



Natural Area Partnership Program

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Introduction

Hawai'i is known for its endemic flora and fauna and its unique native ecosystems. Hawai'i is also known for the high number of endangered species found within its borders. With only 0.2 percent of the land mass in the United States, the state has close to 40 percent of both the listed plants and birds on the U.S. endangered species list (263 plant taxa, 31 bird taxa), as well as nearly 75 percent of the historically documented extinctions in the nation (Hawai'i Department of Land and Natural Resources et al. 1991). Although there are a number of state programs directed toward the protection of natural resources on state lands, at least 15 percent of Hawai'i's approximately 180 natural communities are not found on any state lands and another 73 percent are found on both state and non-state lands (Hawai'i Heritage Program, 1987). Clearly, if natural resource protection efforts are to succeed in Hawai'i, private landowner conservation efforts must be encouraged.

To help provide conservation incentives to private landowners, the Natural Area Partnership program (NAP) was established in the Department of Land and Natural Resources (DLNR) by the Hawai'i Legislature in 1991 through Act 326 (Hawai'i Revised Statutes 1995). This innovative program, the first of its kind in the nation, provides state matching funds on a 2:1 basis with private funds for the management of natural resources on private lands that are permanently dedicated to conservation. This program complements the existing state natural area reserve system by providing long term protection and management of unique natural resources on private lands. It also complements the state Forest Stewardship program (FS), which provides 1:1 state matching funds for approved forest management programs on private lands that do not qualify for the NAP program (Hawai'i Revised Statutes 1995). The NAP program not only helps protect land for the long term, it helps create a land tenure system that is conducive to exploring and implementing ecosystem and regional management schemes (Figure 1).

Natural resource protection and management are long-term efforts requiring time and energy commitments not often found in other projects. Recovery of vegetation following removal of ungulates or increases in populations of rare plants or animals after directed management actions may take several years to become detectable. Restoration projects often take years before results are discernible. To help ensure that critical management activities and funding do not stop prematurely, the NAP program requires long-term commitments from both the state and the private landowner. However, it is also necessary to be flexible and follow a policy of "adaptive management" when it becomes clear that management actions are not achieving desired results. One of the keys to striking this balance is to have adequate, regular monitoring programs to assess the effectiveness of management actions and to direct program objectives.

Program description

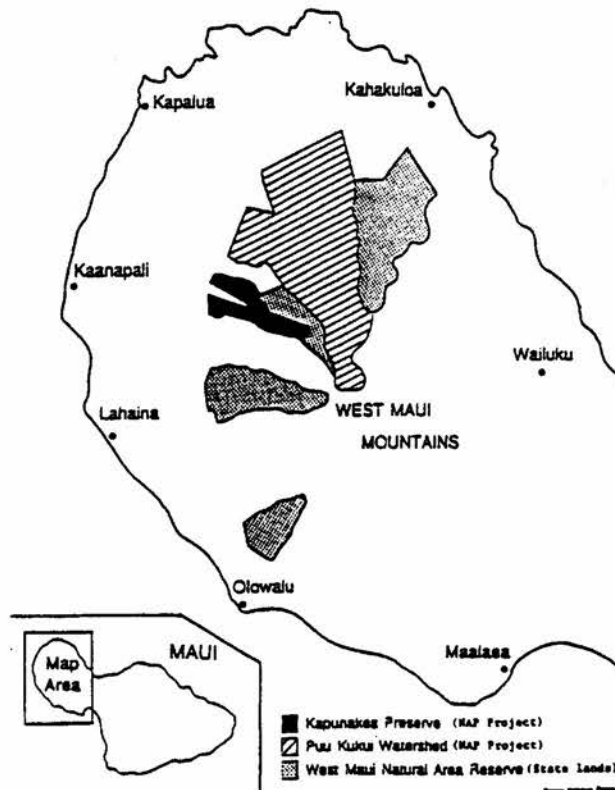
An applicant for the NAP program must be a private landowner or a cooperating entity. A "cooperating entity" is a private, nonprofit land-holding organization or any other body deemed by the DLNR as satisfactorily able to assist in the identification, acquisition, and management of natural area reserves. Lands must be of "natural area reserve quality," which might include intact native Hawaiian ecosystems, essential habitat for endangered species, or areas within the protective (P) subzone of the Conservation District. Areas that are at the ends of the spectrum (e.g., clearly high-quality or clearly degraded) are easily identified, whereas areas that fall in the middle are often hard to define. A working group is currently discussing the acceptance criteria for this program, as well as the complementary FS program, to provide clarification of the vague term, "natural area reserve quality." The NAP program can provide support for a full range of management activities to protect, restore, or enhance significant native resources or geological features. In addition, the program can provide support for the development of long-range management plans. The program is administered by DLNR

Table 1. First six fiscal years of NAP program showing state and private expenditures and number of projects.

	FY 1992	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997
State expenditures	\$153,554	\$293,787	\$339,990	\$773,664	\$927,089	\$1,002,260*
Private expenditures	\$76,777	\$146,894	\$169,995	\$386,832	\$463,544	\$501,130*
Number of projects	3	3	4	7	7	7

* = estimated

Figure 1. The Natural Area Partnership Program helps create opportunities for ecosystem management.





Division of Forestry and Wildlife (DOFAW) staff, although all on-the-ground activities are carried out by either the private landowner or the cooperating entity. Draft rules governing the administration and implementation of the program are currently awaiting public hearings before becoming finalized. Currently, the following multi-step process to implement the program has been established:

- (1) The applicant submits a preliminary proposal indicating the intent and nature of the natural area management considered.
- (2) The Natural Area Reserves System (NARS) Commission reviews the preliminary proposals and selects applicants eligible to prepare a detailed long range management plan.
- (3) The draft long-range management plan is reviewed by the NARS Commission and DOFAW staff. An environmental assessment is completed for all projects to obtain public input.
- (4) The final management plan is submitted to the Board of Land and Natural Resources (BLNR) for project approval and a six-year funding authorization.

The first three years of the program were funded by state general fund appropriations. In 1993, a dedicated source of state funding was established by the state legislature utilizing an increase in the conveyance tax, which is levied each time real estate property is bought or sold. Since fiscal year (FY) 1995, all project funding has come from this special fund. Table 1 shows program funding levels and number of projects since program inception.

Current projects

The following seven projects were funded in FY 97:

Kamakou Preserve

Landowner: Moloka'i Ranch, Ltd.

Managing Partner: The Nature Conservancy

Entered NAP Program: FY 1995

This 2774-acre project helps regional protection efforts for both the native natural communities and the watershed area found in East Moloka'i. Thirty-seven of the plant species are rare, with 18 of these species listed as federally endangered. In addition, Kamakou protects habitat for five native forest bird species and five rare native land snails. The primary management focus is to prevent degradation of the native forest by reducing feral ungulate damage, limiting the spread of

nonnative, habitat modifying plants, and preventing wildfire. Feral ungulate control activities utilizing both staff and the general public have maintained ungulate activity levels below 10 percent in the more accessible management units but has not yet achieved the 10 percent activity level in the more remote units. A "Five Year Weed Control Plan" has been completed and on-the-ground control activities on the top three priority weeds are under way. Research and surveys continue to provide baseline data and new information for management decisions. Public outreach programs are conducted with both on- and off-site activities (The Nature Conservancy of Hawai'i 1996a).

Kanepu'u Preserve

Landowner: Dole Food Company, Inc.

Managing Partner: The Nature Conservancy

Entered NAP Program: FY 1992

Kanepu'u Preserve on Lanai comprises 590 acres in seven disjunct units and represents the last major remnants of a dryland forest community that once covered large portions of Maui, Lana'i, Moloka'i and Kaho'olawe. Ten rare plants, six of them federally listed, have been reported from the preserve. Protection from axis deer, removal/control of nonnative plant species, and the use of the preserve as a focal point for dryland forest restoration research and study have been and will continue to be the primary management activities. Volunteer public hunters control axis deer in all fenced units, with six out of seven units currently deer-free. Recovery of native vegetation following deer removal has been documented. Control of nonnative weedy trees, particularly *Schinus terebinthifolius*, has been implemented in several units. Rat control stations have been established. Restoration trials, as well as a number of physiological and ecological experiments, have been conducted, although at a slower rate than originally planned due to lack of available planting stock. A revised restoration plan, based on current knowledge, will be completed in FY 97 and will serve as the basis for expanding restoration efforts and trials. Completion of a self-guided nature trail in FY 97 as well as the existing volunteer docent-lead preserve hikes provide educational outreach opportunities for the general public (The Nature Conservancy of Hawai'i 1996b).

Kapunakea Preserve

Landowner: Pioneer Mill Company, Limited



Managing Partner: The Nature Conservancy
Entered NAP Program: FY 1992

This 1264-acre preserve is a component of regional protection efforts for the important watershed area and native communities found in the West Maui mountains. Containing 10 native-dominated communities, 24 rare species of plants (five are federally listed), as well as four rare snail species, the preserve's upper elevations are recognized as among the highest-quality native areas in the state. Preventions of new introductions and the control of both animal and plant nonnative species are the primary objectives of preserve management efforts. Ungulate control efforts were intensified after an increase in animal activity levels was noted, and a reduction in activity levels was achieved. Control efforts on the nonnative guava (*Psidium* spp.), blackberry (*Rubus argutus*), and tibouchina (*Tibouchina herbacea*) have been implemented. Public outreach and education efforts include public lectures, docent-led interpretative preserve hikes, and volunteer work trips (The Nature Conservancy of Hawaii 1996c).

Mo'omomi Preserve

Landowner: The Nature Conservancy
Managing Partner: The Nature Conservancy
Entered NAP Program: FY 1995

This 921-acre project on Molokai contains one of Hawaii's best remaining dune ecosystems with associated rare coastal plants. Seven plant species and one native community are considered rare. Green sea turtles, Laysan albatrosses, and Hawaiian monk seals are known to utilize the area. In addition, Mo'omomi also contains significant archaeological, paleontological, and cultural resources. Ungulate control activities include maintenance of fences to exclude domestic cattle from entering the preserve, as well as the maintenance of axis deer exclosures, which are being used to help formulate an appropriate deer management program. Nonnative plant control activities include a kiawe (*Prosopis pallida*) removal program and removal of *Reichardia tingitana*, a small herbaceous species that threatens the integrity of the dune ecosystem. Protection of important cultural sites continues through cooperative efforts with the Hawai'i Historic Preservation Division and local community groups. Community outreach programs include preserve hikes and off-site activities (The Nature Conservancy of Hawai'i 1996d).

Pelekunu Preserve

Landowner: The Nature Conservancy
Managing Partner: The Nature Conservancy
Entered NAP Program: FY 1992

Pelekunu Preserve, located on Moloka'i's north shore, is a 5759-acre preserve established to protect the free-flowing Pelekunu Valley stream system, which is one of the best in the state. It is also part a larger regional management effort that provides protection to more than 22,000 contiguous acres on Molokai. The preserve contains nearly all the native Hawaiian freshwater fish, crustacean, and mollusk species. In addition, 27 rare plant species, five endemic forest birds, and two endemic land snail species have been reported from the area. Protection of the watershed by reducing ungulate damage and reducing the spread of nonnative plants are the primary management activities. The use of volunteer public hunters to replace the use of snaring and aerial hunting while still maintaining the same low level of animal activity was started several years ago and continues to be utilized through the Moloka'i Hunting Test Working Group. Although results indicate good control of pigs, an increase in numbers of goats has prompted a focused effort on reducing goat numbers through public hunting as well as a discussion of alternative control techniques for goats. Public outreach programs continue with public lectures, preserve overlook hikes, and the support of intern and summer youth programs (The Nature Conservancy of Hawai'i 1996e).

Pu'u Kukui Watershed Management Area

Landowner: Maui Land & Pineapple Company, Inc.
Managing Partner: Maui Pineapple Company, Ltd.
Entered NAP Program: FY 1994

With more than 8600 acres, Pu'u Kukui WMA is a critical component of regional protection efforts on West Maui that include more than 13,000 contiguous acres. Fourteen native natural communities, two of them rare, are found in the preserve along with more than 40 rare plant species and six endemic species of snail. Primary management efforts are focused on the removal of feral ungulates and the control of nonnative plant species. Feral ungulate control efforts have reduced animal activity levels to nearly zero in the high-priority upper elevation regions of the preserve. Vegetation recovery has been documented in previously disturbed areas. Recent sightings of both axis deer and goats near the preserve boundary have prompted intensified efforts to ensure



that these species do not become established. Weed population control measures for a number of priority species, including *Clidemia hirta*, *Psidium* spp., and *Tibouchina herbacea*, are under way (Maui Land and Pineapple Company 1996).

Waikamoi Preserve

Landowner: Haleakala Ranch Company

Managing Partner: The Nature Conservancy

Entered NAP Program: FY 1995

This 5230-acre project helps increase regional protection efforts for the important watershed and native species habitat found in the East Maui Watershed Area. This reserve provides critical habitat for 13 native birds, eight of which are federally listed as endangered. Fourteen native natural communities, two of them rare, are found in the preserve along with 25 rare plant species. The primary strategy of the protection of Waikamoi is to reduce damage to vegetation and soils by removing all ungulates. Ungulate control activities include maintaining low pig activity levels as well as detection and subsequent removal of axis deer, which first appeared in the preserve in FY 1995. Construction of new fences in the area through the East Maui Watershed Partnership project will help control the ingress of pigs from downslope into Waikamoi. Control of habitat modifying weed populations continues with emphasis on species that have had prior control efforts. In addition, considerable effort has been devoted to miconia (*Miconia calvescens*) control and monitoring to prevent its establishment in the preserve. Development and implementation of appropriate monitoring and analysis techniques of natural resources on both a preserve and watershed scale have been a high priority. A cooperative research project with DOFAW, U.S. Fish and Wildlife Service, and USGS Biological Resources Division continues to survey for and describe the life histories of endangered Maui forest birds. Volunteer work trips and docent-led hikes provide educational opportunities for the general public (The Nature Conservancy of Hawaii 1996f).

Future directions and issues

Several issues or concerns have arisen during the first five years of the program. Some are programmatic, while others deal with specific projects. There are no easy or even "right" answers to these issues but they must be addressed if the NAP program is to reach long-term sustainability. Resolution of these issues will likely

be achieved through a combination of on-the-ground efforts by the cooperating entities as well as changes in both the statutes and the administrative rules. A description of several issues follows.

* In the past, consideration and incorporation of community concerns into natural resource management programs has not been addressed as well as it might have been. Community-based management programs require a concerted effort and often take a long time to set up. Community advisory councils and facilitated working groups have been established and should help managing partners address local concerns in the coming years. This issue is also clouded by the fact that although the lands are private and involvement in the program is voluntary, the use of state funds trigger greater review by the public than landowners may have been used to.

* After the first several years of project funding, it has become clear that little is known of the restoration ecology of the dryland forest ecosystem on Lana'i; consultation and collaborative restoration efforts with other resource managers may improve the efficiency and success of this important project. Adequate documentation of the restoration efforts is essential to ensure that future managers benefit from current efforts.

* Long-range water development plans for Moloka'i have potential ramifications for Pelekunu and its undiverted waters. The state and land owner must be fully aware of all proposed or even potential activities to avoid competing and possibly counter productive state-funded programs.

* Partnerships, such as the East Maui Watershed Partnership, which is a group of seven agencies, organizations, and landowners, will become increasingly important as ecosystem-level issues are addressed. Ecosystem issues are complex and cut across political, legal, and geographic boundaries. Often no one agency or organization is equipped to handle the issue in its entirety thus making cooperative partnerships a vital necessity.

* After five years of the NAP program, a number of programmatic issues have arisen. The need to clearly develop land quality acceptance criteria and the need to help landowners who either cannot or choose not to commit their lands in perpetuity but who still wish to participate in cost-sharing conservation programs is a must. In addition, issues of allocation of finite funding resources not only between projects within the NAP program, but also between complementary cost-sharing



programs such as the NAP and FS programs must be discussed and resolved.

The NAP program has been very successful in its first five years and has established itself as a viable mechanism for helping Hawaii's private landowners conserve important natural resources. The challenge of the next five years is to maintain the strong foundation we have built while attracting new participants and ensuring strong funding support from the legislature. DLNR needs to successfully integrate the NAP, FS, and other cost-sharing programs into a series of private landowner incentives that will reduce the fragmentation of the Hawaiian natural landscape. Working together, government and private landowners can slow and perhaps even reverse the decline of the Hawaiian flora and fauna.

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