

Kānepu‘u Preserve Lāna‘i, Hawai‘i

DRAFT Long-Range Management Plan Fiscal Years 2011–2016



Submitted to the
**Department of Land & Natural Resources
Natural Area Partnership Program**

Submitted by
The Nature Conservancy – Hawai‘i Operating Unit
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EXECUTIVE SUMMARY

Established in 1980, The Nature Conservancy of Hawai‘i is a local affiliate of The Nature Conservancy, a leading international, nonprofit organization that preserves the plants, animals and natural communities representing the diversity of life on Earth by protecting the lands and waters they need to survive. The Conservancy has established a statewide system of preserves in Hawai‘i totaling almost 32,000 acres. As a member of eight watershed partnerships, the Conservancy also works closely with public and private partners to help preserve nearly one and a half million acres statewide. The Conservancy has also extended its work from the forests to the reefs and is engaged in marine conservation in the nearshore waters of the main Hawaiian Islands.

The State of Hawai‘i’s Natural Area Partnership Program (NAPP) is an innovative program that aids private landowners, like the Conservancy, in the management of their native ecosystems. NAPP provides matching funds (\$2 state to \$1 private) for the management of qualified private lands that have been permanently dedicated to conservation. On Lāna‘i, TNCH manages the Kānepu‘u Preserve, which was first approved for NAPP funding in 1992.

In 1992, TNCH implemented the management programs described in our initial plan, *Kānepu‘u Preserve FY1992 – FY1997 Long-Range Management Plan*. Prior to that, specific management activities were conducted under Conservation District Use Permits numbers LA-11/14/91-2534 and 2535. In 1997, NAPP funding for a new 6-year period was reauthorized following a renewal procedure which included the preparation of an updated plan (*Kānepu‘u Preserve FY1998 – FY2003 Long-Range Management Plan*) and environmental assessment (*Final Environmental Assessment for Kānepu‘u Preserve Natural Area Partnership, 1997*). NAPP funding was again reauthorized in 2005 for FY2005 through 2010 (*Kānepu‘u Preserve FY2005 – FY2010 Long-Range Management Plan*).

Table 1. Overview of Kānēpu‘u Preserve Accomplishments by Programs
July 2004 – December 2008

	<i>Indicator</i>	<i>Measure of Success</i>
Ungulate Control	<ol style="list-style-type: none"> 1. Total hunts conducted 2. Total animal catches 3. Frequency of fence checks and fence repairs 4. Amount of soil erosion control conducted 	<ul style="list-style-type: none"> • 135 hunts conducted • 132 axis deer removed • 2 mouflon sheep removed • 5 miles of fenced maintained routinely • All fences in Kānēpu‘u inspected on a quarterly basis in FY05, semi-monthly in FY06, and monthly from FY07 forward • Implemented “work to hunt” program for volunteers assisting in weed removal to be allowed hunting privileges • .55 mile (890m) of fence installed and replaced between Kānēpu‘u entrance and Lapaiki iki fence line (Figure 3) • Erosion control mitigation conducted along fenceline as necessary
Invasive Plant Control	<ol style="list-style-type: none"> 1. Acres and total numbers of priority invasive plants treated or removed 2. Acres and total numbers of incipient plants treated or removed outside the preserve 	<ul style="list-style-type: none"> • Lapaiki area of Kānēpu‘u unit treated routinely for priority weeds including Christmasberry, lantana, bull thistle, guinea grass, and koa haole • MISC swept areas outside the preserve for fountain grass and ivy gourd in FY07-FY09 with minimal finds
Fire Control	<ol style="list-style-type: none"> 1. Frequency of fuel break maintenance 	<ul style="list-style-type: none"> • A 10-foot wide corridor on both sides of the fence was improved as a fuel break in FY06 • Kānēpu‘u and Kahue boundary fence mowed monthly, as needed • Fire hazard signage installed in FY07
Restoration, Research, and Monitoring	<ol style="list-style-type: none"> 1. Number of research projects supported in Kānēpu‘u 	<ul style="list-style-type: none"> • 3 research projects supported, including one on <i>Hyposmocoma</i> moths, one on <i>Ptycta</i> bark lice, and one on ‘iliahi.

TNCH recently aligned its conservation priorities with its resources by focusing on those areas in the state with the highest conservation value and feasibility of success. Budgetary constraints

have required that we continue a scaled-back management effort at Kānepu‘u. We have been actively seeking other entities to assist us with management of the preserve. In the mean time, The Nature Conservancy (TNC) will continue to carry out ungulate, weed, and fire control programs by partnering with a local Contractor. These programs have been contracted out since FY2005. TNC Maui staff occasionally supplement management activities carried out by the Contractor.

TNCH seeks reauthorization of NAPP funding for another 6-year period for the programs described within this *Kānepu‘u Preserve FY2011 – FY2016 Long-Range Management Plan*. This plan maintains a scaled-back program. Herein, we request **\$123,531** in matched state funds for the 6 years spanning FY2011 – FY2016.

Over the next six years our management efforts will focus on the following activities:

Ungulate Control – the primary management activity will continue to be the complete removal of all axis deer from the two best preserve units (Kahue and Kānepu‘u), along with the continued exclusion of mouflon sheep and cattle from all seven units. Due to the corrosive effect of sand, salt and prevailing winds on the island, a significant factor in the ongoing campaign to remove ungulates will be the need for fence maintenance around the seven preserve units.

Weed Control – Selective weed removal will occur primarily in areas within or surrounding high quality patches of native vegetation. Additionally, we will continue to assist MISC in its efforts to contain fountain grass and prevent its spread to other islands.

Fire Control – Due to the relatively dry climate of the preserve, it is imperative for management to be especially vigilant in preventing wildfires from damaging the remaining natural resources. We will continue to maintain fuel breaks by mowing along the fence line.

Restoration, Monitoring, and Research – When time allows, we plan to collect seeds of native species incidental to other preserve activities and work with cooperative nurseries to propagate off-site. Also, we plan to perform rare plant monitoring incidental to other preserve activities and provide limited assistance to researchers as staff time and budget permits.

Community Outreach – We plan to use current TNCH staff to build the capacity of any interested group to assist with the management of the preserve, and we will look for outside funding to continue project stewardship.

Watershed Partnerships – The Lāna‘i Forest Watershed Partnership (LFWP) was formed in 2001 to assist in protecting the island’s watersheds by leveraging efforts among conservation partners. As a member of this group, TNCH will continue to work with partners to promote stewardship activities in forest and watershed regions of Lāna‘i.

The State Department of Land and Natural Resources (DLNR), which administers the NAP program, is kept apprised of our progress in the preserve through written reports and an annual inspection. Operational plans are submitted annually (the Conservancy has adopted a July 1 – June 30 fiscal year). In addition, a semi-annual report is sent to DLNR each January. These documents are available upon request to others who are interested.

RESOURCES SUMMARY

General Setting

The formation of Kānepu‘u Preserve was announced in January 1989 and officially established in November 1991, when Castle and Cooke finalized a perpetual conservation easement with The Nature Conservancy of Hawai‘i. The preserve was created to protect and enhance the olopua/lama (*Nestegis/Diospyros*) dryland forest that once covered large portions of the lowlands on Maui, Moloka‘i, Kaho‘olawe, and Lāna‘i. Today, Kānepu‘u Preserve contains the last major remnant of this rare dryland forest community.

The climate at Kānepu‘u is relatively dry. Rainfall averages 71 cm (28 in) per year and falls primarily in the rainy season from November through March. Additional moisture comes in the form of fog that condenses on vegetation. Tradewinds are accelerated by funneling between the upwind islands of Moloka‘i and Maui. These strong and nearly constant winds increase evaporation of moisture, vegetation loss, and soil erosion in and around Kānepu‘u. In some places, over 6 feet of soil has been lost. These degraded areas usually have little vegetation and are therefore even more susceptible to additional erosion. Many of the eroded areas are characterized by a hard pan substrate that appears unsuitable for plant establishment. Other eroded areas are comprised of dunes of wind-blown soil that may shift with the season.

The preserve is comprised of seven disjunct sections that ranges from 13 to 368 acres in size and totals 590 acres (Figure 1). Major threats to the preserve’s native vegetation are introduced game animals (axis deer and mouflon sheep), cattle, rapid soil erosion, wildfire, and a number of invasive alien (non-native) plants. Much of this area was protected from 1911 through 1935 by fencing and other efforts carried out by George Munro, the then ranch manager for the area. Subsequent ranchers removed these fences. From 1970 to 1989, dedicated volunteers and the Hui Mālama Pono O Lāna‘i built four small fenced exclosures that helped protect patches of native forest and associated rare plants. Without these efforts, the last remnants of this rare Hawaiian forest type would probably have been destroyed.

Flora and Fauna

Two plant communities dominate Kānepu‘u Preserve: the native closed-canopy olopua/lama dryland forest and an alien shrubland. Some sections of the preserve are bordered by a windbreak of non-native trees. Areas of bare soil occur throughout the preserve.

The native forest canopy is dominated by lama (*Diospyros sandwicensis*) and olopua (*Nestegis sandwicensis*). The canopy also contains non-native Christmas berry (*Schinus terebinthifolius*) and up to 12 native species including ‘ohe makai (*Reynoldsia sandwicensis*), ‘ahakea (*Bobea*

sandwicensis), ‘āla‘a (*Pouteria sandwicensis*), and ‘aiea (*Nothocestrum latifolium*). The understory has been severely damaged as a result of historical grazing and few native species remain. Common understory weeds include lantana (*Lantana camara*), scarlet sage (*Salvia coccinea*), corky passion vine (*Passiflora suberosa*), and several grasses including dallis grass (*Paspalum dilatatum*) and molasses grass (*Melinis minutiflora*). Figure 2 shows the current natural communities of the Kānepu‘u Preserve.

Eleven rare plant taxa have been reported in Kānepu‘u Preserve; six of these are listed as federally endangered. However, two of these listed species, along with another with no federal status, are known only from historical records and have not been seen in Kānepu‘u Preserve since 1930 (Appendix 1). The four endangered plant species currently in the preserve are: the fragrantly flowered *Gardenia brighamii*, sandalwood or ‘iliahi (*Santalum freycinetianum* var. *lanaiense*), *Bonamia menziesii*, and the ma‘o hau hele (*Hibiscus brackenridgei* ssp. *brackenridgei*). The ma‘o hau hele was planted in the preserve and may not have occurred there naturally.

Two native birds frequent Kānepu‘u Preserve: the pueo (short-eared owl, *Asio flammeus sandwichensis*) and the kōlea (Pacific golden-plover, *Pluvialis fulva*). In addition, the endemic ‘amakihi (*Hemignathus virens virens*), ‘apapane (*Himatione sanguinea*), and ‘elepaio (*Chasiempis sandwichensis*) have been reported in Kānepu‘u Preserve in recent years; although their presence has yet to be confirmed by qualified ornithologists. Eleven non-native birds are also found in the preserve’s forest and open areas. At least ten different land snail taxa were identified in a subfossil sample found in the preserve.

Kānepu‘u Preserve’s arthropod fauna was sampled in 1992. According to collection records, 153 different insect species (some unidentified) were found. Nineteen spider taxa, two isopods, and one species of amphipod were also collected. Native taxa include a pyralid moth (genus *Scoparia*), mirids, drosophilids (fruit flies), yellow-faced bees (genus *Hylaeus*), and sphecids wasps. Two arthropods studies were conducted in Kānepu‘u Preserve in 2008 and 2009. Emilie Bess, a graduate student from the University of Illinois, conducted a study on bark lice (*Ptycta* spp.). Results thus far indicate 11 different morphospecies. Further investigation will determine if the species are new or previously described and their relationships with other Hawaiian *Ptycta*. Dr’s. Dan Rubinoff and Patrick Schmitz from the University of Hawaii conducted a study on the diversity of endemic flightless moths *Hypomocoma* in the Hawaiian Islands. Determinations may reveal they found at least 5 new species in the Kanepuu area, all endemic to Lanai. A remarkable part of their catch trap was the endemic Sphinx moth *Hyles* sp., unusual for the dry forest habitat of Kānepu‘u; frozen samples for molecular analysis will confirm the species identity, contributing to a better understanding of biodiversity with this incidental moth catch.

MANAGEMENT

Management Considerations

1. The lands surrounding the preserve support sustained-yield sport hunting of axis deer and mouflon sheep, and cattle grazing. The preserve has been fenced to prevent these animals from further damaging native vegetation. Preserve activities must be coordinated with surrounding neighbors, not only for safety reasons, but also to ensure good working relationships.

2. All units of the preserve are accessible by good-quality dirt roads, although four-wheel drive vehicles are needed during wet weather. Unit boundaries, fence lines, and firebreaks are mostly accessible via tractors or other equipment. Access to the preserve is generally obtained through abandoned pineapple field roads, which may move over time. The preserve is easily accessible on foot. Mapped corridors that link the seven preserve units were established to satisfy county subdivision requirements and do not represent road access between units.
3. The Lānaʻi community and other members of the public were involved at Kānepeʻu before it was a Conservancy preserve. As such, interpretive opportunities for the community and the public will continue as feasible.
4. A central challenge of conservation in Hawaiʻi is to integrate stewardship of native resources with community development, planning, corporate/landowner needs, and the priorities of the grass-roots community. Because of the history of community grass-roots involvement at Kānepeʻu, we initiated a capacity building effort in 1998 with the Hui Mālama Pono O Lānaʻi and other interested groups. The goal was to increase their organization effectiveness and develop a solid fundraising track record so that eventually they could become the managers of Kānepeʻu Preserve. To date, no community group has demonstrated the financial, administrative, and management capacity to manage Kānepeʻu Preserve. The Conservancy continues to believe that a community-based organization will provide the best solution for long-term management of the preserve. Should a suitable group present itself during the course of this six-year plan, the Conservancy and/or the new group will update the plan to reflect the desired arrangement of that group in the protection of Kānepeʻu .
5. Due to past deforestation and grazing by animals, massive wind and rain erosion remains a major threat to our fences. Initially, erosion problems caused by heavy rains are often the focus of fence maintenance efforts.
6. We have learned that once the galvanizing on the 12.5 gauge fence wire becomes noticeably corroded, the wire fails quickly (i.e. within about 6 months). Salt spray, carried 3 miles inland and up to Kānepeʻu Preserve's 1,700-foot elevation, seems to be the largest corrosive factor, as well as the constant sandblasting from adjacent eroded mineral soils. Professional fence builders and natural area managers surmise that the dry environs of Kānepeʻu, exacerbated by drought, have allowed salt spray to stick to the wire rather than being washed clean by rains. Only where a tall shrub, tree, or fence post protects wire from the salt spray is corrosion minimal or non-existent. The corrosion appears accelerated where the fence is downwind from an unvegetated area; this is probably due to soil particles constantly battering the fence. While we considered re-vegetation as part of the fence protection program, it appears that only tall vegetation will protect the fence however, this poses other problems to fence maintenance.

7. In 1992, The Nature Conservancy completed installation of a 6'3" tall deer fence around each of the seven patches of forest to prevent further damage by grazing animals. From 1996 through 2001, various sections of fence were replaced due to severe corrosion from harsh environmental conditions. In 2002 and 2003, the fences around the two most biologically important units (Kahue and Kānepu'u) were upgraded to stainless steel wire in an attempt to fend off corrosion problems. The Conservancy may decide to replace the fencing for the other units at a later date.
8. Over the past ten years, we have noted the increasing presence of native tree seedlings of many species (previously deer had eaten seedlings). Moreover, mature trees, formerly stripped of leaves and branches to the height a deer can reach, are now re-sprouting from the base.
9. A short, 750-meter self-guided trail was established in the Kānepu'u unit in 1997 to allow for unguided visitation along the main (unpaved) Polihua Road. This trail has since been determined inadequate in its initial goal of improving the community's understanding of the preserve's resources, due to its location away from native-dominated ecosystems. A new interpretive trail will be developed in the future that will encourage local and visitor education on native plants and invasive weeds.

Management Areas/Units

The preserve is divided into seven units. Kahue unit has the highest diversity of rare plants and is important for both restoration and interpretation. Kānepu'u unit has the largest patches of native forest; interpretation potential here is also great because of its location along a public road. 'Ahakea unit has rare plants and patches of native forest. The three Paoma'i units contain nice patches of forest, but these are quite small. The Mahana unit is the most distant unit and is also biologically the lowest priority for management and restoration. See Figure 1.

Management Programs

For each program listed in the following section, we identify a major goal and discuss the management methods and/or any management issues. Next, activities and costs for FY2011–FY2016 are listed. Staff time and effort, along with equipment expenses, are included separately within the *Personnel, Equipment, and Facilities* section.

Program 1: Non-native Species Control

A. Ungulate Control

Program Goal: Control axis deer in the Kahue and Kānepu‘u fenced units; continue to exclude mouflon sheep and cattle in all units. (There are no feral pigs or goats on the island of Lāna‘i.)

The two most biologically important units (Kahue and Kānepu‘u) are entirely surrounded with stainless steel wire fencing; while the other the five units are surrounded by aging galvanized and Bezinal fencing. Management activities continue to focus on the removal of axis deer from both the Kahue and Kānepu‘u units. Mouflon sheep have occasionally been found and removed in some units.

In FY08, a short section (~ .5 mi) of 6’, Bezinal-coated deer-proof fence was installed from the main Kānepu‘u gate to the Lapaiki iki fence line in order to increase the effectiveness of ungulate removal (Figure 3). Over the next six-year period, monitoring will determine the need for additional fencing to facilitate deer removal. Additional fencing may be needed in order to break the largest unit (Kānepu‘u) into more manageable units. If deemed necessary, a 6’ deer-proof fence may be installed along Polihua road, measuring approximately 2100m (Figure 3).

Activities

Years 1-6 (FY2011-16):

- Inspect and maintain fences at Kānepu‘u & Kahue units monthly. Inspect fencelines periodically for any weather-induced soil erosion which may require mitigation.
- Repair fences where damaged in other selected units as time permits
- Conduct periodic hunts in Kānepu‘u & Kahue units, with the goal of complete removal of all animals from native-dominated areas.

B. Weed Control

Program Goal: Assist other groups (e.g. Invasive Species Committees) with regional initiatives for incipient weed control; encourage volunteer groups to remove weeds within or surrounding high quality patches of native vegetation.

A number of non-native plants are well established in the preserve. We will continue to encourage volunteer groups (e.g., high-school groups, trail and mountain clubs, hunters) to hand-pull and mechanically control weeds in high quality patches of native vegetation. We will also continue to assist MISC in its efforts to control fountain grass (*Pennisetum setaceum*) and prevent its spread to other islands.

Activities

Years 1-6 (FY2011-16):

- Conduct priority weed control in high quality patches of native vegetation on a monthly basis
- Support MISC with removal of potentially harmful incipient weeds currently found outside the preserve that could potentially impact Kanepuu
- Work with Invasive Species Committees to develop regional initiatives for incipient weeds
- Develop a replacement short, interpretive trail to help educate volunteers on weed and native plant identification

C. Small Mammal Control

This program has been suspended due to the elimination of on-island preserve staff and hence our inability to check bait stations as frequently as needed to run an effective control program.

Years 1-6 (FY2011-16):

- Set rat traps around key rare species as time allows

The non-native species control program represents an estimated 80% of the overall effort and budget in this long-range management plan.

Program 2: Fire Control

Program Goal: Attempt to mitigate fires in the preserve.

Wildfire is a major threat and has diminished the extent of native vegetation in the preserve in the past. Vehicle traffic along roads passing through or near the preserve is the primary source of ignition. Nevertheless, the Conservancy is required to accommodate public access through the preserve along these or suitable alternate roads. A 15–20 foot wide swath of cleared vegetation along the fence line of each preserve unit will be maintained as a fuel break for fire prevention where feasible.

Activities

Years 1-6 (FY2011-16):

- Maintain fuel breaks along fence line, as needed, to accommodate mower

The fire control program represents an estimated 10% of the overall effort and budget in this long-range management plan.

Program 3: Restoration, Research and Monitoring

A. Restoration

This program has been reduced due to the elimination of on-island Conservancy staff. Restoration activities will focus on the Lapaiki area in Kānepu‘u unit. We plan to use contractors and volunteers to collect seeds incidental to other preserve activities and work with cooperative nurseries to propagate off-site. Once seeds are propagated they will be outplanted in Lapaiki and other units. The irrigation system will be restored via installation of two water tanks at Kahue and two water tanks to feed Kānepu‘u iki in Kānepu‘u if permission can be gained to use an existing water line. Tanks have been donated and range in size from 400 to 1,000 gallons. No construction or physical improvements will be necessary.

Activities:

Years 1-6 (FY2011-16):

- Improve irrigation system to supply water for restoration activities

B. Research and Resource Monitoring

This program has been reduced due to the elimination of on-island Conservancy staff. No major activities or expenditures are proposed. We plan to use Maui staff to perform rare plant monitoring incidental to other preserve activities and provide logistical assistance to researchers as staff time and budget permits.

The restoration, research and monitoring program represents an estimated 10% of the overall effort and budget in this long range management plan.

Program 4: Community Outreach

This program has been reduced due to the elimination of on-island Conservancy staff. No major activities or expenditures are proposed. As time allows we will continue to build the capacity of qualified and interested groups to assist with the management of the preserve.

This program represents less than 1% of the overall effort and budget in this long-range management plan.

Program 5: Watershed Partnerships

On October 11, 2001 a Memorandum of Agreement was signed, bringing together the following entities into a Lāna‘i Forest and Watershed Partnership: Castle & Cooke Resorts LLC (formerly known as Lāna‘i Company Inc.), Hui Mālama Pono O Lāna‘i, Maui County Board of Water Supply, State of Hawai‘i Department of Land and Natural Resources Division of Forestry and Wildlife, U.S. Fish and Wildlife Service, The Nature Conservancy, the United States Department of Agriculture Natural Resources Conservation Service, Moloka‘i-Lāna‘i Soil and Water Conservation District, Lāna‘i Water Advisory Committee, State of Hawai‘i Commission on

Water Resource Management, and Maui County. The Nature Conservancy has not been active in this partnership for a number of years. However, TNC is prepared and willing to assist in the partnership (e.g., by participating in meetings) should the need arise.

This program represents less than 1% of the overall effort and budget in this long-range management plan.

BUDGET SUMMARY

The following table summarizes the six-year budget for the Kānepu‘u NAPP Project. Through the NAPP program, the state pays two-thirds of the management costs outlined in this long-range plan and TNC funds (from private and other government sources) the remaining third.

Personnel:

This NAPP request will cover a portion of the costs of the Maui Island Program staff that will have responsibilities in implementing the management plan. Other part-time, short-term, or year-to-year personnel may be hired periodically as the budget allows and project needs warrant.

The Nature Conservancy’s currently negotiated fringe benefit rate will accrue on all salary/wage costs.

Technical and annual planning support is also provided by the Honolulu office of the Conservancy. In particular, the Conservation Programs Director, Science Manager, Senior Scientist, and other island resource staff help prepare annual plans and reports, develop and implement monitoring and research programs, and establish interpretive and intern programs at the preserve. As budget and needs allow, these support staff members may charge a small portion of their time to this project.

Supplies:

A supplies budget of \$650 has been budgeted in the first year and a 3% inflation increase added each year thereafter to cover various project-related supplies and expenses. Funds will be allocated towards vehicles, equipment and materials based on availability and need.

Travel:

A travel budget of \$623 has been budgeted in the first year and a 3% inflation increase added each year thereafter to cover travel expenses of Maui staff to and from Lāna‘i.

Subawards/Subcontracts:

The Nature Conservancy (TNC) will continue to carry out ungulate, weed, and fire control through use of a local subawardee/subcontractor. Funds may also be allocated for LRMP renewal and professional/contractual costs based on availability and need.

Overhead:

An overhead charge is included to recognize the administrative support provided by TNCH; although TNCH’s current negotiated rate with the federal government is 23%, a maximum of 10% is allowable by the NAP Program. TNCH will absorb the 13% in indirect differential, as well as any future increases to or other changes in the overhead rate.

The following table summarizes the 6-year budget for Kānepu‘u Preserve. Through the NAP program, the State of Hawai‘i will fund two-thirds of the costs outlined in this long-range management plan. Recognizing that the NAPP budget is not expected to increase significantly in the coming years, we have not included routine, annual increases for most of the program activities described above. In addition, little provision has been made for possible future inflation

or general cost increases. If significant cost increases occur over the course of this plan, we may need to work with DLNR to revise goals or seek additional NAPP funds through an amended plan.

BUDGET TABLE

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	Total
Labor and Fringe	9,000	9,270	9,548	9,835	10,130	10,433	58,216
Supplies	650	670	690	710	732	754	4,206
Subcontracts	17,000	17,000	17,000	17,000	17,000	17,000	102,000
Travel	623	642	660	681	701	722	4,029
Subtotal	27,273	27,582	27,898	28,226	28,563	28,909	168,451
Overhead (10%)	2,727	2,758	2,790	2,823	2,856	2,891	16,845
TOTAL	30,000	30,340	30,688	31,049	31,419	31,800	185,296

	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	Total
Kānepu‘u Budget	30,000	30,340	30,688	31,049	31,419	31,800	185,296
TNC Match (1/3)	\$10,000	\$10,113	\$10,229	\$10,350	\$10,473	\$10,600	\$61,765
NAPP Request (2/3)	\$20,000	\$20,227	\$20,459	\$20,699	\$20,946	\$21,200	\$123,531

ENVIRONMENTAL REVIEW COMPLIANCE

All actions being proposed for reauthorization in this long-range management plan are substantially similar to, and relevant to, the actions previously considered in the *Final Environmental Assessment of Kānepu‘u* for which we received a "Finding of No Significant Impact" in 1997. Pursuant to Hawai‘i Administrative Rule 11-200-13 (*Consideration of previous determination and accepted statements*), all environmental review obligations under the Hawai‘i Revised Statutes (Ch. 343) have been fulfilled and are in keeping with the letter and intent of the administrative rules regulating the Natural Area Partnership Program (HAR 13-210).

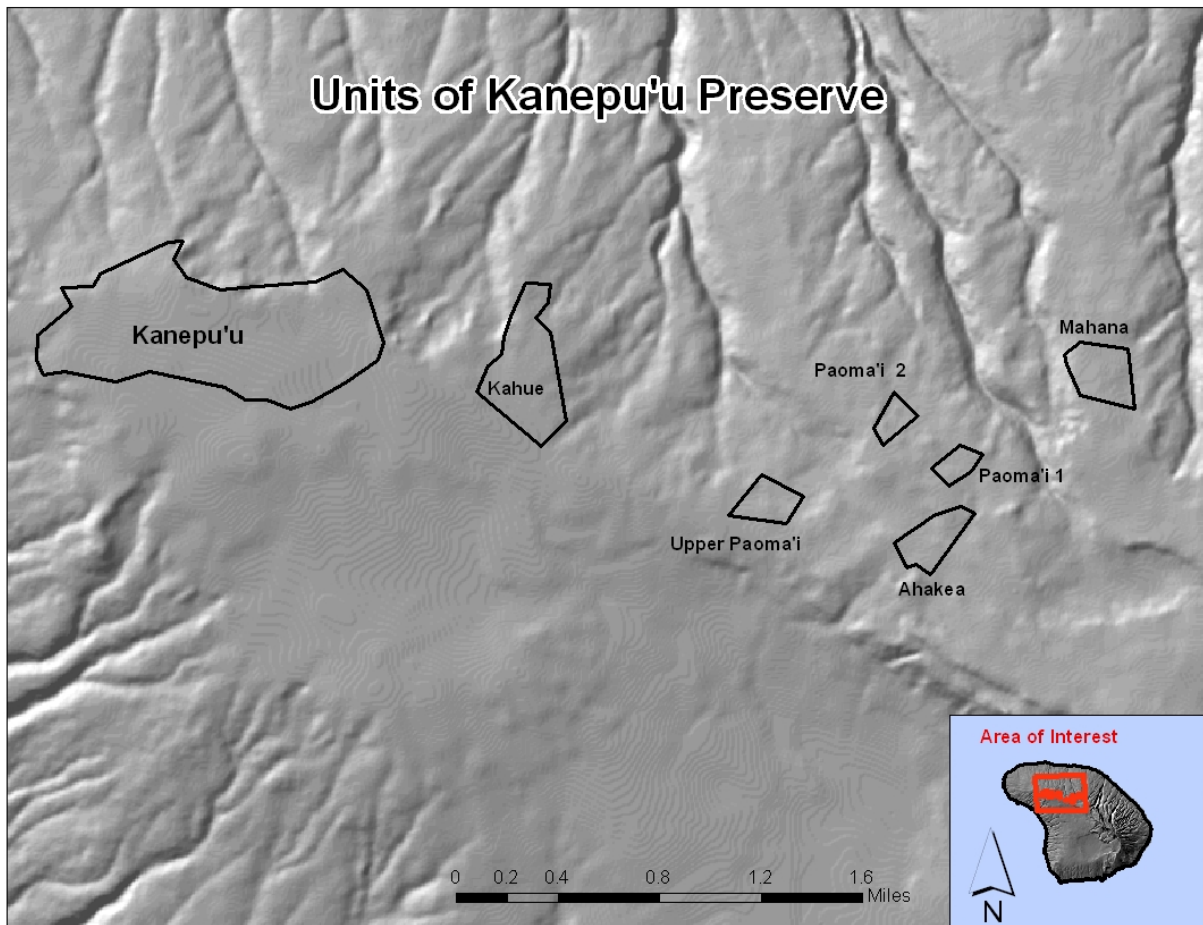


Figure 1. Kānepu‘u Preserve units

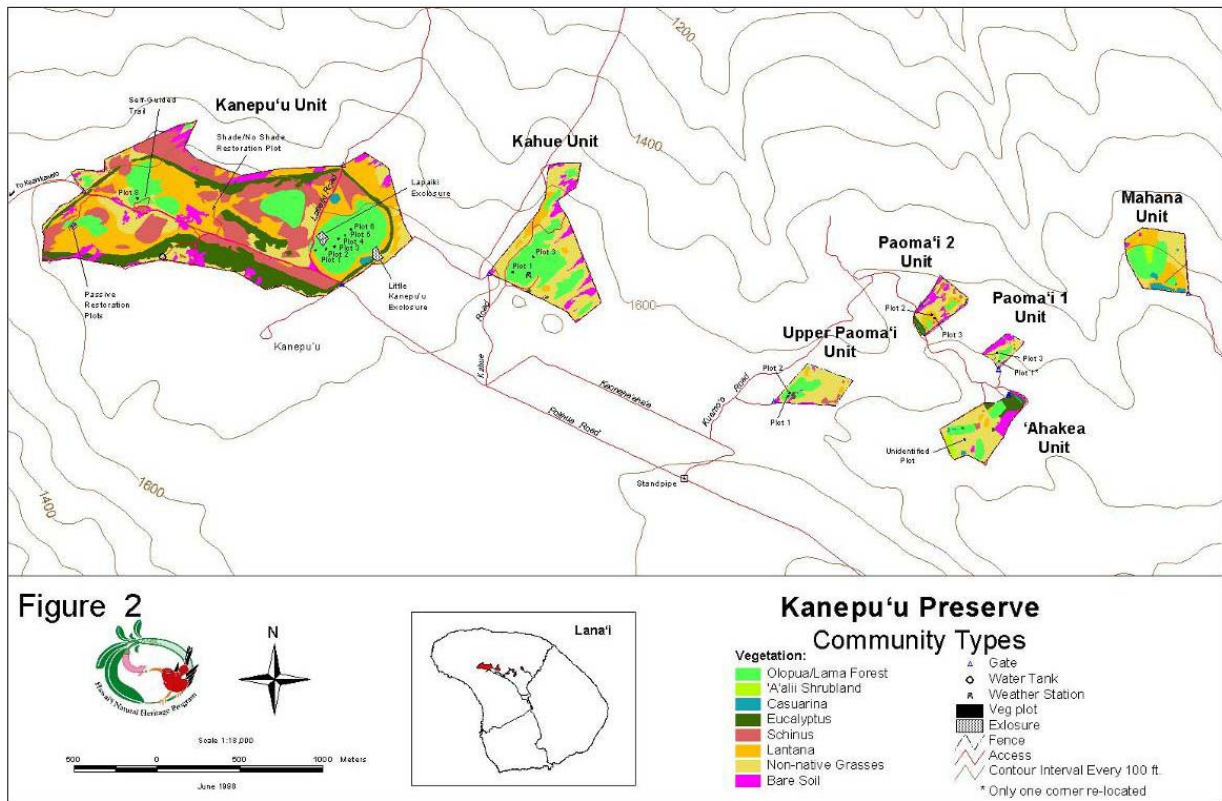


Figure 2. Kānepuʻu Preserve community types

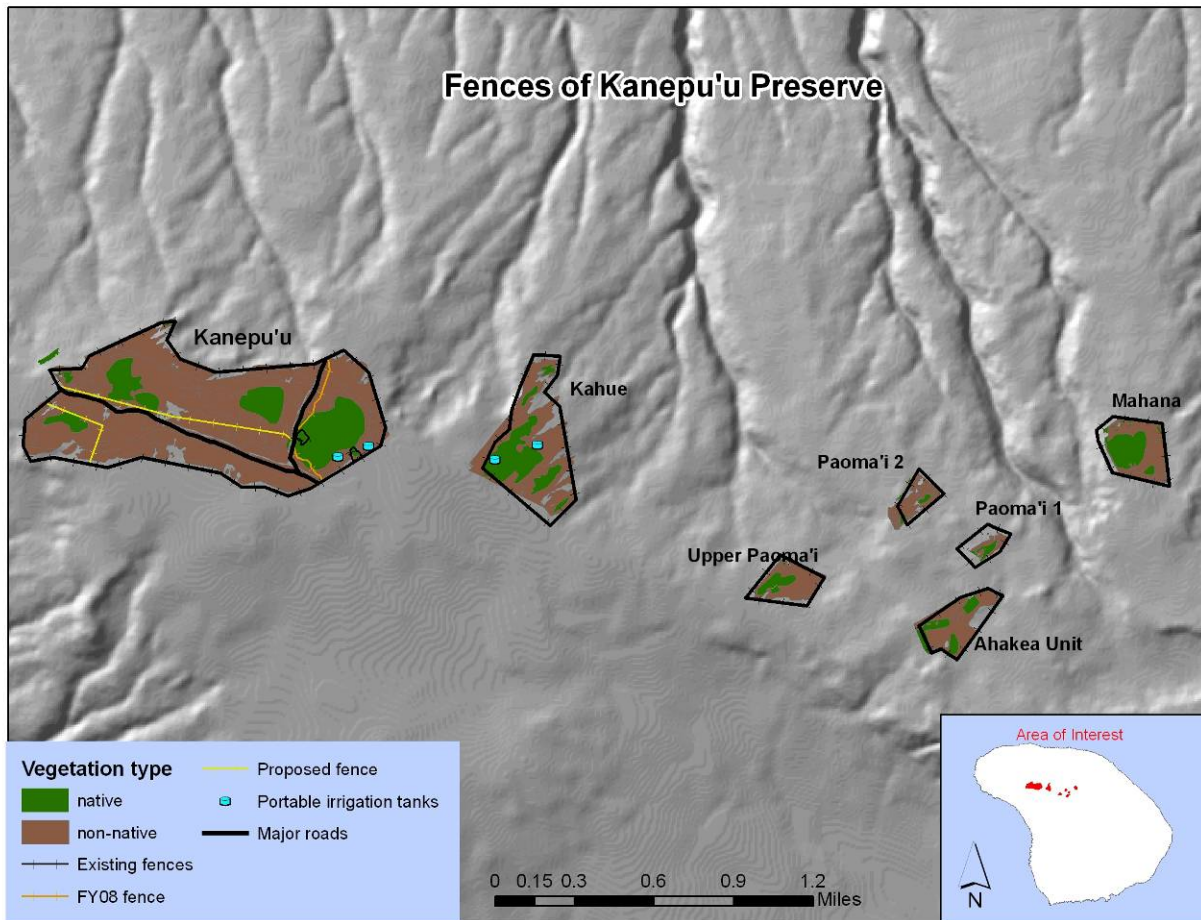


Figure 3. Kānepu‘u Preserve fences

APPENDIX 1

RARE PLANTS OF KĀNEPU‘U PRESERVE

SCIENTIFIC NAME	COMMON NAME	HERITAGE RANK (a)	FEDERAL STATUS (b)
<i>Bidens micrantha</i> ssp. <i>kalealaha</i> *	Ko‘oko‘olau	G3T1	LE
<i>Bobea sandwicensis</i>	‘Ahakea	G1	SOC
<i>Bonamia menziesii</i>		G1	LE
<i>Gardenia brighamii</i>	Nā‘ū	G1	LE
<i>Haplostachys munroi</i> *		GH	SOC
<i>Hibiscus brackenridgei</i> ssp. <i>brackenridgei</i> ¹	Ma‘o hau hele	G1T1	LE
<i>Nesoluma polynesicum</i>	Keahi	G2	SOC
<i>Nothocestrum latifolium</i>	‘Aiea	G1	C
<i>Reynoldsia sandwicensis</i>	‘Ohe	G2	SOC
<i>Santalum freycinetianum</i> var. <i>lanaiense</i>	‘Iliahi	G3T1	LE
<i>Vigna owahuensis</i> *		G1	LE

* Plants known historically from preserve

¹ Planted in the preserve; not historically known from area

(a) NatureServe Rank:

G1=Species critically imperiled globally (typically 1–5 current occurrences)

G2=Species imperiled globally (typically 6–20 current occurrences)

G3=Species vulnerable globally (typically 21–100 current occurrences)

GH=Species possible extinct

T1=Subspecies or variety critically imperiled globally

T2=Subspecies or variety imperiled globally (typically 6–20 current occurrences)

(b) Federal Status:

LE=Listed endangered

SOC=Species of concern

C=Candidate