good job in maintaining the delivery cables that descend the cliffs from topside. The monthly electricity consumption at Kalaupapa is 85,108 kilowatt-hours. This is the total power consumption of the peninsula, including the electricity needs of the patients and other occupants, generally healthcare workers and park employees. NPS facilities consume approximately 6,185 kilowatt-hours per month, approximately 7% of the total electrical consumption at Kalaupapa.

Table 4.7 Septic System Capacities

Building Number	Building Served	Designed Daily Flow Rate (gpd)	Designed Number of Users
292*	Damien Hall and Library (Catholic Church)	100	20 people/day (short gathering, less than 2-hour duration)
286	Protestant Church	100	20 people/day (one-time users)
BV1, BV2, BV3, BV5, BV6	Bay View Buildings	4,075	40 occupants
313	Curatorial Building	500	25 occupants
304	Paschoal Hall	100	20 people/day (one-time users)
M28	McVeigh Dorm	1,800	18 occupants
M23	McVeigh Rec. Hall	100	20 people/day (one-time users)
633	Trailhead Restroom	384	48 people/day (one-time users)
719	Kalawao Picnic Area	576	48 people/day (one-time users)
640a	Pier Public Restroom	Closed	0
270	Administration Building	300	20 workers
BV274, BV275, BV277, BV278	Visitors' Quarters and Wilcox Hall	1,800	28 occupants
62	Fuesaina's Bar	100	20 people/day (one-time users)
BV10	Quonset Dorm	1,500	15 occupants
M12	McVeigh Home	200	
SR5, SR6	Central Kitchen	500	5 workers
SR1	Residence for Single Women	1,000	10 occupants

Source: Hoa Lam, Civil Engineer, NPS Pacific West Region, Seattle Office.

The peninsula has a good wind resource, with annual average wind speeds of approximately 15.7 miles per hour. The peninsula also has a good solar resource, with an annual average solar resource of 5.36 kilowatt-hours per square meter per day. The serving utility, Maui Electric Company, currently allows net metering up to 100 kilowatt-hours.

Solid Waste

Until 2010, the DOH has collected Kalaupapa Settlement's solid waste (including that from NPS) and disposed of it at an on-site landfill. In anticipation of DOH transitioning out of its role at the settlement, NPS took over the job of solid waste collection and disposal in 2010 after DOH closed the landfill. To prepare for this transition, in 2009 NPS began a comprehensive composting and recycling program. The park stores recycled materials, along with hazardous materials and large construction debris for shipment out on the annual barge. Two large composting bins equipped with augers mechanically stir food waste and other compostable materials. Compost is used at the NPS native plant nursery and in the community garden.

In 2010 NPS contracted for air service to remove solid waste and construction waste products that cannot be composted, recycled, or removed by barge. The air service contract is permanently funded and costs the park approximately \$54,000 per year for removal of 55,200 pounds of solid waste. The park hopes to reduce the amount of non-recyclable trash in the future but can handle at least double the current amount of total trash produced at Kalaupapa. DOH is solely responsible for the long-term closure and monitoring of the Kalaupapa landfill(s).

Telecommunications

The general telecommunications system for the community is the responsibility of Hawaiian Telecom and Time Warner Oceanic. NPS installed its own fiber cabling system to connect five administrative buildings. The park maintains that system and assists Hawaiian Telecom with maintenance of their system.

Staffing

The park's superintendent and division heads work together as a management team. The team is made up of the superintendent, management assistant, and administrative officer; the chiefs of natural and cultural resources; the chief ranger; and the maintenance mechanic supervisor. The Chief of Maintenance position for KALA is a shared position with Haleakala National Park.

Operational divisions at Kalaupapa NHP include administration, law enforcement, cultural resources, natural resources, and maintenance. The park lacks an interpretation and education division. Cultural resources employees handle some of the tasks that would normally be the role of that division, and the museum's curator manages the park's website. The park's current operating divisions and their roles and facilities are described below. The NPS also maintains approximately 12 temporary positions funded by projects.

Table 4.8 Kalaupapa NHP Employees

Alternative A Staffing by Division	Permanent	Project Funded
Management and Administration	3	
Cultural Resources	5	2
Natural Resources	6	1
Interpretation and Education	1	
Facilities and Maintenance	19	9
Visitor Protection	6	
Total Staff	40	12

Diversity and Hiring

The park's enabling legislation allows for native Hawaiian hiring preference. In 2011, 55% of all the employees at Kalaupapa NHP are at least 50% native Hawaiian.

To facilitate the native Hawaiian hiring preference when a job vacancy occurs at Kalaupapa NHP, job announcements are sent to the Molokai unemployment office, information about pending job announcements are sent to the Maui and Molokai newspapers, job announcements are made available to NPS Hawaiian volunteers, as well as student groups that visit Kalaupapa, and the Kalaupapa Advisory Commission recommends applicants for available jobs.

Volunteer Program

Despite its remote location, Kalaupapa NHP averages 120 volunteers annually. In 2010, there were 129 volunteers and two interns. A notable part of the labor accomplished at the park is performed by local Molokai youth organizations. Other volunteers include Hawai'i-wide community service organizations, religious groups with pre-existing connections to Kalaupapa, and visiting volunteers who assist park staff. Volunteers help remove invasive species from cultural sites, restore native plants via outplanting, paint and preserve historic structures, monitor endangered species, and clean up beach debris. Volunteers also assist protection rangers in wildland fire suppression efforts, such as defensible space clearing around historic structures, and building and vehicle maintenance. Administration makes use of volunteers for data entry projects. The most popular volunteer activity is always the beach cleanup. Table 4.9 provides a list of volunteer hours by category for fiscal year 2012.

Table 4.9 Volunteer Hours Recorded, 2012

Division	Volunteer Hours
Administration	3,121
Cultural Resources Management	2,862
Maintenance	1,349
Natural Resource Management	4,472
TOTAL	11,804

Partnerships

Public Law 95-565 allows for NPS management of nonfederal lands and facilities through cooperative agreements and leases.

Long-term Agreements

NPS has several long-term agreements and one lease; they are described in detail in "Chapter 2: Long-term Agreements."

Short-term Agreements

NPS maintains short-term agreements at Kalaupapa NHP with the following partners:

Pacific Historic Parks

Pacific Historic Parks (formerly Arizona Memorial Association) has partnered with NPS in the Pacific area since 1979. At Kalaupapa it operates a bookstore/gift shop and regularly provides financial aid to park operations that help tell the story of Kalaupapa to visitors. It also helps fund curatorial work, archival surveys, ethnographic research, and natural resource protection efforts. The group partners with the park via a cooperative agreement that is renewed every five years.

Ka ‘Ohana O Kalaupapa

The ‘Ohana is a nonprofit group, organized in 2005, that supports the patient community at Kalaupapa and their families and friends. The ‘Ohana is authorized by the Secretary of the Interior under Public Law 111-11 (2009) to install a memorial to honor and perpetuate the memory of every individual who was forcibly relocated to Kalaupapa peninsula from 1866 to 1969. The Public Law states that the ‘Ohana is solely responsible for raising funds for the memorial. The NPS completed an Environmental Assessment in December 2010 and signed a Finding of No Significant Impact in August 2011. The approved location for the memorial is at the site of the Old Baldwin Home for Boys in Kalawao. The NPS is awaiting the start of an ‘Ohana-organized design competition and final design proposal for the memorial. Funding for planning, design, construction, and maintenance will be through non-NPS fund sources.

Kalaupapa Guided Mule Tour

This commercial mule ride operation works in conjunction with the patient-owned Damien Tours to bring visitors from topside Molokai into the Kalaupapa Settlement. Kalaupapa Guided Mule Tour has a commercial use authorization with the park to provide and guide the mule rides.

Other Partnerships

The Hawai‘i DOH and the County of Maui work together to provide fire and law enforcement support at Kalaupapa. Their agreement is formalized through a mutual aid compact that remains in effect until July 1, 2015. Although NPS is not a direct partner to the compact, the park benefits greatly from the services it provides. The NPS also has a memorandum of understanding with R. W. Meyer, Ltd. for the portion of Meyer land on the upper section of the pali trail.

Socioeconomic Environment

The economic and social environment of Kalaupapa NHP is unique. The park encompasses a culturally distinct community on a physically isolated peninsula on a sparsely populated island in one of the most remote island chains on earth. This profound physical and cultural isolation means that Kalaupapa NHP’s primary socioeconomic context is the island of Molokai, and more specifically Kalawao County and the Kalaupapa Settlement.

Molokai lies southeast of O‘ahu, Hawai‘i’s population center and economic hub, and northwest of Maui, a tourist mecca. Topside Molokai is part of Maui County. The land boundary of Kalawao County is contiguous with the land boundary of Kalaupapa NHP.

Maui and Kalawao Counties are two of only five counties in the state. County governments play an unusual role in Hawai‘i because no municipal governments exist except for the City and County of Honolulu.

In the specific case of Kalawao County, county governance falls to the state DOH, and the services usually handled by Hawai‘i counties are shared between the DOH and the NPS. The NPS manages the land, which is largely owned by the DHHL, DLNR, and DOT.

Though remarkably isolated, Kalaupapa’s socioeconomic environment exists in the broader context of topside Molokai, Maui County, and the state as a whole. This section discusses the peninsula’s social and economic context and concludes with a look at the unique culture and economy of Kalawao County / Kalaupapa NHP.

State of Hawai‘i

Population and Demographics

Hawai‘i’s population steadily grew by about 12.3% between 2000 and 2010. The 2011 population estimate for Hawai‘i is 1,374,810, an increase of approximately 14,509 people from the 2010 data. Children under 5 represent 6.4% of the total, and seniors over 65 account for 14.3%. The state is ethnically diverse: Asians comprise the largest portion of the population, with whites and persons declaring two or more races close behind. Figure 4.7 illustrates Hawai‘i demographics estimated in 2010. That year, Hawai‘i totaled 211.8 persons per square mile, compared to the U.S. average of 87.4 persons (U.S. Census Bureau [USCB] 2010a).

Employment and Housing

Estimates from 2006 to 2010 showed that approximately 66.8% of the state's people were in the labor force. Of these, fewer than 4% were in the military. In the civilian labor force, 3.6% were unemployed. There were 519,508 housing units in the state in 2010, 39.2% of those in multi-unit structures. The rate for homeownership was 59.3%. Housing units had an overall occupancy rate over 1 year of 84.6% (USCB 2010b).

Economic Overview

Hawai'i enjoyed a 1.2% economic growth rate between 2009 and 2010, as measured by real and nominal gross domestic product (GDP) and by real GDP per capita. The per capita money income in 2010 was \$28,882, with the median household income at \$66,420. 9.6% of the total population of Hawai'i was below the poverty line in the same time period (U.S. Bureau of Economic Analysis 2008; USCB 2010b).

In 2010, 73.5% of jobs statewide were in trade and services, an arena largely driven by tourist-related economic activity. Consistent with Hawai'i's role as a tourist destination, accommodation and food services accounted for 15.7% of all jobs and topped the list of private employment opportunities (U.S. Bureau of Economic Analysis, File CA25N n. d.; USCB 2010b).

State tourism officials track the number of people who arrive in Hawai'i. Though the resident population totals about 1.4 million, approximately 8.3 million visitors came to the state in 2010: 75% from the U.S. mainland and 25% from U.S. territories or other countries (State of Hawai'i Department of Business, Economic Development, and Tourism [DBEDT] 2010b).

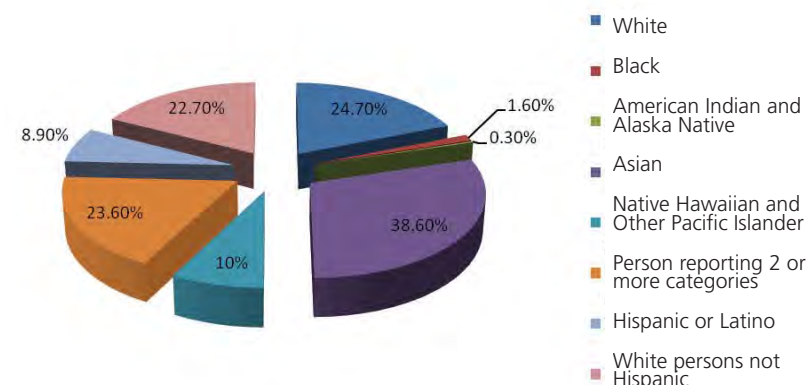
Maui County

Maui County includes Maui, Lāna'i, Kaho'olawe, and topside Molokai. As a whole, the county of Maui grew continuously over the past decade (USCB 2010). In 2010, the population estimate for the county was 154,834 (about 8.8% of the state's residents), with a population density of 133.3 persons per square mile and approximately 70.2% of the population in the labor force. The county had approximately 65,000 housing units with a 75% occupancy rate. Over one-quarter (26%) of civilians worked in the service sector, a reflection of tourism's role in the economy (Maui County Planning Department [MCPD] 2006; 2010 U.S. Census Bureau, Selected Economic Characteristics). The island of Maui in particular is a world-renowned tourist destination.

Molokai Island

Molokai lies just southeast of O'ahu and is home to 7,345 people, less than 1% of Hawai'i's population. The island is divided into three areas: east, west, and Kalawao County. Molokai possesses unique natural and cultural resources and a resilient, independent workforce that is fiercely protective of the island's environment and cultural heritage.

Figure 4.7 State of Hawai'i Demographics, 2010



Source: U.S. Census Bureau, "2010 Census: 2010 and 2011 Population Estimates."

Table 4.10 State of Hawai'i Number of Jobs by Industry, 2006–10

	Total in Labor Force	Ag [1]	Industrial [2]	Trade and Services [3]	Public Administration
People	714,067	10,246	107,778	466,480	51,950
(%)	66.8%	1.6%	16.9%	73.5%	8.2%

Notes:

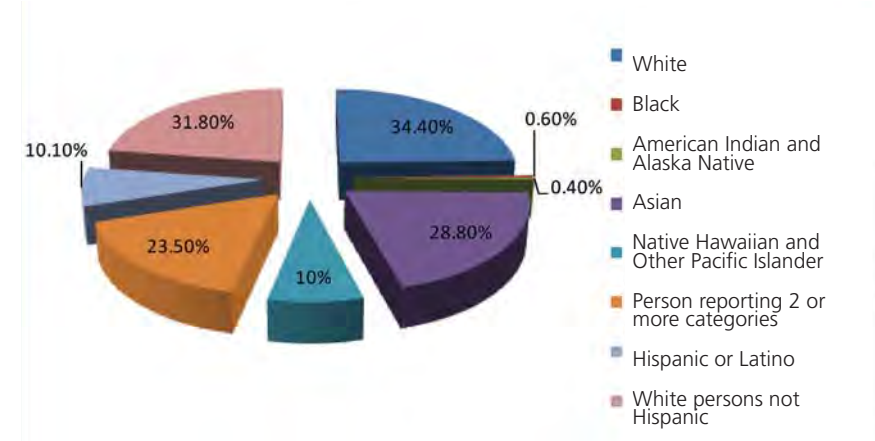
[1] includes agriculture, forestry, fishing and hunting, and mining

[2] includes construction, manufacturing, transportation and warehousing, and utilities

[3] includes wholesale and retail trade; information services; finance and insurance; real estate, rental, and leasing; professional, scientific, management, administrative, and waste management services; educational services, health care, and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services, except public administration.

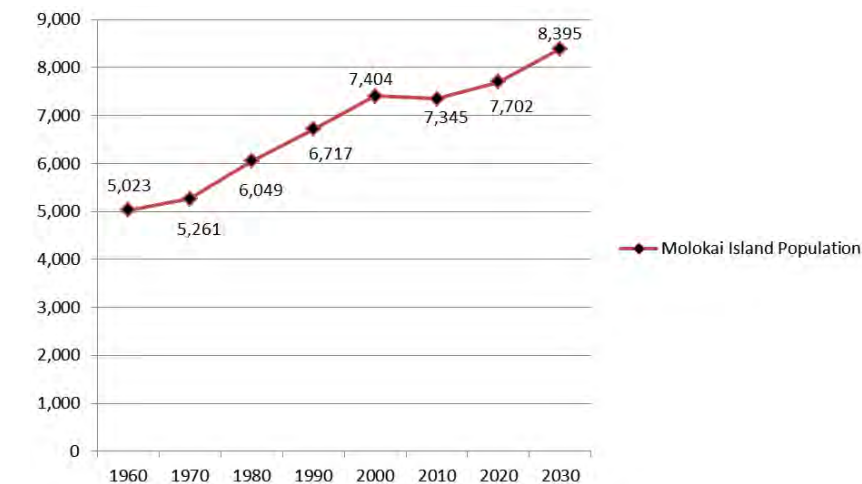
Source: U.S. Bureau of Economic Analysis, 2006–10, CA25N.

Figure 4.8: Maui County Demographics, 2010



Source: U.S. Census Bureau, 2010 Maui County Factsheet.

Figure 4.9 Molokai Resident Population, 1960–2030



Sources: Maui County Planning Department, “Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030,” June 2006, Exhibit I-1, p. 39; and DBEDT 2010b Table 1.05: Resident Population of Islands: 1960 to 2010.

Table 4.11 Maui and Kalawao Counties Combined Number of Jobs by Industry, 2006–10

	Total in Labor Force	Ag [1]	Industrial [2]	Trade and Services [3]	Public Administration
People	83,934	2,002	59,151	12,965	3,872
(%)	70%	2.6%	16.6%	76%	5%

Notes:

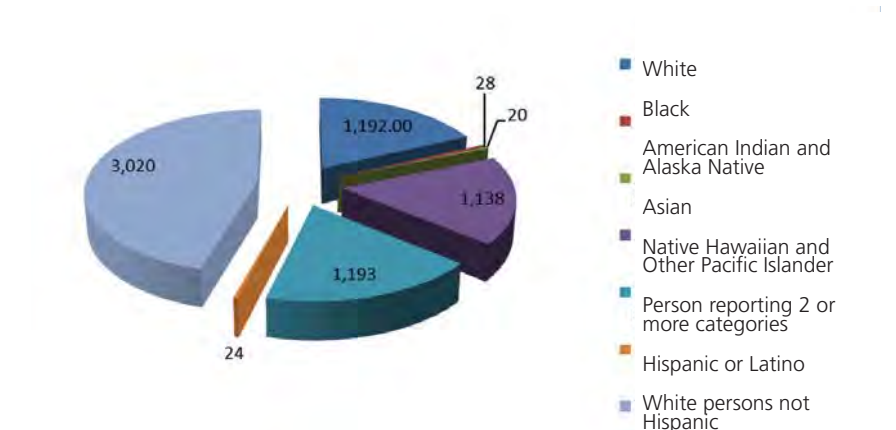
[1] includes agriculture, forestry, fishing and hunting, and mining

[2] includes construction, manufacturing, transportation and warehousing, and utilities

[3] includes wholesale and retail trade; information services; finance and insurance; real estate, rental, and leasing; professional, scientific, management, and administrative and waste management services; educational services, health care and social assistance; arts, entertainment, and recreation; accommodation and food services; and other services, except public administration.

Source: U.S. Bureau of Economic Analysis, 2006–10, CA25N.

Figure 4.10 Molokai Demographics, 2010



Source: DBEDT 2013, “2010 Census Demographic Profile.”

The percentage of Hawaiians is greater than anywhere in the state. This is reflected in a culture that views the island as a whole, despite its different jurisdictions; that relies heavily on traditional subsistence activities on land and sea; and that resists economic growth based in tourism and development.

Commercial Agricultural Context

Since the 1800s, Molokai's economy has been largely driven by ranching or commercial agriculture (including sugar, coffee, melons, vegetables, and pineapple). From the 1920s to the 1970s, large-scale pineapple plantations were the island's major economic driver (MCPD 2006).

Population and Demographics

Between 2000 and 2010, the population of Molokai decreased 0.1% from 7,404 to 7,345 people. According to Maui County officials, Molokai's population density is 82.2 residents per square mile. Population concentrations have increased over the last decade in Kaunakakai, Kualapu'u, and Maunaloa (USCB 2010c; DBEDT 2010b). Projections indicate that the island's population may have an upward trajectory over the coming decades (Figure 4.9). A majority of Molokai's people (41.7%) consider themselves of two or more races, with 26.5% representing Hawaiians and other Pacific Islanders, 17.4% representing Asians, and a mix of other races accounting for the other 14.4% (Figure 4.11).

Housing

Molokai has an average household size of 2.84 residents and a total 2,582 households, leading to a 1.1% average annual housing unit growth rate between 2000 and 2010 (DBEDT 2010 Resident Population of Islands and Census Designated Places, Table 1.13, State of Hawai'i). The housing vacancy rate is the highest in the Hawaiian Islands, measured at 30.5% in 2010 and representing a 6.5% increase since 2000. The number of households within all of Molokai is 2,582: in 2010, 1,671 households and 4,503 residents resided in East Molokai, 842 households and 2,752 residents were in West Molokai, and 69 households and 90 residents were counted in Kalawao County (DBEDT 2010 Island Population and Housing Units Table 1.17, State of Hawai'i).

Economic Overview

For this analysis Molokai's economy is examined in two parts. The first is Molokai's self-employed and subsistence economy. The second is an economy based on local transactions and the distribution and trade of goods and services.

Wage and Salary Economy

The civilian wage and salary portion of the economy is largely driven by transactions between residents for goods and services, though it also caters to tourists visiting the island. The majority of civilian wage and salary jobs as of December 2011 were in the service industry (34%) and government positions (27%). Molokai's unemployment rate (not seasonally adjusted) over the past 10 years has fluctuated from a high of 10.7% in 2004 to a low of 5.2% in 2006. As of 2011, the unemployment rate was estimated to have risen to 13.9% (State of Hawai'i, Department of Labor and Industrial Relations n.d.). It should be noted that persons who have dropped out of the labor force are not counted in official unemployment figures.

The movement of goods to and from Molokai continues to be limited to the Kamaluhia barge that arrives twice weekly at Kaunakakai Harbor, at the southern end of the island. Most goods are transported via barge to the harbor, and limited perishable goods arrive by plane at the Hoolehua Airport. Goods are then transported along the main state highways, including 470, 460, and 450. The highways allow for the transport of goods north to Kualapu'u and Kala'e and east to Ualapu'e, Puko'o, and other southeastern coastal communities.

Subsistence Economy

Molokai's subsistence economy is driven by farming, hunting, gathering, and fishing, including use of native Hawaiian fishing ponds along the southern coast. The subsistence economy also includes small, self-employed entrepreneurs not involved in traditional economic activities. There are many job types within the subsistence and self-employed categories. Table 4.12 lumps these job types into the "Self-employed jobs" row. This portion of the job market encompassed approximately 29% of Molokai's economy in 2000 and is projected to rise over the coming decades to as much as 35% and higher. This increase is consistent with the vision and goals outlined by members of the community in the plan, *Molokai: Future of a Hawaiian Island*, and it is in line with the governor's goal of enhancing Hawai'i's food self-sufficiency (MCPD 2006; State of Hawai'i, Office of the Governor 2009). This is in stark contrast to the state as a whole, which imports approximately 85–90% of food consumed (Leung and Loke 2008).

Government Assistance

Despite the tourist economy, a large subsistence/self-employed sector, and an independent workforce, the ability of Molokai's residents to generate a livable income on the island remains challenging, as shown by Table 4.13.

As a result, many Molokai residents rely on some form of government assistance from the Hawai'i Department of Human Services. Twenty-five percent of Molokai's population (a monthly average of 1,780 persons) receive assistance through programs such as Temporary Assistance to Needy Families; Social Security income; and the Aged, Blind, and Disabled program; among others (July–October 2010) (State of Hawai'i, Department of Human Services n. d.).

Local Impact of National Economic Conditions

Finally, it should be noted that the combination of the national recession that began in 2008 and the closure of Molokai Ranch Limited make the projected figures included in this analysis less accurate today than when originally reported. The eventual impact of these events on the overall economy, particularly as it relates to unemployment, government assistance needs, and future visitation is yet to be seen. Figure 4.11 illustrates the fluctuation of state unemployment rates between 2000 and 2010, reflecting the national economic conditions. Maui County unemployment rates parallel the curve of Hawai'i's unemployment shown in Figure 4.11: no information was available specifically for the island of Molokai.

Tourism

Although the service industry is most directly affected by tourist dollars spent on Molokai, these dollars have indirect benefits to the island's economy as a whole through the additional transactions. Table 4.14 compares total arrivals by air or cruise ship for Molokai and the State of Hawai'i. The number of visitors on the island has declined over the past two years, although tourist spending has increased. Table 4.15 provides 2010 data on visitor spending and duration of stay on Molokai (DBEDT 2010a). This large influx of dollars from both domestic and international tourists is a major economic activity on Molokai.

Land Use and Landownership

Land on the island is largely private and owned by nonresidents (about 70%), as shown in Figure 4.12. However, large tracts of land on the island are owned by the State of Hawai'i. The largest private landholder is Molokai Ranch Limited, which does business under the names Molokai Properties Limited and Molokai Ranch. Molokai Ranch Limited owns approximately 58,400 acres, primarily on the west side of the island. Table 4.16 lists Molokai's major landowners in 2011, and Table 4.17 is a breakdown of land use on the island between 2008 and 2010. Table 4.18 estimates the acreage for each land use on Molokai according to 2006 data.

In 2008 Molokai Properties Limited, also known as Molokai Ranch, ceased operations on the island and laid off its 120 employees. The company owned and operated the Molokai Lodge hotel, the Kaupoa Beach Village, the Kaluakoi Golf Course, the Maunaloa gas station, and the Maunaloa Tri-Plex theater and cattle operations, all of which have been shut down (McAvoy 2008). The company's economic impact on the island is estimated to have been about \$9 million annually. The \$9 million was divided into \$3.7 million in payroll benefits, \$2 million in spending on supplies, and \$3 million in visitor spending (Magin 2008). This loss of economic activity and jobs has had a negative impact on the local economy, despite an infusion of federal dollars in the form of a

Table 4.12 Molokai Jobs by Industry, 1990–2030

Forecast Variables	Historical		Projected		
	1990	2000	2010	2020	2030
Civilian Jobs	1,956	2,681	2,911	3,293	3,731
Wage and salary jobs	1,638	2,080	2,188	2,434	2,712
Agriculture	62	100	109	129	150
Manufacturing	0	15	31	37	43
Construction	39	50	46	48	52
Trans., com., util.	121	100	109	129	150
Trade	237	300	326	388	449
Banking, finance	60	250	229	241	260
Services	605	700	668	724	796
Hotels	271	150	163	194	225
Other Services	334	550	505	530	572
Government	514	565	669	737	813
State/local	479	550	652	716	790
Federal	35	15	18	20	23
Self-employed jobs	318	601	723	859	1,019

Notes:

The closure of Molokai Ranch make 2010 projections from the Maui County forecast less reliable, particularly for the service industry.

2006 data is most recent, so 2010 is projected until new information is available.

Source: Maui County Planning Department, "Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030," June 2006, Exhibit I-13, p. 62.

National Emergency Grant to compensate some of the laid-off workers (Pacific Business News 2008). In addition, the loss of 62 visitor rooms has negatively impacted the local tourism economy in the short term, given the now smaller supply of visitor rooms to accommodate tourists. At this time, there is only one other operating hotel (Hotel Molokai), but other overnight accommodations such as condominiums, time shares, and bed and breakfasts remain (Magin 2008; Molokai Chamber of Commerce 2011).

Kalawao County and Kalaupapa NHP

The socioeconomic environment of Kalawao County and Kalaupapa NHP is unique in that economic activity is almost entirely government-planned. The

Table 4.13 Molokai Households by Income Categories, Historical and Projected

	Historical		Projected		
Year	1990	2000	2010	2020	2030
Total Households	2,088	2,420	2,475	2,722	3,006
Household Size	3.22	3.05	2.94	2.86	2.79
Number of Households Who Earn No More Than:					
50% of HUD Median	38%	50%	39%	39%	39%
80% of HUD Median	58%	73%	67%	67%	67%
100% of HUD Median	68%	81%	73%	73%	73%
120% of HUD Median	75%	86%	80%	80%	80%
140% of HUD Median	80%	90%	88%	88%	88%

Notes:

Households = Population/Household size

Molokai Households by Income = Percent in Income Category x Molokai Households

"Adjusted" 2005 distribution taken from SMS 2003 survey and used as basis for projected distribution.

Household income is the total income, from wages, investment, benefits, and other sources, of all members of a household for the year preceding an enumeration. Household income is grouped with reference to the HUD median income for the county. The HUD median is used by government agencies to assess demand for programs such as Section 8 housing.

Source: Maui County Planning Department, "Socio-Economic Forecast: The Economic Projections for the Maui County General Plan 2030," June 2006, Exhibit 1-8, p. 45.

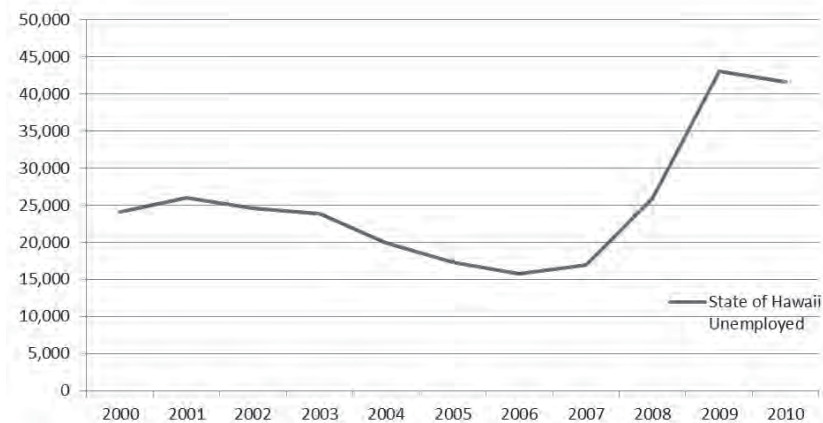
DOH and the NPS cooperate to ensure the effective provision of goods and services for residents and the preservation and conservation of this special place. The DOH expends roughly \$3.98 million on the continued care of residents and distribution of goods, services, and monies to residents and employees. The NPS expended approximately \$8.1 million for fiscal year 2012, primarily on resource preservation and protection activities. \$3.3 million of the total was for critical repairs to the Kalaupapa Dock. Visitors to Kalaupapa NHP spent approximately \$373,000 in 2011.

Population, Demographics, Income, and Housing

The population of Kalawao County in 2000 was 147, and by 2010 the population was estimated to have fallen to 90, a 38.8% decrease over a 10-year period (USCB 2010a). The drop in population is the result of residents passing away, as well as a reduction in the DOH staff needed to provide adequate services to the remaining population.

The median household income for the county between 2006 and 2010 was \$41,308, and the per capita income was \$43,308 (both in 2010 dollars), with approximately 4.1% of individuals living below the poverty level. At the time of this report there were 32 housing units in Kalaupapa NHP, with a 0% homeownership rate, as all homes are owned by the DOH (USCB 2010e). Table 4.19 lists numbers of NPS and DOH staff and patients living in Kalaupapa.

Figure 4.11 State of Hawai'i Unemployment Status of the Civilian Labor Force, 2000–10



Source: DBEDT, "2010 State of Hawai'i Data Book," Table 12.06.

Role of Federal and State Government

Nearly all of the acreage within the park boundary remains in nonfederal ownership and is managed by the NPS through multiple agreements with state agencies. The NPS has limited fee-simple ownership of the land and water within the park boundary and is charged with operating, preserving, and protecting the park. The DOT continues to deliver health-related services for the residents who choose to remain at the settlement, and the DOT owns and operates the Kalaupapa Airport. The DLNR is responsible for the management of resources on state land, and the NPS cooperates in that management through a formal cooperative agreement. Currently, the DHHL leases 1,247 acres to the NPS for \$230,000 annually. This agreement is set to expire in 2041 (DHHL 2011).

NPS Budget and Personnel

The NPS staff works to fulfill the NPS mission and requirements related to cooperative agreements with state agencies. To meet park needs, the NPS budget has grown from about \$2.6 million in 2006 to about \$6.2 million in 2010. In 2012, the NPS expended \$8.1 million; \$3.3 million of the total was for critical repairs to the Kalaupapa Dock.

Role of Department of Health (DOH)

The Hawai'i Department of Health continues to play a major role at the settlement. Following the completion of a state audit first conducted in the summer of 2003, the department has worked to make its operations more accountable and responsive to residents' needs. The Kalaupapa Settlement is overseen by an administrator employed by the DOH who works directly with residents and the Patient Advisory Council (State of Hawai'i, Office of the Auditor 2003).

The DOH is a major purchaser of goods for the settlement and is responsible for provisioning medical, dental, ancillary services and devices, and basic living needs of residents living at Kalaupapa. In addition, DOH works to define and address residents' non-medical needs and to promote a positive living environment (such as updating residents' household appliances and enhancing resident living environments to better accommodate those with disabilities). The DOH operates the Kalaupapa Store and cafeteria and provides for physician visits twice weekly. To help residents stay in their homes as long as possible, the agency also operates a meals-on-wheels program for residents no longer able to cook for themselves, a home chore worker program, and a lawn service. The DOH additionally directs a Type II Adult Residential Care Home at Kalaupapa and the Hale Mōhalu Hospital in Honolulu and covers transportation costs for residents receiving specialty care or health services unavailable at the settlement.

Table 4.14 Molokai Total Visitor Arrivals, 2010

	By Air (Domestic)	By Air (International)	By Cruise Ship	Total
Molokai with other islands	541,599	8,653	2,833	553,085
Molokai only	6,366	373	—	6,739
State of Hawai'i	5,022,883	1,959,542	101,239	7,083,664

Note: Sample sizes for Molokai are relatively small.

Source: DBEDT, 2010 Monthly Visitor Statistics.

Table 4.15 Molokai Total Annual Visitation and Spending, 2010

	Spending (\$)	Arrival by Air	Days
Total Expenditures	27.9 Million	Total Days	245,259
Per Person Per Day Spending	113.70	Visitor Arrivals	50,253
Per Person Per Trip Spending	555.10	Visitor Average Length of Stay	4.88

Note: Sums may not add up due to rounding errors. Spending by visitors who came by air excludes supplemental business expenditures and spending by visitors who came by cruise ships.

Source: DBEDT, 2010 Monthly Visitor Statistics and Hawai'i Tourism Authority.

Table 4.16 State of Hawai'i and Molokai Major Landowners, 2011

Landowner	State of Hawai'i Acres	Molokai Island Acres
State Government (including DHHL)	1,534,792	48,961
State Government (excluding DHHL)	1,341,087	24,196
Home Lands (DHHL)	193,706	24,765
Federal Government	530,792	136
Kamehameha Schools	363,476	4,937
Molokai Ranch Limited	58,418	58,418
County Government	33,000	258
Pu'u O Hoku Ranch	13,098	13,098

Source: DBEDT 2011, Land Use and Ownership, Table 6.07.

Figure 4.12 Landownership on Molokai

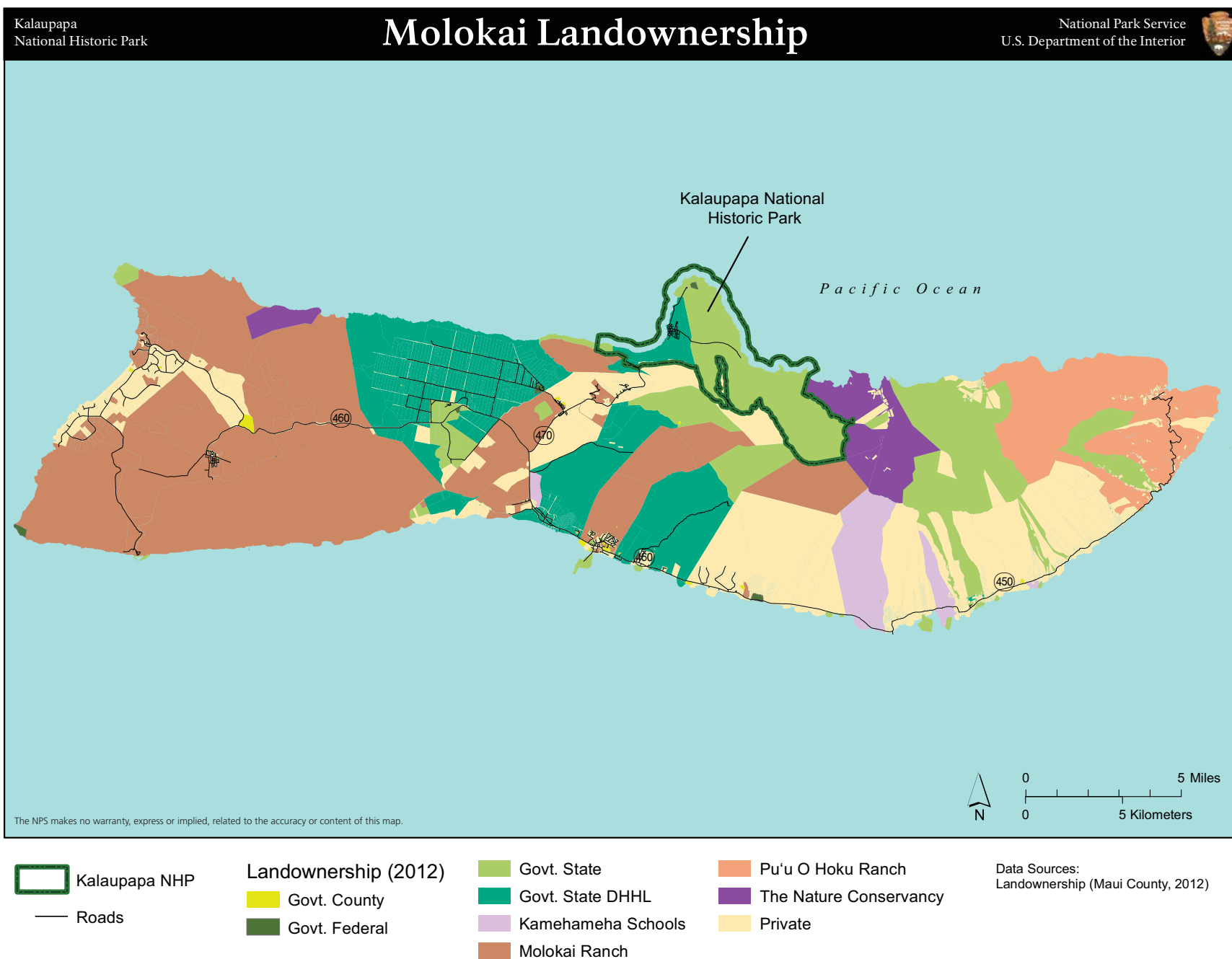


Table 4.17 DHHL Acreage, Lessees, and Applicants for Landownership and Use on Molokai, 2008–10

DHHL Leases and Applications	2008 (Acres)	2009 (Acres)	2010 (Acres), as of December 31
Total Acreage (Homestead and General Leases, Licenses, Other)	25,769	NA	NA
Homestead Leases	843	846	NA
Residential	392	394	NA
Agricultural	424	425	NA
Pastoral	27	27	NA
Applications	1,844	1,884	1,913
Residential	716	727	730
Agricultural	949	969	996
Pastoral	179	188	187

Notes:

Acreage rounded to the nearest whole acre.

Residence, agriculture, or pasture. Since applicants may apply for two types of leases, duplications occur. The Department estimates that 2008 and 2009 Statewide applications of 39,155 and 40,084 are held by some 24,296 and 20,122 applicants respectively. Data are subject to audit.

Source: DBEDT 2010b, Land Use and Ownership

Table 4.18 State of Hawai‘i and Molokai Estimated Acreage of Land Use Districts, 2006

	Total Acres	Urban	Conservation	Agricultural	Rural
Molokai	165,800	2,539	49,768	111,627	1,866
State of Hawai‘i	4,112,388	197,663	1,973,631	1,930,224	10,870

Notes:

These totals differ somewhat from the official figures based on measurements by the Geography Division of the U.S. Bureau of the Census, cited in Section 5. For definitions, see Hawai‘i Revised Statutes, Section 205-2.

May be revised, pending updates of County records.

Source: DBEDT, “2010 State of Hawai‘i Data Book 2010,” Table 6.04.

To ensure the continuation of high-level care, the DOH recently released funds for the design and construction of building upgrades to the Kalaupapa Care Home (DOH 2011; 2012 State Audit).

Residents receive a small cash allowance in food credit from DOH to use at the Kalaupapa Store or for the meals-on-wheels program. Resident patients also receive an additional cash allowance for clothing, food rations, and petty cash. Finally, the DOH pays for patients’ Medicare A and B premiums and Medicare Part D costs (drug plan). As of December 2011, Kalaupapa patient employees received DOH pension payments amounting to \$42,379 (DOH 2011; 2012 State Audit).

The DOH provides services to settlement residents wishing to remain on the peninsula. The DOH budget has consistently grown over the past five years with the exception of 2009, when it decreased slightly from the previous year. The budget grew approximately 34% between 2006 and 2010 and includes both the goods and services provided at Kalaupapa Settlement as well as the health services DOH provides at Hale Mōhalu hospital in Honolulu. These allocations are listed in Table 4.20 (Hawai‘i DOH 2010).

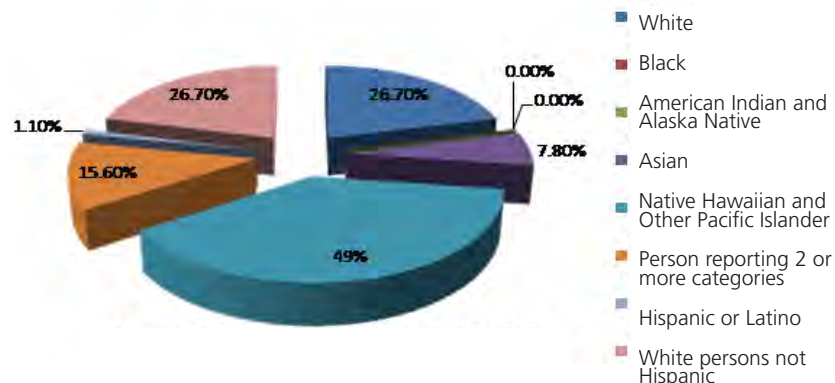
Settlement Supplies

The supply of goods to Kalaupapa is provided via barge once a year. The barge delivers supplies such as gasoline, vehicles, building materials, and nonperishable goods. In order to ensure the long-term capacity to supply the settlement, the DOH Hansen’s Disease Branch requested Capital Improvement Project (CIP) funds in the amount of \$4 million in FY2008 and \$3.3 million in FY2009, while the last of the branch’s major capital improvements was completed in 2011 (DOH 2011). The NPS completed stabilization and repair of the Kalaupapa dock in 2012, which will ensure that vessels can continue to safely deliver supplies to Kalaupapa.

Visitor Spending

In 2010, the average visitor spent \$867, ranging from \$192 for local residents, to \$169 for visitors on day trips, to \$1,403 for visitors staying on the island. Total spending equates to \$5.9 million attributed to the park, which included all spending inside the park and spending where the park was the primary purpose of the visit. Those visits where the park was not the primary purpose, one night of spending was counted for overnight trips and half of the spending outside the park was counted for day trips, altogether representing 52% of the overall

Figure 4.13 Kalawao County Demographics, 2010



Source: U.S. Census Bureau, 2010 Kalawao County Factsheet.

Table 4.19 Kalaupapa Settlement Population, 2006–10

Year	Hansen's Disease Patients [1]	Hawai'i DOH Staff [2]	NPS Staff (Total Full-time Equivalent)
2006	35	46	32
2007	33	46	36
2008	28	45	35
2009	23	42	40
2010	19	42	48
2011	19	42	47
2012	17	42	54

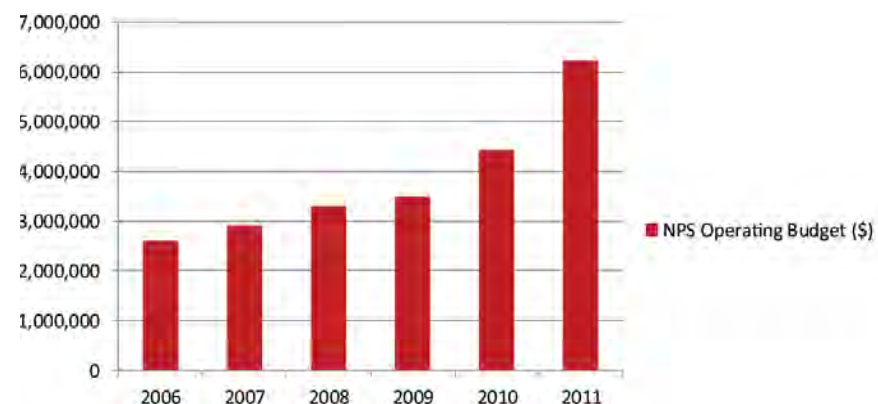
Notes:

[1] Number of patients as of January 1 of each year.

[2] Budgeted position counts (includes nursing staff and vacant positions); seven positions have been cut in 2010, but have not been deleted from the budget pending legislative process.

Source: DOH, *Report to the Twenty-Sixth Legislature, State of Hawai'i*, 2011.

Figure 4.14 NPS Operating Budget, 2006–11



Source: NPS, Kalaupapa NHP.

Table 4.20 State of Hawai'i DOH Budget (Kalaupapa and Hale Mōhalu), 2006–10

	2006	2007	2008	2009	2010
Kalaupapa	\$3,040,863	\$3,466,907	\$4,025,960	\$4,024,425	\$3,976,658
Hale Mōhalu	\$1,183,456	\$1,287,036	\$1,324,556	\$1,324,556	\$1,680,018
Total	\$4,226,325	\$4,755,950	\$5,352,524	\$5,350,990	\$5,658,686
Total federal reimbursement to state general fund	\$1,979,075	\$1,979,075	\$1,979,075	\$1,943,480	
Allotment to Hansen's disease community program (federal funds are not allotted to Kalaupapa or Hale Mōhalu)	\$695,669	\$695,669	\$695,669	\$695,669	\$1,095,018

Notes:

The State of Hawai'i government's fiscal year is from July 1 to June 30.

Federal reimbursement is deposited into the state's general fund, with a portion being allotted to the Hansen's disease community program. Kalaupapa and Hale Mōhalu do not have access to the federal reimbursement funds.

Source: Hawai'i DOH, Hansen's Disease Branch, 2010.

visitor spending. Visitor groups spent approximately 91% of their total expenditure outside the park.

Table 4.21 lists total spending associated with park visits in 2010 and illustrates how spending by Kalaupapa NHP visitors is allocated. Information about visitor spending in this section is derived from the Impacts of Visitor Spending on the Local Economy: Kalaupapa NHP, 2010 (NPS 2010b). Refer to Table 4.22 for economic impacts of visitor spending attributed to park visits.

The \$5.9 million, including direct and secondary effects, spent by park visitors and attributable to the park generates \$8.1 million in sales, which supports 96 jobs in the local region. These jobs pay \$3 million in labor income, which is part of \$5 million in value added to the region.

Table 4.21 Total Visitor Spending Attributed to Kalaupapa NHP Visits, 2010

Expenditures	Local	Day Trip	Paid Overnight	Other OVN	All Visitors
Motel, hotel, cabin, B&B	0	0	\$2,316,000	0	\$2,316,000
Camping fees	0	0	\$1,000	0	\$1,000
Restaurants and bars	0	\$43,000	\$620,000	\$15,000	\$678,000
Groceries and takeout food	0	\$35,000	\$396,000	\$14,000	\$445,000
Gas and oil	0	\$22,000	\$162,000	\$6,000	\$190,000
Local transportation	0	\$102,000	\$746,000	\$35,000	\$883,000
Admission and fees	\$24,000	\$241,000	\$666,000	\$94,000	\$1,000,000
Souvenirs/other expenses	\$2,000	\$77,000	\$302,000	\$36,000	\$415,000
Total Attributed to Park	\$26,000	\$520,000	\$5,209,000	\$199,000	\$5,928,000
% of spending attributed to the park	23%	85%	50%	49%	52%
% of attributed spending	<1%	9%	88%	3%	100%

Note: Percentages do not total 100% due to rounding.

Source: NPS, *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historic Park, 2010*.

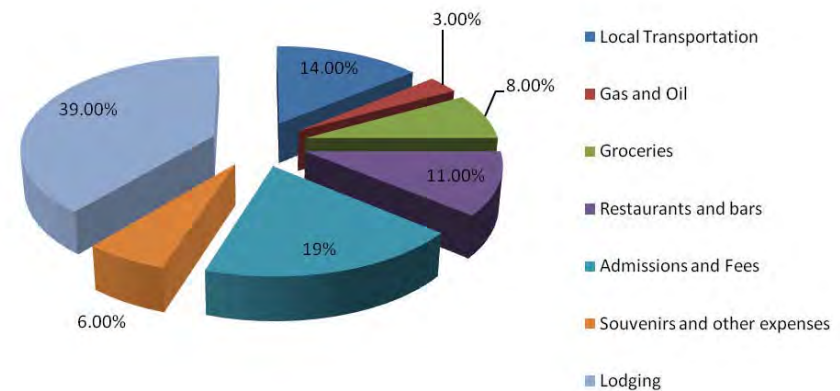
Table 4.22 Economic Impacts of Visitor Spending Attributed To Kalaupapa NHP, 2010

Sector/Expenditure Category	Sales	Jobs	Labor Income	Value Added
Direct Effects				
Motel, hotel, cabin, B&B	\$2,316,000	\$14,000	\$752,000	\$1,347,000
Camping fees	\$1,000	0	0	\$1,000
Restaurants and bars	\$678,000	\$9,000	\$302,000	\$410,000
Groceries and takeout food	\$1,000,000	\$15,000	\$505,000	\$772,000
Gas and oil	\$883,000	\$30,000	\$364,000	\$454,000
Local transportation	\$113,000	\$2,000	\$59,000	\$97,000
Admission and fees	\$42,000	\$1,000	\$21,000	\$35,000
Souvenirs/other expenses	\$207,000	\$3,000	\$112,000	\$183,000
Whole trade	\$73,000	\$1,000	\$27,000	\$47,000
Local production of goods	\$2,000	0	0	0
Total Direct Effects	\$5,315,000	\$73,000	\$2,142,000	\$3,346,000
Secondary Effects	\$2,770,000	\$23,000	\$895,000	\$1,648,000
Total Effects	\$8,086,000	\$96,000	\$3,037,000	\$4,994,000

Note: Impacts of \$5.9 million in visitor spending attributed to park reported in Table 4.21.

Source: NPS, *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historic Park, 2010*.

Figure 4.15 Kalaupapa NHP Visitor Spending by Category, 2010



Source: NPS, *Impacts of Visitor Spending on the Local Economy: Kalaupapa National Historical Park, 2010*.

Kalaupapa National Historical Park



Environmental Consequences 5



Visitors' quarters c. 1932. IDEA Photos.

The National Environmental Policy Act (NEPA) requires that environmental documents discuss the environmental impacts of a proposed federal action, feasible alternatives to that action, and any adverse environmental effects that cannot be avoided if a proposed action is implemented. In addition, the effects on historic properties are considered in accordance with the National Historic Preservation Act (NHPA). In this case, the proposed federal action would be the adoption of a general management plan for Kalaupapa National Historical Park.

The alternatives in this general management plan provide broad management direction. Thus, this environmental impact statement should be considered a programmatic document. If and when specific developments or actions are proposed subsequent to this general management plan for implementation, appropriate detailed environmental and cultural compliance documentation would be prepared in accord with NEPA and NHPA requirements. Those actions that implement guidance provided in the general management plan (GMP) may tier from this environmental impact statement (EIS).

This chapter begins with a discussion on terms and definitions used for determining environmental consequences, followed by a discussion on cumulative impacts. The second part of this chapter describes the methods and assumptions used for analyzing each impact topic. The impacts of the alternatives are then analyzed by impact topic in the order they appeared in the “Alternatives” Chapter 3. Each impact topic includes a description of the impact of the alternative, cumulative effects, and a conclusion. Where data are limited, professional judgment has been used to project environmental impacts.

At the end of the impacts of each alternative, there is a brief discussion of unavoidable adverse impacts, irreversible and irretrievable commitments of resources, and the relationship of short-term uses of the environment and the maintenance and enhancement of long-term productivity.

The impacts of each alternative are also briefly summarized in the “Summary of Impacts” chart at the end of the “Alternatives” Chapter 3.



Descending the pali trail to Kalaupapa. NPS photo.

Terms and Definitions

The following section defines the terms used for determining the environmental consequences of the actions in the alternatives. The environmental consequences to each impact topic are defined based on impact type, intensity, and duration and whether the impact would be direct or indirect. Cumulative effects are also identified.

Impact Type

The effects that an alternative would have on an impact topic could be either adverse or beneficial. **Adverse** impacts involve a change that moves the resource away from a desired condition or detracts from its appearance or condition. **Beneficial** effects are those that involve a positive change in the condition or appearance of a resource or a change that moves the resources toward a desired condition. In some cases, the action could result in both adverse and beneficial effects for the same topic.

Intensity

Defining the intensity or magnitude of an impact is taken directly from Director’s Order 12: Conservation Planning, Environmental Impact Analysis and Decision-making (NPS 2001). Impact intensity is the magnitude or degree to which a resource would be adversely affected. Each adverse impact was identified as negligible, minor, moderate, or major. Due

to the broad nature of actions called for in this GMP, most impact analysis is qualitative, rather than quantitative. For cultural resources and threatened and endangered species there are additional definitions for intensities that are described within those specific sections of this document. For the purposes of this analysis, intensity or severity of the impact is defined as:

- **Negligible** – Impact to the resource or socioeconomic environment is at the lower level of detection; no discernible effect.

- **Minor** – Impact is slight, but detectable; impacts present, but localized, and not expected to have an overall effect.
- **Moderate** – Impact is readily apparent; clearly detectable and could have appreciable effect on the resource or socioeconomic environment.
- **Major** – Impact is severely adverse; would have a substantial, highly noticeable influence on the resource or socioeconomic environment.

Duration

Duration refers to how long an impact would last. The planning horizon for the GMP is approximately 15 to 20 years. Unless otherwise stated, the following terms are used to describe the duration of the impacts:

Short-term: The impact would be temporary in nature, lasting one year or less, such as the impacts associated with construction.

Long-term: The impact would last more than one year and could be permanent in nature, such as the loss of soil due to construction of a new facility. Although an impact may only occur for a short duration at one time, if it occurs regularly over a longer period of time the impact may be considered to be a long-term impact. For example, the noise from a vehicle driving on a road would be heard for a short time and intermittently, but because vehicles would be driving the same road throughout the 20-year life of the plan, the impact on natural soundscape would be considered long-term.

Direct versus Indirect Impacts

Direct effects would be caused by an action and would occur at the same time and place as the action. **Indirect** effects would be caused by the action and would be reasonably foreseeable but would occur later in time, at another place, or to another resource. Unless specified, all impacts in the analysis are direct.

Cumulative Impacts

The National Environmental Policy Act requires an environmental impact statement to identify and analyze cumulative impacts. Cumulative impacts result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative impacts can result from individually minor, but collectively significant actions taking place over a period of time.



Governor John A. Burns and companions are greeted at the airport, c. 1965. Kalaupapa Historical Society Photo Collection.

Cumulative impacts are considered for all impact topics and alternatives. The National Park Service assumes the types of use that are occurring now will continue, but there may be new or different future uses. These actions are evaluated in conjunction with the impacts of each alternative to determine if they have any cumulative effects on a particular resource. For most of the impact topics, the geographic area defined for the analysis was Kalaupapa National Historical Park. In some cases, the area of consideration was Molokai Island.

To determine potential cumulative impacts, projects in the area surrounding the park were identified. Projects included in this analysis were identified by examining other existing plans

and by discussions with NPS staff, other public land managers, and representatives of city and county governments and with state and federal land managers. These projects were considered regardless of what agency, organization, or person undertakes them. Projects included in the cumulative impact analysis do not affect all resources equally.

The following land uses, operations, plans, and actions make up the cumulative impact scenario:

- Departure of the Department of Health and the patient community departure from Kalaupapa

- Improvements to Kalaupapa dock to ensure delivery of supplies essential to operate and maintain Kalaupapa via small barge
- Use of the airport for helicopter training exercises by the U.S. Marine Corps
- Construction of the Kalaupapa Memorial
- Management actions identified and completed for the fire management plan
- Changes to population, demographics, and development patterns on Molokai
- Removal of unexploded ordnance on Makanalua portion of the Kalaupapa peninsula by the Department of Defense
- Closure of the Kalaupapa landfill and institution of a large-scale recycling and garbage operation
- Investigation and construction of an alternate trail in the event of a permanent closure of the pali trail
- Removal of water from Waikolu Stream by Molokai Irrigation

Methods and Assumptions for Analyzing Impacts

The planning team based the impact analysis and the conclusions in this chapter on the review of existing literature and studies, information provided by experts in the NPS and other agencies, and park staff insights and professional judgment. The team's method of analyzing impacts is further explained below. Impacts have been assessed assuming that mitigation measures would be implemented. If mitigation measures were not applied, the potential for resource impacts and the magnitude of those impacts would increase.

The impact analyses for the no-action alternative describe resource conditions as existing conditions, based on the continuation of current management. The impact analysis for the action alternatives (alternatives B, C, and D) compares the action alternative to the no-action alternative. In other words, the impacts of the action alternatives describe the difference between no-action and implementing the action alternatives. To understand a complete “picture” of the impacts of implementation any of the action alternatives, the reader must also take into consideration that impacts would occur under the no-action alternative.



Paschoal Hall. NPS photo.

Mitigation Measures Common to All Alternatives

Mitigation measures are the practicable and appropriate methods that would be used under any alternative to avoid and/or minimize harm to natural and cultural resources, visitors and the visitor experience, and socioeconomic resources when no other management alternatives exist (such as avoidance). These mitigation measures have been developed using laws and regulations, best management practices, conservation measures, and other known techniques from past and present work in and around Kalaupapa.

The general management plan provides a management framework for Kalaupapa NHP. Within this broad context, the alternatives include the following measures that may be used to minimize potential impacts from the implementation of the alternatives. These measures would be applied to all alternatives, subject to funding and staffing levels. Additional mitigation would be identified as part of implementation planning and for individual projects to further minimize resource impacts.

Management and Protection of Cultural Resources

The protection of Kalaupapa NHP's cultural resources is essential for understanding the past, present, and future relationship and expressions of cultural heritage of people in Kalaupapa, on the island of Molokai, and within the State of Hawai'i. The NPS would pursue strategies to protect its cultural resources, including ethnographic, archeological, historic, cultural landscapes, historic structures, and museum collections while encouraging visitors and employees to recognize and understand their value. The strategies would allow the integrity of Kalaupapa's resources to be preserved unimpaired. They would also ensure that Kalaupapa is recognized and valued as an outstanding example of resource stewardship, conservation education and research, and public use.

In accordance with NPS management policies, cultural resources would be protected and maintained according to the pertinent laws and policies governing cultural resources. These laws include the Organic Act, National Historic Preservation Act, the Archeological Resources Protection Act, and the Native American Graves Protection and Repatriation Act.

Adverse impacts on historic properties listed in, determined eligible for listing in, or not yet assessed for eligibility to the National Register of Historic Places would be avoided, if possible. If adverse impacts cannot be avoided, an assessment of effect and a treatment plan, if necessary, would be developed through a consultation process with all interested parties. In accordance with NPS management policies, proposed adverse effects would be assessed to determine whether the proposed actions constitute impairment of significant fundamental cultural resources.

Values, Traditions, and Practices of Traditionally Associated People

The National Park Service would continue to consult with the Patient Advisory Council, Kalaupapa NHP Advisory Commission, native Hawaiian organizations, and interested parties to identify any cultural or natural resources of value to park associated people and develop appropriate strategies to mitigate impacts on these resources. Such strategies could include continuing to provide access to traditional or spiritual areas. The inadvertent discovery of human remains would follow all provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 and follow Hawai'i State Burial Laws.

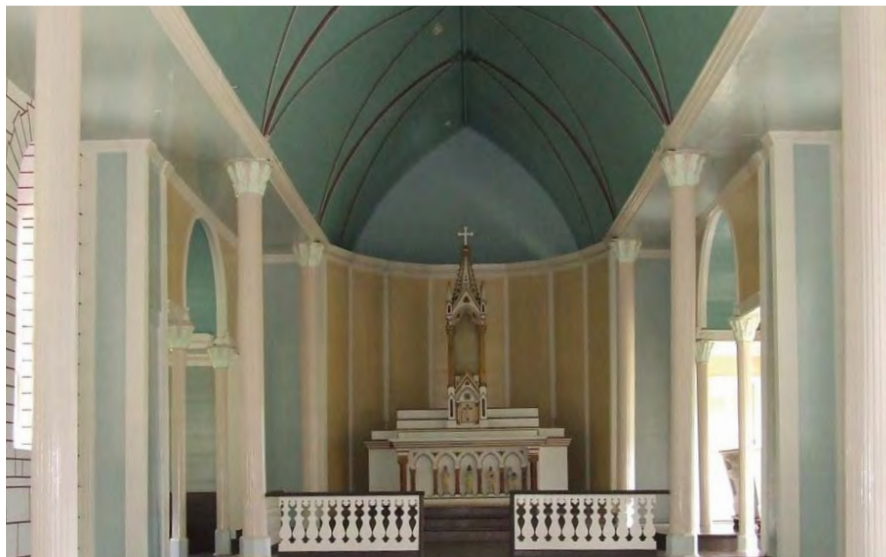
Archeological Resources

Archeological surveys would precede ground disturbance required for new construction or removal of eligible historic properties. Known archeological resources would be avoided to the greatest extent possible.

Historic Structures

All project work relating to historic structures/buildings would be conducted in accordance with Director's Order 28 and the guidelines and recommendations of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring and Reconstructing Historic Buildings*.

Historic structures would be stabilized until appropriate preservation maintenance could be undertaken. No National Register listed or eligible structure would be removed or allowed to decay naturally without prior review by park and region cultural resource specialists, including approval by the NPS regional director and consultation with the Hawai'i State Historic Preservation Officer.



Interior of St. Philomena Church, before and after rehabilitation. NPS photos.

Cultural Landscapes

All project work relating to cultural landscapes would be conducted in accordance with Director's Order 28 and the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes*. Changes to individual features and resources comprising the cultural landscape would be assessed in the larger setting and environmental context to assure incremental change does not adversely affect the integrity of the landscape holistically.

Museum Collections

Mitigation measures related to museum collections consist of conservation of a collection through proper storage, handling, and exhibit of objects as specified in the *NPS Museum Handbook* and NPS Director's Order No. 24, NPS Museum Collections Management.

Management and Protection of Natural Resources

Potential mitigation measures identified as effective in addressing specific impacts of management decisions on natural resources, and applicable to any alternative, are listed below:

Air Quality

- Implement a dust abatement program including the following potential actions: water or otherwise stabilize soils, cover haul trucks, employ speed limits on unpaved roads, minimize vegetation clearing, and revegetate with native species.
- Minimize NPS vehicle emissions by using the best available automotive technology whenever possible. Encourage the public and commercial tour companies to employ methods that reduce emissions. Employ sustainable designs for facilities and historic structures that reduce energy demands, thus reducing pollutant production.
- Strive for carbon neutral status at Kalaupapa by reducing greenhouse gas emissions while increasing appropriate carbon sequestration.

Soundscales

- Implement standard noise abatement measures during NPS operations, including scheduling to minimize impacts in noise sensitive areas, using the best available noise control techniques wherever feasible, using alternatively (i.e. hydraulically or electrically) powered mechanized tools when feasible, and locating stationary noise sources as far from noise sensitive areas as possible.
- Locate and design facilities to minimize noise.
- Minimize idling of motors when power tools, equipment, and vehicles are not in use.
- Muffle or dampen sounds that are above ambient levels whenever possible to reduce noise impacts.

Lightscales

- Install adaptive and on-demand lighting equipped with timers, dimmers, or motion detectors so that light would only be provided when it is needed to move safely between locations.
- Use fully sustainable, low-impact lighting, including but not limited to diffused light bulbs, and shielded and aimed outdoor fixtures and to prevent light spill.

Water Resources and Hydrologic Processes

Implement erosion control measures, minimize discharge to water bodies, check the water system for leaks to minimize waste, and regularly inspect construction equipment for leaks of petroleum and other chemicals to prevent water pollution; minimize the use of heavy equipment in a waterway; and wash heavy equipment prior to use in or near water bodies.

- Use bio-lubricants (such as biodiesel and hydraulic fluid) that are environmentally friendly.
- Develop sediment control and prevention plans for projects that could impact water quality
- Delineate wetlands and apply protection measures during projects; perform project activities near wetlands in a cautious manner to prevent damage caused by equipment, or increase erosion, siltation, etc.

- Consult with the State of Hawai'i Department of Land and Natural Resources, Division of Aquatic Resources for work below the high water mark of state-owned waters.

Marine Resources—Coastal Reef, Habitats, and Wildlife

- Identify and protect marine areas within the park that are resistant and/or resilient to climate change impacts.
- Enhance sediment control and prevention plans for projects that impact coral reef habitats in nearshore areas.
- Establish and enforce mooring sites to minimize anchor damage to coral reefs from vessel traffic.
- See fishing section below to limit fish harvest and ensure that the ecosystem continues to function.

Soils and Geologic Resources and Processes

- Build new facilities on soils suitable for development
- Minimize soil erosion at construction sites by limiting the time that soil is left exposed and by applying other erosion control measures, such as erosion matting, silt fencing, sedimentation basins in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
- Revegetate construction areas with appropriate native plants in a timely manner.
- Work with the Natural Resource Conservation Service to complete the soil survey of Kalaupapa NHP to provide information needed for sustainable soil management.
- Conserve native topsoil in construction projects.
- Consult with U.S. Army Corps of Engineers.

Vegetation

- Monitor areas used by visitors (such as trails) for signs of native vegetation disturbance and use public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers to control potential impacts on plants from erosion or social trails.
- Designate river and stream access/crossing points and use barriers and closures to prevent trampling and loss of riparian vegetation.

- Develop revegetation plans for disturbed areas and require the use of genetically appropriate native species (revegetation plans should specify species to be used, seed/plant source, seed/plant mixes, site-specific restoration conditions, soil preparation, erosion control, ongoing maintenance and monitoring requirements, etc.; salvaged vegetation should be used to the extent possible).
- Survey for rare plants prior to any ground disturbing activities; disturbance to rare or unique vegetation would be avoided to the greatest extent possible.
- Implement an invasive, nonnative plant management program. Standard measures could include the following elements: use only weed-free materials for road and trail construction, repair, and maintenance; ensure equipment arrives onsite free of mud or seed-bearing material; certify that stabilization materials (rice straw) are weed-free; identify areas of noxious weeds pre-project; treat noxious weeds or noxious weed topsoil before construction (using methods such as topsoil segregation, storage, or herbicide treatment); soil or gravel should be covered with weed cloth to prevent weed seed introduction when the material is staged prior to using; when depositing ditch spoils along the roads, limit the movement of material to as close as possible to the excavation site; scrupulously and regularly clean areas that serve as introduction points for invasive, nonnative plants (staging areas, maintenance areas, and corrals); revegetate with genetically appropriate native species; inspect rock and gravel sources to ensure these areas are free of noxious weed species; and monitor locations of ground disturbing operations for at least five years following the completion of projects.

Wildlife

- Employ techniques to reduce impacts on fish and wildlife, including visitor education programs, restrictions on visitor and NPS activities, and law enforcement patrols.
- Implement a wildlife protection program. Standard measures would include project scheduling (season and/or time of day); project monitoring; erosion and sediment control, fencing, or other means to protect sensitive resources adjacent to project areas; disposing of all food-related items or rubbish; salvaging topsoil; and revegetating.
- Consult with National Oceanic and Atmospheric Administration Fisheries for projects within essential habitats for fish and other aquatic organisms.

- Consult with U.S. Fish and Wildlife Service for projects where listed species and their habitats occur.
- Protect known spawning aggregation areas for fish and other targeted organisms.

Special Status Species

Mitigation actions would occur during normal NPS operations as well as before, during, and after projects to minimize immediate and long-term impacts on rare, threatened, and endangered species. These actions may vary by project area, and additional mitigation measures may be added depending on the action and location. Many of the measures listed for vegetation, wildlife, and water resources would also benefit rare, threatened, and endangered species by helping to preserve habitat. Further mitigation efforts the NPS would perform include the following:

- Conduct formal and informal consultation for specific projects as necessary.
- Conduct surveys for rare, threatened, and endangered species as warranted.
- Locate and design facilities/actions/operations to avoid or minimize the removal of rare, threatened, and endangered species habitat; if avoidance is infeasible, minimize and compensate for adverse effects as appropriate and in consultation with the appropriate resource agencies.
- Plan work in areas in or near suitable threatened and endangered bird habitat as late as possible in the summer/fall.
- Conduct work outside of critical periods for the specific species when possible.
- Develop and implement restoration and/or monitoring plans as warranted; plans should include methods for implementation, performance standards, monitoring criteria, and adaptive management techniques.
- For projects in or near streams, employ appropriate best management practices.
- Implement measures to reduce adverse effects of nonnative plants and wildlife on rare, threatened, and endangered species.
- Protect and preserve critical habitat features, such as nest trees, whenever possible.

Fishing, Hunting, and Gathering

- Implement culturally sustainable practices that educate the public and ensure the continuation of the indigenous culture.

Scenic Resources

Mitigation measures are designed to minimize human made visual intrusions. These include the following:

- Use facilities such as boardwalks and fences to route people away from sensitive natural and cultural resources while still permitting access to important viewpoints.
- Design, locate, and construct facilities in ways that minimize adverse effects on scenic views.
- Provide vegetative screening to mask unwanted visual intrusion of facilities or infrastructure.

Sustainable Practices and Responses to Climate Change

Sustainable practices would be used in the selection of building materials and sources and building location and siting. Projects would use sustainable practices and resources whenever practicable by recycling and reusing materials, by minimizing materials, by minimizing energy consumption during the project, and by minimizing energy consumption throughout the lifespan of the facility produced. As required by *NPS Management Policies 2006*, new buildings would be designed to meet a minimum silver standard for LEED (Leadership in Energy and Environmental Design).

Park operations would reduce carbon emissions from a variety of sources including the use of vehicles and boats, purchasing more energy efficient vehicles, and using greener equipment (e.g. computers) in facilities (See also air quality section above).

Socioeconomic Environment

During future planning and implementation of the approved general management plan for Kalaupapa NHP, the National Park Service would pursue partnerships with native Hawaiian organizations, local communities, and state

and county governments to further identify potential impacts and mitigating measures that would best serve the interests and concerns of both the National Park Service and the local communities.

Sustainable Design and Aesthetics

Sustainable practices would be used in the selection of building materials and sources and building location and siting. Projects would use sustainable practices and resources whenever practicable by recycling and reusing materials, by minimizing materials, by minimizing energy consumption during the project, and by minimizing energy consumption throughout the lifespan of the facility produced.



Marks' Concession (previously known as the Kamahana Store), owned by Gloria Marks. NPS photo.

Impacts on Cultural Resources

In general, the NPS would conduct cultural resource projects, inventories, and interpretation related to cultural resources as identified in Section 110 of the National Historic Preservation Act. This includes continuing to preserve and stabilize buildings, structures, and landscape features that contribute to the National Historic Landmark designation or are eligible for listing on the National Register of Historic Places. The NPS would continue active management and care of known cemeteries, including ongoing stabilization of known gravesites.

Under the regulations of the Advisory Council on Historic Preservation, a determination of adverse effect or no adverse effect must be made for affected National Register-listed or National Register-eligible cultural resources. The following definitions are provided:

No effect: There are no historic properties in the Area of Potential Effect (APE); or, there are historic properties in the APE, but the undertaking would have no impact on them.

No adverse effect: There would be an effect on the historic property by the undertaking, but the effect does not meet the criteria in 36 CFR Part 800.5(a) (1) and would not alter characteristics that make it eligible for listing on the National Register. The undertaking is modified or conditions are imposed to avoid or minimize adverse effects. This category of effects is encumbered with effects that may be considered beneficial under NEPA, such as restoration, stabilization, rehabilitation, and preservation projects. Undertakings determined to have no adverse effect by a qualified cultural resource manager can be documented under the streamlined process of the 2008 Programmatic Agreement.

Adverse effect: The undertaking would alter, directly or indirectly, the characteristics of the property making it ineligible for listing on the National Register. An adverse effect may be resolved by developing a memorandum of agreement in consultation with the SHPO, ACHP, tribes, other consulting parties, and the public to avoid, minimize, or mitigate the adverse effects (36 CFR Part 800.6(a)).

The thresholds of change for the intensity of an impact are defined as follows.

Negligible: The effects on cultural resources would be at the lowest levels of detection, barely measurable without any perceptible consequences, either beneficial or adverse to cultural landscape resources, historic buildings or structures, ethnographic, or archeological resources. For the purposes of Section 106 of the National Historic Preservation Act, the determination of effect would be no effect.

Minor: The effects on cultural resources would be perceptible or measurable, but would be slight and localized within a relatively small area. The action would not affect the character or diminish the character-defining features of a National Register-eligible or listed cultural landscape, historic structure, or archeological site, and it would not have a permanent effect on the integrity of any such resources. For the purposes of Section 106 of the National Historic Preservation Act, the determination of effect would be no adverse effect.

Moderate: The effects would be perceptible and measurable. The action would change one or more character-defining features of a cultural resource, but would not diminish the integrity of the resource to the extent that its NRHP eligibility would be lost. For the purposes of Section 106 of the National Historic Preservation Act, the cultural resources' NRHP eligibility would be threatened and the determination of effect would be no adverse effect or adverse effect.

Major: The effects on cultural resources would be substantial, discernible, measurable, and permanent. For NRHP eligible or listed cultural landscapes, historic structures, or archeological sites, the action would change one or more character-defining features, diminishing the integrity of the resource to the extent that it would no longer be eligible for listing in the National Register. For purposes of Section 106, national register eligibility would be lost and the determination of effect would be adverse effect.

All preservation, rehabilitation, and restoration treatments proposed under all of the alternatives would be in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Values, Traditions, and Practices of Traditionally Associated People

Common to All Alternatives

Under all alternatives, the NPS would continue the existing anthropology program in which NPS staff, partners, and researchers engage patients in ethnographic research through oral histories and informal discussions. Collecting oral history information and conducting research on the native Hawaiian and patient communities would add to the body of knowledge regarding life at Kalaupapa. These actions would result in a benefit to the resources, traditions, and practices related to associated peoples of Kalaupapa.

Alternative A

The park staff recognizes that the patients, themselves, are an irreplaceable and their values, traditions, and practices are important to the character of the Kalaupapa community and resources. Most of the patients are elderly, and the next few years are crucial for documenting and gathering information from the patient community. As time allows, work with other groups would be conducted, such as children of patients who were taken away at birth and raised by relatives or in orphanages, family of patients, friends and long-time visitors to the park, long-time employees, and retired employees.

Under this alternative, the current park staff would continue to engage the patient community in actively documenting and preserving their history. This preservation effort would benefit Kalaupapa NHP in providing information for educational and interpretive programs as well as preserving the history for the future. However, with limited staff and the lack of a more formalized anthropology program, there will be limited opportunities to reach beyond the current patient community to document and preserve the history. Therefore, materials available for education and future generations would be limited by the program and staff constraints.

Alternative B

This alternative emphasizes Kalaupapa's uniqueness, special character, and sacredness. The focus is on offsite education using a variety of media. Visitation to Kalaupapa would be similar to alternative A. The most notable difference between this alternative and alternative A is that the ethnography program

would be enhanced with additional staff and partners. The focus of the ethnography and oral history program would shift to include other important groups of individuals, such as children of patients who were taken away at birth and raised by relatives or in orphanages, family of patients, friends and long-time visitors to the park, long-time employees, and retired employees.

With an expanded ethnography program, Kalaupapa NHP would be able to create offsite educational opportunities such as the internet, exhibits, educational kiosks, brochures and printed materials, classroom curriculum, and podcasts and other digital media. These opportunities would provide a positive opportunity to share the stories of Kalaupapa with a larger more diverse audience using modern media and technology.

Alternative C

In this alternative, the ethnographic research would be managed similar to that of alternative B. The ethnographic program would be expanded to include additional staff and partners focused on gathering and documenting the stories of the patients, their families, kōkua, and long-time visitors and friends.

In addition to park staff, management and preservation efforts would be through volunteer service groups and by partnering with other agencies and organizations. The focus would be on experiential learning in a group setting.

Ethnographic information previously collected would be used to teach and educate the volunteer service groups and would also be used for interpretation and education. The visitor experience, whether an individual or group, would be enhanced overall.

Alternative D

Alternative D emphasizes the individual visitor experience through guided tours and limited self-exploration in selected areas of Kalaupapa. In this alternative, the resources, traditions, and practices related to associated peoples of Kalaupapa would be managed similar to that of alternative B. The anthropology program would be expanded to include additional staff and partners focused on gathering and documenting the stories of the patients, their families, kōkua, and long-time visitors and friends.

Information on resources, traditions, and practices related to associated peoples of Kalaupapa previously collected would be used to enhance the visitor experience through interpretation and education by creating such materials as brochures, walking tours, electronic media, and wayside exhibits.

Cumulative Impacts

Past, present, and anticipated projects that would contribute to impacts on resources, traditions, and practices related to associated peoples of Kalaupapa include the departure of the Department of Health and the patients from Kalaupapa. Once there are no longer living Kalaupapa patients and the Department of Health has moved out of Kalaupapa this would contribute to cumulative minor to moderate long-term adverse impacts on the resources, traditions, and practices related to associated peoples of Kalaupapa through the loss of living history, oral history, and the traditional presence and operations of the Department of Health at Kalaupapa.

The continuation of the cooperative agreements between the NPS and the State of Hawai'i Department of Land and Natural Resources (DLNR), Department of Transportation (DOT), and churches, and the lease agreement with the Department of Hawaiian Homelands (DHHL) provides the mechanism for the national park to operate. This would benefit the resources, traditions, and practices related to associated peoples of Kalaupapa in that the stories of Kalaupapa would continue to be documented and shared with current and future generations.

Conclusion

The impact on resources, traditions, and practices related to associated peoples of Kalaupapa under all alternatives would be beneficial because of the value of documenting these resources, in some cases where little or no information existed before. Documentation would increase base knowledge of Kalaupapa and its resources and has the potential to inform future management decisions. It would also aid in expanding an interpretation and education program that

would enhance visitor learning, enjoyment and satisfaction. The ongoing efforts to identify and to evaluate resources, traditions, and practices related to associated peoples of Kalaupapa and park programs to meet the needs of various groups would result in actions to preserve these resources. The overall result would be a long-term beneficial effect on the resources, traditions, and practices related to associated peoples of Kalaupapa.

For purposes of Section 106, the determination of effect for anthropological resources for all alternatives would be *no adverse effect*.



Interior of ko'a, a fishing shrine. NPS photo.

Archeological Resources

Common to All Alternatives

Under all alternatives, baseline documentation, including a research design and standard operating procedures for archeological monitoring, recording and data management would be prepared. These research, assessment, and monitoring activities would contribute to long-term preservation and enhanced understanding of cultural resources at Kalaupapa NHP.

Alternative A

Under this alternative, visitors would continue to follow existing Department of Health (DOH) rules and regulations. Access to most areas of the Kalaupapa peninsula would require an escort

and the number of visitors limited. Guided tours would be provided. These guidelines would continue to restrict visitor access in areas of sensitive archeological resources.

Alternative B

Under this alternative, the National Park Service would focus outreach to audiences at offsite locations (areas outside the park). The focus would be to interpret the archeology at Kalaupapa and produce educational materials for offsite use. There would be an increase in the effort of preservation and research of archeological sites. Because of the offsite nature of the visitors, sensitive archeological resources would be less likely to be negatively impacted.

Alternative C

Under this alternative the proposed archeological resources management actions are similar to alternative B, but include hands-on learning in research, stabilization, and other preservation treatments of archeological resources through stewardship activities. This would include increased research potential and training opportunities in preservation treatments and cultural resource management through partnering with universities and other entities to provide field training programs. All hands-on learning and partnering opportunities will be done with qualified professional oversight. This alternative would also provide greater capacity to complete Section 110 of the National Historic Preservation Act by increasing our knowledge of individual and contributing historic properties, and by completing National Register of Historic Places nominations.

Alternative D

Under this alternative the management actions for archeology would be similar to alternatives A and B, but demonstration projects targeted for visitor learning would be supported. Archeological sites within visitor-accessible areas of the park would be evaluated for their interpretive and educational value while balanced with the site's sensitivity to increased visitor use. Should a site be too fragile, it would not be selected for interpretation. In addition, when an archeological research project or preservation treatment is active within visitor-accessible areas of the park, interpretation and demonstration projects would be established.

Cumulative Impacts

Archeological resources have, undoubtedly, sustained adverse impacts from natural and human forces over the lengthy occupation of Kalaupapa. Past actions and processes include trail maintenance, utilities and infrastructure construction and maintenance and modernization of some facilities. Cumulative natural impacts such as erosion and general weathering, coupled with human impacts have likely resulted in adverse impacts of unknown intensity.

Future planned projects including the construction of a memorial, the removal of unexploded ordnance, trail and trail bridge reconstruction, and the implementation of a fire management plan would likely result in minor to moderate long-term adverse effects to archeological resources. However, anticipated future projects could also benefit the archeological resources as long as they

provide for appropriate inventory, protection, avoidance, and preservation of cultural resources.

Conclusion

The impact to archeological sites under all alternatives would be beneficial because of the ongoing management and the preparation of baseline documents. Under alternative A, visitor access would be regulated therefore sensitive archeological sites could be protected.

The impact to archeological sites under alternative B would be beneficial because of the added level of documentation and designations, increased levels of preservation and research on archeological sites, and the focus of outreach to audiences outside the park.

Under alternative C, the focus on hands-on learning in research, stabilization, and other preservation treatments of archeological resources would be beneficial to the resources by creating a larger capacity to conduct this stewardship work.

Under alternative D, the focus on self-guided archeological interpretation exposes select archeological sites to increased visitor use and may cause a minor long-term adverse effect. However, there is also a beneficial effect by promoting education and the concept of resource protection to archeological sites through the demonstration projects for visitor learning.

For each alternative, the Section 106 determination of effect on archeology would be *no adverse effect*.

Cultural Landscapes

Alternative A

Under the no-action alternative, the park would continue to document and research Kalaupapa's cultural landscapes and associated features; continue to preserve significant cultural landscape features; complete a cultural landscape report that prescribes preservation treatments; and continue the management of fruit and legacy trees within the settlement.

Alternative B

Under this alternative the cultural landscapes would continue to be managed similarly to how they are currently managed. Documentation and research of Kalaupapa's cultural landscape features and rehabilitation of significant cultural landscape features would continue, a cultural landscape report that prescribes preservation treatments would be prepared, and management of fruit and legacy trees within the settlement would be continued. In addition, overall management of the cultural landscape would be enhanced. Such enhancements would include an improvement to the overall cultural landscape by developing and implementing a long-term strategy to halt fragmentation and incremental loss of cultural landscape features and integrity, increased support for research to identify cultural traditions expressed in the landscapes, a focus on stabilization so that further resources are not lost, enhanced management of fruit and legacy trees in coordination with Natural Resources staff, expansion of the nursery program to include fruit trees, legacy trees, and additional rare and endangered plants, and collaborative work with the natural resources staff to carry out an integrated pest management plan to protect sensitive areas.

Alternative C

Under this alternative, the proposed management actions are similar to alternative B, but include hands-on learning and preservation of the cultural landscape through stewardship activities. This would include targeted preservation maintenance through the use of volunteer or service groups or training opportunities for university or trade school students. Additionally, hands on learning and preservation treatment of cultural landscapes with partners would be supported and would focus on larger cultural landscape preservation and treatment projects through assistance with partners and service groups. All hands-on and partner opportunities would have qualified professional oversight.

The development of a cultural landscape report would identify long-term strategies to prevent fragmentation and the incremental loss of cultural landscape resources, and prescribe preservation treatments for significant landscape characteristics and features. Initially, the NPS would focus on stabilization of landscape features within the Kalaupapa and Kalawao Settlements, so that resources are not lost. The NPS would then initiate preservation or rehabilitation of landscape features that illustrate Kalaupapa's many histories and allow new compatible uses within the settlement. Rehabilitation would also include

reestablishment of selected viewsheds to enhance understanding the larger landscape, particularly from overlooks and viewpoints.

Alternative D

Under this alternative the management actions for the cultural landscape would be similar to alternatives A and B, but visitors would have more freedom to explore Kalaupapa independently. In addition, selected viewsheds would be maintained to enhance the understanding of the larger cultural landscape.

Cumulative Impacts

Over the years, the cultural landscapes at Kalaupapa have been adversely affected by natural processes and wear and tear associated with visitor access, administrative use, and deferred maintenance. In addition, many of the buildings and structures that were part of the cultural landscapes during the historic period were removed from Kalaupapa. Other historic buildings have been altered or are in a state of decline, creating moderate, long-term, adverse effects.

The departure of the Department of Health and the Kalaupapa patients would be a minor long-term adverse effect on the overall historic character of Kalaupapa. The NPS would continue to tell the story of the DOH and patients, but their absence from the community marks a dramatic and noticeable change in the character of the cultural landscape.

In the future, the continuation of the cooperative agreements and lease agreement with state agencies would allow the NPS to continue to manage the physical settlement of Kalaupapa with emphasis on preservation of historic structures and the cultural landscape. Resource management activities would continue to consider the natural resources values of cultural landscapes as well as their culturally important character-defining features. Overall, the cumulative effects would be beneficial.

Conclusion

Under alternative A, the impact to the cultural landscape would be beneficial because of the continued documentation, preservation and management of cultural landscape features.

Under alternative B, the impacts on the cultural landscape would be beneficial because of the enhancement in management, stabilization, and other preservation treatments.

Under alternative C, the impacts on the cultural landscape would be beneficial because of the enhancement of management, stabilization, and other preservation treatments. The focus on hands-on learning in research, stabilization, and other preservation treatments would also allow a greater capacity to conduct this stewardship work.

Under alternative D, the impacts on the cultural landscape would be beneficial because of the enhancement of management, stabilization, and other preservation treatments; as well as maintaining cultural viewsheds.

Under all the alternatives, the Section 106 determination of effect on the cultural landscape would be *no adverse effect*.

Historic Structures

Buildings and structures defined as “historic” are those that are listed or are eligible for listing on the National Register; this includes contributors to the Kalaupapa Leprosy Settlement National Historic Landmark District.

Common to All Alternatives

The NPS would continue to conduct condition assessments of historic structures. DOH would continue to transfer use of buildings and structures to the NPS as DOH continues to transition out of Kalaupapa. Kalaupapa NHP would continue to stabilize, preserve, and rehabilitate historic structures and buildings in accordance with the *Secretary of Interior’s Standards for the Treatment of Historic Properties* on a case-by-case basis as funding allowed. Historic buildings not used for park or partner functions and not funded for preservation and rehabilitation would be stabilized or mothballed until future uses are identified. While all contributing buildings would be stabilized at a minimum, stabilization is not a long-term treatment.

Kalaupapa National Historical Park and current partners would continue to share in the preservation and rehabilitation of historic buildings used by those

partners. The park would seek new partners to share in the preservation and rehabilitation of other historic buildings and structures.

Given the large number and varying conditions of historic structures, treating each historic structure could take many years, and cyclic maintenance would be required. These actions would result in long-term preservation of select historic structures though there could be minor to moderate adverse, long-term impacts on historic buildings and structures in the event that uses are not identified and preservation treatments are not employed in a timely manner.

Alternative A

Management of Kalaupapa National Historical Park would continue relatively unchanged from the current direction in the near term. With the expected departure of DOH in the long term, dozens of buildings currently occupied by DOH would become vacant and would not have an identified future use or function. These buildings would be stabilized until future needs for their use are determined. Without a systematic plan for their future uses, these buildings could risk long-term deterioration, and loss of structures could be a possibility.

Alternative B

Maintaining Kalaupapa’s spirit and character is the primary focus of this alternative. The preservation of the historic buildings would be prioritized according to the focus of this alternative and their assessed conditions. Historic buildings considered best suited to meet the needs of this alternative would be rehabilitated according to a historic structures report(s) consistent with the *Secretary of the Interior’s Standards for the Treatment of Historic Properties* and adaptively re-used for visitor, partner use, park operations, and interpretive exhibits. These treatments would ensure long-term preservation of these structures. Buildings that do not have an identified future use would be stabilized or mothballed until a use is determined, at which time the building would be treated according to its identified function.

Alternative C

Entrusted responsible care and management of Kalaupapa’s lands is the focus of this alternative. To implement this focus, actions to increase the direct practical hands-on learning and preservation treatments of historic structures through stewardship activities would be instituted. All of the actions of alternative B are proposed for this alternative as well. Buildings used by partners and

visitors for lodging, visitor services, and orientation may require rehabilitation that will address health, life safety, and accessibility requirements.

Volunteers, work groups, and preservation students could participate in supervised historic preservation treatments of buildings. These activities could build a stewardship ethic for Kalaupapa's buildings and structures.

These treatments, uses, and involvement by non-NPS individuals and groups would ensure long-term preservation of these structures. An agreement would be developed that would outline the responsibilities of the user for maintaining the building to specified standards as approved by the National Park Service. Buildings that do not have an identified future use would be stabilized or moth-balled until a use is determined, at which time the building would be treated according to its identified function.

Alternative D

Personal connections to Kalaupapa through visitation by the general public are the focus of this alternative. All of the actions of alternative C are proposed for this alternative. This alternative accommodates the greatest number of visitors to Kalaupapa, which could help build a stewardship ethic for Kalaupapa's buildings and structures.

Cumulative Impacts

Over the years, historic structures at Kalaupapa have been adversely affected by natural processes and wear and tear associated with administrative and residential use (and sometimes lack of use) and deferred maintenance. Because people reside at Kalaupapa, changes have been made to provide modern amenities and services for the community. Some of these changes have resulted in the destruction or removal of historic structures.

Under alternative A, management activities would continue to consider the significance of the historic structures, and they would continue to be preserved and maintained. This consideration would result in cumulative beneficial impacts on historic structures. Additionally, deferred maintenance and the lack of resources available to maintain the historic structures would result in cumulative minor to major long-term adverse impacts because of resource damage and loss.

Cumulative impacts for alternatives B, C, and D are similar to alternative A except that they would provide greater preservation to historic buildings because of a developed treatment plan and continued use of the buildings. The cumulative impacts on historic buildings under alternatives B, C, and D would result in both minor to moderate long-term adverse and beneficial.

Conclusion

Additional Section 106 reviews may be necessary to implement site specific actions, including rehabilitation, of historic structures.

Under alternative A, stabilization of historic structures, continued condition assessments, and the development of a prioritized list of buildings for preservation needs is a good basis for ongoing management of the buildings and structures. However, because many of the buildings would be under-utilized or not undergo rehabilitation with this alternative, there could be a minor to major adverse, long-term impact to historic buildings and structures.

Under alternative A, the Section 106 determination of effect on the historic structures would be an adverse effect.

Under alternative B, stabilization of historic structures and the development of historic structures reports that emphasizes preservation and rehabilitation would benefit the continued preservation of the buildings. The preservation and rehabilitation, in accordance with the Secretary Standards, of some historic



State employee residence at McVeigh Home. NPS photo.

structures for visitor facilities, partner uses, park operations, and interpretive exhibits would generally be beneficial to the buildings because this would aid in their preservation. However, because some of the buildings would be under-utilized or not undergo rehabilitation, these buildings would have a higher risk of deterioration. Additionally, because rehabilitation would make changes to buildings to accommodate new uses and to address accessibility, life safety, and utility upgrades, there could be a minor to moderate long-term, adverse impact to the buildings.

Under alternatives C and D, stabilization of historic structures and the development of historic structures reports that emphasizes preservation and rehabilitation would benefit the continued preservation of the buildings. The preservation and rehabilitation in accordance with the Secretary Standards, of some historic structures for visitor facilities, partner uses, park operations, and interpretive exhibits would generally be beneficial for long-term preservation of the buildings because this would aid in their preservation. Additionally, many buildings could be used for overnight visitor lodging which would require them to be rehabilitated and would address accessibility, life safety, and utility upgrades. If they are not used for overnight lodging or another use, these buildings could be under-utilized, not preserved or rehabilitated, and would have a higher risk of deterioration. Because some of the buildings could be under-utilized or not undergo preservation treatments and, because rehabilitation would make changes to buildings to accommodate new uses, Alternative C and D may result in minor to moderate long-term, adverse impacts to the buildings.

For alternatives B, C, and D the Section 106 determination of effect on the historic structures would be *No Adverse Effect*.

Museum Collections

Common to All Alternatives

The Kalaupapa NHP *Museum Management Plan* would guide the management of the park collections under all alternatives. Consultation with patients and ‘ohana to better understand objects in the museum collection would be implemented. The museum archives and manuscript collections would continue to be documented, preserved and conserved. Following the museum management plan and the continued preservation efforts would result in beneficial effects for the Kalaupapa museum collections.

Alternative A

Under this alternative, the park museum management program would continue to improve the quality of documentation, preservation, and implementation of collections for use by the patient community and their ‘ohana, park staff, and the public. The museum program would continue documentation, preservation and conservation of museum archives and manuscript collections. Consultation with patients and ‘ohana to better understand objects in collections would continue. Under this alternative, the museum program would manage museum collections based on the most current museum management plan. The current museum collection facility would continue to be monitored and maintained to provide for the preservation and protection of the collections as directed by NPS museum management standards.

Alternative B

Under alternative B, the museum management program would implement the scope of collection plan to direct acquisition and collection development. Media products and digital tools that support research and provide offsite visitor education would be developed. Kalaupapa-related collections housed in offsite repositories would be identified and finding aids developed to support the increased emphasis on ethnographic research with patient resident ‘ohana. Kalaupapa NHP would partner with repositories to house other Kalaupapa museum collections. Under this alternative, the National Park Service would focus outreach to audiences at offsite locations (outside of Kalaupapa), but selected museum collections displayed within historic structures would be used as interpretive exhibits.

Alternative C

Under this alternative, the proposed management actions are similar to alternative B, but include hands-on learning and preservation of museum collections through stewardship activities. This would include collections management projects through the use of volunteer or service groups or training opportunities for university students. Partners would be involved in managing, documenting, and conducting research on collections and seeking creative ways for visitors to interact with collections, such as an artist-in-residence program inspired by collections. The NPS and its partners would develop digital tools, finding aids, and media products that support research and offer creative ways for visitors to interact with the collections both onsite and offsite. Museum collection items could be displayed in exhibits within historic structures and at the visitor

center as appropriate. All hands-on volunteer or partner opportunities will be supervised by qualified professionals.

Under this alternative, any stabilization or preservation treatment to the museum collections would be in accordance with the NPS museum collection standards, though much of this work would be subject to funding availability.

Alternative D

Under this alternative, documentation, preservation, and conservation of museum archives and manuscript collections would continue. Consultation with patients and ‘ohana would be conducted to better understand the objects in the collections. Management of the museum collections would be similar to alternatives A and B, but the collections would be accessed for greater visitor engagement including educational and interpretive programs focusing on the museum collections.

Under this alternative, any conservation or preservation treatments to the museum collections would be in accordance with the NPS museum management standards, though much of this work would be subject to funding availability.

Cumulative Impacts

The Kalaupapa museum collections are a valuable component to documenting and telling the story of Kalaupapa. The anticipated future actions that would impact the museum collections include the departure of the Kalaupapa patients and the Department of Health from Kalaupapa. It is likely that once patients are no longer living at Kalaupapa their families would donate records and objects representing their lives to the museum. This would result in the beneficial growth of the collections. Additionally, continued and future natural and cultural resource research projects would continue to add objects, specimens, and records to the museum collection. The cumulative impacts for all alternatives would be beneficial.



Pre-contact Hawaiian artifacts are stored in the park's museum collection. NPS photo.

Conclusion

Under alternative A, the impact to museum collections under the no-action alternative would be beneficial because of the continuation of current preservation and documentation of the collections meets NPS museum management standards.

The impacts on the museum collections at Kalaupapa under alternative B would be beneficial because of the implementation of the scope of collection plan. The increase in exhibition of museum collections in historic structures would have long-term minor to moderate, adverse impact on collections because the current climate conditions that exist within the historic structures do not meet NPS Museum Management Standards for exhibits. Future mitigation of historic structures could correct these deficiencies to create the proper environment for the display of the park's museum collections.

The impacts on the museum collections under alternative C would be beneficial because of hands-on learning opportunities for proper museum collection conservation and preservation. Increased access to the museum collection and archives could result in adverse minor to moderate, long-term impacts on the museum collections due to handling, environmental exposure, and exhibition of the museum collection.

The impacts on the museum collections through increased access and use under alternative D would be beneficial because of the support the collections would provide to the park interpretation program and most importantly the consultation with patients and ‘ohana to generate a high level of engagement for visitors.

Under all the alternatives, the Section 106 determination of effect on museum collections would be *no adverse effect*.

Impacts on Natural Resources

Common to All Alternatives

The goals and strategies that are common to all action alternatives include guidance on a variety of topics that would have an impact on natural resources. These topics include water resources and hydrologic processes, marine resources and fishing, terrestrial resources, and climate change. For example, the Natural Resources Management Program priorities in the terrestrial realm of conducting research, inventory, monitoring, feral animal control, fencing, rare species stabilization, incipient alien species removal, and the pursuit of East Molokai Watershed Partnership goals would improve the integrity of all natural resources. The East Molokai Watershed Partnership goals include:

- Reduction of feral animal and invasive weed populations
- Fences to protect upper forests from feral animal intrusion
- Monitoring systems that help guide and document management actions
- Community outreach that engages, educates, and gains support of the local communities
- Continual development of the partnership through fundraising, capacity building, and landowner expansion
- Involvement with fire (Molokai Fire Task Force) and island invasive species efforts (Molokai subcommittee of the Maui Invasive Species Committee)

The partnerships policy would assist the National Park Service in developing collaborative arrangements with park partners, whose programs have shared goals, including preservation of natural resource management. The trails policy includes goals on sustainable trail design and best management practices, which would assist the National Park Service in improving habitat quality and integrity by reducing impacts from erosion, exotic and invasive species, and habitat fragmentation. The North Short Cliffs National Natural Landmark (designated in 1972) will continue to be protected and preserved following National Natural Landmark guidelines. These actions would contribute to long-term preservation of natural resources through inventory, monitoring, active resource management, and stewardship of the areas' natural resources.

Air Quality

Alternative A

Baseline greenhouse gas emissions for Kalaupapa NHP in 2009 are estimated at 5,249 metric tons of carbon emissions (MTCE). The largest contributors of greenhouse gases are the vehicles used by workers around the settlement. Emission levels would decline slightly from present levels with alternative A. Even though the overall number of vehicles and equipment in the future would be similar to present levels, replacement machinery would be more fuel efficient.

No monitoring of air quality occurs currently under alternative A. Lack of monitoring air quality parameters would result in a failure to capture information about the direct consequences of pollution levels on water, marine, and terrestrial resources along with visitor opportunities.

Common to Alternatives B, C, and D

These alternatives would:

- Require baseline monitoring of air quality.
- Acknowledge that increasing anthropogenic CO₂ emissions would influence air quality; the park would mitigate impacts of climate change by reducing overall energy consumption. This would be accomplished by purchasing fuel efficient vehicles, increasing use of environmentally friendly transportation activities such as bicycles, and reducing reliance on outside energy sources such as gas and electricity, as feasible.
- Kalaupapa NHP would implement Molokai and NPS initiatives that improve air quality such as the installation of energy efficient CFL light bulbs.

Alternative B

It is anticipated that this alternative would have the fewest visitor opportunities within the park and therefore have the lowest emission levels of any of the alternatives.

Alternative C

It is anticipated that this alternative would have greater visitor opportunities coupled with a higher number of visitors within the park and therefore have higher emission levels than alternatives A and B.

Alternative D

It is anticipated that this alternative would have the greatest visitor opportunities within the park and therefore have the highest emission levels of any alternative.

Cumulative Impacts

For alternative A, past and present sources of impacts on air quality in Kalawao are motor vehicles and mechanized equipment. It is difficult to ascertain the extent of cumulative impacts on air quality without baseline data, but given the remoteness and prevalence of persistent wind patterns, it is anticipated that the continuation of park operations and any future construction projects would result in a negligible cumulative impact to air quality. The increased use of fuel efficient vehicles and alternative transportation would be a benefit to the cumulative impacts on air quality for alternatives B, C, and D.

Conclusion

For alternative A, emission levels in the park are projected to decrease in the future, but would still result in long-term and adverse impacts on air quality that would be negligible compared to the region or nation. The lack of baseline information about air quality, however, would result in a poor understanding of how emission levels would impact natural and cultural resources along with visitor opportunities across all regions of the park. This lack of information would result in a short-term, minor, adverse effect.

For alternatives B, C, and D, the initiation of monitoring would be a benefit to the park by contributing to knowledge of air quality and identifying areas with different levels of air quality. Areas with good air quality as defined by EPA standards, such as the upland rainforest would have restricted access to ensure that it remains intact. Mitigation efforts would be concentrated in areas with low air quality that might include maintenance facilities within the settlement. Identifying areas of good air quality may improve the safety of residents and visitors.



Kalawao, c. 1898. Photo courtesy of Bishop Museum.

These areas would be maintained by minimizing sources of emissions, and thus result in a benefit to the park.

Alternative B would have the lowest emission levels of any alternative due to the fewest visitor opportunities, smallest number of construction projects, and the lowest level of park operations leading to negligible and potentially beneficial impacts on air quality.

Alternative C would have intermediate emission levels of the three alternatives due to the increase in visitor opportunities, construction projects, and park operations leading to negligible impacts on air quality.

Alternative D would have the highest emission levels of the three alternatives due to the largest number of visitor opportunities, construction projects, and park operations leading to minor long-term adverse impacts on air quality.

Soundscapes

Alternative A

Currently, no continuous monitoring of sound levels occurs under alternative A although a baseline study of the soundscape has been conducted. Lack of monitoring sound levels would fail to capture information about the direct consequences of air and vehicular traffic

on aquatic, terrestrial, and cultural resources along with visitor opportunities. Under alternative A, the NPS would continue management of soundscapes by utilizing guidance from existing regulatory agencies (e.g. FAA), existing audio and overflights regulations, NPS management policies and director's orders on soundscape management, and the air traffic management plan. The NPS would continue to work with the Marines to manage aircraft activity over the park.

Alternative B

The NPS would initiate acoustic monitoring through the NPS soundscapes program. The NPS would work to restore the natural soundscapes by reducing

the number of feral animals and increasing the number of native species in the park. The existing soundscape levels in developed areas would be quantified so that future uses and sound level are compatible with the historic character of the park. This would include working to control modern human noises that may impact the soundscape. The NPS would continue to work with the FAA to manage scenic overflights and to require that aircraft maintain an altitude of at least 1600 feet above ground level to preserve Kalaupapa's sacred nature and ambience. The NPS would continue to work with the Marines to manage aircraft activity over the park.

Alternative C

Alternative C is similar to alternative B. The primary difference in this alternative would be the increased visitor levels which would concomitantly increase noise levels in high traffic areas.

Alternative D

Alternative D is similar to alternative C. The primary difference in this alternative would be the highest visitor levels for any alternative and the corresponding highest noise levels.

Cumulative Impacts

For all alternatives, at various times in the past, present, and future, noise caused by construction machinery or historic preservation projects within Kalaupapa would result in short-term minor to moderate adverse effects to the soundscape. For example, removal of the unexploded ordnance would likely cause short-term minor to moderated adverse effects within Kalaupapa. The continued existing level of Department of Defense training operations at the Kalaupapa airport would result in long-term moderate adverse impacts to the soundscape of Kalaupapa. These effects, added to noise caused by visitors and park operations would result in short- and long-term minor to moderate cumulative adverse noise effects.

Cumulative impacts to the soundscape under alternative B differ from the other alternatives in that Alternative B limits visitation to Kalaupapa, there may be less of an adverse impact from visitors and park operations in the future on the soundscape. In addition, the use of quieter vehicles and machinery in the future under alternatives B, C, and D would result in negligible cumulative impacts to the soundscape.

Cumulative impacts to the soundscape under alternative C would be slightly higher than alternatives A and B due to the higher visitation levels. While alternative C may have higher numbers of visitors, the use of quieter vehicles in the future would result in negligible cumulative impacts to the soundscape, especially considering that past population levels in the settlement were much higher.

Cumulative impacts to the soundscape under alternative D would be higher than the other alternatives due to the highest visitation levels. The use of quieter vehicles in the future would result in minor cumulative impacts to the soundscape, although it is anticipated that this alternative would still have a quieter soundscape than in the past when population levels in the settlement were much higher.

Conclusion

At present, there is minimal management of the soundscape other than referring to guidance from existing regulatory agencies, and this would continue under alternative A. The management of the soundscape would be a benefit to nearly all of the resources within Kalaupapa. The maintenance of the soundscape offers the visitor the time and serenity to be reflective and thoughtful about the history and story of Kalaupapa.

Under alternatives B, C, and D, the maintenance and monitoring of the soundscape at Kalaupapa in addition to the reduction in noise levels of vehicles and machinery would be a benefit to the visitor as he or she would be able to experience both the natural and cultural soundscapes. Monitoring of soundscapes would benefit the native wildlife species so that their habitat could be maintained or restored if previously altered and can provide beneficial information to maintain the quiet nature of the area. Existing regulations concerning scenic overflights would help protect soundscapes, resources, and visitor experience, though additional guidance could be necessary to further protect the soundscapes at Kalaupapa.

Under alternatives C and D, increased visitation could result in higher noise levels than in alternative B.

Lightscapes

Common to All Alternatives

Visitors to Kalaupapa NHP remark how prevalent the stars are in the night sky. A “natural lightscape,” such as a dark night sky, is an environment that is undisturbed by light and air pollution. Dark night skies have natural, cultural, and scenic importance.

The NPS would work to improve natural dark night sky conditions, protect the park from light pollution, and reduce electrical power usage by using sustainable design and technologies in the park. The NPS would conduct baseline night sky and lightscapes monitoring in order to quantify the current conditions. Any changes to lighting in and around the park can primarily be mitigated through the use of best practices as mentioned elsewhere in the plan.

Cumulative Impacts

There would be no cumulative impacts to the lightscape at Kalaupapa from past, present, and future projects.

Conclusion

Increased monitoring, mitigation, and actively working to improve night sky conditions would result in a beneficial effect on the lightscape at Kalaupapa..

Water Resources and Hydrologic Processes

Common to All Alternatives

Monitoring and research to identify high water quality areas in the ocean, streams, Crater Lake, and wetlands would continue. The ocean stewardship policy of the NPS includes management strategies and objectives that would help to protect ocean resources through improved research and collaborative management with other state and federal agencies.

Diversion of the Waikolu stream would continue under all alternatives with a minor, long-term adverse impact on stream fauna and flora. Kalaupapa NHP would continue water treatment on drinking water.

Climate change will significantly impact the water resources and hydrologic processes by decreasing precipitation, increasing storm frequency, increasing extreme rainfall events, increasing temperature, and creating more extreme temperature conditions. Therefore, park management actions and mitigation strategies will focus on impacts on natural and cultural resources as well as overall park operations.

Alternative A

Under the no-action alternative, the presence and current maintenance of existing facilities (including structures, roads, and trails) would continue to cause localized impacts on water quality due to pollution from runoff and turbidity from soil erosion.

Structures would remain in the 100-year floodplains of Waianae River resulting in adverse impacts on the floodplain function and to the structures themselves. Retention of these facilities would continue to slightly affect the flow of water during floods and the capacity of the floodplain to store floodwaters. Outside of the settlement, the lack of groundcover due to disturbances from invasive vegetation and feral animals would be the primary causes of sediment entering the streams and ultimately the ocean. The no-action alternative would continue with current levels of feral ungulate removal and the out planting of native vegetation with minimal improvement on areas with poor water quality. Vehicle use at parking areas and on roadways throughout the park would continue to influence water quality from runoff that contains chemical contaminants and also cause erosion of soils resulting in turbidity. National Park Service efforts to provide educational and participatory stewardship programs would be a benefit to water resources and hydrologic processes due to increased public understanding and support for resource protection and management.

Current projects to improve natural habitat values and ecosystem function, such as those at the historical fishpond (wetland restoration), Kalawao cliff trail (coastal vegetation restoration), Kūkaʻiwaʻa (coastal vegetation restoration) and Puʻu Aliʻi fencing/feral ungulate removal (upland rainforest preservation), would benefit water resources and hydrologic processes because they would improve and restore the function and integrity of natural hydrologic systems

Within Kalaupapa, visitor use and NPS operations would continue to contribute nutrients and sediment to the adjacent marine waters through runoff.

Runoff from impervious surfaces such as existing structures and paved roads would also contribute to this issue. There is the potential that the fuel reduction project around the settlement could expose more area to erosion from the clearing of vegetation, but this is considered negligible due to the rapid re-vegetation of open areas. Vessels, primarily the barge operation and to a small degree the NPS dive boat, would impact water quality by introducing hydrocarbons and other chemicals into the ocean, as well as potentially introducing alien organisms.

Common to Alternatives B, C, and D

These alternatives would:

- Create a variety of management zones that would assist in the protection of water resources and hydrologic processes.
- Restoration and maintenance of historic structures would have impacts on water quality from sedimentation and runoff during construction activities.
- Develop a sustainable trail system and remove and restore unneeded and unsustainable roads and trails.
- Benefits to stream character, water quality, wetlands, floodplains, and watershed processes would occur from restoration projects such as the wetland area and crater stabilization. If these more substantial efforts are accomplished, the overall hydrologic character and function would be improved by creating a more natural watercourse that would reduce the potential for erosion, re-create floodplain connectivity, restore wetland functions, and contribute to improvements in restoring watershed processes and water quality.
- Activities such as the removal of feral ungulates and the outplanting of native vegetation would improve areas with poor water quality. These activities would be at a larger scale than the no-action alternative. Impacts from NPS educational and stewardship programs would be higher than those described in the no-action alternative since these programs would be enhanced in alternatives B, C, and D.

Alternative B

This alternative would protect the largest area of water resources and hydrologic processes by zoning 62% of the park as Integrated Resource Management and 34% of the park as Sensitive Resources.

Impacts on water-related resources from the continued presence and maintenance of existing roads and trails under alternative B would be less than the no-action alternative because impacts on water quality caused by erosion from unsustainable trails and roads would be reduced through reduction of current traffic flow.

Visitor access and use would be restricted throughout the park under alternative B, potentially resulting in some decrease in erosion along trails and at primary visitor use areas that could have impacts on water quality.

New and/or improved visitor facilities, including a new visitor center topside, would have adverse impacts on water quality from increased erosion and sedimentation, and the potential for chemical contamination resulting from inadvertent chemical spills from heavy equipment at construction sites. In the long-term, impacts on water quality could be beneficial by moving pollutants in parking lots and other developed features offsite.

Within the settlement, impacts from visitor use and NPS operations on water quality would be approximately the same as those described in the no-action alternative. Even though park activities would increase, there would be a reduction in state activities to offset the difference, resulting in similar water quality impacts such as nutrient and sediment inputs into marine waters.

Alternative C

This alternative would protect an intermediate area of water resources and hydrologic processes compared to the other alternatives by zoning 49% of the park as Integrated Resource Management and 46% of the park as Sensitive Resources. In alternative C, access to sensitive resources would not be as limited as alternative B, but would still preserve watershed areas with high water quality such as Waikolu Valley and the headwaters in Pu'u Ali'i. Visitor access and use would be increased throughout the park under alternative C compared to B, potentially resulting in an increase in erosion along trails and at primary visitor use areas that could have impacts on water quality.

Impacts from NPS educational and stewardship programs would be higher than those described in alternatives A and B since these programs would be enhanced in this alternative. There would be a benefit to water quality from

the stewardship groups because many of their activities would be centered on preservation projects.

Within the settlement, impacts from NPS operations on water quality would be approximately the same as those described in alternatives A and B. Even though park activities would increase there would be a reduction in state activities to offset the difference, resulting in similar water quality impacts such as nutrient and sediment inputs into marine waters.

Alternative D

This alternative would protect the smallest area of water resources and hydrologic processes compared to the other alternatives by zoning 60% of the park as Integrated Resource Management and 34% of the park as Sensitive Resources.

Visitor access and use would be highest throughout the park under alternative D compared to the other alternatives, resulting in an increase in erosion along trails and at primary visitor use areas that would have impacts on water quality. Impacts from NPS educational and stewardship programs would be highest compared to those described in the other alternatives since these programs would be enhanced in this alternative. Within the settlement, impacts from NPS operations on water quality would be slightly higher than those described in the other alternatives, primarily because of higher visitation. Consequently, water quality impacts such as nutrient and sediment inputs into marine waters would be highest.

Cumulative Impacts

The Common to All cumulative impacts of climate change due to increasing anthropogenic CO₂ emissions on water resources and hydrologic processes would be long-term, major, and adverse. It is anticipated that these cumulative impacts from climate change would be the dominant factor influencing water resources and hydrologic processes in the park.

In alternative A, the cumulative impacts of existing facilities within the settlement would have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes. It is anticipated that the impacts would decrease over time given the decline in human population since the height of the settlement in the early 1900s. Outside of the settlement, the cumulative impacts on water resources and hydrologic processes would be negligible except for the water diversion of Waikolu stream which would be long-term, minor, and adverse. Continued monitoring of the stream flow and biota will help determine if the adverse impacts are more than minor.



Researchers measure the cross section at the mouth of Waikolu stream. NPS photo.

The common to all cumulative impacts of restoration activities under alternatives B, C, and D would be beneficial.

In alternative B, the cumulative impacts of existing facilities within the settlement would be similar to alternative A and have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes. It is anticipated that the impacts would be decreasing over time given the decline in human population since the height of the settlement in the early 1900s. Outside of the settlement, the cumulative impacts on water resources and hydrologic processes would be negligible.

In alternative C, the cumulative impacts of existing facilities within the settlement would be greater than alternatives A and B given the expected increase in visitation levels, but still only have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes.

In alternative D, the cumulative impacts of existing facilities within the settlement would be greatest compared to the other alternatives given the highest visitation levels, and therefore have long-term, moderate, adverse, and localized impacts on water resources and hydrologic processes.

Conclusion

The continued monitoring and research of the water resources at Kalaupapa as well as the drinking water treatment under all alternatives would be a benefit to the preservation and protection of water resources. The continued diversion of Waikolu stream, however, would generate a long-term, minor, adverse impact on the stream fauna and flora.

The continued existence of structures and facilities in some areas of the park would have long-term, minor, adverse, and localized impacts on water resources and hydrologic processes under alternative A.

Projects to improve natural habitat values and ecosystem function would have beneficial impacts on water resources and hydrologic processes.

Generally, long-term, moderate adverse impacts would occur from the continued presence and maintenance of existing facilities, the continued presence of the existing volume of vehicular/vessel traffic, and continued patterns of visitor use. Beneficial impacts would occur from monitoring activities, restoration of natural areas, and from education and stewardship activities.

The removal and reclamation of facilities and structures, the stabilization of natural wetland and dryland forest (e.g. Kauhakō crater) areas, and restoration of watershed processes under alternatives B, C, and D would result in beneficial impacts on water quality, while the construction, maintenance, or removal of trails and facilities would have short-term, minor, adverse impacts on water quality.

Generally, adverse impacts would occur from new or existing facilities. Beneficial impacts would occur from trail and road maintenance and the restoration of disturbed sites.

Under alternative B there would be beneficial impacts on water quality at the topside visitor center from moving the primary visitor use area offsite and reducing onsite visitor opportunities. There would be short-term, minor, adverse impacts on water quality during construction.

Generally, adverse impacts would occur from new offsite facilities, but onsite activities would have the fewest adverse impacts compared to the other alternatives.

For alternative C there would be long-term minor, adverse, localized impacts on water quality from the increase in visitor facilities onsite. There would be short-term, minor, adverse impacts on water quality during construction.

With alternative D there would be long-term, minor, adverse, localized impacts on water quality from the highest level of visitor use onsite compared to the other alternatives.

Marine Resources—Coastal Reef, Habitats, and Wildlife

Common to All Alternatives

Monitoring of the coral reef habitats and associated fish communities would continue under the NPS Inventory and Monitoring program. These activities would increase our knowledge and understanding of habitats and identify high quality reef areas with high values of coral cover, coral larval settlement, fish abundance, and fish biomass. The monitoring efforts would be beneficial to the ethnographic, socioeconomic, and the marine resources themselves as well as the interpretation and education activities. In addition, the information would be useful in understanding the effects of climate change on the marine resources.

Future plans include monitoring and research in areas of maritime archeology, community ecology, and different wildlife species than those currently being examined. Exploring the establishment of a marine managed area encompassing significant resources such as areas with high fish biomass would have beneficial impacts on ethnographic resources by protecting traditional uses long-term. There would also be adverse impacts by limiting take and potentially types of cultural practices allowed. Other beneficial impacts of this action include protecting archeological resources such as fish heiaus and special status species (See Special Status Species) and establishing joint enforcement with the State of Hawai'i. In addition, there would be an increase in our knowledge of the marine resources for interpretation and education with concomitant benefits to visitation by increasing attention and interest in the park.

Climate change will significantly impact marine resources by increasing ocean temperature leading to detrimental events such as coral bleaching, increasing storm frequency and severity, increasing sea level, and altering ocean chemistry, particularly pH, which is expected to become more acidic. Therefore, park management actions and mitigation strategies will focus on impacts on natural and cultural resources as well as overall park operations.

Alternative A

Actions under alternative A would benefit from the protection of marine habitats and wildlife by maintaining the existing community regulations and capping overall visitation onsite to 100 people.

Common to Alternatives B, C, and D

The establishment of a marine managed area would have adverse impacts on marine use by limiting visitor access and by increasing enforcement activities.

Alternative B

This alternative would be the most beneficial for protection of marine habitats and wildlife by protecting the largest areas of sensitive resources and limiting onsite visitation.

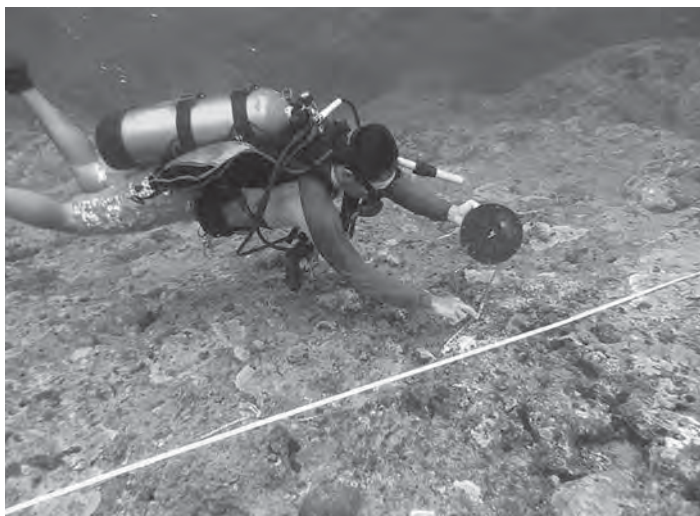
The primary adverse impact from this alternative would be on ethnographic resources by limiting take and potentially types of practices allowed. There would also be adverse impacts on visitor access restrictions and NPS operations by increasing enforcement activities.

Alternative C

Restoration activities conducted by service groups, such as the removal of alien species in intertidal areas, would have additional benefits on marine resources and special status species in this alternative compared to alternatives A and B. There would be adverse impacts on the resources from the inadvertent col-

lection of native species during the restoration activity. Visitor opportunities, interpretation, and education would benefit from this alternative.

This alternative would monitor resources using both traditional and contemporary methods providing benefits to ethnographic resources by sustaining traditional practices, interpretation and education, and visitor opportunities. There would be adverse impacts on the marine resources from the low level of extraction associated with this alternative since more visitors would be fishing in more areas around the park and targeting key resource species. The benefits associated with this alternative would be moderate compared to those provided in the other alternatives.



NPS diver taking measurements on the coral reef. NPS photo.

Alternative D

The establishment of a marine managed area would have minimal impacts on visitor access and visitation since this alternative would have the highest levels for these resource categories. Given the high level of visitation, impacts on the marine resources and increased enforcement activities would be evident.

As described in alternative C, restoration activities would provide benefits to marine resources and special status species, but this alternative would engage the general public through demonstrations rather than using service groups. Therefore, the benefits would be lower for the resources, but greater for visitor opportunities and interpretation and education. There would

be little to no impacts on the resources from the inadvertent collection of native species and on visitor safety during the restoration activity.

As described in alternative C, both traditional and contemporary methods would be used to monitor resources providing benefits to ethnographic resources, interpretation and education, and visitor opportunities. There would be a minimal impact on the marine resources from the low level of extraction associated with this alternative. There would also be minor concerns about the safety of the visitor engaged in these activities since a higher number of visitors

would be allowed greater access to areas in the park than in the other alternatives. The benefits to the marine resources associated with this alternative would be the smallest compared to those provided in the other alternatives.

Cumulative Impacts

The cumulative impacts of climate change due to increasing anthropogenic CO₂ emissions on marine resources under all alternatives would be long-term, major, and adverse. It is anticipated that these cumulative impacts from climate change would be the dominant factor influencing marine resources in the park rather than direct human activities.

In alternative A, the cumulative impacts of the existing regulations and current human activities (e.g. fishing, ranching in one of the watersheds, construction activities in the settlement, sewage and nutrients flowing out from the settlement) would have long-term, minor, adverse, and localized impacts on coral reef habitats and wildlife. It is anticipated that the impacts would stay the same over time given the current activity levels.

The potential establishment of a marine managed area under the action alternatives plus continuing protection of sensitive areas under alternative A would have an overall beneficial cumulative impact because of the recovery in fish populations within the area and the associated benefits to the reef and habitats.

In alternative B, the cumulative impacts of the existing regulations and human activities would be less than in alternative A and would have long-term and negligible impacts on coral reef habitats and wildlife.

Under alternative C, the cumulative impacts of the existing regulations and current human activities would be greater than in alternatives A and B given the expected increase in visitation levels, but still only have long-term, minor, adverse, and localized impacts on coral reef habitats and wildlife.

In alternative D, the cumulative impacts of the existing regulations and human activities would be greatest compared to the other alternatives given the highest visitation levels, and therefore have long-term, moderate, adverse, and localized impacts on coral reef habitats and wildlife. Any benefits with this alternative would be offset by the higher levels of fishing pressure, sewage, and pollution associated with an increase in visitation.

Conclusion

For all alternatives, beneficial impacts on the coastal reef habitats and wildlife include increasing our knowledge base for interpretation and education by monitoring the marine resources coupled with future research activities. Other benefits include exploring the establishment of a marine managed area, and setting aside areas with sensitive marine resources.

Beneficial impacts of alternative A on the coastal reef habitats and wildlife include monitoring of the marine resources, future research activities, and maintaining existing community regulations which protect the marine resources better than other areas around the state.

The primary long-term minor and adverse impact of this alternative is the lack of a joint enforcement agreement for concurrent jurisdiction with the State of Hawai'i.

Alternatives B, C, and D would provide beneficial impacts on the marine resources by zoning sensitive marine resources for higher protection. The primary long-term, minor, and adverse impacts of this alternative would be on restricting visitor access and NPS operations by increasing enforcement activities. There would also be negligible impacts on visitor safety and native species during restoration and monitoring activities.

Alternative B would offer the best protection of the marine resources compared to the other alternatives by setting aside the largest areas of sensitive marine resources.

Alternative C would offer intermediate protection of the marine resources compared to the other alternatives.

Alternative D would offer the least amount of protection for the marine resources compared to the other alternatives due to greater visitor access to areas of the park.

Soils and Geologic Resources and Processes

Common to All Alternatives

The NPS in partnership with the United States Geological Survey (USGS) would continue monitoring geological resources and seismic activity.

Alternative A

No formal monitoring of soil erosion or landslides occurs currently within Kalaupapa NHP. Lack of a monitoring baseline for soil and geological processes would result in a failure to capture information about the direct consequences of soil disturbance by nonnative animals, management actions, and other natural or anthropogenic mediated perturbations on the landscape. An example of an ongoing landscape vegetation change with the ability to influence soil and geological processes are the loss of herbaceous understory due to herbivory by axis deer, and the encroachment of Christmas berry and Java plum into areas previously dominated by herbaceous vegetation. These processes contribute to soil erosion across the Kalaupapa peninsula, the pali, and in the rainforest.

Common to Alternatives B, C, and D

Kalaupapa NHP would mitigate for soil erosion and landslides, and take preventative measures to stabilize sensitive and erodible areas, as feasible. A prime area for such work would be the pali trail, where understanding the geological landscape and its processes would contribute to the safety of trail users. Enhanced feral animal control efforts would have an indirect benefit by allowing the recovery of a protective layer of vegetation over soil resources.

Cumulative Impacts

For all alternatives, the proposed pali trail bridge replacement and the construction of an alternative trail alignment for the pali trail would result in impacts on soil and the geologic process. However, these projects would follow all NPS policies and best management practices for trail construction to avoid adverse impacts. Therefore, these projects would have minor, short-term adverse impacts on the soil and geologic process in the area of construction. The implementation of the Kalaupapa fire management plan and any future unexploded ordnance removal efforts could result in impacts on soil and geologic processes. Again, these projects would follow NPS policies and best management practices so there would be negligible to minor long- and short-term adverse impacts.

Improvements in the control of feral animals and vegetation management would counteract the influence of projects imparting a disturbance to the landscape resulting in negligible to minor long- and short-term adverse impacts.

Conclusion

The lack of baseline information about soil and geological processes following alternative A would result in a poor understanding of soil and geological processes. Additionally, the lack of a formalized management plan for stabilizing soils and geologic resources throughout the park would result in a long-term minor adverse effect.

For alternatives B, C, and D, the initiation of a monitoring plan, mitigation, and stabilization efforts would be a benefit by contributing to the knowledge of geological and soil processes. Such knowledge and potential stabilization of key areas would protect resources and improve the safety of residents and visitors.

Biological Resources—Habitat, Wildlife, and Vegetation

Vegetation and wildlife are addressed together in this section, because an analysis of potential impacts on wildlife typically involves a discussion of wildlife habitat, which consists of various vegetation and aquatic communities found within Kalaupapa NHP.

Common to All Alternatives

Kalaupapa NHP would continue to restore native vegetation in demonstration restoration areas by removing nonnative species and planting native species. In the native forests within the park, the NPS would continue active management programs to reduce destruction of native vegetation by removing feral ungulates. The NPS would continue preservation efforts of significant vegetation areas such as the coastal spray vegetation along the east coast of the Kalaupapa peninsula and higher elevation rainforest. The NPS would also continue nursery activities for rare and threatened native plant propagation.

A focus on reduction and management of nonnative wildlife species within the park would continue. This includes reducing feral ungulates by fencing and hunting in selected management units of the park, maintaining the existing level

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of monitoring of feral ungulate removal, and managing feral animals within the settlement such as mongoose.

While marine birds are common along the coast, few nesting sites are available because of the presence of feral cats, rats, and mongoose. Few native terrestrial birds exist at lower elevations within the zone inhabited by avian malaria-transmitting mosquitoes. Native birds in Kalaupapa NHP rainforests are further threatened by the recent introduction to Hawai'i of a new mosquito species able to live and transmit avian malaria at higher elevations.

The current program for cat management at Kalaupapa is comprised of one to two annual visits by volunteer veterinarians to spay and neuter cats and provide basic care to animals owned by Kalaupapa residents. Efforts are considered to benefit the cat population by minor reduction in reproductive capacity and improvement in cat herd health.

No efforts are currently underway to manage mongoose, rats or any other rodents outside of existing buildings.

Similarly, in the aquatic realm, Kalaupapa NHP would continue to research and monitor resources in the oceans and streams to identify threats and stressors that impact fauna and flora. Management actions would include partnerships with agencies such as the National Oceanic and Atmospheric Administration

(NOAA) and USGS to protect endangered species and understand ecosystem processes.

Common to Alternatives B, C, and D

In addition to the management actions identified under the no-action alternative, natural resource managers would also work with the cultural resources program to expand the nursery to cultivate ethnographically important ornamental, food, and medicinal plants and manage remaining field populations of legacy plants by outplanting and maintaining appropriate culturally important areas.

The expansion of the Kalaupapa program to cultivate and maintain legacy/heritage trees would benefit a small heritage native tree component on the peninsula.

Kalaupapa NHP would continue to manage nonnative ungulates under alternative C, and expand animal control to reduce the number of small mammals within the settlement and key ecological areas (for example, outplanting sites). This would allow vegetation recovery from herbivory attributed to feral ungulates. The removal of small mammals would improve native plant reestablishment from seeds and increase bird fledgling survival in key areas. Establishing a monitoring program to track the status of wildlife (native and nonnative) would improve understanding of the influence of nonnative wildlife management



Left: Native plant nursery, providing plants for restoration efforts. Right: working on feral ungulate exclusion fencing. NPS photos.

on native plants and animals, leading more effective project implementation in the future.

Alternative C

Alternative C is similar to alternatives B and D, but would incorporate traditional management practices at demonstration areas and use volunteers to participate with ongoing restoration efforts.

Cumulative Impacts

Cumulative impacts are the same for all alternatives. Vegetation and wildlife in Kalaupapa have been cumulatively and adversely affected from many different types of human activity in the past and will continue to be influenced by projects through the foreseeable future. Minor to moderate long-term adverse cumulative effects would be associated with ongoing operations and management of existing facilities, continued invasion from invasive nonnative plants, potential fire suppression activities, and the influence of climate change.

Conclusion

For actions common to all alternatives, the impact of the current feral animal management program (fencing and feral deer, pig, goat removal) is likely the single most effective action benefiting the rainforest, pali, and management units located on the east coast of the Kalaupapa peninsula and all of their native inhabitants. The programs would continue to benefit the terrestrial resources (individual plants, birds, and other wildlife as well as their habitat) within Kalaupapa NHP.

In general, the actions and guidance common to alternatives B, C, and D would be a benefit to the management of stable and healthy natural resources. Alternative B would provide an additional benefit to natural resources by aiding the maintenance and outplanting of a small component of heritage native trees part of the ethnographic landscape. The use of volunteers and service groups would enhance the scope and scale of restoration efforts under alternative C. Alternative D would provide a benefit (relative to the no-action alternative) to natural resources by aiding the maintenance and outplanting of a small component of heritage native trees forming a part of the ethnographic landscape.

Special Status Species

The following table is a cross-walk between the NEPA and Endangered Species Act Section 7 definitions of intensity of effect.

Table 5.1: Definitions of intensity of effect on special status species

NEPA	ESA Section 7	
Negligible	No Effect	The project (or action) is located outside suitable habitat and there would be no disturbance or other direct or indirect impacts on the species. The action will not affect the listed species or its designated critical habitat.
Minor Moderate	May Affect, Not Likely to Adversely Affect	The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur.
Major	May Affect, Likely to Adversely Affect	The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial.

Common to All Alternatives

In general, many of the impacts on vegetation and wildlife previously described in the habitat sections would apply to special status species. For example,

increasing visitor access and opportunities would result in changes that would have adverse impacts on listed species and their habitats. Likewise, vegetation management and restoration activities would result in beneficial impacts on listed species and their habitats. Keeping this in mind, the analysis provided below generalizes about the effects of management priorities and, where possible, focuses on the impacts that specific actions included in the alternatives may have on listed species and their habitats.

Feral animal control aids the maintenance of habitat suitable for native birds remaining at higher elevations, and water quality for threatened damselflies at lower elevations. Partners (The Nature Conservancy and DLNR) play an important role in feral animal control at higher elevations (pali and Pu‘u Ali‘i rainforest). NPS staff are responsible for feral animal control on the peninsula in lower elevation habitats (e.g. coastal spray zone and crater). It is not known how current management actions affect the Hawaiian hoary bat.

Climate change will significantly impact special status species by increasing storm frequency and severity, increasing sea level leading to loss of coastal habitat, declining precipitation, and increasing temperature affecting all special status species, especially those terrestrial species restricted to high elevation areas that are rapidly dwindling. Therefore, park management actions and mitigation strategies will focus on impacts on these high profile special status species.

Listed below are the special status species currently in the park and common to all alternatives.

Green Sea Turtle (*Chelonia mydas*)—Beneficial impacts would include monitoring of sea turtle nests, law enforcement patrols to ensure protection at sea from human harassment and predation, reduction in runoff and associated pollutants to improve the marine habitat, and reducing feral animal populations that prey on sea turtle nests. All of these activities should improve and protect breeding and foraging habitat by improving conditions within the marine habitat preferred by the green sea turtle. Controlling and managing visitor use

would also reduce impacts on sea turtles such as harassment in the water. Some adverse impacts would continue, however, such as long-term park operations and short-term project specific construction impacts. These may involve “take” associated with harassment and accidental death within construction areas or impacts of existing vessel traffic. The National Park Service would continue to monitor sea turtle nesting sites and survey potential habitat. The primary threat to the sea turtle would continue to be habitat degradation and direct harassment—an adverse impact associated with park operations and visitor use. There has not been any designated critical habitat at Kalaupapa. Collectively, impacts on the green sea turtle resulting from NPS actions that are part of the no-action alternative (the continuation of current management and trends)

would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, likely to adversely affect*” for project specific actions in the short term, and “*may affect, not likely to adversely affect*” for land use and park management over the long-term. Consultation for specific projects would occur as necessary and may result in cessation or a temporary pausing of the project.

Hawaiian Monk Seal (*Monachus schauinslandi*)—Beneficial impacts would include shoreline monitoring of monk seals, population studies in partnership with NOAA, law enforcement patrols to ensure protection along the beach from human harassment,

reduction in runoff and associated pollutants to improve the marine habitat, and reducing feral animal populations that might influence monk seal breeding. All of these activities should improve and protect breeding and foraging habitat by improving conditions within the marine habitat preferred by the monk seal. Controlling and managing visitor use would also reduce impacts on sea turtles such as harassment on the beach and in the water. Some adverse impacts would continue, however, such as long-term park operations and short-term project specific construction impacts. These may involve “take” associated with harassment within construction areas or impacts of existing vessel traffic. The National Park Service would continue to monitor monk seal pupping sites and



Hawaiian monk seal. NPS photo.

survey potential habitat. The primary threat to the monk seal would continue to be habitat degradation and direct harassment—an adverse impact associated with park operations and visitor use. Kalaupapa has been designated critical habitat which ensures section 7 consultation for any governmental projects along the shoreline. Collectively, impacts on the monk seal resulting from NPS actions that are part of the no-action alternative (the continuation of current management and trends) would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, likely to adversely affect*” for project specific actions in the short term, and “*may affect, not likely to adversely affect*” for land use and park management over the long term. Consultation for specific projects would occur as necessary and may result in cessation or a temporary pausing of the project.

Humpback Whale (*Megaptera novaeangliae*)—Beneficial impacts would include law enforcement patrols to ensure protection at sea from human harassment and reduction in runoff and associated pollutants to improve the marine habitat. These activities should improve and protect breeding habitat by improving conditions within the marine habitat preferred by the humpback whale. Some adverse impacts would continue, however, such as long-term park operations and short-term project specific construction impacts. These may involve “take” associated with harassment within construction areas or impacts of existing vessel traffic. The National Park Service would continue to monitor and survey potential habitat. The primary threat to the humpback whale would continue to be habitat degradation and direct harassment—an adverse impact associated with park operations and visitor use. Collectively, impacts on the humpback whale resulting from NPS actions that are part of the no-action alternative (the continuation of current management and trends) would be long-term, beneficial, negligible, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, not likely to adversely affect*” for project specific actions in the short term, and “*may affect, not likely to adversely affect*” for land use and park management over the long term. Consultation for specific projects would occur as necessary and may result in cessation or a temporary pausing of the project.

High-elevation terrestrial birds (*Myadestes lanaiensis*, *Paroreomyza flammea*, *Vestiaria coccinea*) are likely to continue to decline through the long term as a consequence of avian malaria.

High-elevation rainforest/cliff-dwelling terrestrial plants (*Bidens wiebkei*, *Clermontia oblongifolia* ssp. *brevipes*, *Cyanea dunbarii*, *Cyanea procera*, *Hedyotis mannii*, *Hesperomannia arborescens*, *Hibiscus arnottianus* ssp. *immaculatus*, *Lysimachia maxima*, *Melicope reflexa*, *Phyllostegia hispida*, *Phyllostegia mannii*, *Plantago princes* var. *laxiflora*, *Platanthera holochila*, *Ranunculus mauianensis*, *Stenogyne bifida*, and *Zanthoxylum hawaiiense*) are likely to stabilize in the short term and improve in abundance in the longer term—the consequence of the recent completion of fencing projects aimed at improving feral animal (pigs and goats) control. The removal of feral animals from the fenced management units is ongoing. Future augmentation of rare plants within fenced areas would stabilize high elevation rare plants.

Makou (*Peucedanum sandwichense*) present on islets east of the peninsula are likely to stabilize in the short term and improve in abundance in the longer term—the consequence of rat control.

Marine birds (*Pterodroma sandwichensis*, *Puffinus auricularis newelli*) are unlikely to be influenced by management alternatives in the shorter term. In the longer term, the control of feral animals may provide suitable nesting sites along the coast and within the Crater Management Unit, though no actions are likely to occur in the foreseeable future.

The **Hawaiian hoary bat** (*Lasiurus cinereus semotus*) is likely to remain stable in the short term, but spread of disease may result in future declines.

Lower-elevation plants—Many have recently received increased protection as a result of successful fencing and deer eradication projects. This is particularly so for low elevation coastal plants along the eastern seaboard of the Kalaupapa peninsula (*Tetramolopium rockii*). Other plants within smaller outplanting areas have been stabilized in the short term, and are likely to increase in the longer term pending project funding and implementation (*Canavalia molokaiensis*, *Peucedanum sandwichense*, *Scaevola coriacea*, and *Sesbania tomentosa*). Other plants have recently been lost from Kalaupapa NHP (*Centaurium sebaeoides*) due to habitat changes or are expected to show continued declines because of extrinsic factors (*Brighamia rockii*).

Table 5.2: Determination of Impacts to Special Status Species

Species	Status	Endangered Species Act Determination
Terrestrial and Marine Wildlife, Birds, and Insects		
green sea turtle (<i>Chelonia mydas</i>)	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
humpback whale (<i>Megaptera novaeangliae</i>)	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Hawaiian monk seal (<i>Monachus schauinslandi</i>)	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Hawaiian hoary bat <i>Lasiurus cinereus semotus</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Blackburn's sphinx moth, <i>Manduca blackburni</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Pacific Hawaiian damselfly, <i>Megalagrion pacificum</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Molokai thrush or oloma'o <i>Myadestes lanaiensis</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Molokai creeper or kākāwahie <i>Paroreomyza flammea</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Hawaiian petrel <i>Pterodroma sandwichensis</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Newell's shearwater <i>Puffinus auricularis newelli</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'i'iwi <i>Vestiaria coccinea</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Terrestrial Plants		
ko'oko'olau <i>Bidens wiebkei</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
pua'ala <i>Brighamia rockii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'āwikiwiki <i>Canavalia Molokaiensis</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term

Species	Status	Endangered Species Act Determination
lavaslope centaury or 'āwiwi <i>Centaurium sebaeoides</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'oha wai <i>Clermontia oblongifolia ssp. brevipes</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
haha <i>Cyanea dunbarii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
haha <i>Cyanea procera</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
pilo <i>Hedyotis mannii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Hesperomannia arborescens</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
hibiscus <i>Hibiscus arnottianus ssp. immaculatus</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Lysimachia maxima</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
alani <i>Melicope reflexa</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
Carter's panicgrass, <i>Panicum fauriei</i> var. <i>carteri</i> ,	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
makou <i>Peucedanum sandwicense</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Phyllostegia hispida</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Phyllostegia mannii</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
kuahiwi laukahi <i>Plantago princeps</i> var. <i>laxiflora</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Platanthera holochila</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term

Species	Status	Endangered Species Act Determination
makou <i>Ranunculus mauianus</i>	Candidate	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
dwarf naupaka <i>Scaevola coriacea</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
'ōhai <i>Sesbania tomentosa</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Stenogyne bifida</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
----- <i>Tetramolopium rockii</i> var. <i>rockii</i>	Federal threatened	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term
a'e <i>Zanthoxylum hawaiiense</i>	Federal endangered	"may affect, likely to adversely affect" for project specific actions in the short term, and "may affect, not likely to adversely affect" for land use and park management over the long term

Alternative A

Under alternative A, the park would continue to monitor the distribution, abundance, and habitat use of selected special status species such as the Hawaiian monk seal and selected plant species. The park would also continue its program of invasive plant and feral animal eradication to protect remaining areas with rare plants (coastal spray zone, crater, pali, and Pu'u Ali'i rainforest) and using fencing to create safe areas for cultivated plants.

Staff at the park currently collect propagules (seeds and cuttings) from plants within the park, or receive propagules from past collections maintained at botanical gardens. These plants are grown out in the nursery and then reintroduced to the field in the form of seeds, seedlings, or more mature potted plants. Volunteers are commonly used for nursery maintenance, plant propagation on the Kalaupapa peninsula.

No management actions are currently ongoing to monitor threatened green sea turtles or endangered humpback whales, facilitate marine bird nesting success along the park coastline, or document the Hawaiian hoary bat. This alternative would have the fewest management activities targeting special status species.

Common to Alternatives B, C, and D

These alternatives would:

- Create a variety of management zones that would assist in the protection of special status species.
- Enhance monitoring efforts to assess more species than in alternative A.
- Enhance partnerships to enable a greater information exchange with federal and state agencies as well as local conservation groups.
- Management actions on special status species would be greater in the Integrated Resource Management zone than in other zones due to accessibility for personnel and distribution patterns of these species.
- Kalaupapa NHP would continue its program of invasive plant and feral animal eradication to protect remaining areas with rare plants (coastal spray zone, crater, pali, and Pu'u Ali'i rainforest) and using fencing to create safe areas for cultivated plants.

- Impacts on green sea turtles (*Chelonia mydas*) and their habitat would be the same as under the no-action alternative with the exception of increased benefits due to the larger sensitive zones and enhanced partnerships to protect the species. Impacts on the green sea turtle resulting from NPS actions would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, not likely to adversely affect.*”
- Impacts on Hawaiian monk seals (*Monachus schauinslandi*) and their habitat would be the same as under the no-action alternative with the exception of increased benefits due to the larger sensitive zones and enhanced partnerships to protect the species. Impacts on the monk seal resulting from NPS actions would be long-term, beneficial, minor, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, not likely to adversely affect.*”
- Impacts on Humpback Whale (*Megaptera novaeangliae*) and their habitat would be the same as under the no-action alternative with the exception of increased benefits due to the enhanced partnerships to protect the species. Impacts on the humpback whale resulting from NPS actions would be long-term, beneficial, negligible, and localized. The determination of effect under Section 7 of the Endangered Species Act would be “*may affect, not likely to adversely affect.*”

Alternative B

This alternative would protect the largest area for special status species by zoning 62% of the park as Integrated Resource Management and 34% of the park as Wao Akua.

Impacts on special status species and their habitats would be the same as under the no-action alternative with the exception of increased benefits due to lower visitation levels. Most of the visitation would take place off site thereby reducing direct pressure on the special status species and indirect pressure on their habitats.

Alternative C

This alternative would protect an intermediate area for special status species compared to the other alternatives by zoning 49% of the park as Integrated Resource Management and 46% of the park as Wao Akua.

Impacts on special status species and their habitats would be the same as under the no-action alternative with the exception of increased benefits due to the restoration activities using service groups and augmented visitor opportunities. Restoration activities include removal of nonnative shoreline vegetation in nesting and nursing habitats and outplanting of native vegetation in watersheds influencing the habitats of these special status species. Visitor opportunities and educational experiences would be increased through the service groups and higher visitation levels.

The adverse impacts associated with this alternative would be a reduction in sensitive areas and direct interactions with special status species due to the alternative zonation and increased visitor use.

Alternative D

This alternative would protect the smallest area for special status species compared to the other alternatives by zoning 60% of the park as Integrated Resource Management and 34% of the park as Wao Akua.

Impacts on special status species and their habitats would be the same as under the no-action alternative with the exception of increased benefits due to the restoration activities through demonstration projects and augmented visitor opportunities. Restoration activities include removal of nonnative shoreline vegetation in nesting and nursing habitats and outplanting of native vegetation in watersheds influencing the habitats of these special status species. Visitor opportunities and educational experiences would be increased due to the highest visitation levels.

The adverse impacts associated with this alternative would be a reduction in sensitive areas and direct interactions with special status species due to the alternative zonation and the highest levels of visitor use.

Cumulative Impacts

While management actions directly associated alternative A are a benefit to special status species, other stressors such as invasive species and climate change defined by precipitation, and temperature regime as well as ocean conditions would continue to imperil special status species resulting in short- and long-term minor to moderate adverse impacts on special status species. It is anticipated that cumulative impacts from climate change would be most det-

rimental to special status species with this alternative given the lowest level of management activities compared to other alternatives. Therefore, cumulative impacts on special status species would be long-term, moderate, and adverse.

Under alternatives B, C, and D, the potential establishment of a marine managed area as well as protecting sensitive areas would have an overall beneficial cumulative impact because of the recovery in fish populations within the area and the associated benefits to visitation. It is anticipated that a joint enforcement agreement with the State of Hawai'i would have a long-term, beneficial cumulative impact on the marine habitats and wildlife.

Conclusion

For all alternatives, beneficial impacts on the coastal reef habitats and wildlife include increasing our knowledge base for interpretation and education by monitoring the marine resources coupled with future research activities. Management activities would benefit special status plant and wildlife species in management areas where feral animals are removed. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.

For alternatives B, C, and D, management would provide beneficial impacts on the marine resources by zoning sensitive marine resources for higher protection. The primary long-term, moderate, and adverse impacts of these three alternatives would be from changes in climate such as increasing storm frequency and severity, increasing sea level leading to loss of coastal habitat, declining precipitation, and increasing temperature affecting all special status species. A secondary long-term minor, adverse impact would be on restricting visitor access and NPS operations by increasing enforcement activities. There would also be negligible impacts on visitor safety and native species during restoration and monitoring activities.

Management under alternative A would benefit terrestrial special status plant or wildlife species in management areas where monitoring occurs and where feral animals are removed. This would be a subset of the larger list above. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts to all special status species.

Alternative B is unlikely to have influence on any terrestrial special status plant or wildlife species beyond the no-action alternative except in areas zoned as sensitive resources. Management would benefit special status plant and wildlife species in management areas where feral animals are removed. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.

The stewardship influence of alternative C would be a great benefit to terrestrial special status plant or wildlife species within Kalaupapa NHP, particularly those plants on the Kalaupapa peninsula. Any adverse impacts from increased visitation would be long-term, minor, and localized. Despite beneficial management actions, factors outside of NPS control (future invasive species and climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.

The park would see increased visitation under alternative D, but little additional labor in the form of volunteer service relative to alternative A. Alternative D would thus not influence terrestrial special status plant or wildlife species differently than the no-action alternative A. Despite beneficial management actions, factors outside of NPS control (future invasive species and Climate changes) would continue to dominate resulting in short- and long-term minor to moderate adverse impacts on special status species.



Brighamia rockii (federally endangered plant) on Huelo islet. NPS photo.

Impacts on Fishing, Hunting, and Gathering

Common to All Alternatives

NPS regulations would continue to apply to the marine area of the park and on land to the extent consistent with the lease with DHHL and the cooperative management agreements.

In the short term, existing Department of Health (DOH) patient and resident regulations about fishing and gathering below the 500 foot elevation would continue until the DOH leaves Kalaupapa. Hunting above the 500 foot elevation (managed by the Department of Land and Natural Resources (DLNR), Department of Fish and Wildlife) would be governed by State of Hawai'i hunting rules and regulations. Hunting of axis deer, goats, and pigs removes these nonnative ungulates from trampling native vegetation, impacting cultural resources including archeological sites, and altering the hydrology and sedimentation processes in the watersheds.

Currently, most of the fishing, hunting (deer and pigs), and gathering (plant collection for subsistence, religious, cultural, or medicinal purposes) within Kalaupapa NHP pursuant to DOH regulations (particularly the peninsula) is by non-patient residents of Kalaupapa.

Alternative A

Under alternative A, the regulations listed above would continue into the long-term future, unless unpredicted changes occurred in the relative abundance of natural resources. Of the various resources found in the park, plant resources appear to have been impacted the most over the past few decades. Wild animals (deer and pigs) and the proliferation of invasive shrubs and trees (Java plum, Christmas berry, lantana, date palm) have already had a negative impact on the landscape prior to the NPS coming to Kalaupapa. In recent decades, traditional Hawaiian plants, food and medicinal plants have declined considerably due to feral animals and competition from invasive plants for water, nutrients, and light. The remaining plant resources are in poor condition and unlikely to rebound without intervention, including the removal of alien species and reestablishment of propagated plants. This decline would continue across the peninsula without active management.

Common to Alternatives B, C, and D

These alternatives would:

- In the long term, work cooperatively with the State of Hawai'i and partners to manage marine and terrestrial resources. If the State of Hawai'i wishes to establish new regulations for hunting, the NPS would cooperate. The current DOH guidelines established by the patients will be modified once the patient community is gone to ensure the long-term preservation of resources and also control feral animal damage to desired plant resources that are important for cultural practices, food, and subsistence.
- Enhance monitoring efforts to evaluate impacts of resource extraction and the efficacy of management actions.

Alternative B

In alternative B, the focus would be on offsite visitation and maximum area set aside for protection. This alternative would emphasize management actions augmenting natural processes to recover and build resilience in ecosystems. Extractive activities of native wildlife such as fishing would diminish, but restoration efforts would also diminish due to fewer volunteer stewardship groups and general visitors. The fewest onsite educational opportunities for visitors would occur in this alternative.

Alternative C

In alternative C, an emphasis on volunteer and service groups would add a partnership with community and educational groups to aid with implementation of enhanced marine and terrestrial vegetation management—propagation, outplanting, monitoring, and maintenance of the vegetative landscape. The benefit of involving community service groups in stewardship of the natural resources is a win-win for both the park and its resources and for groups desiring a community service component.

Alternative D

Alternative D emphasizes the individual visitor experience and learning through guided tours and self-guided exploration. Management of resource protection, desired plant propagation and outplanting would still occur but on a smaller scale than in alternative C which focuses on group stewardship of the resources.

Cumulative Impacts

For all alternatives in the short term, cumulative impacts would be negligible on the fish populations, but minor and adverse on the hunting and gathering of resources. Cumulative impacts of gathering on natural resources would have long-term, negligible impacts on these resources due to low activity levels in all of the alternatives.

In alternative A, the cumulative impacts of current fishing activities on fish resources would have long-term, minor, adverse, and localized impacts on these resources. Targeting large, apex predators and ecologically important herbivorous fishes would continue to negatively alter ecosystem services in the nearshore marine environment. Cumulative impacts of gathering on natural resources would have long-term, negligible impacts on these resources due to low activity levels at present. As allowed by DOH and DLNR regulations, current hunting activities would have long-term and beneficial cumulative impacts on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.

For alternatives B, C, and D, the potential establishment of a marine managed area as well as protecting sensitive areas would have an overall beneficial cumu-

lative impact because of the recovery in fish populations within the area and the associated benefits to visitation.

Cumulative impacts of current fishing activities in alternative B would continue to have long-term, minor, adverse, and localized impacts on these resources. Although the potential establishment of a marine managed area as well as protecting the largest area of sensitive resources would have an overall beneficial cumulative impact because of the recovery in fish populations within the area and the associated benefits to visitation. Hunting activities in alternative B would have beneficial cumulative impacts on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.

Under alternative C, the cumulative impacts of the existing regulations and fishing activities would be greater than in alternatives A and B given the expected increase in visitation levels, but still only have long-term, minor, adverse, and localized impacts on fishery resources. Hunting activities coupled with stewardship restoration activities in alternative C would have the greatest beneficial cumulative impact compared to other alternatives on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.



Goats in Pu'u Ali'i, 2003. NPS photo.



Marine fish in boulder habitat. NPS photo.

In alternative D, the cumulative impacts of the existing regulations and fishing activities would be greatest compared to the other alternatives given the highest visitation levels, and therefore have long-term, moderate, adverse, and localized impacts on fishery resources. It is anticipated that a joint enforcement agreement with the State of Hawai'i would also have a long-term, beneficial cumulative impact on the fishery resources. Hunting activities would have a beneficial cumulative impact similar to alternatives A and B on native vegetation, cultural resources including archeological sites, and the hydrology and sedimentation processes in the watersheds.

Conclusion

For all alternatives the continuation of the patient resident rules regarding fishing and the management of hunting by DLNR is a benefit to the continued preservation and management of natural resources. The primary long-term, moderate, and adverse impacts of these alternatives would be from changes in climate such as increasing storm frequency and severity, increasing sea level leading to loss of coastal habitat, declining precipitation, and increasing temperature affecting all resources currently being collected.

Alternative A would result in a negligible adverse impact to hunting and a minor impact on fishing resources due to normal subsistence activities and major long-term adverse effects on vegetative resources due to the presence of predominantly invasive species across the landscape. Native Hawaiian plants, food, and medicinal plants are unlikely to rebound without a program to propagate, outplant, and maintain desired plants.

Alternatives B, C, and D would have a beneficial and a major adverse effect on plant resources and gathering of plants. New regulations and networking with the State of Hawai'i and partners would benefit fish and plant resources by providing improved management and an updated plan to better manage resources and access to these resources for cultural practitioners. However, there would also be a major long-term adverse effect due to the existing prevalence of invasive plants and competition with traditional Hawaiian plants, food, and medicinal plants for water, nutrients, and light. Without an active program to remove alien species, native plants are unlikely to rebound on their own without help—propagation, outplanting, monitoring and maintenance of the vegetative landscape.

Alternative B would result in a negligible adverse effect to hunting and fishing resources due to normal subsistence activities and low levels of visitation. At the same time, new regulations and innovative management of marine resources would be beneficial to protect these resources to balance the negligible adverse effects and any potential future adverse effects such as over fishing. Consequently, this alternative would offer the best management tools and the lowest fishing pressure on marine resources compared to the other alternatives. Terrestrially, however, this alternative would have the lowest level of plant management compared to the other alternatives since many of the management activities are supported by service groups and general visitors that would not be as prevalent in this alternative.

Alternative C would result in a negligible adverse effect to hunting and a minor impact on fishing resources due to normal subsistence activities and moderate levels of visitation. Consequently, this alternative would offer intermediate protection of the marine resources compared to the other alternatives due to moderate fishing pressure and the lower level of management activities. Terrestrially, the emphasis of volunteer and community service groups in this alternative would improve the existing status of traditional plant resources through implementation of improved management methods, outplanting, and propagation.

Alternative D would result in a negligible adverse effect to hunting and a minor impact on fishing resources due to normal subsistence activities and the highest visitation levels. Consequently, this alternative would offer the lowest level of protection for the marine resources compared to the other alternatives due to moderate fishing pressure and the lowest level of management activities. Management and protection of plant resources, propagation and outplanting would still occur but on a smaller scale than in alternative C which focuses on active group stewardship of these resources. Without an active program to remove alien species, native plants are unlikely to rebound on their own without help—propagation, outplanting, monitoring, and maintenance of the vegetative landscape.

Impacts on Wild and Scenic Rivers

Common to All Alternatives

Waikolu Stream is listed within the National Rivers Index (NRI) as eligible for Wild and Scenic River designation. Previous studies indicated that Waikolu would be eligible for listing due to its Outstandingly Remarkable Values (ORVs) of Scenery, Fish, and Wildlife.

Large feral ungulate exclosures and wing fences are constructed in the Waikolu stream watershed to protect the rainforest through the prevention of soil surface disturbance and erosion and the transfer of sediments along the Waikolu watercourse thus improving water quality. There are no proposed actions in any of the alternatives that would change the current status and management of Waikolu Stream.

The NPS recommends updating the National Rivers Index for Waikolu Stream by adding Culture and History to the list of contributing of the stream and, based on the updated ORVs, changing the classification to *Scenic*. A suitability analysis for Waikolu Stream, as define in the Wild and Scenic Rivers Act, would be completed at a later date.

Cumulative Impacts

Upper Waikolu Stream has been diverted for human use by the Molokai Irrigation System since November 1960. While there are no plans to change water diversion at this time, there could be future changes to the stream flow by the Molokai Irrigation System. These changes could adversely impact water quality, the stream characteristics, and flow-dependent ORVs. Since NPS does not have the ability to use Section 7 or 13 of the WSRA to prevent such withdrawals, it is possible that the Waikolu's eligibility for designation could change as result of diminished water flow during the life of the GMP. In addition, the continued invasion by nonnative plants would result in the further reduction of native plant abundance.

Conclusion

The continued management of Waikolu Stream to reduce the presence of feral animals and improve the soil stability and water quality would result in a benefit to the Waikolu Stream. The updated National Rivers Index Outstandingly Remarkable Values and classification of Waikolu Stream would benefit the long-term preservation of the stream.



View of Waikolu Valley from the Waikolu overlook. NPS photo.

Impacts on Scenic Resources

Common to All Alternatives

Current management efforts for the preservation of scenic resources, such as removal of nonnative vegetation to maintain significant and historic viewsheds would continue. Of all projects, the fire management plan (common to all alternatives) would have the greatest influence on scenic resources within the Kalaupapa NHP. Fuel reduction within the Wilderness Urban Interface (including Kalaupapa, Kalawao, and roadways) serves also to maintain historic viewscapes. Volunteers would continue to assist with fuel reduction and landscape maintenance activities within Kalaupapa and Kalawao. The program of maintaining and preserving and rehabilitating historic buildings and historic landscapes in Kalaupapa, Kalawao, and in the vicinity of the lighthouse would contribute to the preservation of scenic resources.

Common to Alternatives B, C, and D

The goal to provide visitors with excellent scenic views that encourage appreciation and enjoyment of Kalaupapa and the resources would be established. In the event the NPS were to construct individual alternative energy units, such as photovoltaic panels and wind turbines; or centralized generation facilities, such as solar or wind “farms,” there could be adverse impacts on scenic resources. Planning that includes careful placement and screening would mitigate the adverse effects.

Alternative C

Alternative C would include the same actions as alternatives B and D, but would incorporate service groups for the removal of nonnative vegetation to maintain significant viewsheds.

Alternative D

Same as alternative B

Cumulative Impacts

For all alternatives, the cumulative impacts of the fire management plan, volunteer efforts, and the preservation and rehabilitation of historic buildings and

historic landscapes provides a benefit to the maintenance of scenic resources within Kalaupapa, Kalawao, and along the roadways across the peninsula.

Conclusion

Under all of the alternatives, the scenic values at Kalaupapa would benefit. There is a greater benefit under alternative C because of the use of volunteer labor to provide maintenance to the continued preservation of the viewsheds.



St. Francis Catholic Church. NPS photo.

Impacts on Interpretation and Education

Common to All Alternatives

In the near term, the park's website, exhibits at the bookstore, waysides, and park brochure would be maintained as ways to share the park's history with the public and to orient visitors to Kalaupapa NHP. In addition, the park would begin to develop a limited interpretation and education division. However, there would not be any developed curriculum-based educational programs and materials. The NPS would also develop a self-guided walking tour of the Kalaupapa Settlement. These interpretive media would provide visitors with basic information about Kalaupapa's history and resources.

Most education and interpretation would continue to be provided by non-National Park Service entities. Residents would be engaged to tell the story of Kalaupapa. The limited number of visitors allowed to enter Kalaupapa would gain an understanding of Kalaupapa's history through the patient-owned Damien Tours and could have interactions with the patient residents. The current visitor opportunities at Kalaupapa may not illustrate and convey the breadth of significant resources at Kalaupapa, including the native Hawaiian archeological resources, the Molokai Light Station, and the wide variety of natural resources. There would continue to be a lack of formal interpretive, educational, and outreach programs. As a result, there would continue to be limited learned opportunities for the public and a lack of depth and breadth in the information provided.

Alternative A

Same as Common to All Alternatives

Alternative B

An interpretation and education division would be established at the park which would have a beneficial impact on visitor experience. The educational efforts, including general public education, would be focused at offsite locations (outside of Kalaupapa) and through extensive outreach efforts to provide opportunities for learning about Kalaupapa without actually visiting Kalaupapa. A wide range of new interpretive and educational programs targeted at offsite locations and more onsite programming would raise awareness about

Kalaupapa's existence and history for youth and the general public and have a beneficial impact.

Under this alternative, a long-range interpretive plan would be developed and subsequent content for educational and interpretive programs would focus on the interpretive themes in this GMP. Interpretive materials, exhibits, and diverse media, such as video, publications, and websites would be used to share information. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen's disease community at Kalaupapa. These improved and new methods for interpreting Kalaupapa's history to new audiences would greatly increase the quality of visitor experience at Kalaupapa and at offsite locations.

The development of curriculum-based educational programs and materials such as lesson plans and traveling educational exhibits about Kalaupapa would have beneficial impacts to visitor experience. NPS support for volunteer interpreters, including patients, 'ohana, and kama 'āina, would allow visitors to learn from people directly associated with Kalaupapa's living and historical communities. Alternative B would provide a range of outreach materials and programs targeted on Molokai, Hawai'i, the U.S., and at related international sites, such as web-based materials and multimedia connection with similar sites throughout the world.

Alternative C

An interpretation and education division would be established at the park which would have a major beneficial impact on visitor experience. A wide range of new interpretive and educational programs onsite and at offsite locations would significantly enhance the quality, depth of understanding, and breadth of knowledge about Kalaupapa on the island of Molokai, in Hawai'i, and throughout the world. New and greater opportunities to visit the site and engage in hands-on learning activities would dramatically and positively change the nature of interpretation and education about Kalaupapa. These new programs would raise awareness about Kalaupapa's existence and history for youth and the general public and have a beneficial impact.

Alternative C promotes hands-on stewardship programs that serve as interpretive programs and contribute to the preservation, rehabilitation, and restoration of Kalaupapa's resources. The hands-on service and learning projects would

assist the park staff in improving resource conditions, such as historic buildings and cultural landscapes associated with the Hansen's Disease settlement period (1866–1969); perpetuate traditional patient and native Hawaiian traditions at Kalaupapa, such as the taro, lo'i, and sweet potato agriculture; nonnative plant removal; rare and endangered plant propagation and restoration; inventory and monitoring projects; and feral animal control and habitat restoration to benefit native wildlife. These activities and opportunities would have a beneficial impact on visitor experiences and park resources.

Under this alternative, demonstrations for visitors and groups about resource research and preservation such as archeological excavations, historic building rehabilitation, rare and endangered plant propagation and restoration, marine monitoring, and feral animal control would be demonstrated. Additionally, traditional facility-based interpretive programs and opportunities for people to interact with rangers and park partners would be offered. These types of activities do not currently exist, and the creation of them would greatly enhance visitor learning about the history and types of resources at Kalaupapa.

Under this alternative, a long-range interpretive plan would be developed and subsequent content for educational and interpretive programs would focus on the interpretive themes in this GMP. Interpretive materials, exhibits, and diverse media, such as video, publications, and websites would be used to share information. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen's disease community at Kalaupapa. These improved and new methods for interpreting Kalaupapa's history to new audiences would greatly increase the quality of visitor experience at Kalaupapa and at offsite locations.

The development of curriculum-based educational programs and materials such as lesson plans and traveling educational exhibits about Kalaupapa would have beneficial impacts to visitor experience. NPS support for volunteer interpreters, including patients, 'ohana, and kama 'āina, would allow visitors to learn from people directly associated with Kalaupapa's living and historical communities. Alternative C would provide a range of outreach materials and programs targeted on Molokai, Hawai'i, the U.S., and at related international sites, such as web-based materials and multimedia connection with similar sites throughout the world.

Alternative D

An interpretation and education division would be established at the park which would have a beneficial impact on visitor experience. A wide range of new interpretive and educational programs onsite and at offsite locations would significantly enhance the quality, depth of understanding, and breadth of knowledge about Kalaupapa on the island of Molokai, in Hawai'i, and throughout the world. New and greater opportunities to visit the site and engage in self-guided activities would dramatically and positively change the nature of interpretation and education about Kalaupapa. These new programs would raise awareness about Kalaupapa's existence and history for youth and the general public and have a beneficial impact.

Alternative D would provide the most opportunities visitors to experience Kalaupapa on their own. It would also provide the greatest opportunities for the general public to visit Kalaupapa. Demonstrations for visitors would be offered about resource research and preservation such as archeological excavations, historic building rehabilitation, rare and endangered plant propagation and restoration, and marine monitoring. Additionally, traditional facility-based interpretive programs and opportunities for people to interact with rangers and park partners would be offered. These types of activities do not currently exist, and the creation of them would greatly enhance visitor learning about the history and types of resources at Kalaupapa.

Under this alternative, a long-range interpretive plan would be developed and subsequent content for educational and interpretive programs would focus on the interpretive themes in this GMP. Interpretive materials, exhibits, and diverse media, such as video, publications, and websites would be used to share information. Museum collection items would be used for exhibits to interpret early native Hawaiians and the history associated with the Hansen's disease community at Kalaupapa. These improved and new methods for interpreting Kalaupapa's history to new audiences would greatly increase the quality of visitor experience at Kalaupapa and at offsite locations.

The development of curriculum-based educational programs and materials such as lesson plans and traveling educational exhibits about Kalaupapa would have beneficial impacts to visitor experience. NPS support for volunteer interpreters, including patients, 'ohana, and kama 'āina, would allow visitors to learn from people directly associated with Kalaupapa's living and historical

communities. Alternative D would provide a range of outreach materials and programs targeted on Molokai, Hawai'i, the U.S., and at related international sites, such as web-based materials and multimedia connection with similar sites throughout the world.

Cumulative Impacts

Under alternative A, the development of a limited interpretation and education division would be an improvement to providing interpretation and education at Kalaupapa. However, the limited nature of the program would result in a minimal amount of information being made available to the public. Telling the entire story of Kalaupapa would be a challenge with the continued lack of interpretation and education services. Given the limitations of the interpretation and education opportunities under this alternative, it would result in minor to moderate long-term adverse impacts cumulative impacts on interpretation and education.

Under alternative B, most of the interpretation and education would be provided offsite. The limited number of visitors to Kalaupapa would result in the increased need for interpretation and educational materials that could be accessed through various kinds of media and sources. With changing technology and increased opportunities to share information, the cumulative impacts from this alternative on interpretation and education would be beneficial.

The increased use of volunteers and stewardship groups to implement projects at Kalaupapa under alternative C would require a robust interpretation and education program. The development of a long-range interpretive plan and the establishment of an Interpretation and Education division would contribute beneficially to cumulative impacts.

Cumulative impacts for alternative D are similar to those described in alternative C. Increased visitation to Kalaupapa would benefit from an established interpretation and education program.

Conclusion

Under alternative A, the continuation of the current interpretation and education programs and the development of a limited interpretation and education program in the near term are a benefit to the visitors. However, in the long term interpretive and educational programming is unknown due to inevitable

transition in management from DOH to NPS. The continued lack of a full-scale interpretation and education division, formal programs, and limited learning opportunities could result in a minor adverse long-term impact on park visitors and ultimately the park resources.

Alternative B offers a wide range of offsite education and interpretation opportunities which would be a beneficial impact to park visitors as well as people who are not able to physically visit Kalaupapa. Indirect benefits of an education program increase awareness of resource preservation and encourage stewardship efforts.

Alternative C offers a wide range of onsite and offsite education and interpretation opportunities which would be a beneficial impact to park visitors as well as people who are not able to physically visit Kalaupapa. The nature of hands-on experiential learning and live demonstrations provides a greater opportunity for visitors to connect to the resources, in turn becoming future stewards for the resources. This alternative would benefit the park visitor and the resources.

Alternative D would provide a wide range of educational and interpretive opportunities for park visitors. Offsite opportunities would be more limited. Overall, the education and interpretive program under alternative D would benefit park visitors.

Alternative D offers a range of onsite and offsite education and interpretation opportunities which would be a beneficial impact to park visitors as well as people who are not able to physically visit Kalaupapa. Self-guided opportunities and live demonstrations would provide opportunities for visitors to connect to the resources. This alternative would benefit the park visitor and the resources.

Impacts on Visitor Use and Experience

Common to All Alternatives

In the near term, visitor experience would continue to be highly structured and primarily focused on Kalaupapa's period of significance 1866–1969. The existing structure of shared DOH and NPS management of visitor use would continue. Existing DOH rules and regulations for visitation would continue in order to provide a well maintained community for the patient residents and to protect their privacy. The DOH would continue to manage the visitor permit and sponsorship system. The NPS would continue to manage visitor protection and facilities that support visitation. The continuation of DOH rule and regulations would honor the patient community's wishes and would continue to protect their privacy. For visitors, these rules would continue to illustrate that DOH and NPS are continuing to provide for the needs and well-being of the patient residents.

Visitors would need a permit in advance to access the Kalaupapa Trail and the peninsula. The need to secure a permit from the DOH or make arrangements with the tour company would continue to be the standard method for visiting Kalaupapa. There would continue to be individuals, including some topside residents and kama 'āina of Kalaupapa, who resent being denied access to the park.

Access to the Pālā'au State Park would be unrestricted for day use, and the interpretive panels at the Kalaupapa Overlook would continue to provide basic information about Kalaupapa NHP.

In the near term, general public visitation would be limited to 100 people per day as specified in the enabling legislation and desired by the Kalaupapa Patients Advisory Council. This limit is rarely reached, so most visitors who are able to pay the fees for service can generally be accommodated to the park. Physical access to Kalaupapa is restrictive and a challenge, resulting in limited visitors. The number of mules that can traverse the access trail must be limited to less than 25 mules due to the severe erosion and damage to the trail caused from such use. Aircraft permitted to land at the Kalaupapa Airport are limited to nine-passenger or less planes per FAA regulations.

General public visitors would continue to be for day use only. This provision limits the duration of the tours to approximately four hours, and thus visitors are only able to see select features and areas of the park. In the near term, overnight use at Kalaupapa would continue to require a sponsorship by a Kalaupapa resident and stays would be limited to a total of thirteen days in a three month period. This requirement would continue to only allow overnight and/or multi-day opportunities to people with connections to Kalaupapa's residents.

In the near term, visitors would continue to need an escort while visiting the historical park and be part of a paid organized tour. Visitor access would continue to be limited to select areas of the park, including the corridors from the top of the pali trail to the airport and out to Kalawao. Visitors would not be able to see or experience the entirety of the peninsula, Kauhakō Crater, Waikolu Valley, and many areas of the settlement. Organized tours for the general public would be provided. There would be no entrance fees, however fees for service such as the mule ride and tours would continue. While there is not a formal entrance fee, all visitors are required to be of a fee-for-service tour. The cost of the daylong tour and transport (either by mule or airplane) is high, and thus many people are not able to visit the park because of its high cost. This would continue to be an adverse impact to visitor opportunities.

The establishment of a new self-guided walking tour in the settlement could create a new experience for some sponsored visitors. It would be up to the tour company whether they would use the walking tour, which could benefit paying visitors as well.

Children under the age of 16 would not be allowed to visit Kalaupapa, though they would continue to be allowed within the park's boundary at Pālā'au State Park. There is a strong desire by educators and families to have children experience firsthand the stories of Kalaupapa. By not allowing children at Kalaupapa, youth would not be able to experience Kalaupapa which would continue to have adverse impacts on visitor experience and visitor opportunities.

DOH rules would continue, including prohibiting recreational uses that may not be compatible with the purpose of the park, such as surfing, scuba diving, mountain biking on unpaved roads, geo caching, skateboarding, and spelunking. Appropriate recreational uses would be identified in the superintendent's compendium.

Alternative A

Same as Common to All Alternatives

Alternative B

In the near term, visitor use would continue to be managed same as Common to All Alternatives

In the long term, visitor opportunities and experiences would change with the absence of a living patient community and departure of DOH. The NPS would assume management of visitor use, though many of the existing rules and regulations would continue. As a result, visitor experience would continue to be highly structured. The continuation of DOH rules and regulations would honor the patient community while allowing visitors to experience Kalaupapa much as earlier visitors have done over the decades.

Visitors would need to make advance arrangements with a tour company, concession, and/or nonprofit entity to visit the park. In the long term, general public visitation would continue to be limited to 100 people per day. The visitor per day limit would be managed through a concession or nonprofit entity. On special event days, the cap on visitation could be limited, but there would be no more than four special event days per year. There could continue to be individuals, including some topside residents and kama'āina of Kalaupapa, who resent being denied access to the park.

Access to the Pālā'au State Park would be unrestricted for day use, and the interpretive panels at the Kalaupapa Overlook would continue to provide basic information about Kalaupapa NHP. An interpretive center would be established at Pālā'au State Park to provide visitors with additional information about Kalaupapa, so that visitors can learn about it and get a topside glimpse of Kalaupapa without actually visiting the park. Visitors could also access information via the internet and at other possible offsite locations. This would provide more interpretation than currently exists.

General public visitation would largely be for day use with some overnight opportunities. The park would offer overnight opportunities for individuals with preexisting associations and ancestral connections to Kalaupapa. These efforts would build collaborative partnerships for the rehabilitation of key historic structures and would strengthen partner connections to the park. Allow-

ing visitors to overnight in the park would greatly enhance visitor experience, though only a portion could be for the general public.

For most visitors, day use would be the norm. This type of visitor experience limits the duration of the visit to approximately four hours, and thus visitors are only able to see select features and areas of the park.

Visitors would need an escort while visiting the historical park beyond the settlement area and be part of a paid organized tour. Visitor access would continue to be limited to select areas of the park, including the corridors from the top of the pali trail to the airport and out to Kalawao. Visitors would not be able to see or experience the entirety of the peninsula, Kauhakō Crater, Waikolu Valley, and many areas of the settlement. There would be no entrance fees, however fees for service such as the mule ride and tours would continue. While there is not a formal entrance fee, all visitors are required to be of a fee-for-service tour. The cost of the daylong tour and transport (either by mule or airplane) is prohibitively high, and thus many people are not able to visit the park because of its high cost. This would continue to be an adverse impact to visitor opportunities.

The establishment of a new self-guided walking tour in the settlement could create a new experience for some sponsored visitors. Overnight visitors and potentially day visitors on a guided tour would have the freedom to use the walking tour.

Children under the age of 16 would not be allowed to visit Kalaupapa, though they would continue to be allowed within the park's boundary at Pālā'au State Park. There is a strong desire by educators and families to have children experience first-hand the stories of Kalaupapa. By not allowing children at Kalaupapa, youth would not be able to experience Kalaupapa which would continue to have adverse impacts on visitor experience and visitor opportunities.

Rules prohibiting recreational uses that may not be compatible with the purpose of the park would continue, such as surfing, scuba diving, mountain biking on unpaved roads, geo caching, skateboarding, and spelunking. Appropriate recreational uses would be identified in the superintendent's compendium.

Alternative C

In the near term, visitor use would continue to be managed same as Common to All Alternatives

In the long term, visitor opportunities and experiences would change with the absence of a living patient community and departure of DOH. The NPS would assume management of visitor use. Many of the existing rules and regulations would change to allow easier access to Kalaupapa and to provide opportunities for learning and appreciation of Kalaupapa's history and resources.

Visitors could make advance arrangements with a tour company, concession, and/or nonprofit entity to visit the park. Visitors would also have the ability and freedom to visit Kalaupapa for day use without advance reservations. The daily cap on visitation would be removed, though concession contracts and commercial use agreements would limit the number of individuals allowed on the mule ride, tours, and overnight accommodations. These changes would allow free access on foot and from the airport for a wide range of visitors, including topside Molokai residents and the general public. Special event days could allow unlimited access, which would also provide new opportunities for people to visit Kalaupapa. Changing and potentially increasing the allowable numbers of visitors at Kalaupapa would necessarily change visitor experience, though these changes would allow for more variety in visitor options and available to a much broader audience. People who cannot currently afford the fee charged to take a tour of Kalaupapa, would have a free option for visiting the park.

Access to the Pālā'au State Park would be unrestricted for day use, and the interpretive panels at the Kalaupapa Overlook would continue to provide basic information about Kalaupapa NHP. A new kiosk would be constructed to provide additional information about visiting Kalaupapa and the new rules and

regulations for visitation. Visitor information would be available via the internet and at offsite locations such as the Hoolehua Airport. Consideration would be given to the establishment of a visitor facility in Kaunakakai in partnership with other public agencies or nonprofit organizations such as the Molokai Visitors Bureau and the topside Damien Center. This would provide more interpretation and educational materials on Molokai than currently exists. Without the need for new construction.

Alternative C emphasizes stewardship of Kalaupapa's lands through hands-on learning and preservation activities. This emphasis would encourage youth and groups to visit and learn about Kalaupapa while working towards the preserva-

tion of Kalaupapa's resources. It is intended that these groups could regularly access the park and stay overnight depending on lodging availability. This immersive type of experience would promote a stewardship ethic for Kalaupapa and would share Kalaupapa's history with a broad and diverse audience.

Overnight opportunities would be offered to people with preexisting associations and ancestral connections to Kalaupapa and stewardship groups. Overnight use by the general public would be explored and supported, if financially viable. Allowing visitors to overnight in the park would greatly enhance visitor experience. People would be able to see the daily rhythms of Kalaupapa's environment and community. Multiday visits would promote high quality immersive experiences that would greatly enrich people's under-

standing and connection to Kalaupapa and its history.

After arriving at Kalaupapa, all visitors would be required to visit Paschoal Hall for mandatory orientation and entry pass. This requirement would impart the visitor rule and regulations before visitors could continue their day or multiday visit. This would foster visitor learning about the history and significance of Kalaupapa while also promoting compliance with the parks rule and regulations.



Visitors reading a wayside at Kalawao. NPS photo.

Visitors could access many areas of the park on organized tours, as part of stewardship or learning activities, and on their own to select features. Visitors would have free and unescorted access within the engagement zone, including from the top of the pali trail to the airport and from the settlement to Kauhakō Crater and Judd Park along Damien Road. This would allow visitors free access to the site of the original settlement at Kalawao. Visitors would need an escort to visit areas beyond the engagement zone; this could be as part of an organized tour or part of stewardship activities. Allowing visitors to access select areas on their own would provide visitors with opportunities for personal reflection and some personal independence while at Kalaupapa, while also making sure that visitors know and understand the visitation rules for their visit.

Children under the age of 16 would be allowed to visit Kalaupapa with adult supervision, and they would continue to be allowed within the park's boundary at Pālā'au State Park. There is a strong desire by educators and families to have children experience firsthand the stories of Kalaupapa. By allowing children at Kalaupapa, youth would be able to learn about and experience Kalaupapa which would have beneficial impacts on visitor experience and visitor opportunities.

Rules prohibiting recreational uses that may not be compatible with the purpose of the park would continue, such as surfing, scuba diving, mountain biking on unpaved roads, geo caching, skateboarding and spelunking. Appropriate recreational uses would be identified in the superintendent's compendium.

Alternative D

In the near term, visitor use would continue to be managed the same as Common to All Alternatives

In the long term, visitor use would be managed similarly to alternative C with some differences. The differences are that alternative D would focus more on visitation by the general public with more historic buildings and facilities potentially available for overnight use by the general public if financially viable. This could provide more options for the general public. Alternative D would offer fewer types and numbers of programs for group activities engaged in stewardship activities. The engagement zone in alternative D is larger and would allow visitors unescorted access to many additional areas of the park;

these include a loop trail around the peninsula, loop trail around the crater, and access to Wailea Falls. Opening up areas of the park to greater access could result in resource damage, though for visitors it would create new opportunities to see areas of the park that are remote and contain rare resources. This could enhance visitor enjoyment and appreciation of Kalaupapa. In addition, depending on the numbers of visitors, visitors could experience a sense of crowding which could detrimentally impact the quality of their visit.

Cumulative Impacts

The departure of the DOH would result in changes to the visitor use and experience at Kalaupapa. DOH rules and regulations would be void, and an entity to manage visitor use would be necessary. Without guidance about how visitation would be managed, there could be adverse impacts on visitor use and experience as well as resources, operations, and general management of the park. An obvious change will be the lack of a living patient community at Kalaupapa which will fundamentally change the character of Kalaupapa. This will negatively impact visitor experience, as part of the experience is seeing how Kalaupapa is still a functioning settlement for Hansen's disease patients. However,



Visitors on a Damien Tour picnicing at Kalawao. NPS photo.

this change is inevitable under all alternatives, and planning for this change so that visitors can learn about and understand the patient community will be necessary. Cumulative impacts could be minor to major adverse and long-term.

Under alternative B, the departure of the DOH would result in changes to the visitor use and experience at Kalaupapa. DOH rules and regulations would be void, and the NPS together with partners, cooperating associations, concessioners, and/or nonprofit entities would be engaged in managing visitor use and experience. An obvious change will be the lack of a living patient community at Kalaupapa which will fundamentally change the character of Kalaupapa. This will negatively impact visitor experience, as part of the experience is seeing how Kalaupapa is still a functioning settlement for Hansen's disease patients. However, this change is inevitable under all alternatives, and alternative B plans for this change so that visitors can learn about and understand the patient community through providing a range of visitor opportunities. Cumulative impacts could be beneficial.

Alternative C would be the same as alternative B plus cumulative impacts could be beneficial and because of the increase in types and levels of new visitor services and opportunities.

Under alternative D, there is a potential for impacting the character of Kalaupapa from too many visitors and lack of stewardship activities. However, with the increase in types and levels of new visitor services and opportunities which would greatly benefit visitors, businesses, and/or nonprofit entities, impacts could be beneficial.

Conclusion

Under alternative A, in the near term, visitors would continue to be able to access Kalaupapa and learn about Kalaupapa's history from the guided tours and from the interpretative materials at Pālā'au State Park. However, visitors would continue to need to follow the DOH rules, including the permit system, cap on visitor numbers, day use only option, escort only option to limited areas of the park, and age limit. The high cost of visiting the park would continue to deter and prevent many people from experiencing Kalaupapa. The impacts of continuing current management on visitation would result in minor to major adverse impacts on visitor experience and opportunities.

Under alternative B, in the long term, visitors would have additional opportunities to access and visit Kalaupapa and learn about Kalaupapa's history from the guided tours from the interpretive center at Pālā'au State Park, and potential limited overnight use. However, many of the existing rules would continue, including the permit system, cap on visitor numbers, focus on day use, escort only option to limited areas of the park, and age limit. Differences from alternative A would be allowing special event days when the cap would be lifted, providing limited overnight use for those associated with Kalaupapa's history, providing greater commercial visitor services, and allowing unescorted access within the settlement. The high cost of visiting the park would continue to deter and/or prevent many people from experiencing Kalaupapa. The impacts from alternative B would result in beneficial and adverse long-term impacts on visitor experience and opportunities.

Under alternative C, in the long term, visitors would have additional opportunities to access and visit Kalaupapa and learn about Kalaupapa's history from the guided tours, stewardship activities, from the interpretive center at Pālā'au State Park, and potential overnight use. Most of the existing rules would change, including the permit system, cap on visitor numbers, focus on day use, escort only option to limited areas of the park, and age limit. Providing new opportunities for visiting the park and making access to Kalaupapa more accessible would support a broader and more diverse audience of people who can learn about and appreciate the historical park. The impacts of these changes would result in beneficial and long-term impacts on visitor experience and opportunities.

Under alternative D, in the long term, visitors would have additional opportunities to access and visit Kalaupapa and learn about Kalaupapa's history from the guided tours, stewardship activities, from the interpretive center at Pālā'au State Park, and potential overnight use. Most of the existing rules would change, including the permit system, cap on visitor numbers, focus on day use, escort only option to limited areas of the park, and age limit. Providing new opportunities for visiting the park and making access to Kalaupapa more accessible would support a broader and more diverse audience of people who can learn about and appreciate the historical park. The impacts of these changes would result in beneficial impacts on visitor experience and opportunities.

Commercial Visitor Services

Common to All Alternatives

In the near term, commercial activities operated by patient residents for tours and Fuesaina's Bar would continue. The commercial use agreement with the mule ride operator would continue as long as it is viable. The NPS would continue to retain a cooperating association to operate the bookstore for educational and merchandise sales related to Kalaupapa. There would be no over-night commercial visitor services.

NPS involvement and management of concessions and commercial services would be guided by Public Law 95-565 which provides patients a first right of refusal to provide revenue-producing visitor services, including such services as providing food, accommodations, transportation, tours, and guides; and the General Lease No. 231 with DHHL that gives second right of refusal to native Hawaiians for revenue-producing visitor service after patients have exercised their first right of refusal.

Alternative A

Same as Common to All Alternatives plus long-term guidance for commercial activities is not provided in alternative A.

Alternative B

The bookstore would be operated and managed through a cooperating association. In the long term concessioners or nonprofit organizations would provide for visitor needs and services, including tours, mule rides, merchandise sales, general store, gas station, food and beverage service, and limited overnight lodging if financially viable. This increase in the number and extent of commercial visitor services would be a benefit to potential concessioners or nonprofit entities. It would provide additional services and opportunities for visitor learning and enjoyment that do not currently exist. In addition, resources would benefit from more people learning about them because visitors are more apt to be stewards of the resources when they have seen and experienced them. However, the scale of commercial activities would be limited, as the cap on visitor numbers and age limit would continue under alternative B. This would continue to limit the number of people and not allow youth to visit the park. This could result in commercial services that are not financially profitable, in which case the services may need to be provided by a nonprofit entity. Alterna-

tive B does provide long-term guidance for commercial visitor services, and the right of second refusal for revenue generating visitor services would be maintained for native Hawaiian entities.

Alternative C

Same as alternative B plus the extent of commercial visitor services would be greater because of the removal of the cap on numbers of visitors per day and age limit. Larger numbers and greater diversity in the types of visitors who could come to Kalaupapa would be a benefit to the park. The larger operation of commercial visitor services could be profitable for a concessioner. If a nonprofit were to operate the services, then more funding from profits could be incorporated in to Kalaupapa's programs. The addition of partners involved in stewardship activities could provide additional revenue for concessioners or nonprofit entities.

Alternative D

Same as alternative C plus the extent of commercial visitor services would be the greatest under alternative D. Opportunities to learn about and experience Kalaupapa through direct experience and with the support of commercial visitor services would be the greatest under alternative D. However, too many visitors and an absence of stewardship activities to support preservation of Kalaupapa could potentially detract from the ambiance, spirit, and character that make Kalaupapa special and unique for visitors.

Cumulative Impacts

Under all alternatives, cumulative impacts on commercial visitor services resulting from the departure of the DOH and the potential lack of patients willing and able to operate commercial services at Kalaupapa could have minor to major adverse long-term impacts.

Alternative A has the same cumulative impacts as all alternatives plus it is anticipated that a native Hawaiian entity would provide revenue-producing or nonprofit visitor services, though the parameters, management, and oversight is not provided. It is unknown what types of visitor services would be provided in the long term and what benefits or disadvantages could result from unplanned activities. For these reasons cumulative impacts from alternative A could have minor to major adverse long-term impacts.

Under alternative B, cumulative impacts on commercial visitor services resulting from the departure of the DOH and the potential lack of patients willing and able to operate commercial services at Kalaupapa would not have the same adverse impacts on commercial services as alternative A. This is because alternative B provides guidance for the types and levels of services that could be offered in the future by native Hawaiian and/or nonprofit entities. Cumulative impacts for alternative B could be beneficial.

Cumulative impacts for alternative C are the same as alternative B plus cumulative impacts could be beneficial because of the increase in types and levels of new visitor services and opportunities.

Under alternative D, there is a potential for impacting the character of Kalaupapa from too many visitors and lack of stewardship activities. However, with the increase in types and levels of new visitor services and opportunities which would greatly benefit visitors, businesses, and/or nonprofit entities, impacts could be beneficial.

Conclusion

In the near term, for all alternatives, commercial services provided to visitors would remain as they are today. The commercial services offered to visitors today are a benefit to the visitors as they get to learn about Kalaupapa through organized tours. The resources at Kalaupapa also benefit from the current commercial services offered to visitors in that when visitors know more about the resources they are more apt to be stewards of the resources. However, the visitors would need to continue to follow the DOH rules, including the permit system, cap on visitor numbers, day use only option, and escort only option to limited areas of the park, and age limit. The high cost of visiting the park would continue to deter and prevent many people from experiencing Kalaupapa. The impacts of continuing current management for commercial visitor services would result in moderate to major adverse impacts on commercial visitor service operators and visitor experience.

The limited opportunities for commercial activities and special uses allowed under alternative A would be a moderate adverse long-term impact to Kalaupapa's commercial visitor services because there would continue to be limited services and activities to accommodate the visitor's needs and to enhance their experience at Kalaupapa. In addition, the departure of the DOH, potential lack

of patients willing and able to operate services, as well as the lack of direction for long-term management of commercial visitor services could result in moderate to major adverse long-term impacts.

Under alternative B, limits on the number and age of visitors would continue which would result in adverse impacts on the diversity of visitors able to come to Kalaupapa. The enhanced use of a cooperating association, concessioners, and/or nonprofit entities would be a beneficial impact to commercial visitor service operators, visitors, and resources. The addition of more people to carry out the purpose of Kalaupapa NHP and share Kalaupapa's history with future visitors and stewards is a benefit to the park.

Under alternative C, partners, cooperating associations, concessioners, and or/not profit entities engaged in providing additional visitor services, programs, and stewardship activities could result in moderate to major beneficial and long-term impacts on commercial visitor service operators, visitors, and resources. The addition of more people to carry out the purpose of Kalaupapa NHP and share Kalaupapa's history with future visitors and stewards is a benefit to the park.

Under alternative D, cooperating associations, concessioners, and or/not profit entities would be engaged in providing additional visitor services, though there is a risk to Kalaupapa's character if there are too many visitors and lack of stewardship activities. Actions in alternative D could result in beneficial impacts on commercial visitor service operators, visitors, and resources.

Impacts on Sustainable Practices and Responses to Climate Change

Common to All Alternatives

The NPS would strive to be energy independent by reducing energy consumption, reducing reliance on outside sources of energy, and instituting sustainable practices. Existing efforts to achieve these goals would continue, including encouraging bicycle use for transportation, operating the community's recycling program, installing photovoltaic panels in selected areas, and engaging in the NPS's Climate Friendly Parks program and Climate Action Plan. The NPS would seek to minimize motor vehicle use by staff, volunteers, and visitors to reduce gas consumption and carbon emissions. The NPS would encourage a "pack-in, pack-out" policy for all visitors. Taken together these actions would move the park toward more efficient and sustainable practices and reduce the park's carbon footprint.

While the park would monitor natural and cultural resources for impacts related to climate change through its inventory and monitoring programs, it is unlikely the park would take actions to attempt to halt or reverse these long-term effects. Important native Hawaiian cultural sites and historic structures along the shoreline could be impacted by sea level rise and increased storm events. The park would make decisions about actions to protect these resources on a case-by-case basis.

Alternatives B, C, and D

Alternatives B, C, and D present opportunities for further planning (including analysis and design) and implementation of sustainability activities. Implementation of park sustainability actions would result in projects and programs to construct alternative energy providers. This would reduce or eliminate dependence on energy (electricity) generated outside the park and remove or greatly reduce park dependence on a fossil fuel-powered fleet.

The NPS would determine the ultimate uses of all Kalaupapa NHP facilities and estimate the number of park users and the intensity and duration of their presence on site (24 hours/day, daytime only, etc.).

The NPS would also determine energy usage targets. These would be used to estimate total energy usage in kilowatt hours/year to design either a renewable energy generation system, or a system combining of renewables with some continued dependence on the grid.

Implementation of a sustainable system would result in a reduction in greenhouse gasses, as well as improved operations and maintenance. Concentrating renewable energy production equipment in a single location—such as a solar or wind farm—close to the end users would result in more efficient equipment installation, service, and replacement. Also, transmission losses due to distance would be reduced. The greatest impacts would be local, but less dependence on the diesel-fired generation plant for Molokai would reduce the amount of greenhouse gases produced by that plant.

Water usage reduction and monitoring would be beneficial to the park. Less water for irrigation and other human uses would allow more of that resource to remain in the natural environment—both in the park's terrestrial area and flowing into the surrounding ocean. It would also mean less use and pressure on the sewage system.

Water usage can be projected in the same manner as energy usage, based on facility use, numbers of users, and gallons of water required per year for human use and landscape maintenance.

Energy conservation and fleet conversion would be overwhelmingly beneficial to the park and beyond in terms of greenhouse gas reduction.

Cumulative Impacts

For all alternatives, actions taken by others in the region, such as increased development on Molokai and in Hawai'i, continued reliance on fossil fuels for power generation, as well as the move toward encouraging energy production from wind would all contribute to both negative and beneficial impacts to sustainable practices and responses to climate change in Hawai'i. Because of Kalaupapa's small population, limited development, and move toward energy independence, NPS actions at Kalaupapa would be negligible in the context of Molokai and the State of Hawai'i.

Alternatives B, C, and D provide opportunities for more people to visit Kalaupapa which could offset some gains in conservation. However, the renewable energy program would be designed to accommodate additional use which would result in long-term beneficial impacts to operational efficiency and sustainability. Likewise, increased visitation could put additional pressure on water usage and garbage and recycling. Increased visitation would also increase vehicle use along routes on Molokai and plane travel to Kalaupapa airport which would increase the park's carbon footprint.

Conclusions

For all alternatives, the continued goal to be energy independent would have beneficial impacts to sustainable practices and how the NPS is managing its responses to climate change.

For alternatives B, C, and D, energy and water conservation and conversion of the fleet to renewable power would be overwhelmingly positive and would result in beneficial impacts to sustainable practices and responses to climate change.



Maintaining the weather station on the Kalaupapa Peninsula. NPS photo.

Impacts on Access and Transportation

Common to All Alternatives

In the near term, the current DOH permitted options for entering the historical park and the 100 visitors per day cap would continue. These restrictions limit access to only visitors with permits. People who want to visit Kalaupapa spontaneously, Molokai residents and those without a permit, and people who are unable to pay the tour, mule, and/or air travel costs are not allowed. These limitations follow DOH rules, though they prevent access to a variety of potential visitors. This is a long-term minor to moderate adverse impact.

The NPS would continue to maintain the pali trail in its current condition for foot and mule traffic which would provide safe access from topside Molokai for visitors and staff. The steep trail conditions limit access to people who are physically capable of walking or riding a mule. Thus, people with physical disabilities cannot access Kalaupapa via land, though they can access the park via air. This is negligible to moderate adverse impact, though there are not viable or supported options for changes to land access.

The Kalaupapa Airport would continue to serve the transportation needs of the Kalaupapa community and visitors to the historical park. Maintaining air access to the Kalaupapa Airport would continue use for the transport of visitors, staff, supplies, garbage, and for emergencies. Current flight paths, schedules, and costs appear to meet the needs of the visitors and residents. The airport's size and lack of emergency response facilities limits the size of airplanes to Kalaupapa. If interest to visit Kalaupapa increases in the future, current air transportation patterns could be insufficient to meet demands. Impacts related to air access and transportation are negligible to minor beneficial and adverse.

Water access to Kalaupapa NHP would continue to be limited to barges that provide general supplies and project materials to Kalaupapa and official NPS boat access associated with marine resources management. Sea access for visitors would continue to be prohibited for safety reasons. Impacts related to water access would be negligible.

Roads within Kalaupapa would be maintained. Transportation by motor vehicles within Kalaupapa would be reduced. Whenever possible, the NPS would

use fuel efficient vehicles, bicycles, and pedestrian transport for both visitors and operations within the settlement.

Areas beyond the settlement would continue to be accessed only by patients, staff, and permitted visitors with an escort. Some visitors express a desire for access to see and experience these areas. In the near term, this would be a negligible to minor adverse impact to access and transportation.

Overall impacts on access and transportation due to these cumulative impacts would be negligible to minor long-term beneficial and adverse.

Conclusion

Access is limited at Kalaupapa due to the current rules and regulations on access, the high costs of visiting the park, limited points and methods to access the park, and limited access for people with disabilities. For these reasons, impacts of continuing current management would result in negligible to moderate adverse impacts on access and transportation.

Land Access and Pali Trail

Alternative A

Same as Common to All Alternatives

Alternative B

Same as Common to All Alternatives, plus these impacts would continue in the long term.

The pali trail would be improved by clearing vistas, establishing rest stops, and defining places for mules to pass. These improvements would allow for safer and easier access to Kalaupapa along the pali trail. The risk of trail failure due to natural causes would still be present. Enhancing the pali trail would be a benefit to the longevity and increased safety of the trail. There would be a benefit to visitor's experience and access by providing unobstructed overlooks for safe scenic viewing to the park with adequate rest stops on the three mile difficult trail. It would be beneficial to park operations because of enhanced safety as well as assistance in trail maintenance from partners and concessioners.

The NPS would continue to assist the local community with the trail planning adjacent to the park on topside Molokai which would increase opportunities within Kalaupapa and Pālā'au State Park. The trail system adjacent to the park on the topside of Molokai would be a benefit by providing additional alternative access to trails that overlook Kalaupapa. Additional trails topside would be a benefit by providing a better connection between key visitation site for visitors with limited mobility or for those who cannot afford to physically visit the park.

Alternatives C and D

In addition to the common to all alternatives actions for the near term, some actions in the long term would result in changes to access and transportation.

The changes to the rules and regulations for visitor access to the park are the largest changes. These changes include potentially lifting the cap on number of people visiting the park, allowing day use access without a permit, providing more opportunities to access areas beyond the settlement. This would allow a wider variety of people to access the park.

Increased use on the pali trail could deteriorate the conditions of the trail. However, actions and impacts related to improvements to the pali trail would work to mitigate any deterioration caused from increased use. In addition, assistance to the local community for trail planning would be the same as alternative B.

Cumulative Impacts

The pali trail is located on a very steep slope, and there is the risk of landslides, particularly related to heavy rains. In the event that sections of the pali trail are impacted, land access via the pali trail could be closed whereby stopping access to Kalaupapa. The park has taken actions, including replacing bridges in landslide prone areas, to ensure continued access on the pali trail. However, access via the pali trail will continue to be physically strenuous and the route could be impacted from natural causes that are outside the control of the NPS. Over the long term, there could be increased pressure from visitors wanting to access Kalaupapa. Increased foot traffic on the pali trail could require more maintenance and engineered supports and bridges in sensitive sections of the trail to ensure safe access. The real risk of landslides, potential for increased traffic that would require additional maintenance, and not being able to ensure

land access to Kalaupapa at all times could create negligible to minor adverse long-term impacts.

Conclusion

The following conclusions are in addition to the “Impacts to Visitor Use and Experience” analysis.

Alternative A’s impacts would be negligible to moderate and adverse.

Alternative B maintains existing access rules and regulations in the long term which would result in long-term negligible to moderate adverse impacts. Improvements to the pali trail and assistance to topside community for trail planning would result in long-term minor beneficial impacts.

Under alternatives C and D, changes in rules and regulations over access and transportation, improvements to the pali trail, and assistance to the topside community for trail planning would result in long-term minor to moderate beneficial impacts.

Air Access and Kalaupapa Airport

Alternatives A and B

Same as Common to All Alternatives

Alternative C

Same as Common to All Alternatives plus allowing visitors to access Kalaupapa for day use without a permit and for overnight use would make it easier for people to visit Kalaupapa. Many of them may use air transportation, as it is the fastest and most convenient way to travel to Kalaupapa. This potential increase in use could generate more plane traffic in and out of Kalaupapa. In addition, with more visitors, there would be an increased need for transporting supplies, garbage, and in cases of emergency. While the changes to rules and regulations would allow greater access to the park which would be beneficial, it would create additional pressure on NPS and DOT operations at the Kalaupapa Airport and throughout the park as well as impacts on the natural and cultural soundscape which could be adverse.

Alternative D

Same as alternative C plus larger planes with a limit of 20 passengers would potentially be allowed to use the Kalaupapa airport. Emergency fire response at the airport would be required to increase limit. The required addition of the enhanced fire response would be a benefit to the safety of the park staff and visitors, but could result in changes to operations at the airport and increased operations expenses. The increase in plane size and expanded fire and safety requirements would result in beneficial impacts on access and transportation though these changes could have adverse impacts on overall historic character, visitor experience, and operational efficiencies.

Cumulative Impacts

DOT and air carriers determine the number and frequency of flights to Kalaupapa Airport. Once the DOH leaves Kalaupapa, air access could change. Potential changes that could result include reducing or adding the number of flights, change in airfare, and change in carriers. Changes to access via airplane would largely be beyond the control of the NPS and could be negligible to minor adverse and long-term.

Conclusion

The following conclusions are in addition to the “Impacts to Visitor Use and Experience” analysis.

Alternatives A and B’s impacts related to air access and transportation are negligible to minor beneficial and adverse.

Alternative C offers greater access by air to Kalaupapa which is a long-term negligible to moderate beneficial impact. However, increased use could also cause additional operational responsibilities and increased air traffic at the Kalaupapa Airport which could be long-term negligible to minor and adverse.

Alternative D is the same as alternative C plus additional emergency fire response would benefit the safety of air travelers.

Sea Access and Kalaupapa Pier

Alternatives A, B, C, and D

Same as Common to All Alternatives. In addition, if there are more visitors, increased use of the barge and Kalaupapa Dock may be necessary to transport supplies for the park.

Cumulative Impacts

Climate change could cause some changes to the safety of sea access with potentially rougher swells. The improved Kalaupapa Dock ensures greater safety for barges and other boats. Impacts would be negligible.

Conclusion

The following conclusions are in addition to the “Impacts to Visitor Use and Experience” analysis.

Impacts from all alternatives would be negligible.

Kalaupapa Roads and Trails

Alternative A

Same as Common to All Alternatives

Alternative B

The NPS would develop a transportation plan. This plan would address how visitors travel within Kalaupapa and would provide guidance for types of vehicles, changes in circulation, and would address universal accessibility. It is expected that implementation of a transportation plan would be a beneficial impact to access and transportation.

The continued maintenance of roads, parking areas and trails is a benefit to access and transportation. Visitors benefit from safe, well defined and signed access routes within Kalaupapa. The resources would benefit from the circulation of visitors and staff being kept to defined areas to minimize resource damage and that maintain the historic character. Improved locational and directional signage would be a benefit.

Alternative C

Same as alternative B plus changes to access rules and regulations would allow people to access the rim of Kauhakō Crater and Kalawao on their own. This would be a beneficial long-term impact to access and transportation.

Alternative D

Alternative D is the same as alternative C. In addition, the NPS would establishment of a new trail to Kalawao using the old Damien Road, an established trail to Wai‘ale‘ia Valley, a loop trail around Kauhakō Crater, and the existing unpaved road around the peninsula would be adapted to allow for pedestrian access. Development, operations, and maintenance would be substantial. While these would benefit access to the areas, these new developments and access could cause adverse impacts on cultural and natural resources.

Cumulative Impacts

Under alternatives C and D, more open access to Kalaupapa would likely result in more visitor in the settlement and peninsula. However, numbers of visitors would be controlled, and visitors could be limited if the facility capacity is being reached. More people at Kalaupapa would increase use of access and transportation routes which in turn could require additional maintenance. Cumulative impacts would be negligible to minor long-term beneficial and adverse.

Conclusion

Under alternatives B, C, and D, a transportation plan, maintenance of the existing character of the roads, and improved signage would all result in beneficial impacts on access and transportation.

Under alternative D, new trails would substantially increase public access to new areas of the park which would result in beneficial impacts on access and transportation.

Impacts on Operations

Operational Facilities

Common to All Alternatives

The existing use of historic structures and facilities by patient residents, DOH, NPS, and partners within Kalaupapa NHP would continue in the near term.

The alternatives do not call for new facilities within the Kalaupapa peninsula, however new facilities may be deemed necessary in the future if adaptive re-use of existing structures is clearly not feasible for the required function. Any new construction would be designed to be architecturally compatible with the settlement's historic structures and character and would be sited to be compatible with historic uses and the visual character of the settlement. Any new construction would incorporate sustainable energy systems. In the long term, the NPS could explore other options for administrative facilities in partnership with the state.

In the near term, the NPS would continue to maintain all administrative facilities transferred to the NPS from DOH within the boundary of the park. The NPS would also continue to share use of administrative facilities with DOH where feasible. NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.

The NPS would continue to manage infrastructure for the historical park, including the water, sewage, and electrical systems. The number of cesspools would be reduced and converted to septic systems where feasible. The water system would also be improved for water conservation measures. The NPS would also consider burying utility lines to improve viewsheds and decrease long-term maintenance costs.

Communications facilities would be maintained to provide phone, radio, and internet connectivity to Kalaupapa Settlement. If additional communication facilities were constructed in the park such as HAM Radio and cell tower opportunities, they would need to be compatible with the historic scene.

Alternative A

In the near term, the NPS would continue to maintain all NPS managed administrative facilities within the boundary of the park. The NPS would also continue to share use of administrative facilities with DOH where feasible. NPS and DOH employees would continue to reside in historic houses and dormitories in the settlement.

Alternatives B, C, and D

The alternatives do not call for new facilities within the Kalaupapa peninsula, however new facilities may be deemed necessary in the future if adaptive re-use of existing structures is clearly not feasible for the required function. Any new construction would be designed to be architecturally compatible with the settlement's historic structures and character and would be sited to be compatible with historic uses and the visual character of the settlement. Any new construction would incorporate sustainable energy systems. In the long term, the NPS could explore other options for administrative facilities in partnership with the state.

The NPS would continue to manage infrastructure for the historical park, including the water, sewage, and electrical systems. The number of cesspools would be reduced and converted to septic systems where feasible. The water system would also be improved for water conservation measures. The NPS would also consider burying utility lines to improve viewsheds and decrease long-term maintenance costs.

Communications facilities would be maintained to provide phone, radio, and internet connectivity to Kalaupapa Settlement. If additional communication facilities were constructed in the park they would need to be compatible with the historic scene.

Cumulative Impacts

Past and ongoing projects, including road and facility maintenance and repairs would have a beneficial impact on park operations. Aging facilities and infrastructure, including utilities and systems, would continue to be repaired, upgraded, or replaced as needed on a case-by-case basis, subject to available funding.

Conclusion

Under alternative A, the continued use of the historic buildings at Kalaupapa for administrative purposes would benefit the buildings in that they would continue to receive some level of maintenance and upkeep.

The thoughtfulness to adaptively reusing the historic buildings and attempting to avoid new construction would be a benefit to the cultural landscape under alternatives B, C, and D. This effort would help to maintain the historic setting of Kalaupapa. Additionally, the use of some of the historic buildings would be a benefit to the preservation of the buildings. A used building is often better maintained and does not deteriorate as quickly as an unused building.

Impacts on Land Use

Alternative A

Under alternative A there would be no changes to existing land use, and there would be no additional lands added to the current park boundary.

Alternatives B, C, and D

Under alternatives B, C, and D, land use changes within the park would be negligible. Management zoning would guide land use and would ensure the long-term protection and preservation of these lands.

External boundary modifications would be recommended that would ensure the long-term protection of nationally significant resources within the North Shore Cliffs National Natural Landmark. The proposed boundary additions for these alternatives include Pelekunu Preserve and a portion of Pu'u O Hoku Ranch. These areas would be managed as a "Preserve" whereby hunting, fishing, and collection would be allowed, following State of Hawai'i Department of Forestry and Wildlife rules and regulations. Today, these lands have not experienced much development because the owners currently have a preservation mission or want to maintain the lands in conservation. However, future owners of the properties could have different visions for these areas that could include more intensive use of these areas.



Left: View over the Kalaupapa Settlement from the Kauhakō Crater. Right: The old bakery in Kalaupapa Settlement, later the arts & crafts house. NPS photos.

Cumulative Impacts

There are no proposed future actions that would result in adverse cumulative impacts for a boundary expansion at Kalaupapa. There would be negligible cumulative impacts.

Conclusion

Land use impacts within the boundary of Kalaupapa NHP would be negligible.

Management by the NPS and designating these areas as part of the national park system would provide the most effective long-term protection of the area and provide the greatest opportunities for public use. The recommended areas would complement and enhance Kalaupapa NHP's legislated purpose "to research, preserve, and maintain important historic structures, traditional Hawaiian sites, cultural values, and natural features" (Public Law 95-565, Sec. 102).

The intent of this proposed boundary modification is to preserve, in perpetuity, the majestic geology, outstanding scenery, native terrestrial flora and fauna, and Native Hawaiian archeological resources and cultural values of the North Shore Cliffs National Natural Landmark while allowing appropriate and sustainable uses. NPS management and protection of these lands would have beneficial impacts.



Impacts on Safety and Security

All Alternatives

Safety and security would continue to be a high priority for the NPS in its management of Kalaupapa NHP. Therefore, safety and security efforts would be the same for each alternative. The NPS would continue current partnerships with emergency management agencies, including Maui County Police and Fire and United States Coast Guard for search and rescue operations, air medical transport, and law enforcement. Emergency medical services would include first responder capability. The NPS would adapt and modify the current DOH emergency management plan to meet the needs of the changing Kalaupapa community.

The NPS would institute the Kalaupapa NHP *Fire Management Plan* (2011), including establishing and maintaining fire breaks around the settlement and maintaining existing fire suppression systems and adding new fire suppression systems to historic buildings as feasible.

Kalaupapa NHP has prepared a tsunami and flood plan that includes the establishment of an evacuation center, signs, emergency, sirens, and the identification of the tsunami inundation zone. The NPS would continue to implement this plan.



Left: Oceanside Pavilion and General Warehouse. Right: View along the North Shore Cliffs towards Pelekunu Preserve. NPS photos.

Cumulative Impacts

Past, present and anticipated projects that would contribute to impacts on safety and security at Kalaupapa NHP include the departure of the Department of Health from Kalaupapa. The departure of the DOH places the responsibility of safety and security within Kalaupapa NHP on the National Park Service. Future planned projects would contribute to a greater need for safety and security. The National Park Service, in partnership with Maui County Police and Fire and United States Coast Guard, would develop a safety and security plan. These changes would have minor adverse long-term cumulative impacts on safety and security because of the need for the development and implementation of a new safety and security plan.

Conclusion

The impacts on safety and security at Kalaupapa NHP would be beneficial because the National Park Service is committed to carrying out all activities with the utmost attention to safety and security for park visitors and staff. There would be some minor adverse impacts when the NPS takes over the sole responsibility for safety and security after the departure of the DOH because of the added responsibility.

The continued focus on safety and security at Kalaupapa including the implementation of the 2011 fire management plan is a benefit to the visitors and the park staff. The fire management plan also would benefit human safety as well as resource preservation.



Impacts on Socioeconomics

This analysis relies on qualitative analysis of the impacts of each alternative, spending values are for comparison only, and influence area data was mainly available at the broad Maui County, Molokai Island, and Hawai'i state level. The area where the Kalaupapa is located is less densely populated and geographically separated from other parts of the island by the North Shore cliff range. For the purposes of this analysis, the localized area, is Kalaupapa NHP or Kalawao County. The influence area, or the island, includes the island of Molokai as well as the towns of Kaunakakai, Kualapu'u, and Maunaloa. Changes in the number of jobs, personal incomes, business revenues, hotel vacancy, visitation, and social environment typically have greater impacts on the localized area than they do on the influence area.

The following section evaluates the impacts on demographics, economics and social characteristics. For demographics and economics, the evaluation was based on the influence area. The impacts on social characteristics were evaluated on both the localized area and the influence area.

The analysis of the no-action alternative compares impacts of current management in 2012 and 2013 of existing management policies and programs to impacts of continued management in the short term. In alternatives B, C, and D, impacts on the socioeconomic environment would result from increases in operational spending, visitation, and visitor spending. The impact of alternatives B, C, and D is evaluated in comparison with the no-action alternative.



Left: Kalaupapa Store, 1930s. Photo by Franklin Mark. Right: Kalaupapa Store today. NPS photo.

Implementation of alternatives B, C, and D would occur against the same backdrop as the no-action alternative in demographics, economics, and social changes across the island. The economic and social effects of alternatives B, C, and D would add to those changes, but would not fundamentally change the island's economic and demographic outlook.

Impacts on Demographics

Alternative A

Kalaupapa NHP has a Native Hawaiian hiring preference, however with no changes in base staff levels, demographics and population would remain stable in the short term. The implementation of this alternative would not change the population or demographics of the island, but instead remain stable.

Alternative B

Alternative B would have little to no impacts on the island's population growth. Additional employees proposed in alternative B include 14 new permanent full-time equivalents (FTEs). Additionally, either a nonprofit or concession operation would begin operations and add staff onsite at Kalaupapa. Many new NPS and other staff proposed in this alternative would likely come from the island of Molokai or the State of Hawai'i, in accordance with the park's legislated Native Hawaiian preference hiring authority. Overall, there would be little to no change in demographics to the island over alternative A. Impacts of very little increases in population include demand for housing either within the park or on the island of Molokai, which can cause an increase in home values and rental rates, and increased government tax revenues. Socioeconomic impacts of population increases also include potential for greater demands on government services, including schools, sanitation, and water; more crowding; and traffic within Kalaupapa or Molokai. However, such small changes in population would cause very little impact.

Alternative C

Same as alternative B except alternative C would include 18 new permanent full-time equivalent employees.

Alternative D

Same as alternative B except alternative D would include 21 new permanent full-time equivalents employees.

Economic Impacts on Influence Area

Alternative A

Current NPS spending for future projects are mainly in repairs and rehabilitation of historic structures and is funded by approximately \$4.2 million. Increases in the National Park Service spending during construction would result in beneficial short-term impacts; beneficial long-term impacts may also result from increases in yearly budgets for continued maintenance of these historic structures. No new facilities are proposed in this alternative, unless adaptive re-use is not feasible for existing structures. Companies in the construction industry, specifically in repair, historic preservation, and adaptive re-use could see increased business if this work is contracted out to private businesses. This in turn could strengthen this type of employment and incomes, meaning that perhaps instead of providing new jobs, workloads would expand to fill unused worker capacity. Workers frequenting the area would spend income on food and materials, increasing service business and government sales tax revenues.

Kalaupapa NHP spending would also have beneficial long-term effects. Employment of staff would keep jobs in the island and generate personal income that would be spent in the area. The staff spends a percentage of income on housing, food, entertainment, and other services, which would increase incomes in those industries, government tax revenues, and housing. However, new staff would put demand on local government services such as schools. NPS spending on operations also has a long-term positive impact on employment and incomes. The continued impact of this spending is moderate and beneficial, however since the no-action alternative proposes no changes to annual operational spending, no new impacts would occur.

Existing partnerships with state and local agencies would continue in the no-action alternative in the use of facilities and visitor management. State and federal spending together would be maintained at the current levels with the continuance of existing partnerships.

The communities of Kualapu'u, Maunaloa, and Kaunakakai have varying degrees of economic relationships to Kalaupapa National Historical Park. These communities' businesses offer lodging, food, shopping, and other services to tourists; as well as housing and other needed services for staff. There would be no changes to affect local commercial businesses.

NPS spending on operations in the historical park also has an impact on employment and incomes. Since the no-action alternative proposes little to no detectable changes to annual operational spending, no new impacts would occur.

Under the no-action alternative, visitation would be maintained at the current restriction levels, resulting in no economic change to local businesses. Visitation would continue to affect the economic environment by providing business sales, employment, incomes, and government tax revenues.

Present management policies and programs would continue and continuance of construction spending would impact local businesses. Overall, the continuing impact and maintained levels of visitation, partnerships, and park operations would continue to have a moderate beneficial impact on local businesses and the island.

Alternative B

Increases in NPS spending in construction and historic preservation would result in beneficial short-term impacts. Beneficial long-term impacts would also occur due to the resulting increases in annual budgets of new or upgraded facility maintenance and new employee wages. Annual maintenance and operational spending at Kalaupapa would increase spending from \$4.2 million in the no-action alternative to \$5.9 million. Companies in the construction industry, specifically in maintenance and historic preservation could see increased business if this work is contracted out to private businesses. This in turn could strengthen this type of employment and incomes, either by providing jobs or expanding workload to fill unused worker capacity. If they are from off the island of Molokai, construction workers frequenting the area would spend income on food and services, increasing neighboring service and commercial business and government sales tax revenues. While this type of spending could strengthen these areas of the economy, it would be to a small degree in relation to the island's total economy. Construction of topside visitor facility at Pālā'au State Park would increase state expenditures and work in the construction industry. This in turn could increase visitation to Kalaupapa and visitor spending on the island.

An extensive outreach program to share Kalaupapa's history with a wide audience at offsite locations on the island of Molokai, State of Hawai'i, and throughout the United States is proposed in this alternative. This outreach program

would increase NPS spending related to staff travel, production of educational materials, and potential partnerships with organizations and other entities.

Existing partnerships with state and local agencies would be strengthened in this alternative in the use of facilities and visitor access. Partnerships would have very little to no impact on the influence area economy, but a change from combined state and federal spending to predominantly federal spending would occur. Modifications to the Kalaupapa NHP boundary to include Pelekunu Preserve and Pu'u O Hoku Ranch would lead to an increase in management area and expenditures for the NPS and a decrease in expenditures by the current owners of these properties. This would not affect the island's economy, but would be a transfer in expenditures from state, nonprofit, and private to federal.

Employment of 12 more FTE staff at Kalaupapa NHP would generate personal incomes that would be spent in the area. Employees would spend a percentage of income on housing, food, entertainment, and other services, which would increase incomes in those industries, government tax revenues, and housing. Some of the staff would live in park housing, while others may live in houses offsite, boosting the housing market. The impact of wages for increased staff would lead to a beneficial impact on the island's economy.

The actions proposed in alternative B would result in small increases in the number of visitors (though the limit would continue to be capped at 100 people per day), length of visitor stays, and visitor spending. Increased visitation would strengthen employment, business sales, and incomes in the tourism industry, as well as government tax revenues. Increased tourist operations and services, either by a nonprofit or concession, are also proposed in this alternative. Expansion of visitor services, if financially viable, would include a bookstore, tours, mule rides, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging. Visitor spending would be expected to increase due to the wider range of visitor opportunities, including potential overnighting in the historical park. Access would also be allowed on specific days for special events for those who have preexisting connections to the park. The restrictions being lifted would have a beneficial impact to the park and commercial services, with increased visitation affecting the economic environment. This visitation would cause business sales and services, employment, incomes, and government tax revenues to rise.

Taken as a whole, the levels of visitation, partnerships, and park operations in alternative B would increase economic activity at Kalaupapa and Molokai. State expenditures would decrease and federal expenditures would rise; this would have little effect on the total island's economy.

Alternative C

Same as alternative B except in alternative C, increases in NPS spending in construction and historic preservation would result in short-term beneficial impacts. Beneficial long-term impacts would also occur due to the resulting increases in annual budgets for costs of new or upgraded facility maintenance and new employee wages. Annual maintenance and operational spending at Kalaupapa would increase spending from \$4.2 million in the no-action alternative to \$6.2 million.

Hands-on learning activities and service for resource stewardship of Kalaupapa NHP through volunteer organizations or individuals would be magnified in alternative C. Through the use of volunteers, the number of individuals helping the park in its preservation efforts would increase. Volunteer groups and individuals frequenting the area, to help in hands-on activities, would spend income on food and materials, increasing service business and government sales tax revenues. Therefore, the length of stay and spending of these volunteer groups and individuals would increase having a beneficial impact to the influence area economy. Related increases would occur in NPS operational spending, specifically in the interpretive division, for preparatory time, materials, orientation sessions, tours, interpretive exhibits, contact stations, and centers. An outreach program to share Kalaupapa's history with a wide audience at offsite locations on the island of Molokai and the State of Hawai'i is proposed in this alternative. This outreach program would increase NPS spending related to staff travel, production of educational materials, and potential partnerships with organizations and other entities. Under alterna-



Pu'u Ali'i Natural Area Reserve. NPS photo.

tive C, available facilities for partner use and expanded visitor access would strengthen existing partnerships with state and local agencies.

Employment of 16 more FTE staff at Kalaupapa would generate personal incomes that would be spent in the area. Employees would spend a percentage of income on housing, food, entertainment, and other services, which would increase incomes in those industries, government tax revenues, and housing. Some of the staff and would live in park housing, while others may

live in houses offsite, boosting the housing market. The impact of wages for increased staff would lead to a beneficial impact on the island's economy.

The actions proposed in alternative C would result in moderate increases in the number of visitors (specifically visitor groups), length of visitor or visitor group stays, and visitor spending.

Taken as a whole, the levels of visitation, partnerships, and park operations in alternative C would increase economic activity on Kalaupapa and Molokai. State expenditures would decrease and federal expenditures would rise; this would have little effect on the total island's economy.

Alternative D

Same as alternative B except in alternative D, increases in NPS spending in construction and historic preservation would result in beneficial short-term impacts. Long-term beneficial impacts would also occur due to the resulting increases in annual budgets for costs of new or upgraded facility maintenance and new employee wages. Annual maintenance and operational spending at Kalaupapa would increase spending from \$4.2 million in the no-action alternative to \$6.4 million.

A broad range of learning and educational opportunities to share Kalaupapa's history would be available in this alternative by escort or self-guidance, meaning a lot more unstructured exploration of Kalaupapa than in the no-action

alternative. The focus would be directed towards onsite visitor learning and enjoyment by the general public. Self-guided interpretive programs, traditional facility-based interpretive programs and opportunities for people to interact with rangers or partners of the park, as well as demonstrations for visitors about resource research and preservation would be increased. Limited offsite programs in the island of Molokai are proposed in this alternative that would increase NPS spending for space rental and printing of educational materials, but benefit the extended influence area by renting their space and decreasing state expenditures. Overall, proposed demonstrations, programs, and activities would increase NPS spending.

Employment of 20 more FTE staff in the influence area would generate personal incomes that would be spent in the area, along with their families.

The actions proposed in alternative D would result in moderate increases in the number of visitors (specifically the general public), length of visitor stays, and visitor spending. Increased visitation would increase employment, business sales, and incomes in the tourism industry, as well as government tax revenues. Because of the increase in programs, demonstrations, and opportunities (structured and unstructured), there would be increased tourist operations and services proposed in this alternative for the general public. Management would be delegated by the NPS to a concession or nonprofit organization supporting local concessions and economy. Expansion of visitor services, if financially viable, would include a bookstore, tours, mule rides, merchandise sales, the general store, gas station, food and beverage service, and overnight lodging. Visitor spending would be maximized in this alternative due to the wider range of visitor opportunities, including potential expansion of overnighting in the historical park. Access would also be allowed on specific days for special events for those who have preexisting connections to the park. Allowing larger planes with a limit of 20 passengers to use the Kalaupapa airport would be considered, meaning more visitors on the island of Molokai and visitor spending to the influence areas. The restrictions being would have a beneficial impact to the park and commercial services to provide for visitors affecting the economic environment. This visitation would cause business sales, employment, incomes, and government tax revenues to rise.

Taken as a whole, the levels of visitation, partnerships, and park operations in alternative D would increase economic activity at Kalaupapa and Molokai. State expenditures would decrease and federal expenditures would rise; this would have little effect on the total influence area's economy.

Impacts on Social Characteristics

Alternative A

The no-action alternative would continue existing trends in social character at the national historical park and the island. The current social environment of Kalaupapa and Molokai ensures that the remaining patients are able to live in a well-maintained community and that their lifestyle and privacy is respected. The restrictions on the types and levels of visitation in the park are also designed to maintain the character of the Kalaupapa community. NPS would continue to maintain the social environment in the short term, not affecting Kalaupapa's residents, the DOH, or the character of Kalaupapa.

Alternative B

Alternative B proposes emphasis on cultural, historical, and natural preservation and stabilization of historic features. Preparation of a National Register of Historic Places nomination for Kalaupapa's archeological resources and exploration of a World Heritage Site designation are both potential designations that could benefit the preservation of the historic character. Adaptive re-use would also be implemented for visitor facilities, partner uses, and park operations. Museum collection items would be exhibited in historic structures and identification of offsite repositories to house other collections would provide offsite visitor education of collections and research. The result of these proposals would have a beneficial impact to the social character of the influence area, because the historic and cultural components of Kalaupapa would be preserved. Short-term, increased historic preservation activities to rehabilitate and preserve historic and cultural resources could affect the spiritual quality of Kalaupapa negatively. Long-term, construction activities would result in improvements to the structures and landscape in protecting, maintaining, and enhancing the quality of social and historic character of Kalaupapa.

The most significant changes to the social character of Kalaupapa and the influence area under this alternative could be the addition of nonprofit or concession-run visitor services and visitors using those services. Overnight visitation by the general public has always been prohibited, and this change could negatively impact the social character of the Kalaupapa. For the island, increases in the number of visitors and length of visitor stays would have minor changes to the social character of Molokai.

The following actions would maintain visitation, length of visitor stays, and visitor spending. The park would continue to prohibit sea access for visitors by ferry service or boat in the ¼ mile boundary of the park, unless a special use permit is obtained. Onsite interpretation and use of organized tours to experience Kalaupapa, restrictions on age and limits of recreational and overnight use would be maintained as in current management practices. These actions would have no effect on the social character of Kalaupapa in comparison to alternative A.

Alternative C

Same as alternative B except that alternative C proposes hands-on emphasis on cultural, historical, and natural preservation and stabilization of historic features. Additionally, a creative way to have visitors interact with the museum collections is a component of this alternative, such as an artist-in-residence program that is inspired by collections which would preserve the social character of the site. Changes in visitation in this alternative such as allowing children under the age of 16 to visit, potential expanded overnight use opportunities, and allowing unescorted access to visitors in the engagement zones would likely change the social characteristics of Kalaupapa.

Alternative D

Same as alternative B except alternative D proposes demonstrations to explain cultural, historical, and natural preservation and stabilization of historic features.

Cumulative Impacts

Impacts of ongoing cooperative agreements with the Department of Land and Natural Resources (DLNR), Department of Transportation (DOT), Department of Hawaiian Home Lands (DHHL), and churches would maintain existing economic benefits to the influence area; because these are the mechanisms through which the NPS is able to operate the park.

The departure of the Department of Health (DOH) and the patient community will have an effect on the population, demographics, economic, and social character of Kalaupapa. In 1984, the Hawai'i DOH and the NPS entered into a cooperative agreement which specified that the health department would continue health care programs while NPS would operate, preserve, and protect the park (NPS 1984). Operationally, this meant that NPS would eventually maintain

and operate all community facilities. As the patient population declines, the state health department personnel also decrease accordingly. With this, NPS operations, management, and spending are expected to grow as NPS assumes responsibility for more facilities that are currently operated and maintained by the state. The most significant and expected impact to socioeconomics in the local area is the passing of the patient community and resulting departure of DOH. Presently, the patient community constitutes more than a dozen of 113 individuals in the Kalaupapa community, and several of those individuals live outside Kalaupapa or are intermittently residing at Leahi Hospital in Honolulu. DOH staff constitutes approximately 42 individuals and 54 individuals are NPS staff. Patterns and trends on the island of Molokai include population and demographic changes with the presence of the DOH and patient community no longer existent in Kalaupapa. Molokai population estimates are fairly consistent and with the decrease in this community, the overall population will see decreases. The loss of the patient community is a change from a living community to a historical community for Kalaupapa NHP.

Impacts of implementation of all alternatives, in combination with the beneficial effects on the island described above would result in beneficial cumulative impacts on the island's social and economic environment.

Conclusion

Alternative A would continue to have beneficial impacts on the island's socioeconomic environment in the short- and long-term. In the short term alternatives B, C, and D would remain the same as alternative A. The cumulative impacts of all the alternatives would have beneficial impacts on the island's socioeconomic environment.

Unavoidable Adverse Impacts

Unavoidable adverse impacts are defined as moderate to major impacts that cannot be fully mitigated or avoided.

Alternative A

Under the no-action alternative, there would be major adverse impacts on historic structures because many of the buildings would be underutilized or not undergo rehabilitation. Under this alternative, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.

Alternative B

There would be little to no unavoidable adverse impacts on cultural resources because the NPS would strive to preserve and adaptively use buildings, structures and landscape features that are eligible for or listed on the National Register of Historic Places.

Under alternative B, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.

Alternative C

There would be little to no unavoidable adverse impacts on cultural resources because the NPS would strive to preserve and adaptively use buildings, structures and landscape features that are eligible for or listed on the National Register of Historic Places.

Under alternative C, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.

Alternative D

There would be little to no unavoidable adverse impacts on cultural resources because the NPS would strive to preserve and adaptively use buildings, structures, and landscape features that are eligible for or listed on the National Register of Historic Places.

Under alternative D, there would be a major adverse impact on native vegetation including Native Hawaiian plants, food and medicinal plants due to the presence of predominately invasive species and no formal plan to manage the invasive plants.



Volunteers removing invasive vegetation and planting native seedlings. NPS photo.

Relationship between Local Short-term Uses and Long-term Productivity

Alternative A

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used by the public. Under all the alternatives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under the no-action alternative, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport, and lighthouse) would remain.

Alternative B

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used by the public. Under all the alternatives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under alternative B, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport, and lighthouse) would remain.

Alternative C

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used by the public. Under all the alterna-

Relationship between Local Short-term Uses and Long-term Productivity

tives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under alternative C, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport and lighthouse) would remain.

Alternative D

Under all of the alternatives, most of Kalaupapa NHP would be protected in a natural state and would continue to be used by the public. Under all the alternatives, the National Park Service would continue to manage Kalaupapa NHP to maintain ecological processes and native and biological communities, and to provide for appropriate visitor uses consistent with the preservation of natural and cultural resources.

Any actions that National Park Service takes in Kalaupapa NHP would be taken with consideration to ensure that uses do not adversely affect the productivity of biotic communities. Under alternative D, there would be appreciable loss of ecological productivity because there would be little new development. Existing developed areas within Kalaupapa NHP (Kalaupapa Settlement, Kalawao, airport, and lighthouse) would remain.

Irreversible or Irretrievable Commitments of Resources

Alternative A

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of the no-action alternative that would result in the consumption of nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.

Alternative B

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of alternative B that would result in the consumption of nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.

Alternative C

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of alternative C that would result in the consumption of

nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.

Alternative D

Irreversible commitments of resources are actions that result in the loss of resources that cannot be reversed. Irretrievable commitments are actions that result in the loss of resources, but only for a period of time. No actions would be taken as a result of alternative D that would result in the consumption of nonrenewable resources that would preclude other uses for a period of time. Thus, there would be no irreversible or irretrievable commitments of resources in Kalaupapa NHP by the National Park Service.

No actions would be taken that would result in irreversible or irretrievable effects on historic properties. NPS staff would continue to conduct appropriate cultural resources management in accordance with the Secretary of the Interior's Standards and Policies.