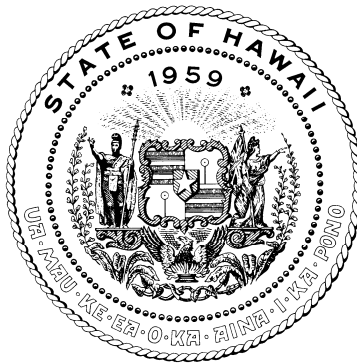


**REPORT TO THE TWENTY-FOURTH LEGISLATURE  
REGULAR SESSION OF 2008**

**RELATING TO THE NATURAL AREA RESERVES SYSTEM,  
NATURAL AREA PARTNERSHIP PROGRAM,  
AND  
THE FINANCIAL CONDITION OF THE  
NATURAL AREA RESERVE FUND**



**PREPARED BY**

**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF FORESTRY AND WILDLIFE**

**IN RESPONSE TO SECTION 195-6.6, HAWAII REVISED STATUTES**

**HONOLULU, HAWAII  
NOVEMBER 2007**

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## LIST OF ACRONYMS

<b>BLNR</b>	Board of Land and Natural Resources
<b>DLNR</b>	Department of Land and Natural Resources
<b>DOE</b>	Department of Education
<b>DOFAW</b>	Division of Forestry and Wildlife
<b>EMWP</b>	East Maui Watershed Partnership
<b>EMoWP</b>	East Molokai Watershed Partnership
<b>FSP</b>	Forest Stewardship Plan
<b>FY</b>	Fiscal Year
<b>GIS</b>	Geographic Information System
<b>HAWP</b>	Hawaii Association of Watershed Partnerships
<b>HRS</b>	Hawaii Revised Statutes
<b>HTA</b>	Hawaii Tourism Authority
<b>IFB</b>	Invitation for Bid
<b>ISC</b>	Invasive Species Committee
<b>KWA</b>	Kauai Watershed Alliance
<b>KWP</b>	Kohala Watershed Partnership
<b>KMWP</b>	Koolau Mountains Watershed Partnership
<b>LHWRP</b>	Leeward Haleakala Watershed Restoration Partnership
<b>MFBRP</b>	Maui Forest Bird Recovery Project
<b>MISC</b>	Maui Invasive Species Committee
<b>MLPC</b>	Maui Land and Pineapple Company, Ltd.
<b>MoMISC</b>	Molokai Invasive Species Committee
<b>NARF</b>	Natural Area Reserve Fund
<b>NAR</b>	Natural Area Reserve
<b>NARS</b>	Natural Area Reserves System
<b>NAPP</b>	Natural Area Partnership Program
<b>OKP</b>	Olaa-Kilauea Partnership
<b>OISC</b>	Oahu Invasive Species Committee
<b>PKW</b>	Puu Kukui Watershed Preserve
<b>T&amp;E</b>	Threatened and Endangered Species
<b>TMA</b>	Three Mountain Alliance
<b>TNC</b>	The Nature Conservancy of Hawaii
<b>USDA</b>	United States Department of Agriculture
<b>USFWS</b>	United States Fish and Wildlife Service
<b>USGS</b>	United States Geological Survey
<b>WMMWP</b>	West Maui Mountains Watershed Partnership
<b>YCC</b>	Youth Conservation Corps

**RELATING TO THE NATURAL AREA RESERVES SYSTEM,  
NATURAL AREA PARTNERSHIP PROGRAM,  
AND  
THE FINANCIAL CONDITION OF THE  
NATURAL AREA RESERVE FUND**

**PURPOSE**

Section 195-6.6, Hawaii Revised Statutes (HRS), requires an annual comprehensive status report on the Natural Area Reserves System, the Natural Area Partnership Program (NAPP) and the financial condition of the Natural Area Reserve Fund (NARF). This report will include, but not be limited to, a description of activities and accomplishments, compliance with Chapter 42F, HRS, analysis of the problems and issues encountered in meeting or failing to meet the objectives set forth in the management plans, status of public hunting opportunities, financial report, and plans and management objectives for the next fiscal year for the NARS Program and NAPP, an overview of the financial condition of NARF, including receipts and expenditures from NARF for the previous fiscal year, and a brief discussion of activities and goals for other programs funded through NARF.

**NATURAL AREA RESERVES SYSTEM (NARS)**

**1. DESCRIPTION OF ACTIVITIES AND ACCOMPLISHMENTS**

The statewide NARS currently consists of 19 reserves comprised of approximately 109,165 acres on five islands. NARS was established to protect the best remaining examples of native ecosystems and geological sites in the State. Annual program activities are based primarily on the long-term integrated management plans developed for each reserve and adaptive management principles, to enable effective response to changing conditions and new threats. Management policies approved by the NARS Commission and the Board of Land and Natural Resources (BLNR) continue to be the general guide for rule-making and development of management plans for NARS. While NARS is based on the concept of protecting native ecosystems, as opposed to single species, many rare and endangered plants and animals benefit from the protection efforts through NARS. Major management activities involve control of alien species, including ungulates, weeds, coqui frogs, and small predators, rare plant outplanting, monitoring, public outreach, and maintenance of existing infrastructure, such as trails and signs. Large-scale management actions, such as fences, typically go through the environmental assessment (EA) process.

**NARS Commission**

The NARS Commission was established by statute as an advisory body to the Department of Land and Natural Resources (DLNR) under §195-6, HRS. The Commission held 6 meetings and one strategic planning workshop during the past fiscal year. Topics ranged from discussion and approval of including Laupahoehoe NAR within the newly formed Hawaii Experimental Tropical Forest, the necessity of emergency rules relating to ohia rust, the establishment of visiting hours at Ahihi-Kinaiu NAR, the Watershed Partnership program, the state invasive species program, the Plant Extinction Prevention program, and over 55 special use permit applications for research or education use of the NARS. In addition, during FY07, the NARS Commission initiated a strategic planning process for the NARS program, involving both

Commission and DOFAW staff. The strategic plan is anticipated to be completed during FY08.

### **Statewide activities and accomplishments**

During Fiscal Year (FY) 07, NARS staff conducted ground and aerial surveys for ungulates (including sheep, mouflon, deer, goats, and pigs). Fencing continues to be an important tool to facilitate the reduction in animal populations. Over 145 miles of existing fences were inspected and maintained, and four miles of new fencing was under construction. Public hunting, staff control, trapping, and snaring (in remote/fenced areas) were used to reduce non-native ungulate populations; the type of control measure implemented depends on the resources available, the reserve location, terrain features, and the relative abundances of ungulates. NARS staff continues to work with hunting organizations such as the Molokai Hunting Working Group, the Pig Hunters of Hawaii, and others to accomplish control goals while minimizing conflict with the recreational hunting community.

Invasive weed control is ongoing in nearly every reserve, and priority weeds have been identified for each reserve (and sometimes for units within reserves). Volunteers provide significant manual labor to assist in weed control efforts. NARS staff also communicates with the respective island Invasive Species Committee (ISC) to prevent duplication and coordinate efforts where possible. Monitoring of rare plant populations, collection of seeds and propagules, and outplanting of rare plants are ongoing efforts to protect and enhance the rare plants found within NARS. Additional information about the accomplishments of the State's rare plant program in FY 07 follows the island descriptions below.

Maintenance of infrastructure is also an ongoing activity. Staff maintained 582 signs throughout NARS. Information and boundary signs were installed or replaced in several reserves. Approximately 125 miles of existing trails and boardwalks were maintained in various reserves, primarily for management purposes. Trail maintenance includes alien plant control along the trails to limit the spread of weeds to new areas. Over 145 miles of existing ungulate control fence were maintained with regularly scheduled inspections, and immediate repairs were made to prevent ungulate ingress and subsequent damage to the resource. Existing helipads were maintained to facilitate management and monitoring and to provide access for emergencies. 16 management shelters were maintained for long-term management actions. Over 70 miles of roads, mostly on Hawaii and Oahu, were maintained to provide hunter and management access. Road barriers continue to be maintained in the Manuka Reserve on Hawaii to prevent dumping and illegal logging activities. Vehicle barriers continue to be maintained on both sides of Kaena Point (Oahu) to protect the fragile dune ecosystem and cultural sites by prohibiting off-road vehicle use. Similarly, vehicle barriers continue to be maintained at Ahihi-Kinau to protect geological and cultural features from off-road damage.

Staff training for needed skills remains important. Training during FY07 included first aid, CPR, fire response, ATV operation, helicopter safety/crew member training, ACETA training, firearms certification, herbicide use, ungulate control methods, procurement (small purchase, HEPS, IFB, and RFPs), ArcGIS, leadership skills, and mediation. In addition, NARS staff attended the Hawaii Conservation Conference (July 2006), an annual three-day conference attended by nearly 1,000 resource management professionals in the State. Finally, NARS staff on Maui and Hawaii continued the successful "exchange program" with the natural resource managers of EMWP to share field methods and develop skills. Two week-long exchanges took place, with EMWP and

Maui NARS crews going to Hawaii to assist Hawaii NARS staff with invasive species control, and later with Hawaii NARS staff going to Maui to assist in fence building.

NARS staff completed revisions to the administrative rules (Chapter 13-209) relating to activities within NAR during FY07. Over the past years, there have been occasions where shortcomings in the existing administrative rules resulted in a failure to efficiently or effectively respond to threats to NAR. One example, which received a fair amount of publicity, was the difficulty regulating public use at Ahihi-Kinau and preventing illegal activity such as poaching and squatting in lava caves. In addition, there was a need to formalize many of the policies regarding special use permit applications into the rules. The proposed rule amendments were signed by the Governor on January 13, 2007 and took effect January 23, 2007.

NARS Admin staff processed over 50 special use permit requests and coordinated permit processing with other DOFAW staff (wildlife, botanist) to ensure that applicants applied for all necessary permits. NARS Admin staff conducted outreach presentations to multiple audiences and coordinated field visits for numerous groups, including visiting dignitaries, visiting (mainland) staff from cooperating agencies (e.g., U.S. Forest Service, USFWS), the Pacific Century Fellows, and the UH Law School. NARS Admin staff responded to over 45 requests for information from the public (as forwarded by the DLNR Public Information Officer). NARS Admin staff continued participation on the Wekiu Bug Working Group, acted as the DOFAW representative on the Forest Stewardship Advisory Committee, continued participation in organizing the Hawaii Conservation Conference as part of the Conference Committee, played a major role in coordinating the art show portion of the Hawaii Conservation Conference, participated as the DLNR representative on the Bioprospecting Commission (monthly meetings), and provided assistance to other DOFAW programs on an ongoing basis.

Finally, NARS staff continues to leverage resources and increase effectiveness by working with a variety of watershed partnerships and other conservation partners including: Kauai Watershed Alliance, East Maui Watershed Partnership, West Maui Mountains Watershed Partnership, Leeward Haleakala Watershed Restoration Partnership, East Molokai Watershed Partnership, Three Mountain Alliance, Kohala Watershed Partnership, the Plant Extinction Prevention Program, the Maui Forest Bird project, the Kauai Invasive Species Committee, the Oahu Invasive Species Committee, the Maui Invasive Species Committee, Big Island Invasive Species Committee, the Office of Mauna Kea Management, the Forest Service (Hawaii Experimental Tropical Forest), the Sierra Club, the Nature Conservancy, the Wildlife Society, the Hawaii Wildlife Fund, and more.

### **Reserve activities and accomplishments by island**

Major accomplishments within individual reserves during the past year include the following:

#### **Kauai**

Ongoing management in Kauai NARS includes maintenance of existing fencelines, invasive weed control, and rare plant protection through seed collection, propagation, and outplanting. In addition to work inside NARS, DLNR's Division of Forestry and Wildlife (DOFAW) staff participated in activities outside NAR, including invasive weed control and rare plant protection and outplanting, with other partners of the Kauai Watershed Alliance. Specific accomplishments within individual reserves include:

*Hono o na Pali* (3,150 acres; mesic and wet forest with perennial streams): Monitoring and repair of three rare plant enclosure fence lines; monitoring of four species of endangered plants for regeneration and seed collection; invasive weed (palm grass, African tulip, and Australian tree fern) control; trail maintenance (2.5 mile); planning for potential expansion of NAR to include the higher elevation bog community. Hunters reported 165 hunting trips in Unit G (which includes Hono o na Pali), resulting in 132 goats and five pigs removed. These numbers reflect a special goat rifle hunt conducted in Kalalau during August 2006.

*Kuia* (1,636 acres; dry and mesic forest with perennial streams): Monitoring of rare plant enclosure fence lines (totaling about one mile); repair of research rare plant enclosures; monitoring of 10 species of endangered plants for regeneration and seed collection; discovered new records for two endangered plant species; invasive weed (kahili ginger and Australian tree fern) control; trail maintenance (three miles); and awarded contract for new fencing project protecting approximately 135 acres of intact native forest. Hunters reported 1,884 trips in Unit H (which includes Kuia), resulting in 81 pigs, 43 goats, and 10 blacktail deer removed. In addition, Kuia was open to buck and doe hunting for the fourth year to reduce the deer population within the area. A special muzzleloader goat hunt was conducted in May 2007 in hunting units E and H involving 60 additional hunter trips.

## **Oahu**

Ongoing management on Oahu includes weed control, ungulate monitoring, fence maintenance, rare plant propagation and outplanting, and habitat protection. Specific accomplishments within individual reserves include:

*Pahole* (658 acres; dry and mesic forest): Completed construction on the first phase of the Kapuna boundary fence project; completed procurement for construction of final phase of the Kapuna boundary fence project; continued rare plant horticulture activities at the Pahole Rare Plant Facility; inspected and maintained existing fences; cooperated with the US Army on rare plant protection and propagation.

*Kaala* (1,100 acres; dryland to wet shrub forest): Monitored invasive species' distribution (sphagnum moss) and controlled blackberry; monitored for ungulate activity; coordinated outreach/education visits; began planning for boardwalk replacement.

*Kaena Point* (76 acres; coastal dune ecosystem): Began planning for the proposed construction of a predator-proof fence to exclude dogs, cats, mongoose, rats, and mice from the point; added low-impact barriers along the hiking trail to discourage wandering into seabird (Laysan albatross and wedge-tailed shearwater) nests or monk seal basking areas; developed and installed signage regarding 'no dogs' within the seabird nesting area; continued small mammal predator control actions; supported research and monitoring of seabird activity; coordinated outreach/education visits; controlled priority invasive weeds; outplanted appropriate coastal plants.

## **Maui**

Ongoing management includes fence construction, ungulate control, invasive weed control, rare plant protection, and public outreach. In addition to conservation management within NARS, Maui NARS staff participated in activities with a variety of watershed partnerships and other conservation partners. For example, NARS staff assisted East Maui Watershed Partnership (EMWP) in maintaining and building fences within the East Maui watershed, coordinated with

resource staff from Kalaupapa National Historic Park to complete fencing and design a second phase of fencing in Puu Alii NAR as part of the East Molokai Watershed Partnership, worked with West Maui Mountains Watershed Partnership to maintain and build fences in West Maui, and partnered with the Division of Aquatic Resources, Hawaii Wildlife Fund, and other volunteers to increase marine education and outreach activities. In addition, NARS staff participated in an extremely active fire season, assisting in fire and suppression activities (including responding to two separate fires at Lihau and the Panaewa Section of West Maui NAR). Maui NARS also filled the two NARS Specialist positions (newly created by the Legislature last year) during FY07. Specific accomplishments within individual reserves include:

*Ahihi-Kinau* (2,045 acres; recent lava flows, anchialine ponds, and nearshore marine ecosystem): Provided a seven-day a week on-site management presence at this accessible and most-visited reserve (average 700 people/day); participated in outreach opportunities, including class visits, Earth Day festivals, community meetings, and giving educational tours (over 800 educational hours); coordinated service projects for various groups including invasive vegetation removal, litter pickup, and net removal (over 400 service hours); invasive species control (pickleweed in anchialine ponds and kiawe removal along roadway to increase visibility in high illegal activity areas); completed contract for cultural resources management plan; coordinated with DLNR's Division of Conservation and Resources Enforcement (DOCARE) to address 200+ incidents of illegal activity within the Reserve. Completed cultural resources survey of NAR funded by grant monies from Hawaii Tourism Authority.

*Hanawi* (7,500 acres; ohia wet and cloud forest, alpine grassland, and perennial streams): Maintained 10+ miles of fenceline; maintained 2,000 acres above fencing as pig-free; in cooperation with EMWP, constructed new fencing along the western boundary; monitored over 13,650 meters of transects for weed and ungulate activity; continued reconstruction of 5400' contour fence, replacing new posts and wire on a ½ mile section.

*Kanaio* (876 acres; halapepe and lama dry forest): Continued construction of 1,500-acre deer-proof fence enclosure of the mauka section of NAR, including coordination with adjacent landowner for construction of a new 4-WD road for construction and maintenance; maintained 3 ½ acre experimental outplanting/restoration site and outplanted native trees; controlled invasive weeds (*Bocconia*, *Schinus*, and other trees) in 200 acres of the reserve; initiated efficacy monitoring study (installing 24 vegetation plots).

*West Maui* (6,702 acres; pili grassland, mesic, wet, and cloud forest, montane bogs, and perennial streams): Kahakuloa: Maintained two miles of fencing along lower boundary; repaired vandalized fence; brushed line and delivered to field materials for another one mile section of lower boundary fencing; installed three miles of trails for ungulate monitoring and management; in cooperation with West Maui Mountains Watershed Partnership (WMMWP), replaced old and installed new strategic fences (½ mile in length) at three locations; Panaewa: in cooperation with WMMWP, monitored to ensure pigs had been eradicated from portion of NAR where incursion had taken place two years ago (no new activity observed); Lihau: Surveyed damage to rare/endangered plant species caused by 2007 fire; improved infrastructure with the addition of a new lower elevation landing zone; worked towards acquiring pili grass bales from USDA-NRCS Plant Materials Center, Molokai, for experimental restoration and erosion control; installed a



lock box on at the Olowalu transfer station gate; Honokawai: Aerial survey in fall 07 confirmed the absence of ungulates as well as allowed personnel to relocate landing zones.

*Puu Alii* (1,330 acres; wet shrubland and forest with perennial streams): In cooperation with staff from Kalaupapa National Park, completed 2 ½ miles of deer-proof fence enclosing 550 acres in the upper portion of the reserve, initiated planning for new fence project to enclose an additional 485 acres. The Pelekunu Rim Trail was improved for easier public use.

*Olokui* (1,620 acres; mesic forest, wet shrubland and forest with perennial streams): Due to the near pristine condition of Olokui and its remoteness and inaccessibility (limiting threats of ungulate damage or weed invasion), active management was not necessary in FY07. Aerial survey was conducted to identify landing zones and possible toe-in landing sites.

## **Hawaii**

NARS Big Island staff continued management of eight reserves (82,500 acres) on the Island and participation in a number of cooperative partnerships, including the Kohala Watershed Partnership, Olaa-Kilauea Partnership/Three Mountain Alliance, Big Island Invasive Species Committee, and numerous informal partnerships with neighboring landowners. In addition, NARS staff participated in the development of the Hawaii Experimental Tropical Forest, coordinated ungulate removal at the Puu Waawaa Forest Bird Sanctuary, and hosted both YCC summer teams and year-round Americorps interns. Ongoing management islandwide includes ungulate control through public hunting, staff control, trapping, and snaring, invasive weed and small animal control, rare plant protection (reintroducing almost 5,500 plants of 20 different species), and contracting for surveys needed for appropriate management (cultural assessments, boundary surveys, etc.). Specific accomplishments within individual reserves include:

*Mauna Kea Ice Age* (3,894 acres; alpine community): Continued coordination with the Office of Mauna Kea Management on protection of the unique natural and cultural features on the summit through meeting with OMKM Rangers and through co-funding of archaeological study; reviewed permit requests to access NAR for research and for educational opportunities; monitored, coordinated with SHPD on modification to adze quarry.

*Puu o Umi* (10,142 acres; wet forest, montane bog, perennial streams): Secured funding for the hiring of a Kohala Watershed Partnership coordinator to finalize and begin implementing the Draft Management Plan; maintained existing fenced unit; controlled key weeds in sensitive areas; outplanted rare species; re-initiated discussions with Queen Emma Land Company regarding joint management/protection of the Koaia Corridor.

*Laupahoehoe* (7,894 acres; wet forest with perennial streams): Heavily participated in the creation and implementation of the Hawaii Experimental Tropical Forest (including review of draft MOU and DLNR USFS permit, development of HETF permit application, initial set-up, etc.); fence maintenance; rare plant monitoring and outplanting.

*Kahaulea* (16,726 acres; wet forest with volcanic activity): Coordinated with the County of Hawaii Fire Department to make trail and signage improvements to reduce the number of lost hikers and increase warnings; maintained trail; monitored volcanic activity.

*Waiakea 1942 Flow* (640 acres; developing wet forest): Due to the remoteness and small size of

this NAR and its establishment to act as a baseline for change; active management was not necessary in FY07.

*Puu Makaala* (12,106 acres; wet forest): Maintained fencing; continued ungulate control through trapping and snaring to approach zero ungulate levels within fenced units (Wright Road); monitored transects to assess ungulate activity and weed distribution; cooperated with the Olaa-Kilauea Partnership in conducting rare plant outplanting, invasive weed control; supervised volunteers.

*Manuka* (25,550 acres; coastal to subalpine forest): Continued coordination of coqui frog response efforts at Manuka State Park and NAR, involving other DOFAW staff, DLNR's Division of State Parks staff, Big Island ISC crews, and others, using protocols for aerial application of citric acid and monitoring effectiveness – based on results, it does not appear eradication of the coqui population in the NAR is possible; removal of feral animals (pigs, goats, and sheep) in cooperation with adjacent landowners; invasive species (fountain grass) removal over 4,000 acres; continued progress to acquire private in-holding; initiated procurement for professional surveyor services to determine the boundary of the NAR; initiated planning for management plan update; conducted rare plant outplanting; maintained existing fence units; and supervised volunteers.

*Kipahoehoe* (5,583 acres; mesic to wet forest): Completed fenced enclosure of 1,500 acres; coordinated animal control; conducted rare plant protection through seed collection and outplanting; maintained fenced units; invasive species control.

### **Rare Plant Species Restoration and Protection FY07**

The focus of the Rare Plant Program for FY07 continued to be support of habitat protection and enhancement, benefiting our native flora and fauna by utilizing Federal Section 6 grants, a World Conservation Union (IUCN) grant, a Landowner Incentive Program (LIP) grant, and moneys from NARF and staff time for match. The mid-elevation rare plant nurseries on Hawaii, Kauai, Oahu, and Maui and Lyon Arboretum's micropropagation facility continue to be the heart of private and public restoration programs across the State. More than 10,000 plants are also currently maintained as *in vitro* germplasm storage at the State's micropropagation facility.

The Plant Extinction Prevention (PEP) Program, developed to prevent the disappearance of Hawaii's rarest plant species, with staff on each of the major islands has quickly become an important plant conservation partnership. The PEP program addresses the estimated 182 species that are in danger of extinction within five years (plants with fewer than 50 individuals left in the wild). In FY07, PEP staff has been added to the island of Hawaii, joining staff on Oahu and Maui Nui, and a Statewide Program Coordinator was hired. Funding is in hand to hire PEP staff on Kauai during FY08. Over the past year, the PEP Program has monitored rare species for plant health/fruit production, collected seeds/cuttings/ air layers, cross pollinated between isolated populations, contained insect outbreaks, established small ungulate exclosures, controlled rats and slugs, eliminated alien weeds, and/or outplanted additional individual plants for numerous plant species.

On Oahu, the Pahole Rare Plant Facility produced rare plants for outplanting on state land in cooperation with Army Environmental staff. Expansion of the Facility's infrastructure continues with the construction of the Army greenhouse. Water collection is a high priority issue at this

site and has been greatly improved with the purchase of a third 20,000-gallon storage tank and the installation of a gutter system on the main buildings for rainwater collection. The contract for fencing of Pahole NAR (Kapuna Gulch) is ongoing and fence corridor clearing was completed with the Youth Conservation Corps. The coastal/lowland plant restoration program continues with outplantings at Kaena Point NAR, Honouliuli Wildlife Refuge, Diamond Head State Monument, Koko Crater Botanical Garden, Ka Iwi State Park, and at the Ewa Villages Golf Course rough.

On Maui, construction of the north and east sections of Kanaio NAR fence is ongoing and should be complete during FY08. Outplantings continue at Kanaio in a small test enclosure and control of invasive tree species is ongoing for 200 acres within the NAR. The Olinda Rare Plant Facility greenhouse is currently under construction. Site construction was delayed numerous times due to the start of nesting season at the Maui Bird Facility (loud noises may interfere with breeding) and by excessive rainfall at the site.

On the Island of Hawaii, rare plant restoration projects continue to focus on protection and restoration of large areas of endangered species habitat, mainly within NARS (Manuka, Puu Makaala, Kipahoe, Puu o Umi). Fencing in Kipahoe NAR has provided 1,500 ungulate-free acres for native plant protection and outplanting projects. Volcano Rare Plant Facility continues to mass-produce threatened/endangered plants and species of concern for Big Island restoration projects. This State-supported facility continues to provide the majority of plants for the entire Island's restoration projects. Additionally, 20 small enclosures were maintained within forest reserves or in the Puu Waawaa ahupuaa.

One of the largest accomplishments for the Kauai rare plant program is the hiring of a DOFAW staff botanist who will oversee all plant related projects on the island. Over 40 rare plant enclosures were maintained for protection from feral ungulates and alien weed species, reduction of ground fuel for fire control, providing a protected environment for outplanting and propagule collection from naturally occurring species. Flagging for Kuia NAR fence was completed and the notice to proceed issued for the fence construction contract, despite many procurement fiscal challenges. Propagule collections for all rare plant species on the Island and monitoring rare species in the bogs of the Alakai Swamp are ongoing projects on Kauai.

## **2. COMPLIANCE WITH CHAPTER 42F, HRS, REQUIREMENTS FOR GRANTS AND SUBSIDIES**

No grants or subsidies were issued under this aspect of the Program.

## **3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED**

Protecting natural areas and ensuring the future of rare native ecosystems and species requires sustained management actions as described above. Actions such as weed and feral animal control and fire prevention must be conducted over the landscape as feral goats, pigs, deer, and sheep, invasive weeds, and fires do not recognize ownership boundaries. The recent emergence of watershed partnerships on every island has contributed greatly to the State, Federal and private partners' have the potential ability to appropriately manage these large forested areas. However, coordinating and assisting the conservation efforts of these partners presents challenges and adds additional responsibilities on the already understaffed NARS crews.

Still, with short-term federal and state funding, NARS Program has been able to partner with the Pacific Cooperative Studies Unit of the University of Hawaii (UH) to supplement important NARS management work and to assist in the coordination of watershed management actions, including invasive species control, fence construction, field surveys, and rare plant collection, propagation, and outplanting. This partnership with the University is critical, providing learning opportunities to young professionals in the biological sciences, and giving the State much-needed assistance with on-the-ground conservation. In addition, partnerships with other landowners and volunteers provide another method by which NARS Program is working to meet conservation needs.

Act 156, Session Laws of Hawaii 2005 (Act 156), amended §247-7, HRS, to explicitly provide that funds in NARF could be used for management of NARS. At the same time, Act 156 increased the Conveyance Tax, increasing revenues into NARF. In FY07, DOFAW's budget for natural area reserves management was increased to \$2.5 million. A portion of this \$2.5 million was earmarked to fund temporary State positions, to support needed on-the-ground fieldwork. Delays in hiring, caused by difficulties in describing and classifying positions within the NARS Specialist Series, identifying appropriate job classifications from an outdated human resource system for positions that would bring needed skills to DOFAW (e.g., planning; grant administration; contract expertise) and a lag time in securing lists of qualified applicants by DHRD, resulted in less than half of the 20 new positions being filled by the end of FY07. DOFAW hopes to fill the remaining positions in the first half of FY08.

Controlling the threats of invasive weeds and feral animals remains a challenge. Feral animals damage native vegetation, contributing to erosion and damaging watershed capacity. At the landscape level, control of feral animals is possible using a combination of public hunting, exclusion by fences, staff control and aerial shooting. Building and maintaining fences, although effective, is very expensive. For remote areas and areas with steep terrain, aerial shooting is often the only effective method of controlling feral animal numbers. However, implementing aerial control missions remains a challenge due to safety concerns, cost, access, and liability issues. Invasive weeds modify habitat and require constant effort and vigilance to combat effectively. With the dedicated funding provided by NARF, it is anticipated that many of the management needs of NAR can begin to be addressed on a consistent, ongoing basis.

#### **4. STATUS OF PUBLIC HUNTING OPPORTUNITIES**

Under the NARS Management Policies, strategies to reduce populations of non-native animals to the lowest possible level are employed. Public hunting continues to be the primary control option in many areas within NARS, although hunting is not managed on a sustained-yield basis. Game control methods (including fencing, trapping, staff hunting, snaring, and aerial shooting) are used as needed in specified areas where public hunting does not afford adequate control to reduce population/activity to the lowest possible level.

#### **5. FINANCIAL REPORT**

NARS is financially supported partly through the general fund under program LNR-407 (see Table A). In FY 07, general fund expenditures were \$762,619 in personnel costs and \$439,385 in operational costs, totaling \$1,225,414. This funding was supplemented by federal grants on a

project-by-project basis and by state special funding from the NARF, which is reported on page 20.

## **6. PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR**

Where appropriate, reserve management activities will be guided by management plans. Plan implementation will focus on preventing, eliminating or controlling the spread of non-native plants and animals that have a detrimental effect on native ecosystems. Other management considerations will include monitoring, research, public education, and volunteer support. Youth programs that provide hands-on experiences will continue to be a priority. Statewide, partnerships (particularly watershed partnerships) will continue to play an important role in the management of the Reserves, with resources shared to manage across property boundaries.

Plans and management objectives for the next fiscal year include completion of a strategic plan for the NARS program; continued work on pending fencing projects; continued collaboration with watershed partnerships to cooperatively manage areas on a landscape level; continued control and removal of feral animals; continued control of habitat-modifying invasive species; update of individual reserve management plans, and the securing of additional permanent dedicated staffing. In addition to regular management activities, several specific projects will be initiated this year, in part due to the Legislature providing state funding for temporary NARS positions.

Hawaii: In FY08, NARS Program on the Island of Hawaii will continue the process to update the management plan for Manuka NAR, including collaboration with other interested DLNR divisions; cooperate with USGS-Hawaiian Volcano Observatory to monitor the current lava flow within Kahaualea NAR and restrict access for public safety; continue to work with the Olaa Kilauea Partnership/Three Mountain Alliance to advance management goals in Puu Makaala NAR including invasive species control, rare plant work, and protection of native habitat; begin implementation of the Kohala Watershed Partnership management plan within Puu O Umi; secure a right of entry or set aside for the Koaia Corridor; participate in administering the new Hawaii Tropical Experimental Forest, particularly as it overlaps with Laupahoehoe NAR; continue collaboration with the Office of Mauna Kea Management for identifying and addressing management needs for Mauna Kea Ice Age NAR; develop an expanded outreach and education program; and repair and maintain existing infrastructure (management cabins).

Maui: In FY08, NARS program on Maui will continue working to protect Hanawi NAR through fencing, ungulate control, weed control, and rare species monitoring, in cooperation with EMWP and the Maui Forest Bird Recovery Project; continue construction of fencing at Kanaio NAR and initiate updating its management plan; continue construction of fencing at Kahakuloa NAR and removal of animals, in cooperation with the WMMWP; remove animals from the recently completed fencing at Puu Alii NAR in cooperation with the National Park Service, and began construction of the next phase of fencing; resume aerial shooting of large feral animal (particularly goat) populations on the north shore of Molokai; complete surveys and update a management plan for Ahihi-Kinau NAR and continue implementation of the Hawaii Tourism Authority grant; and participate in the development of a protocol for rat eradication for use on offshore islets and in NARS.

Oahu: In FY08, NARS program on Oahu will continue construction of fencing in Pahole NAR;

continue planning for the construction of a predator-proof fence at Kaena Point NAR; hold a public hearing on a proposal to add the upper portion of Poamoho section of Ewa Forest Reserve into NARS; work with US Army in the Makua mitigation process; continue implementation of the successful rare plant program; and continue monitoring of seabird populations at Kaena Point.

Kauai: In FY08, NARS program on Kauai will continue to implement a fencing project in Kuia Reserve, participate in regional conservation priorities as part of the Kauai Watershed Alliance (e.g., kahili ginger control), and continue implementation of the successful rare plant program

## **NATURAL AREA PARTNERSHIP PROGRAM (NAPP)**

### **1. DESCRIPTION OF ACTIVITIES AND ACCOMPLISHMENTS**

This innovative Program, established by the Legislature in 1991 through Act 326, provides state-matching funds on a 2:1 basis with private funds for the management of natural resources on private lands permanently dedicated to conservation. This Program complements the existing NARS by providing long-term protection and management of unique natural resources on private lands.

NAPP provides financial support for a full range of management activities to protect, restore and enhance significant native resources and geological features. NARS staff administers NAPP, although the private applicant actually carries out all on-the-ground activities. Six-year, long-range management plans provide funding and direction for each NAPP Preserve. Since 1993, a portion of the Conveyance Tax, which is levied each time real estate property in Hawaii is bought or sold, has funded the Program. For more information on NAPP, see [www.state.hi.us/dlnr/dofaw/napp/index.html](http://www.state.hi.us/dlnr/dofaw/napp/index.html).

#### **KANEPUU PRESERVE**

**Landowner:**

**Managing Partner:**

**Entered NAPP:**

**Dole Food Company, Inc.**

**The Nature Conservancy (TNC)**

**FY92**

The Kanepuu Preserve on Lanai comprises 590 acres in seven distinct units and represents the last major remnant of a dry land forest community, which once covered large portions of Maui, Lanai, Molokai, and Kahoolawe. 10 rare plants, six of them federally listed, have been reported from the Preserve. A subcontractor, Bob Hera, has assisted in management of the Preserve. TNC Maui-based staff assisted Bob Hera with work in Kanepuu on occasion throughout FY07. Protection from axis deer, control of non-native plant species, and fire prevention has been the primary management activities. Major accomplishments for FY07 included: 1) monthly fence checks with maintenance and repair of Kanepuu and Kahue unit boundary fences; 2) 47 staff and volunteer hunts yielding 42 deer catches; 3) intensive weed removal including Christmas berry, lantana, bull thistle, and other invasive species; 4) erosion control mitigation (gravel fill) along the north Kanepuu fenceline; 5) firebreak maintenance. In FY08, TNC plans to continue to contract Mr. Hera to carry out ungulate control, fence maintenance, and weed control. Public outreach efforts include a self-guided nature trail.

**KAPUNAKEA PRESERVE**

**Landowner:**  
**Managing Partner**  
**Entered NAPP:**

**Pioneer Mill Company, Ltd.**  
**TNC**  
**FY92**

This 1,264-acre preserve is a component of regional protection efforts for the important watershed and native ecosystems found in the West Maui Mountains. Kapunakea Preserve's upper elevations are recognized as among the highest quality native areas in the State, containing 11 native communities, 31 rare species of plants (10 federally listed), and four rare snail species.

Beginning in September 2006, TNC began subcontracting essential stewardship activities in the Kapunakea Preserve to the West Maui Mountains Watershed Partnership (WMMWP). WMMWP was contracted to support animal control and monitoring, conduct an annual aerial weed survey, maintain infrastructure, and provide occasional access to researchers. The primary management accomplishments for Kapunakea Preserve in FY07 were: 1) two animal control check and maintenance cycles were completed; 2) 19 pigs were removed; 3) pig activity hot spots were documented and additional snares added to surveyed pig corridors; 4) ungulate transects were monitored (showing 2% and 24% ungulate activity respectively); 5) 1.5 miles of fencing was inspected quarterly with 90 meters of improvements made and 70 meters of apron fence added; 6) aerial and ground survey data were integrated to map distributions of *Tibouchina herbacea* and *Psidium cattleianum*, 7) *Tibouchina herbacea* was removed (326 plants) from intact bog systems and *Psidium cattleianum* (52 outlier plants) was treated along the upper range; 8) logistical support was provided to research projects conducted by the PEP program, Maui Nui Botanical Gardens, and New York State University at Stony Brook; 9) two Auriculella snail species' locations were mapped and one new account of *Colubrina oppositifolia* was documented; and 10) TNC served on the WMMWP Executive Committee and supported funding and watershed activities.

Although ungulate activity levels have been lowered in the past several years, ungulate control efforts remain a high priority in FY08 to ensure that activity levels remain low. Beginning in September 2007, TNC is contracting with the professional wild animal management company Prohunt, established in New Zealand in 1994. In addition to helping TNC dramatically accelerate ungulate control at Kapunakea, Prohunt will work to test the integrity of fences and topographic barriers as effective pig barriers. This work will be carried out entirely at TNC's expense with as little impact on ongoing projects as possible. In addition, WMMWP will update and maintain priority weed maps, focusing on the most serious habitat modifiers (e.g., *Tibouchina*). A selective *Tibouchina* control project will also be conducted every six months in the upper bog region of the preserve.

**PELEKUNU PRESERVE**

**Landowner:**  
**Managing Partner:**  
**Entered NAPP:**

**TNC**  
**TNC**  
**FY92**

The Pelekunu Preserve, located on the north shore of Molokai, is a 5,759-acre preserve established to protect the free-flowing Pelekunu Valley stream system, one of the best in the

State. It is also part of a larger regional management effort that provides protection to over 22,000 contiguous acres on Molokai. Pelekunu Stream contains nearly all the native Hawaiian freshwater fish, crustacean, and mollusk species. In addition, 28 rare plants, six 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 non-native plants are the primary management activities. Feral ungulate control and monitoring in the back portion of the preserve remained the primary focus in FY07. Public hunting continued to be utilized through the Molokai Hunting Working Group. During FY07, 35 pigs were removed through ground hunting. Public outreach programs continued with the support of interns and summer youth programs.

In FY08, management efforts will focus on further reducing ungulate populations to improve protection of the preserve from ungulate damage. TNC will engage and test the methods and tools of two New Zealand organizations, Prohunt and Landcare Research, to apply and evaluate new monitoring and contract hunting methods in a variety of native ecosystems in TNC preserves and limited partnership areas. Projects will include monitoring of 55 feral animals statewide to evaluate their movements and activity levels in remote areas, and to determine effectiveness of fences and other topographic barriers. Projects also include strategic ground hunting using a helicopter to shuttle hunters to control areas. The Prohunt and Landcare contracts are funded 100% with privately raised dollars. Additionally, staff and volunteer hunts will continue. Weed control efforts will focus on manual control of habitat-modifying weeds like the African tulip tree and investigating ways of incorporating bio-control on *Clidemia hirta*. Community outreach efforts will continue with public lectures, preserve overlook hikes, and summer youth programs.

**PUU KUKUI WATERSHED PRESERVE**

<b>Landowner:</b>	<b>Maui Land &amp; Pineapple Co.</b>
<b>Managing Partner:</b>	<b>Maui Land &amp; Pineapple Co.</b>
<b>Entered NAPP:</b>	<b>FY 94</b>

With over 8,304 acres, the Pu`u Kukui Watershed Preserve forms the core of regional protection efforts of the West Maui Mountains Watershed Partnership's (WMMWP) 48,000 contiguous acres. 14 native natural communities, two of them rare, are found in the Preserve along with over 40 rare plant species and six endemic species of land snails.

In FY 07, accomplishments included maintaining 80 percent of the Preserve as ungulate-free, continuing ungulate control where ungulates remain (68 pigs removed by public hunters, 33 by staff), installing additional fencing with WMMWP and DLNR-NARS crews, inspecting and maintaining existing fencing, monitoring of alien threats, invasive weed control, and rare species protection and restoration out-plantings in cooperation with the RCUH Plant Extinction Prevention program.

Goals for FY 08 include adding an additional 3,307 acres of conservation lands to the Preserve, increasing the existing level of management, continuing to increase the acreage in the Preserve that can be considered ungulate-free by installing additional 8' fences for Axis deer exclusion, continuing to offer monthly volunteer service trips for the Maui community, and continuing to



participate in the WMMWP, the Maui Invasive Species Committee (MISC) and the Coordinating Group on Alien Pest Species (CGAPS).”

**KAMAKOU PRESERVE**

<b>Landowner:</b>	<b>Molokai Ranch, Ltd.</b>
<b>Managing Partner:</b>	<b>TNC</b>
<b>Entered NAPP:</b>	<b>FY95</b>

The 2,774-acre Kamakou Preserve helps increase regional protection efforts for the important watershed and native communities found in East Molokai. 40 of the plant species are rare, of which 23 are listed as federally endangered. In addition, the Preserve protects habitat for five native forest bird and five rare native land snail species. The primary management focus is to prevent degradation of the native forest by reducing feral ungulate damage, limiting the spread of non-native habitat-modifying plants, and preventing wildfire. Since 1998, feral ungulate control activities have utilized volunteer hunters from the Molokai community. Staff and volunteers control non-native plant species and assess management efforts by monitoring transect. Review of alien species prevention protocols with staff, hikers, hunters, volunteer groups, and researchers remains an ongoing activity. These protocols are communicated through direct contact and public outreach programs, including displays at Hoolehua Airport. In FY07, feral ungulate control activities included: completing the Kawela section of the southern boundary fence, increased staff hunting (resulting in 11 pig and 9 goat captures), live pig trapping (resulting in 18 captures), and volunteer hunting from the Molokai community. Staff and volunteer groups removed *Clidemia*, passionfruit, strawberry guava, New Zealand flax, black wattle, Christmas berry, rose, ginger, Karakanut, and blackberry in the Preserve. TNC staff provided logistical support for several research projects conducted in the Preserve. Public outreach programs continued to be important both on- and off-site.

For FY08, implementing the Prohunt/Landcare contracts, staff hunting and live trapping of pigs will be the focus of ungulate control efforts. Additionally, staff and volunteer time will be spent on controlling habitat-modifying weeds in the preserve. Other activities will include supporting researchers and conducting community outreach.

**MOOMOMI PRESERVE**

<b>Landowner:</b>	<b>TNC</b>
<b>Managing Partner:</b>	<b>TNC</b>
<b>Entered NAP Program:</b>	<b>FY95</b>

This 921-acre preserve on the northwest shore of Molokai contains one of the largest and best remaining dune ecosystems in Hawaii. Moomomi contains eight rare plant species and one rare native plant community. Green sea turtles, wedge-tailed shearwaters, Laysan albatrosses, and Hawaiian monk seals are known to use the area. In addition, Moomomi contains significant archaeological, paleontological, and cultural resources. In FY07, trapping of feral cats, mongoose, and rats provided for safer nesting grounds for the steadily increasing population of wedge-tailed shearwaters. Non-native plant control focused on removing kiawe. Community outreach programs included preserve hikes and off-site activities.

In FY08, TNC will continue with kiawe removal efforts, implement a monitoring project to

measure the impact of deer in the preserve, and continue to conduct predator control and monitoring of the wedge-tailed shearwaters' nesting colony. Community outreach and support of research projects will continue.

**WAIKAMOI PRESERVE**

**Landowner:**

**Haleakala Ranch Company**

**Managing Partner:**

**TNC**

**Entered NAP Program:**

**FY95**

This 5,230-acre Waikamoi Preserve helps increase regional protection efforts for the important watershed and native species habitat found in the East Maui Watershed Area. Twelve bird species have been reported from Waikamoi, including seven federally endangered species. Fourteen native natural communities, two of them rare, are found in the Preserve along with 35 rare plant species. Management activities for Waikamoi Preserve during FY07 were primarily focused on ungulate removal with the goal of zero tolerance. Such goals were established through a joint three-year project (termed "Go Deep") with the East Maui Watershed Partnership (EMWP). Major accomplishments for FY07 in Waikamoi Preserve included: 1) repair and maintenance of all 16.4 miles of boundary fencing, with 600 feet of apron added; 2) 57 pigs were removed from the preserve; 3) 6 deer were removed along the Haleakala Ranch border; 4) a community hunting program was launched, with 40 hunts yielding 24 pigs; 5) the Prohunt ungulate control hunting contract was finalized; 6) ungulate transects were monitored and scouting increased to identify ungulate hot spots; 7) a new database to record all ungulate management activities was created; 8) 90% of all trails, landing zones, and camps were improved; and 9) a kahili ginger survey for unit 1-A was 80% completed.

In FY08, efforts will intensify towards removing all feral ungulates in Waikamoi Preserve. Beginning in September 2007, TNC is contracting with the professional wild animal management company Prohunt established in New Zealand in 1994. In addition to helping TNC dramatically accelerate ungulate control in Waikamoi and testing new systematic hunting methods, they will also test the integrity of fences and topographic barriers as effective pig barriers. This work will be carried out entirely at TNC's expense with as little impact on ongoing projects as possible. In addition, invasive weed removal efforts will continue in Waikamoi Preserve at a reduced level. Hikes offered by Haleakala National Park in the Preserve continue to educate the public on the importance of watershed management.

**KAU PRESERVE**

**Landowner:**

**TNC**

**Managing Partner:**

**TNC**

**Entered NAP Program:**

**FY07**

Newly enrolled in the NAPP program in FY07, TNC's 3,511-acre Kau Preserve is contiguous to the State's Kau Forest Reserve. Four separate units (Kahilipali, Kioloku, Keaiwa, and Kaiholena) are positioned on the southeast flank of Mauna Loa volcano within one of the largest areas of intact forest land in the State, totaling 68,500 acres. The TNC Preserve helps increase regional protection efforts for the important watershed and native species habitat encompassed by the Three Mountain Alliance Watershed Partnership (TMA). TMA includes over 800,000 acres on Mauna Loa, Kilauea, and Hualalai volcanoes. The Kau Preserve contains four native-dominated natural communities, one of them rare, along with over a dozen rare plant

species and one of the State's richest assemblages of rare forest birds.

In the second half of FY07 (when NAPP enrollment was granted), accomplishments included erecting over 50% of what will be a 6 mile-long mouflon-proof fence to enclose 1,100 acres of the Kaiholena unit. Preparation activities in advance of fence-building included: an archaeological survey, a rare plant survey, a boundary assessment survey, improvement of the existing Preserve access roads, and hand-clearing of a 4-foot wide fence corridor through the forest. In addition, weed surveys were completed in all 4 Preserve units. Staff and volunteers began removing habitat-modifying weeds, including: *Clidemia*, Japanese anemone, night-blooming Jasmine, knotweed, waiwi, common guava, Christmas berry, palmgrass, silk oak, and *Tibouchina herbacea* from the Kaiholena unit.

In FY08, subcontractors will complete the Kaiholena fence and staff/volunteer hunting to remove all ungulates will begin. Backcountry camps and helicopter landing zones will be constructed. Staff will continue to investigate ways to enhance hunter access to the Kau forest. In addition, staff will finalize the Kau Preserve weed plan, continue with weed removal efforts, and assist the TMA with production of a weed management plan for the District of Kau. Finally, staff will assist DOFAW with the production of a watershed management plan for Kau.

## **2. COMPLIANCE WITH CHAPTER 42F, HRS, REQUIREMENTS FOR GRANTS AND SUBSIDIES**

Due to legislative amendments, HRS Chapter 42F is no longer applicable to the types of grants issued under the NAPP program. All grants awarded as part of the NAPP program are compliant with the State Procurement Code, HRS Chapter 103D.

## **3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED**

Natural resource protection and management are long-term efforts requiring time and energy commitments not often found in other projects. Restoration projects often take years before results are discernable. Several of the projects funded this year under NAPP could take years to achieve the desired objectives. It is important to note that management and protection of natural areas, watersheds and native ecosystems need to continue for the long term.

Partnership and community-based management programs have proven to be an effective tool for leveraging funds and securing stakeholder participation and commitment. Such initiatives also require a concerted effort and often take a long time to establish and implement. NAPP-funded preserves typically form the core of conservation partnerships, in part due to the dedicated state funding. To help with organization, facilitation, and implementation, partnership steering committees, community advisory councils, and facilitated working groups have been established to help management partners address local concerns in the coming years.

## **4. STATUS OF PUBLIC HUNTING OPPORTUNITIES**

On Molokai, the status of public hunting opportunities varies depending on the reserve. Due to safety concerns and the limited resources for administration and enforcement, TNC does not offer a public hunting program at the Moomomi Preserve. In the event studies indicate that major control work needs to be conducted on the deer population, TNC will pursue management

in the best interest of the resources. Kamakou Preserve is open for public hunting when it is compatible with management programs and in accordance with the regulations of the adjoining Puu Alii NAR. At this time, the NAR and the Preserve are open year-round to hunting of pigs, goats, and axis deer, without a bag limit. During times of extreme fire hazard, unsafe road conditions, or herbicide spraying in areas accessible to the public, portions or all of the preserve may be closed. Pelekunu Preserve continues to utilize staff-organized volunteer ground hunts through the Molokai Hunting Working Group.

On Maui, the status of public hunting opportunities also varies depending on the reserve. At Puu Kukui, the Preserve is open to public hunters by permit 365 days a year, with no bag limit. Limited volunteer hunting opportunities are available at the Waikamoi Preserve. The conservation easement between TNC and Haleakala Ranch allows ranch employees to hunt. Public hunters willing to follow TNC guidelines will be allowed to hunt in Unit 1A of the Preserve on a limited basis (when hunting will not interfere with ongoing management activities, planned guided hikes, and hunting by ranch employees). However, it should be understood that the goal is to remove all ungulates in the Preserve, and no area within Waikamoi Preserve will be considered a sustained yield hunting area. In addition, there are approximately 50,000 acres available to public hunters below the Preserve to meet public hunting needs.

The conservation easement between TNC and Amfac/JMB Hawaii, L.L.C. requires that there be no unaccompanied public hunting in the Kapunakea Preserve. Kapunakea Preserve is closed to hunting with dogs due to an increased snaring effort in the preserve due to dramatic increases of pigs in previously hunted areas. However, TNC staff may accompany public hunters hunting without dogs upon request, on a case-by-case basis. Limited public hunting opportunities that will not interfere with other management are available in coordination with scheduled work trips.

On Lanai, TNC utilized volunteer hunts as a method to remove remnant deer from the fence enclosure units. On Hawaii Island, TNC will continue to utilize volunteer hunters to reduce animal numbers within the Preserve and will continue to investigate ways to enhance hunter access into Kau forest.

## **5. FINANCIAL REPORT**

NAPP is supported primarily through NARF. In FY 07, state expenditures were \$1,019,405. As NAPP provides matching funds on a 2:1 basis, these state funds were matched by at least \$509,703 private funds. In actuality, NAPP participants typically provide additional matching dollars for conservation, through additional private funds or through acquisition of federal grants.

## **6. PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR**

NAPP preserve management activities in FY08 will be guided by completed, Board-approved management plans. Plan implementation will focus on eliminating or controlling the spread of non-native plants and animals that have a detrimental effect on native ecosystems.

Other management considerations will include rare and endangered species protection, monitoring, research, public education and generating community support. Goals for individual preserves are discussed above.

## **FINANCIAL CONDITION OF NARF**

NARF receives revenues from the Conveyance Tax (25% of total Conveyance Tax revenues) on real estate transactions. The cash balance of the NARF at the beginning of FY 07 was \$16,804,572 with prior years' encumbrances of \$1,272,526. FY 07 NARF Revenues were 12,427,120 with \$12,082,127 from the Conveyance Tax and \$344,992 from the Investment Pool (See Table B).

FY 07 expenditures totaled \$5,380,238, representing expenditures of approximately \$1,031,150 for FY 05/06 encumbrances, and \$4,349,088 of FY 07 encumbrances. Of the FY 07 \$10,086,651 spending cap, all operating funds were encumbered or transferred pursuant to Legislative directives. Outstanding FY 07 encumbrances totaled \$4,598,259.

The cash balance of the NARF at the beginning of FY 08 was \$21,021,610 with \$16,314,385 the available balance. FY 07 revenues were 85% of the record FY 06 revenues with expectations for revenues to drop slightly in FY 08 due to a weakening real estate market.

The NARF also supports other programs and projects, some of which are administered by DOFAW:

FY 07 legislatively authorized transfers and expenditures totaled \$4,600,000 which were: \$600,000 to the Forest Stewardship Program through direct transfers pursuant to §247-7, HRS; \$2,000,000 Hawaii Invasive Species Council through direct transfers authorized by previous years legislative appropriations for invasive species; and to Cogui frog control (\$2,000,000) through Legislatively authorized expenditures and transfers to Hawaii County (\$1,000,000), Department of Agriculture (\$500,000) and DLNR control programs statewide (\$500,000). These are reported on in their respective Legislature reports.

FY 08 legislatively authorized transfers totaling \$7,878,115 are scheduled to include: Forest Stewardship Program (\$2,178,115) through direct transfers pursuant to §247-7, HRS; Hawaii Invasive Species Council (\$3,000,000) through previous legislative appropriations for invasive species; Kula Forest Restoration Project (\$2,640,000); and DLNR Fiscal office for an accountant (\$60,000).

### **OTHER PROJECTS FUNDED BY THE NATURAL AREA RESERVE FUND PURSUANT TO HRS § 247-7: WATERSHED PARTNERSHIPS PROJECTS & YOUTH CONSERVATION CORPS**

#### **1. WATERSHED PARTNERSHIPS PROJECTS**

##### **Watershed Partnerships Program**

The first Watershed Partnership was formed in 1991 on East Maui when public and private landowners realized the benefits of working together to ensure the conservation of a shared watershed that provided billions of gallons of fresh water to the area. Today, Watershed Partnerships continue to be innovative and effective alliances of public and private landowners committed to the common value of protecting forested watersheds for water recharge and other ecosystem services through collaborative management. The benefits of collaborative

management practiced under Watershed Partnerships are many: 1) management actions address large landscapes and threats affecting core watershed areas and habitats and species across multiple landownership boundaries; 2) leverage limited dollars for maximum benefits and allow the pooling of resources as well as expertise to reduce redundancy in efforts (partnerships effectively leverage state dollars with federal, county, and private funds/match, often 1:1); 3) provide capacity building for landowners, particularly private, to engage in watershed protection; and 4) actions conserve other ecosystem services such as native habitats/species, recreation, culture, education, and jobs.

There are nine Watershed Partnerships in the State (Maui-3, Moloka‘i-1, Kaua‘i-1, Hawai‘i-2, O‘ahu-1, and Lāna‘i-1) involving over 45 private landowners and 24 public agencies (including several NARs and NAPPs) that cover close to one million acres (a quarter of the State’s land base). All Watershed Partnerships have management plans, which guide management actions and provide clear objectives and goals for future outcomes and achievements. Most management actions are habitat based and revolve around combating the main threats facing watersheds - feral ungulates (hooved animals) and invasive species. Examples include ungulate removal and fencing, invasive species control, forest health monitoring, outplanting and restoration, rare species management, and education and outreach. The Division of Forestry and Wildlife (DOFAW) provides technical and financial resources to support the Watershed Partnerships through its Watershed Partnerships Program, which is funded by the Natural Area Reserve Fund and managed under the NARS program.

### **Highlights of Watershed Partnership Activities, Accomplishments, and Challenges in FY07, Plans and Management Objectives for FY08**

The 2006 increase in conveyance tax funds and approval by the legislature to increase the budget ceiling to \$8 million allowed for a four-fold increase for funding to the Watershed Partnerships. \$2.6 million was awarded in FY07 to support major on-the-ground watershed management activities under the Watershed Partnerships on five islands covering over 150,000 acres. Match generated by the awarded state funds totaled \$2.7 million or slightly better than a 1:1 match. These grants are still active and will not be concluded until May 31, 2008. Therefore funding reports below indicate interim status of expenditures and work progress. In addition to the \$2.6 million in grants, \$700,000 was allocated for additional temporary positions to assist with coordination and watershed management on forest reserve and partnership lands. In FY08, a total of \$3.3 is budgeted to support expansion of watershed management initiatives under the Watershed Partnerships Program as well as fund new initiatives to enhance broader watershed management activities across the islands of Kaua‘i, O‘ahu, Maui, Moloka‘i, and Hawai‘i.

#### ***Kaua‘i Watershed Alliance (KWA)-143,000 total acres***

In FY07, a total of \$161,629 was awarded to KWA through the Watershed Partnerships Program Grant (WPPG). The funding provided also leveraged an additional \$100,000 for the project. The award supported management of priority weeds in core watershed areas (including aerial mapping and GIS database analysis, ground control, and testing of new technologies to target Australian Tree Fern in inaccessible terrain) and environmental regulatory compliance preparation (including biological surveys, cultural assessments, and outreach) for the protection through fencing of 2,000 acres of high quality watershed area in the Alaka‘i. Interim progress and challenges include:

- Treatment of 807 mature and 5,281 immature Kāhili ginger, 893 mature and 3,647 immature strawberry guava, and 2 Australian Tree Fern;

- Intensive aerial mapping and removal within a 500 acre buffer zone in Mohihi & Koaie management units in central Alaka'i to prevent further ingress of Kāhili ginger into Southeast Alaka'i;
- Met with hunting community member to discuss projects and have contracted for biological surveys and cultural assessments;
- Most of the work conducted is by helicopter so challenges for project implementation are weather and dearth of Office of Aviation Safety (OAS) certified helicopters and pilots on island (for the safety of personnel and project, OAS certification is a requirement of projects).

For FY08, KWA was awarded \$260,368 to continue and expand its work to combat priority invasive weeds (Kāhili Ginger, Australian Tree Fern, and Strawberry Guava) in core 850-acre watershed area of the Kaua'i Watershed Alliance. Major actions include treatment, aerial mapping, and monitoring through data collection and GIS spatial analysis.

***Ko'olau Mountains Watershed Partnership (KMWP) – 97,100 total acres***

In FY07, a total of \$326,651 was awarded to KMWP, which was matched by \$348,836. The award funded ungulate control, weed management (development of management strategy, aerial and ground surveys, mapping), habitat restoration and erosion control for a post-fire forested area, and biological surveys to guide management actions. Interim progress and challenges include:

- 85% of priority management areas identified along summit have been surveyed for invasive weeds - 9,000 summit acres surveyed out of 15,000; 6,050 acres of weeds mapped; 1,300 individual weedy trees mapped; 13,000 acres surveyed in windward priority areas; and 4,000 acres on U.S. Army managed lands;
- Outplanted native plants at Manana fire restoration site and conducted monitoring revegetation after burn;
- Full funds were successfully obtained to hire for an ungulate management planner to develop a management plan for the Koolaus. The position is currently under recruitment;
- Challenges faced were staff turnover of a technician who had to relocate for family reasons and coordinator who had been with the organization for over 6 years. This transition slowed project implementation for a period. However both positions are currently filled and no major impact for eventual project deliverables are anticipated.

For FY08, KMWP was awarded \$350,541 to continue and expand its work to conduct priority area weed management, restoration, stream management, and ungulate control over 16,000 acres in the Ko'olau Mountains Watershed Partnership. Major management actions include completing site based and landscape level weed inventory to guide management actions, weed removal, restoration of degraded areas with native plants, development of an ungulate management plan, and pilot project for creating a stream management system.

***East Moloka'i Watershed Partnership (EMoWP) – 25,000 total acres***

In FY07, a total of \$75,000 was awarded to EMoWP, which matched with an additional \$425,000 for the project. Funding was to support implementation of weed species removal, aerial shooting of goats, and weed surveys for priority areas. Interim progress and challenges include:

- Aerial surveys for priority areas were conducted in order to identify and map existing invasive weed problems;
- Twelve acres of core and outlier area of blackberry surveyed and 40 populations removed; Kamakou 87 acres surveyed with 665 removed of guava; Kamalo 27 acres surveyed and 189 removed of guava;
- Challenges were specific to the feral goat removal as State of Hawai'i personnel can only conduct aerial shooting of these animals. As such, it has been challenging to coordinate DOFAW time and staff to conduct such operations as no professional DOFAW staff position exists on Moloka'i for the partnership to work with and existing DOFAW Maui staff have three partnerships on Maui to already coordinate similar work with.

For FY08, EMoWP was awarded \$90,000 to continue and expand its work to conduct feral animal control, invasive weed management, and fire management in over 13,000 acres of the East Moloka'i Watershed Partnership. Major management actions include fence surveys, aerial shoot missions for feral goats and ground hunts for pigs and goats, completing ground surveys and removal sweeps for blackberry, strawberry guava, New Zealand flax, Karaka nut, Punis, *Clidemia*, and *Tibouchina*, facilitating semiannual Molokai Fire Task Force meeting; and training all field staff in S130/190 basic wildland fire training.

***West Maui Mountains Watershed Partnership (WMMWP) – 50,000 total acres***

In FY07, a total of \$300,000 was provided to WMMWP with leveraged match of \$317,000. Funding went to support feral animal management (axis deer ingress prevention, animal removal and fencing, fence maintenance and inspection, transect monitoring, aerial shooting); weed control (mapping, monitoring, database analysis); rare species monitoring; illegal dirt bike management (barricades developed, informational signs posted, and impacted trail recovery monitored); and start of an outreach program (website, brochures, community interaction and engagement). Interim progress and challenges include:

- Feral animal management included maintenance and inspection of existing West unit completed, new fence for southern corridor completed, check of existing trap devices done (18 captures recorded), monitored transects, DOFAW conducted eight aerial shoot mission for feral goats eradicating 408 goats;
- For weed management, five black wattle treated along boundary of west unit on Kahoma land, *Clidemia hirta* pulled in Puu iki gulch;
- Rare species management included Plant Extinction Prevention Program outing identified new account of *Alectryon macrococcus var. macrococcusu* for area, confirmed health of known existing rare plants, located new *Alphitonia ponderosa*, one Hawaiian petrel detected in Waihee valley;
- For human activities management, scouting and monitoring of illegal ingress areas, outreach meeting with Maui Offhighway vehicle association to educate users about impacts, set up monitoring areas, conducted aerial helicopter reconnaissance;
- For outreach program, website development in progress, new brochure created, participated in several community events;
- Challenges were weather related, DOFAW aerial shoot missions were impacted by fire fighting responsibilities, and staff turnover due to high cost of living in West Maui area.

For FY08, WMMWP was awarded \$297,098 to continue and expand its work to conduct feral



animal management, invasive weed control, rare plant protection, and outreach and education over 14,000 acres of the West Maui Mountains Watershed Partnership. Major management actions include fence inspection, aerial shooting, monitoring and data collection for both ungulates and invasive weeds, control of priority weeds such *Rubus argutus*, *Setaria palmifolia*, *Acacia mearnsii*, and *Cortaderia jubata*, conduct workshop on fire management to develop fire plan, development of website and outreach materials concerning watershed management.

***East Maui Watershed Partnership (EMWP) – 100,000 total acres***

In FY07, a total of \$447,000 was provided to EMWP with leveraged match at \$275,000. This funding supported feral animal and invasive species control in a 7,000 acre area, including inspection of ten miles of fence and monitoring of over 18,000 meters of trails; outreach and environmental education programs reaching over 750 students and community members; development of an environmental assessment and a monitoring plan; and resource monitoring and feral cattle control in Ko‘olau Forest Reserve. Interim progress and challenges include:

- Inspected over 6 miles of project fences bordering five project management units;
- All transects in 7,000-acre project area monitored for ungulate and invasive plant species presence. Additional invasive work conducted along trails and infrastructures;
- DOFAW conducted six aerial shoot missions for feral cattle in Honopou section of Koolau FR and eliminated 24 feral cattle;
- 370 students and members of community have participated in outreach and education program regarding the importance of native forested watersheds;
- Challenges for project implementation were weather, unavailability of helicopter for projects as demand is high on island for use by other organizations, and DOFAW aerial shoot missions were impacted by fire fighting responsibilities.

For FY08, EMWP was awarded \$417,800 to continue and expand its work to conduct feral animal control, invasive weed control, and outreach and education in over 10,000 acres of the East Maui Watershed Partnership area. Major management actions include fence maintenance and inspection, new fence construction, aerial shoot missions for feral animal control, monitoring for both feral ungulates and invasive weeds, organization of a volunteer hunting program, school programs both in-class and in the field, community education events, miconia aerial reconnaissance, and biocontrol application and research.

***Leeward Haleakalā Watershed Restoration Partnership (LHWRP) – 43,175 total acres***

In FY07, a total of \$380,000 was provided to LHWRP with leveraged match of \$437,200. The funding was used to support expansion of field crew to work on koa restoration and establish demonstration sites to test methods, supervise volunteers, conduct invasive species management, begin work to fence approximately 7,700 acres of protected watershed forests, and conduct digital imagery mapping to document existing resources for area and threats such as invasive plants in order to develop a vegetation monitoring system. Interim progress and challenges include:

- Two koa seed collection trips conducted to propagate seedlings for eventual outplanting in restoration sites;
- Began control activities for priority invasive plant species;
- Planned interagency collaborative effort to control *Bocconia frutescens* in Kanaio NAR and adjacent Auwahi area;

- Eleven volunteer planting trips conducted with over 2,105 hours of labor and 5,598 plants planted;
- Challenges included lengthy time required to process and complete state contract, limited koa seed collection based on compromised site location, and weather which canceled two volunteer trips and interfered with efficacy of *Septoria* solution for weed control.

For FY08, LHWRP was awarded \$323,405 to continue and expand its work to conduct restoration and biological surveys over 10,000 acres of the Leeward Haleakalā Watershed Restoration Partnership. Major management actions include planting 10,000 native seedlings in protected restoration site resulting in approximately 50-100 acres in primary restoration phase and methodologies refined, biological surveys of Kaupo Ranch and Nuu Mauka Ranch, banana poka biocontrol application, and exploratory survey for *Bocconia* biocontrol with field work conducted.

***Three Mountain Alliance (formerly ‘Ōla‘a-Kilauea Partnership) – 800,000 total acres***

In FY07, a total of \$358,758 was awarded to the Three Mountain Alliance (TMA). Leveraged match for this funding was \$288,653. Grant award supports environmental compliance preparation including cultural assessment and archeological surveys; ongoing projects in existing fenced and ungulate free and soon to be ungulate free areas (over 36,000 acres); native bird surveys; invasive weed control; feral cattle control in three DOFAW forest reserves; and environmental education and outreach including teacher workshops, volunteer coordination, and development of public service announcements. Interim progress and challenges include:

- Finalization of the Memorandum of Understanding for the expansion of the ‘Ōla‘a-Kīlauea Partnership into the Three Mountain Alliance;
- Completed field work for archeological surveys for Honuauia Forest Reserve reforestation project;
- Removed 317 sheep, 17 goats, 33 pigs from Keauhou upper boundary; south boundary unit working on trapping last few remaining feral pigs; north boundary unit trying to capture one ingress feral pig; two animals collared in Kau; Kapapala ranch removed 15 animals and working to remove last five animals, South Kona forest reserve boundary survey ongoing; 30 cattle removed from 3 traps in Palani ranch in Honuauia forest reserve;
- Planted 172 *Cyanea shipmanii* seedlings and 19 *Clermontia lindseyana* (endangered plants), completed annual monitoring of endangered plant survivorship;
- 2,450 seedlings of common native trees and understory were planted in Puu Lalaau unit for restoration on Keauhou Ranch;
- Inspected and maintained all partnership fences on a monthly basis; DOFAW maintained 33 miles of fence and fenced off 2 reservoirs;
- Completed annual bird surveys for Keauhou, Kilauea, and Kulani;
- 72 acres blackberry removed in Puu lalaau unit and 44 acres of faya removed in lower Keauhou with 4,662 faya trees controlled; aerial survey for faya tree across entire ranch done and mapped distribution at mid and upper elevations;
- Surveyed 23.3 miles of transects and roadsides throughout Keauhou for priority invasive weeds;
- Completed monitoring of 15 transects for priority alien plants in Wright Road unit;
- Expansion of staff to work on weed control, rare plants, teacher workshops, reforestation, and general administrative support;

- Completed summer and spring student programs (32 students), working on writing Public Service Announcements related to invasive species, two teacher workshops on species and alien species conducted;
- Challenges included aerial hunts for feral cattle in Kau/Kapapala delayed because not enough radio collared cattle and aerial shoot plans needed to be finalized for DOFAW; DOFAW staff has also been involved with wildfires; boundary survey work has been delayed because Trimble GPS broke twice and GPS doesn't get a good signal in thicker canopied forest.

For FY08, the Three Mountain Alliance was awarded \$464,297 to continue and expand its work to conduct feral ungulate control, rare plant restoration, invasive weed control, fire management, environmental outreach and education, and restoration over 200,000 acres of the Three Mountain Alliance. Major management actions include maintaining over 14,000 acres of ungulate free area by monitoring, fence inspections and controlling animal ingress to area, removal of feral ungulates from other fenced units, implementing strategic weed control for fenced units, implementing rare plant reintroduction in ungulate free units, conducting annual forest and seabird surveys, seed collection, conducting biological surveys, fencing, establishing basemap and conducting fire risk assessment to identify priorities and recommendations to develop action plan and finalize community wildfire preparedness plan, creating teacher workshops and field based education program targeting students, and public service announcement development.

***Kohala Watershed Partnership (KWP) – 68,000 total acres***

In FY07, a total of \$145,000 was awarded to KWP. Leveraged match for this funding was \$155,000. Awarded grant was to support hiring of a coordinator to implement projects; stream monitoring at Waiulaula to provide baseline information regarding water quality and nearshore waters of this watershed, identify relative contributions of sediments and pollutants from different land covers, identify types/sources of polluted runoff, generate pollutant load reduction estimates; fence construction at Kaneaa to control feral cattle from 400 acres; existing trail/fence/cabin maintenance; and rare plant outplanting and weed control. Interim progress and challenges include:

- Sites selected for placement of stream gauges with appropriate permits acquired to install in Natural Area Reserve and Forest Reserve;
- Maintenance of existing structures, trails and fences done;
- Weed control and outplanting continues in Kilohana stream unit and NARS fencing and cabins;
- Draft environmental assessment developed for full partnership review;
- Coordinator hired;
- Additional funding gained for cattle control at Kaneaa;
- Challenges included the October 2006 earthquake which required reassessment of project areas and impact to resources and implementation feasibility; State procurement system led to slow encumbering of funds and supplies for immediate project implementation.

For FY08, the KWP was awarded \$205,700 to continue and expand its work to conduct feral animal control, invasive weed management and education and outreach over 10,000 acres of Kohala Watershed Partnership. Major management actions are erecting 2.5 mile of fencing to protect last known habitat for rare tree snail, conduct baseline survey of ungulates and vegetation composition and snail populations, feral cattle and pig removal, field and classroom curricula

development, educational day camps, volunteer program, and field days to involve community members.

### ***Additional projects supporting watershed management activities***

Additional projects that more broadly support watershed management activities related to Watershed Partnerships in FY07 involved funding the network of stream and rain gages found throughout the state that monitor water and stream levels to inform on water quantity and quality data critical for measuring success and efficacy of watershed management activities (\$132,000); assist the DOFAW forestry program in developing management plans for forest reserves (\$60,000); support out service trips for conservation projects at Puu Waawaa Ahupua‘a Preserve (\$8,964); dry and mesic forest restoration at Kahikinui Moku and Puu Waawaa Forest Bird Sanctuary (\$180,000); and funding for an assessment study on development of a Mauna Kea Watershed Partnership (\$25,000). The FY 07 increase in watershed program staff presents related new challenges to provide staff training and equipment/supplies and office workspace. These additional needs will be covered by special fund, general fund or CIP requests.

For FY08, additional projects funded to support broader watershed management initiatives included \$49,140 to monitor known populations of 17 Plant Extinction Prevention species and collect propagules for genetic storage and potential future reintroduction in the Ko‘olau Mountains; \$22,695 to conduct outreach and communication regarding values of the watershed and importance of fencing, ungulate removal, invasive weed control, and native plant outplanting for watershed management on Lāna‘i; and \$118,175 to support DLNR's Commission on Water Resource Management (CWRM) and its work with the U.S. Geological Survey (USGS) to maintain the statewide gage network which is critical not just for water management but for weather services and emergency situations such as flood management and civil service defense public warnings. Both the rise in costs of these gages and continued cutback in budgets for both CWRM and USGS are putting the statewide gage network at risk for dismantling.

## **2. YOUTH CONSERVATION CORPS AND PUBLIC OUTREACH**

An important aspect of DOFAW's education and outreach efforts is the Youth Conservation Corps (YCC), which is partially funded by the NARF. YCC is an ongoing program that provides training and hands-on learning opportunities for high school and college-aged youth. Participants spend six weeks working in small teams with natural resource managers throughout the State. In 2007, the Corps members contributed approximately 30,000 volunteer hours working on projects such as endangered species restoration; trail maintenance, out-planting, species monitoring, and invasive plant removal. The 2007 Program consisted of seven teams on five islands including Oahu, Kauai, Maui, Molokai and Hawaii. A total of 72 youth participated. The Program lasted 6 and 1/2 weeks plus one week of training, including a team trip to Kahoolawe for each team. For more information on YCC, see <http://www.hawaiiycc.com>. Other partners supporting the program include Kamehameha Schools, University of Hawaii-Pacific Cooperative Studies Unit, the Hawaii Department of Health, Clean Water Branch and the U.S. Environmental Protection Agency, among others.

The year-round component to YCC is operated as an Americorps program. The Program allows young adults to gain entry-level experience working alongside managers in the field. The Program was intended to serve as an extension of the summer YCC Program and provide more in-depth training for youth interested in pursuing a career working in the natural resources

conservation field. In 2007, DOFAW enrolled a total of ten full-time members (1700 hrs each) and three part-time members (900 hrs each) committing to work for a year. In addition, 12 minimum-time members served as team leaders for the summer program.

The YCC program will be expanding substantially during FY08. DLNR received a nationally competitive grant from the Corporation for National and Community Service for Americorps. This grant will help to fund 25 Full time members, 50 minimum time members and 120 summer participants. In addition we were awarded 100 Americorps EAP (education award only) minimum time slots, which we will offer other intern/volunteer program participants (i.e. summer students) up to 2 months support.

YCC is one part of DOFAW's Public Outreach, Youth Activities, and Community Involvement Program, a statewide effort to improve awareness and understanding of Hawaii's forests, wildlife, and watersheds and threats to these resources such as invasive species and fire. Components of this effort have included printed materials such as books and posters as well as multi-media exhibits and hands-on education and outreach programs.

During FY 07, DLNR published two editions (Summer and Winter) of the DOFAW newsletter "Na Leo O Ka Aina." The Newsletter can be viewed online at <http://www.state.hi.us/dlnr/dofaw/newsletter/index.htm>. Electronic and printed versions were created. Printed copies were sent primarily to schools, libraries, other agencies and individuals who requested the printed version. Total distribution was about 2,000 newsletters.

An additional outreach component for DOFAW includes maintaining its website to provide up-to-date information and resources about the many DOFAW programs and services: [www.dofaw.net](http://www.dofaw.net)

During FY 07, DOFAW worked in partnership with the Department of Education (DOE) to produce a teacher's manual for natural resources education that meets current standards and addresses topics of importance in today's Hawaii. DOFAW contracted DOE to produce the resource utilizing existing materials that were updated and aligned to current standards as needed by current and retired DOE teachers. The resource is currently undergoing editing and formatting prior to finalization. This effort is supported in part by a grant from the USDA Forest Service and NARS staff supervision.

A continuing challenge is the need to extend outreach and education programs to the local community level and provide outreach to the general public about natural areas and forest and wildlife resources. Having outreach staff dedicated to each island branch would allow for more hands-on outreach and in-depth programs such as service projects, guided field trips, and presence at local events such as earth day. Branch based outreach staff would also act as liaisons between DOFAW and local schools, providing classroom programs and field-trip opportunities. They would also be able to build relationships with local constituents to help increase support for DLNR programs. These positions would improve communication with the public and make our agency more accessible.

**CONCLUSION**

Detailed project plans and accomplishment reports for the NARS, NAPP, Watershed Partnership Program, and YCC are available through links from DOFAW websites or from the:

Natural Areas Program Manager  
Department of Land and Natural Resources  
Division of Forestry and Wildlife  
1151 Punchbowl Street, Room 325  
Honolulu, HI 96813  
Telephone: 587-0054  
Fax: 587-0064  
E-mail: randall.w.kennedy@hawaii.gov

**LNR 407 NATURAL AREAS MANAGEMENT BUDGET SUMMARY FY 07**

**Table A: FY 07 Natural Area Reserve System Expenditures (General Fund Appropriation G-07-047)**

	<b>Total = \$1,202,004</b>
NARS 'A' Personnel Expenditures FY 07 (21 positions)	= \$762,619
NARS 'B' Operating Expenditures FY 07	= \$ 439,385

**FY 08 Natural Area Reserve System Allocation (General Fund Appropriation G-08-047)**

	<b>Total = \$1,225,414</b>
NARS 'A' Personnel Allocation FY 08 (22 positions)	= \$ 821,029
NARS 'B' Operating Expenditures FY 08	= \$ 404,385

**Table B: Natural Area Reserve Fund Revenues FY 07 (S-07-342)**

**Total = \$ 12,427,119.52**

<b>Revenue Source</b>	<b>Timeframe</b>	<b>Amount</b>
FY 07 Conveyance Tax transfers	7/1/2006 – 6/30/2007	\$12,082,127
Investment pool revenues	7/1/2006 – 6/30/2007	\$ 344,992
	<b>Total Revenues =</b>	<b>\$ 12,427,119</b>

**Table C: FY 07 Natural Area Reserve Fund Expenditures (Special Fund Appropriation S-07-342)**

**Total = \$9,978,498**

NARF 'A' Personnel Expenditures FY 07 (22 positions) = \$ 162,382

NARF Expenditures FY 07 = \$5,380,239

Transfers = \$2,829,843

Encumbrances = \$4,598,259

**FY 08 Natural Area Reserve Fund Allocation (Special Fund Appropriation S-08-342)**

**Total drawdown = \$16,531,876**

NARF 'A' Personnel Expenditures FY 08 (22 positions) = \$1,440,165

NARF 'B' Operating Allocation FY 08 = \$7,213,596

Transfers = \$7,878,115