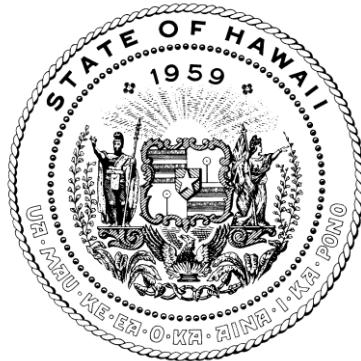


**REPORT TO THE TWENTY-FIFTH LEGISLATURE
REGULAR SESSION OF 2010**

**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 2009**

TABLE OF CONTENTS

| | |
|---|-----------|
| List of Acronyms | 2 |
| Purpose | 3 |
| Natural Area Reserves System | 3 |
| 1. Description of Activities and Accomplishments | 3 |
| 2. Compliance with Chapter 42F, Hawaii Revised Statutes (HRS), Requirements | 13 |
| 3. Analysis of the Problems and Issues Encountered | 13 |
| 4. Status of Public Hunting Opportunities | 14 |
| 5. Financial Report | 14 |
| 6. Plans and Management Objectives for the Next Fiscal Year | 15 |
| Natural Area Partnership Program | 17 |
| 1. Description of Activities and Accomplishments | 17 |
| 2. Compliance with Chapter 42F, HRS, Requirements | 22 |
| 3. Analysis of the Problems and Issues Encountered | 22 |
| 4. Status of Public Hunting Opportunities | 23 |
| 5. Financial Report | 24 |
| 6. Plans and Management Objectives for the Next Fiscal Year | 24 |
| Financial Condition of the Natural Area Reserve Fund | 24 |
| Other Programs Funded through the Natural Area Reserve Fund | 25 |
| 1. Watershed Partnerships Program | 25 |
| 2. Youth Conservation Corps | 32 |
| Conclusion | 34 |
| LNR 407 Natural Areas Management Budget Summary Fiscal Year 2009 | 34 |

LIST OF ACRONYMS

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

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PURPOSE

Section 195-6.6, Hawaii Revised Statutes (HRS), requires an annual comprehensive status report on the Natural Area Reserves System (NARS), the Natural Area Partnership Program (NAPP) and the financial condition of the Natural Area Reserve Fund (NARF). This report will include, but is not 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 109,000 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, fire prevention and control, 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 (NARSC) (<http://hawaii.gov/dlnr/dofaw/nars/nars-commission>) was established by statute as an advisory body to the Department of Land and Natural Resources (DLNR) under §195-6, HRS. The NARSC met twice in Fiscal Year (FY) 09; the Commission Enhancement Subcommittee met four times during FY 09.

The NARSC recommended and discussed regulations to protect Hawaii's dominant trees, the status of the NARF, NAPP renewals, received updates on projects and planned management in individual NARS, the weed risk posed by biofuel research and development, the issuance of special use permits to research and conduct animal control in NARS, and the creation of new NARS. The BLM or its authorized representative, with the approval of the Commission, recommended the issue of 40 Special Use Permits for research, education, large group hikes, and educational and commercial filming (also working with Hawaii Film Office).

Another responsibility of the NARSC and staff is to prioritize and nominate areas to be designated as NARS, and justify the management resources to be dedicated to each. In FY09, NARS staff completed a state-wide analysis of the biological resources of Hawaii, using the most comprehensive compilation of scientific data, to fulfill the NARS' responsibility to preserve representative samples of Hawaiian biological ecosystems and geological formations. These data will be used to inform future management plans for habitats or areas of conservation interest, highlight conservation opportunities for partnership on private land, as well as help develop educational presentations to improve the public's appreciation of our natural heritage. In FY 09, an extension of Hono O Na Pali NAR on Kauai was designated by the Governor. Additionally, the Kaluanui on Oahu, Ilio Point on Molokai, and the extension of Kahaualea NAR on the Island of Hawaii were nominated to the NARSC. In FY 10, these unique natural areas nominated for designation will continue to be evaluated with this analysis, and public hearings will be held in the process to designate new NARS. For example, the Na Kula NAR on Maui and extension of Puu Makaala NAR on the Island of Hawaii will be nominated. Detailed information on these actions can be found at: <http://hawaii.gov/dlnr/dofaw/nars/nars-designation>. All of the aforementioned activities help ensure that a complete NARS is developed and maintained, and that a wide spectrum of unique natural areas are preserved for Hawaii's future generations.

Statewide activities and accomplishments

In FY 09, the Strategic Plan for the NARS was adopted by the BLM (<http://hawaii.gov/dlnr/dofaw/nars/SP9.4.08.pdf>). Operational management plans were drafted for each island program to prioritize and coordinate future activities to meet the NARS' statutory mandates.

NARS staff conducted ground and aerial surveys for ungulates (hooved animals, including sheep, mouflon, deer, goats, and pigs). Fencing continues to be an important tool to facilitate the reduction in animal populations. Existing fences were inspected and maintained, and 6.3 miles of new fences were constructed. Public hunting, control by NARS staff by means of trapping, snaring (in remote/fenced areas), and aerial shooting were used to reduce non-native ungulate populations. The type of control measure implemented depends on the resources available, the reserve location, the effectiveness of public hunting, terrain features, and the relative abundances of ungulates. NARS staff continues to work with hunting organizations such as the Molokai Hunting Working Group, the Molokai Pig Hunters Association, 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 man-

ual 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. However, because the ISC's efforts are directed towards incipient species, this coordination is most effective when responding to new weed outbreaks in NARS and less so when controlling the established species that threaten native ecosystems. 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 09 follows the island descriptions below.

Staff worked to prevent fires in and around NARS, by controlling invasive species to reduce fuel loads, constructing fuel breaks, and creating water-holding infrastructure. NARS staff also worked to control forest fires, as part of the DLNR Division of Forestry and Wildlife (DOFAW) Fire Response Team.

Maintenance of infrastructure is also an ongoing activity. Staff maintained over 500 signs throughout the 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 minimize the spread of weeds to new areas. Over 149 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. Over 15 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. Rock barriers were installed along pull-off stretches in Ahihi-Kinau (Maui) to protect geological and cultural features from off-road damage.

Staff training for needed skills remains important. Training during FY 09 included first aid, cardiopulmonary resuscitation (CPR), fire response, all terrain vehicle (ATV) operation, helicopter safety/crew member training, herbicide and pesticide use, ungulate control methods, procurement procedures, ArcGIS, leadership, negotiation, and mediation skills. In addition, NARS staff attended the Hawaii Conservation Conference (July 2008), an annual three-day conference attended by nearly 1,000 resource management professionals in the State. Finally, NARS staff continued the successful "exchange program" between districts where natural resource managers share field methods and develop new skills. Three week-long exchanges took place, with Maui NARS crew going to Kauai to assist Kauai NARS staff with invasive species control, and later with Kauai and Hawaii NARS staff going to Maui to assist in fence building.

Outreach and coordination of volunteers has increased the public's appreciation of the NARS and Hawaii's unique natural resources. Staff led volunteer trips, outreach presentations, and guided hikes and field visits for numerous groups, including visiting dignitaries, visiting (mainland) staff from cooperating agencies (e.g., United States Forest Service (USFS), United States Fish and Wildlife Service (USFWS)), the Pacific Century Fellows, school groups and service groups, and the University of Hawaii (UH) Law School. NARS Admin staff responded

to multiple requests for information from the public (as forwarded by the DLNR Public Information Officer) and created multiple press releases for news media published statewide. NARS Admin staff continued participation with the national Natural Areas Association, the Wekiu Bug Working Group, the Hawaii Conservation Alliance (DOFAW Representative), the Forest Stewardship Advisory Committee, the Hawaii Conservation Conference (primary organizer), the Bioprospecting Commission (DLNR Representative for 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. These partnerships provide additional funding for the NARS from federal and private sources, as well as in-kind staff and operational support to the NARS. Partners include the: Kauai Watershed Alliance, East Maui Watershed Partnership, West Maui Mountains Watershed Partnership (WMMWP), 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 ISC, the Oahu ISC, the Maui ISC, Big Island ISC, the Office of Mauna Kea Management, the U.S. Forest Service (Hawaii Experimental Tropical Forest), the USFWS, The National Park Service (NPS), The National Oceanic and Atmospheric Administration (NOAA), The Nature Conservancy (TNC), The Wildlife Society, and more.

Reserve activities and accomplishments by island

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

Kauai

Management in Kauai NARS included constructing additional fences and maintaining existing fencelines, conducting intensive weed control within protected areas, collecting and propagating rare plants, and monitoring reserves for invasive plants and animals. In addition to work inside NARS, staff controlled wildfires and worked to conserve other important biological areas in Kauai. Efforts included habitat protection of rare bog ecosystems in the Alakai Wilderness Preserve with partner agencies such as TNC, USFWS, the Kauai Plant Extinction Prevention Program (PEPP), the Kokee Resource Conservation Program, and other partners of the Kauai Watershed Alliance. Additionally, the Kauai NARS program trained and mentored one Youth Conservation Corp (YCC) intern, led and supervised other youth service trips, and coordinated community outreach events.

Kuia (1,636 acres; dry and mesic forest with perennial streams): Completed the first of five large fenced exclosures protecting 20 acres of rare mesic forest habitat; awarded the contract to begin construction on the second large exclosure which will protect 80 acres; constructed one mile of fence and 2.8 miles of transects to monitor weeds and ungulate signs; conducted intensive weed control within all fenced units killing 739 Karaka Nut, 100 Silk Oak, 457 Lantana, 8,271 Guava, and 980 Blackberry; maintained and repaired 1.5 miles of fence line; outplanted 193 plants of 22 different species (including six listed threatened and endangered species and four species on the PEPP list). Hunters reported 1,803 trips in Unit H (which includes Kuia), resulting in 136 pigs, 48 goats, and 4 blacktail deer removed.

Hono O Na Pali (3,579 acres; mesic and wet forest with perennial streams): Completed expansion of the NAR to include an additional 498 acres of bog ecosystems; conducted ungulate monitoring in select locations; collected seeds from 4 species of rare plants; initiated a draft EA

for the fencing of approximately 1,731 acres. Hunters reported 200 hunting trips in Unit G (which includes Hono O Na Pali), resulting in 98 goats and 9 pigs removed.

Oahu

Ongoing management on Oahu includes weed control, ungulate monitoring and removal, rodent monitoring and removal, fence maintenance, rare plant propagation and outplanting, and habitat protection. Staff also worked to conserve and survey new areas proposed as NARS and led public hearings to designate the proposed Poamoho NAR. NARS also contributed expertise and manpower in other DOFAW lands on Oahu and offshore islands by conducting surveys, controlling invasive species, outplanting, and responding to wildfires. Staff provided environmental outreach by presenting at special events and leading and coordinating multiple volunteer service trips to each reserve. Specific accomplishments within individual reserves include:

Pahole (658 acres; dry and mesic forest): Completed the construction of the new Kapuna/Keawapilau fenceline; maintained 315 acres of the NAR feral pig free and conducted ungulate management to eventually remove feral pigs from 402 total acres; conducted eight regularly scheduled inspections and maintenance on approximately 15 km of fenceline; initiated a public hunter outreach program at the beginning of the public pig hunting season using dogs to proactively prevent vandalism to the newly constructed fence (74 Oahu NARS staff man-hours); conducted 17 staff escorted hunts within newly fenced area with volunteer hunters contributing approximately 800 to 1000 hours and removing 20 pigs (170 Oahu NARS staff man-hours); cleared 1.8 acres of strawberry guava at a restoration site; sprayed 1.7 acres of Christmas berry at a second restoration site; treated 281 mature *Grevillea robusta* (Silky-oak) with the frilling or cut-stump method; worked with agricultural extension agent on experimental control of *Ficus sp* using paint balls and a paint ball gun to distribute the herbicide; completed water catchment unit to store water for use in weed control; deployed a corral trap in the largest newly fenced unit in Pahole and removed two pigs with trap; three game cameras deployed and monitored in various locations within NAR; coordinated outreach/education visits with personnel from DLNR's Division of Conservation and Resources Enforcement (DOCARE).

Kaala (1,100 acres; dryland to wet shrub forest): monitored invasive species' distribution (sphagnum moss) and controlled blackberry; monitored for ungulate activity and conducted control when necessary; deployed a corral trap in the bog unit and removed two pigs with this trap; conducted aerial surveys for key incipient weed species; monitored and removed feral goats in the upper Mokuleia Forest Reserve adjacent to the NAR to reduce the potential for goat ingress into the NAR; maintained lower Kaala access road to assist Oahu Army Natural Resources Program with construction of large fence unit in Mokuleia Forest Reserve and lower Kaala NAR; coordinated outreach/education visits, including trips with personnel from DOCARE; purchased new materials to redo boardwalk within Kaala NAR and began planning for boardwalk replacement.

Kaena Point (76 acres; coastal dune ecosystem): continued planning for the proposed construction of a predator-proof fence to exclude dogs, cats, mongoose, rats, and mice from the point; continued outreach efforts for predator-proof fence including a meeting and field trip with the Office of Hawaiian Affairs Board, conducted three (out of four total) rodent monitoring events to provide base-line rodent data prior to predator-proof fence installation; helped DLNR develop the Kaena Point portion of the Ocean Resource Management Plan (ORMP); helped

DLNR in selecting the Kaena Point Advisory Group from several community stakeholder groups; began selection process for a Kaena Point Ambassador position; applied for a NOAA grant for management work in the area adjacent to the NAR; maintained low-impact barriers along the hiking trails to discourage wandering into seabird (Laysan albatross and wedge-tailed shearwater) nests or monk seal haul-out areas; installed and updated signage regarding resource issues and rules; conducted wedge-tailed shearwater census by surveying each burrow and completing a sampling method using the high-precision monitoring grid with several different sampling radii to compare survey methodologies for use in future years; continued Laysan albatross monitoring; increased predator control actions through the use of new techniques and tools (including spotlighting and leghold traps); United States Department of Agriculture/Wildlife Services provided 597 hours of predator control service removing one rat, 74 mongoose, and 15 feral cats; supported research and monitoring of seabird activity; coordinated outreach/education/work trip visits, including trips with personnel from DOCARE; contributed to an educational documentary about Kaena; controlled priority invasive weeds; removed *Leucaena leucocephala* (Koa haole) from 11 acres of the NAR.

Maui

Management of Maui District NARS (9 Reserves, 20,073 acres) includes fence construction, ungulate control, people/human impact management, invasive weed control, rare plant and animal protection and monitoring, and public outreach. Facilities and infrastructure improvements were a large part of Maui District NARS FY 09 activities and accomplishments including a Capital Improvement Program (CIP) Project for Ahihi-Kinau NAR. A two-year closure for portions of Ahihi-Kinau NAR began last August in order to protect natural and cultural resources, and necessitated hiring additional rangers. In addition to conservation management within the NARS, the 11 full-time staff of Maui NARS participated in activities with a variety of watershed partnerships and other conservation partners. For example, NARS staff assisted East Molokai Watershed Partnership (EMoWP) in conducting aerial shooting missions that removed 2,348 goats from the south slope of Molokai. Staff coordinated with TNC on Molokai, Kalaupapa National Historic Park, and the Molokai Pig Hunters Association to conduct four, two day aerial shooting missions along the North Shore of Molokai (removing 416 goats, 178 pigs, and 70 deer) and finished 1.5 miles of Phase II fencing in Puu Alii NAR. Staff worked with East and West Maui Watershed Partnerships to maintain fences and conduct animal control. TNC of Hawaii's Marine Program partnered with NARS to revitalize and re-organize the Ahihi-Kinau NAR/Keoneoio Advisory Council to address current issues/concerns and to help develop a Management Plan for the Reserve. NARS developed and implemented an opihí monitoring project with DLNR's Division of Aquatic Resources (DAR), Hawaii Institute of Marine Biology (HIMB), Kahoolawe Island Reserve Commission, TNC, and the Hana community. Hana, Kahoolawe, and Ahihi-Kinau NAR were baseline sites for opihí surveying statewide. Specific accomplishments within individual reserves include:

Ahihi-Kinau (2,045 acres; recent lava flows, anchialine ponds, and nearshore marine ecosystem): a staff of five rangers provided an everyday, 14 hour/day on-site management presence at this accessible and most-visited reserve (average 700 people/day); implemented an action plan for a two-year closure to prevent damage to resources due to recreational overuse; increased public awareness of closure and public support by distributing over 10,000 pamphlets in the Reserve, hotels, car rental companies, and other visitor industry locations; demarcated the closed area by installing over 250 meters of yellow rope barriers and over 60 signs; deterred and addressed many incidents of illegal activity including poaching, theft, and illegal entry into closed areas

with DOCARE, the Maui Police Department, and the Maui Citizens Patrol; controlled invasive pickleweed in anchialine ponds and kiawe along roadway (to increase visibility in high incidence illegal activity areas); maintained contract for the maintenance of 4 portable toilets; opened and closed parking area gate and emptied trash daily; made CIP improvements to the Kanahena visitor parking area (aka “dumps”) by grading the lava rock surface and constructing a security fence and an on site ranger station/office trailer with a warehouse to facilitate on-site management; partnered with TNC to begin the process of developing a long-term management plan of Ahihi-Kinau NAR and held 13 public meetings to gather public and departmental input on resources and use of the reserve and discuss management strategies, completion of the plan is estimated for winter of 2009; contributed to the intra-departmental DLNR/ORMP Priority Stewardship Areas Program which includes Ahihi-Kinau; designed and implemented resource surveys to monitor anchialine pools statewide with USFWS, NPS, UH, DAR, and private citizens; provided data and photographs of pond species to NPS for the printing of an anchialine pond informational booklet; began comprehensive baseline surveys to monitor geologic (mapping trails/impacts to geology), marine (% coral cover, fish and invertebrate species, invasive species, disease and substrate condition) and anchialine pond resources; gathered human use monitoring data in five different areas of the Reserve twice a day; discovered possible new fish disease in the prized species known locally as “Kole,” prompting great interest and concern and a potential new research topic for the HIMB and DAR.

Hanawi (7,500 acres; ohia wet and cloud forest, alpine grassland, and perennial streams): kept pigs out of 2,000 acres which required maintenance of over 10 miles of fenceline, and the replacement of nearly two miles of old fence. A new shelter was constructed to provide management access to the remote area, and staff maintained existing shelters. Staff determined route for an additional two miles of mid-elevation fence to protect a larger region of core habitat for endangered wildlife and plants.

Kanaio (876 acres; halapepe and lama dry forest): finished aproning and installing gates on recently constructed first half of a 1,500-acre deer-proof fence enclosure. Staff controlled invasive species by partnering with the Maui Fire Department and other agency staff to provide chainsaw training while removing black wattle from 50 acres. *Bocconia* and other invasives were also controlled throughout the reserve. Native trees were outplanted in an experimental project to test the need for watering and susceptibility to ungulate damage.

West Maui (6,702 acres; pili grassland, mesic, wet, and cloud forest, montane bogs, and perennial streams): Kahakuloa section: staff maintained and repaired 3.5 miles of lower boundary fence and installed one-way pig gates; conducted six community volunteer hunts that removed three pigs from above/within fenced areas; and controlled strawberry guava and Christmas berry along boundary fence. Panaewa and Honokowai sections: staff continued monitoring the area as pig free in cooperation with WMMWP, and maintained helicopter landing zones. Lihau section: staff monitored the post-fire pili grass ecosystem recovery and the highly endangered *Gouania* population; and controlled populations of incipient weeds in the upper reserve (Ironwood, Silk Oak, and Java Plum).

Puu Alii (1,330 acres; wet shrubland and forest with perennial streams): to prevent ungulate damage, staff finished 1.5 miles of deer-proof fence along Waikolu Valley rim; upgraded two miles of old fence by installing aprons and determined line and cleared .5 mile for new Pelekunu

rim fence in cooperation with staff from Kalaupapa National Park; supported a hunter volunteer trip to remove pigs from within the 550-acre fenced area.

Olokui (1,620 acres; mesic forest, wet shrubland and forest with perennial streams): protected the remote and near-pristine Olokui by aerial shooting and surveying conducted along the north shore of Molokai from Wailau to Waikolu Valleys during the four – two day missions removed 416 goats, 178 pigs and 70 deer; used aerial surveys to monitor the summit region for the presence/absence of ungulates and ungulate signs.

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, the United States Geological Survey (USGS) Hawaiian Volcano Observatory, the Office of Mauna Kea Management, the US Forest Service, and numerous informal partnerships with neighboring landowners. In addition, NARS staff participated in the management and continued 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 island-wide includes ungulate control through public hunting, staff implemented trapping, and snaring, invasive weed and small animal control, rare plant protection (reintroducing almost 5,958 plants of 24 different species), and contracting for surveys needed for appropriate management (archaeological inventories, boundary surveys, etc.). During FY 09, the NARS Hawaii Island Program built an additional 7.8km of fencing and monitored over 50km of transects to support the protection of Hawaii Island's native ecosystems. The education and outreach program expanded significantly during the fiscal year hosting numerous teacher workshops, volunteer trips, guided hikes for the Hawaii Community College OLI Program and other groups; developed and distributed multiple outreach materials during numerous special events; hosted of the Hawaii Nei Art contest featuring native species artwork in cooperation with the Volcano Art Center, the National Park and the Three Mountain Alliance; and provided school children with educational opportunities both inside and outside the classroom. Specific accomplishments within individual reserves include:

Mauna Kea Ice Age (3,894 acres; alpine community): continued coordination with the Office of Mauna Kea Management (OMKM) on protection of the unique natural and cultural features on the summit through meeting with OMKM Rangers and funding an archaeological inventory and a cultural resources management plan; reviewed permit requests to access the NAR for research and for educational opportunities; removed 10 feral sheep from the NAR; completed constructing 0.7 miles of fence to protect 9.9 acres of habitat for the endangered silversword and other rare alpine species found on Mauna Kea; installed and monitored 6 monitoring transects inside and outside of the fenced unit. The Hawaii Island NARS Manager continued to participate as a member on the Mauna Kea Management Board (MKMB) and the Environment Subcommittee of MKMB assisting with the development of a Natural Resources Management Plan that will be one of the sub-plans of the Mauna Kea Comprehensive Management Plan.

Puu O Umi (10,142 acres; wet forest, montane bog, perennial streams): continued to support the Kohala Watershed Partnership coordinator to finalize and begin implementing the Kohala Watershed Management Plan; maintained existing fenced units including the upgrade of 0.6 km of fencing in the Waimanu Bog Plateau; maintained over 14 km of trails and transects; controlled

key weeds in sensitive areas and ungulates (10 feral pigs); outplanted rare species; constructed approximately 2.8 miles of fencing enclosing a portion of the Koaia Corridor Restoration Project area, protecting approximately 230 acres; constructed 0.4 miles of fence in the lower elevations (1,100ft) of the NAR to protect six acres that is habitat for the rare *Gardenia remyi* and the endemic loulu, *Pritchardia lanigera*. Assisted the Kohala Watershed Partnership with the removal of 120 feral cattle from the Kaneaa conservation unit.

Laupahoehoe (7,894 acres; wet forest with perennial streams): continued to participate in the creation and implementation of the Hawaii Experimental Tropical Forest (HETF, <http://www.hetf.us/>) (including review of and distribution of HETF permits, monthly planning meetings, etc.); fence maintenance; rare plant monitoring and outplanting; ungulate control (15 feral pigs); invasive species control; and installation and collection of data for 6 vegetation monitoring plots. Monitoring in the remote sections of the NAR revealed a new species record in the NAR of *Pritchardia spp.* and two new populations of the rare *Cyanea tritomantha*. In addition, 5 large monitoring transects were installed, covering over 41 km. Several new populations of the rare plant *Anoectichillus sandvicensis* were discovered. Many of the rare plant populations discovered in these surveys were protected with small fenced enclosures (approx.100m²). Approximately 1 km of new fence was built to enclose 9.9 acres of windward wet montane forest at 3,400 ft elevation to provide more areas for rare plant protection and monitoring.

Kahaualea (16,726 acres; wet forest with volcanic activity): continued to monitor the eruptive activity at Kilauea (commencing July 21, 2007) by coordinating with USGS Hawaiian Volcano Observatory, Hawaii Civil Defense, DOCARE, and other agencies, adding and maintaining signage, and closing the NAR to public use due to safety concerns; BLNR decided to continue the closure of Kahaualea, for an additional term of up to two years until July 24, 2011.

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 FY 09.

Puu Makaala (12,106 acres; wet forest): maintained fencing; removed 25 pigs from adjacent portions of the Wright Road Unit of the NAR using volunteers; developed a summary of the FY08 monitoring of 31 km of transects in Aku Unit and submitted it for publication; cooperated with the Three Mountain Alliance (TMA, formerly the Olaa-Kilauea Partnership) in conducting rare plant outplanting, invasive weed control; and supervised volunteers.

Manuka (25,550 acres; coastal to subalpine forest): continued to work with the Coqui Coordinator to monitor and contain coqui frog populations at Manuka, (eradication of the coqui population in the NAR is not currently feasible); collared one feral goat and two feral sheep to monitor feral ungulate activity across the NAR; removed 25 pigs and 30 goats in cooperation with adjacent landowners; removed invasive species (fountain grass) over 12,000 acres; cleaned tons of trash from the coastal areas and illegal dumping sites; assisted with contracted professional surveyor to determine the boundary of the NAR; conducted rare plant outplanting; maintained existing fence units, roads, and trails, upgraded 1.9 miles of fence in the Olopua Unit, and one mile of the historic Kaheawai Trail; constructed 0.9 miles of fence in the coastal area to provide for native coastal vegetation recovery and monitoring; conducted coastal anchialine pond surveys and monitoring in cooperation with DAR; and supervised volunteers and partnered

with TMA for a Department of Education teacher workshop.

Kipahoe hoe (5,583 acres; mesic to wet forest): maintained fenced enclosure of 1,500 acres; coordinated animal control; conducted rare plant protection through seed collection and outplanting; invasive species control; upgraded water holding capacity to facilitate fire suppression and invasive species control; continued road and trail maintenance. Conducted surveys in the coastal areas, removed invasive species (fountain grass) and discovered a new population of the endangered halapepe, *Pleomele hawaiiensis*.

Other Areas: The Hawaii Island NARS Program assisted with management of other protected areas outside of the eight Reserves. These activities included the installation and assistance with reading 10.4 km of bird monitoring transects in the Puu Waawaa Forest Bird Sanctuary; assisting with invasive weed control, fire break maintenance, rare species outplanting, and the removal of feral ungulates from the Puu Waawaa Forest Bird Sanctuary (1,073 feral pigs removed).

For detailed information on the NARS, please go to <http://hawaii.gov/dlnr/dofaw/nars>.

Rare Plant Species Restoration and Protection FY 09

The focus of the NARF support of the Rare Plant Program for FY 09 mainly focuses on providing matching funds for projects primarily supported by Section 6 of the federal Endangered Species Act (ESA). These projects include support of habitat protection and enhancement projects within the NARS on the Island of Hawaii; support for the propagation efforts of Volcano, Pahole, Olinda and Kokee Rare Plant Facilities; Lyon Arboretum Micropropagation/Seed Storage Facilities; the statewide PEPP, helicopter support for ongoing rare plant projects statewide, and establishment of a comprehensive rare plant database.

In FY 09, the PEPP (<http://www.pepphi.org>) focused its field efforts on preventing the extinction of its 176 target species, those with fewer than 50 individuals remaining in the wild. This year, PEPP staff (consisting of four full-time equivalent (FTE) positions on Kauai, Oahu, Maui, and Hawaii plus a .75 FTE position on Molokai) monitored 95 of the 178 PEPP species, collected seeds/cuttings for 59 species/populations, conducted management actions for 36 species, and outplanted individuals for seven species. In addition, 49 surveys targeting PEPP species were conducted, resulting in the discovery of 17 new populations and the loss of eight historical populations. One of the highlights of the PEPP was the hosting of a rare plant symposium at the 2008 Hawaii Conservation Conference (July 28-31, 2008), featuring talks by botanical experts from the Harold L. Lyon Arboretum, National Tropical Botanical Garden, Army National Resources Division (Oahu), Hawaiian Silversword Alliance, and the PEPP.

The first step in developing a statewide rare plant database was the entry of the rare plant monitoring data collected by the PEPP. The development of the database was partially funded by the NARF. Detailed demographic information provided by the PEPP is serving as a template for data entry for the database development. The database will expand to include data from members of the Hawaii Rare Plant Restoration Group (HRPRG) as funds become available to support a web-based data entry.

Volcano, Pahole, Kokee, and Olinda Rare Plant Facilities are propagation facilities for rare plants for the State of Hawaii. These nurseries are a state-wide effort to prevent native plant extinction by increasing plant numbers for reintroduction into their natural habitat by various methods of plant propagation. These nurseries work from a list of approximately 600 rare plant

species. Working closely with collectors from DOFAW, NARS, and PEPP, populations are tracked and new founders are added to maximize genetic diversity. Collaboration occurs with federal, state and private land managers to outplant species into appropriate habitats. The number of species propagated for outplanting this FY was 179, with 15,731 individuals outplanted.

The main focus in the Hawaii District NAR Rare Plant Program is the protection of large areas of endangered plant habitat. Threats that affect large areas are managed to facilitate successful plant reintroductions by outplanting into large, ungulate-free fenced areas. In FY 09, NAR staff planted almost 6,000 plants from the Volcano Rare Plant Facility and the State Tree Nursery with support from NARF and ESA funds (Section 6 grants). Not all of species outplanted in the FY 09 were rare species, but a combination of rare and common plants. In addition, the NAR staff constructed three ungulate free units (under 10 acres) within Mauna Kea Ice Age, Pu`u O Umi and Laupahoehoe NARs for rare plant outplantings. Also in FY 09, Hawaii NAR staff documented the first flowering episode from two outplanted trees of *Flueggea neowaraea* and discovered a new population of Halapepe, *Pleomele hawaiensis*, in Kipahoe NAR.

The primary focus of the Lyon Arboretum Micropropagation Laboratory is to prevent further extinction of Hawaii's native plant species mainly through the use of *in vitro* propagation (tissue culture) for plant species that are not easily propagated via traditional methods (seeds, cuttings, airlayers). The two main activities accomplished within the laboratory are the propagation of all of the submitted plant samples for the purpose of restoration/reintroduction, and to maintain a sufficient representation of "living" plant germplasm. The Micropropagation Laboratory germplasm inventory includes 207 successfully propagated Hawaiian taxa belonging to 50 different plant families - 83 are listed as threatened or endangered by state and federal standards, and 48 of these are the critically endangered taxa included in the PEPP.). Currently, there are 889 plants within the germplasm inventory collection maintained at the Lyon Arboretum Micropropagation Laboratory and adjacent greenhouse, and at the auxiliary Magooon Facilities site.

In support of all the rare plant programs mentioned above, the NARF also provided support for a portion of the helicopter operations required to accomplish these conservation actions.

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

No grants or subsidies were issued pursuant to HRS Chapter 42F.

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 emergence of watershed partnerships on every island has contributed greatly to the state, federal and private partners' 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, the NARS Program has been able to partner with the Pacific Cooperative Studies Unit of 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 UH 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 the NARS Program is working to meet conservation needs.

Act 156, Session Laws of Hawaii 2005, 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 FY 09, DOFAW's NARF budget for natural area reserves management was increased to \$3.6 million. A portion of these funds was earmarked to fund 23 temporary positions, and one permanent state position, to support needed on-the-ground fieldwork in NARS and to increase coordination with the watershed partnerships. In FY 09, these new positions significantly increased the capacity of NARS to conduct on-the-ground management.

Controlling the threats of invasive weeds and feral animals remains a challenge. Feral animals damage native vegetation, destroy habitat for endangered species, contribute to erosion, and damage 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. And, a majority of the public does not understand the connection between feral ungulates and damage to native forest and watershed – raising objections to both fencing and animal control as unnecessary. 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 NARS 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 to be 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. Animal control methods (including fencing, trapping, staff hunting, snaring, and aerial shooting) are used as needed in specified areas where public hunting is not able 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 09, general fund expenditures were \$972,210 in personnel costs and \$168,626 in operational costs, totaling \$1,140,836. 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 24.

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. 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 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 implementation of the BLNR approved strategic plan. Due to the economic downturn, and associated reduction in general and special funds, staff will generally focus on completing existing initiatives and maintaining regular management activities.

The sole exception is the Invertebrate Conservation Program which seeks to expand and increase its scope for the 2010 fiscal year. While it is understood that the current economic environment is harsh, it is imperative that this incipient program be allowed to develop and expand at this time. For the last seven years, DOFAW has been without a staff entomologist or invertebrate biologist. As such, the Division has been unable to effectively implement conservation and management of invertebrate species in the State, with particular regard to federally endangered species as designated by USFWS. The need to address management of these species on state owned and managed lands is great. To date, USFWS has conferred endangered species status on a variety of unique native Hawaiian invertebrates at risk of extinction (including one moth, one wolf spider, 40 tree snails, one amphipod, 11 fruit flies, and two damselflies), and additional listings are imminent. The hiring of a staff entomologist at the end of FY 09 was the first step towards addressing this gap in management capacity. The goal now is to quickly and efficiently develop a program which can direct resource management, monitoring, research, conservation, and policy decisions relating to endangered Hawaiian invertebrate species, as well as other native species of concern. The objective is to lay the groundwork for a comprehensive statewide invertebrate conservation strategy. Such a strategy will provide a roadmap towards achieving conservation and management goals in the immediate future, as well as in the long-term when DOFAW has more resources available to implement applied management practices. This endeavor is being initiated by existing personnel (staff entomologist) with a modest budget. However, DOFAW hopes to maximize the impact that the program will have, despite current economic constraints, by developing cooperative relationships with relevant stakeholders at agencies, institutions, and organizations which participate in, or benefit from, invertebrate research, management or conservation.

Realizing in FY 09 the budgetary challenges expected in FY 10 and FY 11 due to the economic downturn, staff has, and will continue to aggressively pursue alternate funding via grant opportunities. Fortunately they have been successful in obtaining minor state and federal grants and three significant American Recovery and Reinvestment Act (ARRA) 2009 grants – a \$1,000,000 grant for NARS invasive plant management through USFS; a \$1,215,000 grant for Watershed Partnership invasive plant management through USFS; and a \$1,150,293 grant to

hire 45 year-round interns through the Americorps Program. These grants should partially offset the reduction in funding from traditional sources and allow staff to partially maintain the conservation progress made the last few years due to Act 156, Session Laws of Hawaii 2005 (Legacy Land Conservation Act).

Other actions by staff to address the shortfall in State funding support from the Conveyance Tax (50% reduction) and the General Fund (31% reduction):

- successfully requested several federal granting agencies to reduce or waive match requirements;
- increase use of in-kind match;
- increase collaboration and integration of the different programs to improve the effectiveness and benefits of these programs and further the objective of protecting Hawaii's natural resources;
- increase cooperative efforts among multiple agencies, non-governmental organizations, landowners, and private citizens to maximize conservation efforts while increasing available match;
- structure personnel cuts strategically to retain the maximum functionality of programs as they downsize, mainly by retaining highly trained state civil service and contract staff;

Specific Plans and Objectives by Branch:

Hawaii: In FY 10, the 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; continue cooperation with USGS-Hawaiian Volcano Observatory to monitor the current lava flow within Kahaualea NAR; continue to work with the Three Mountain Alliance to advance management goals in Puu Makaala NAR including invasive species control, rare plant work, and protection of native habitat; continue to work with the Kohala Watershed Partnership to implement the partnership management plan; continue participation in the Hawaii Experimental Tropical Forest, particularly as it overlaps with Laupahoehoe NAR; complete an archaeological inventory survey for Mauna Kea Ice Age NAR and continue collaboration with the OMKM to address management needs there; continue an active outreach and education program; continue an active rare plant restoration program; and repair and maintain existing infrastructure (management cabins).

Maui: In FY 10, the NARS Program on Maui will continue working to protect Hanawi NAR through fence inspection, maintenance, and cyclic replacement, ungulate control, weed control, and rare species monitoring, in cooperation with East Maui Watershed Area (EMWP) and the Maui Forest Bird Recovery Project; continue construction of fencing at Kanaio NAR and initiate update of the management plan; conduct fence inspection and maintenance of the boundary fence at Kahakuloa NAR and removal of animals, in cooperation with the WMMWP; continue to work with the Molokai Pig Hunters Association to remove animals from the fenced mauka unit in Puu Alii NAR in cooperation with the NPS, and continue construction of the next phase of fencing; continue aerial shooting of large feral animal (particularly goat) populations on the north shore of Molokai; continue implementation of the 2-Year Action Plan for Ahihi-Kinau (maintaining closed areas, conduct monitoring surveys, and prepare an updated management plan in coordination with the Ahihi-Kinau Advisory Group); and participate in development of a protocol for rat eradication for use on offshore islets and in NARS.

Oahu: In FY 10, the NARS Program on Oahu will complete construction of fencing in Pahole NAR; initiate planning of boardwalk replacement at Kaala NAR; continue planning for the construction of a predator-proof fence at Kaena Point NAR (<http://www.state.hi.us/dlnr/dofaw/kaena/index.htm>) and continue monitoring for small predators; continue the process for formally adding the upper portion of Poamoho section of Ewa Forest Reserve into NARS; continue to work with United States 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 FY 10, the NARS Program on Kauai will initiate the update of management plans for Kuia and Hono O Na Pali NAR; complete fencing in Kuia NAR; conduct weed and rare plant monitoring in Kuia and Hono O Na Pali NAR; continue implementation of the successful rare plant program; continue the process for formally adding a portion of the Na Pali-Kona Forest Reserve into NARS; collaborate to support activities by the Kauai Watershed Alliance; and expand an outreach and education 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 <http://hawaii.gov/dlnr/dofaw/napp>.

PUU KUKUI WATERSHED PRESERVE

Landowner: **Maui Land & Pineapple Co.**

Managing Partner: **Maui Land & Pineapple Co.**

Entered NAPP: **FY 94**

With over 8,304 acres, the Puu Kukui Watershed Preserve forms the core of regional protection efforts of the WMMWP's 48,000 contiguous acres. Fourteen 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 09, accomplishments included maintaining 40 percent of the preserve as ungulate-free for five or more years, continuing ungulate control where ungulates remain (15 pigs were removed by public hunters, 38 by staff), installing 1,559 meters of 8' fencing with WMMWP and DLNR-NARS crews, inspecting and maintaining 8,979 meters of

existing fencing, monitoring of alien threats, invasive weed control, and rare species protection and restoration out-plantings in cooperation with the PEPP.

Goals for FY 10 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 an additional 1,846 meters of 8' fences for Axis deer exclusion, continuing to offer monthly volunteer service trips for the Maui community, and continuing to participate and provide leadership in the WMMWP, the Maui Invasive Species Committee (MISC) and the Coordinating Group on Alien Pest Species (CGAPS).

KANEPU‘U PRESERVE

Landowner:

Castle and Cooke Resorts, LLC

Managing Partner:

The Nature Conservancy (TNC)

Entered NAPP:

FY 92

The Kānepu‘u Preserve on Lanai comprises 590 acres in seven distinct units and was created to protect and enhance the olopuā/lama (*Nestegis/Diospyros*) dryland forest that once covered large portions of the lowlands on Maui, Moloka‘i, Kaho‘olawe, and Lāna‘i. Eleven rare plants, six of them federally listed as endangered, have been reported from the Preserve. A subcontractor has assisted in management of the Preserve. TNC Maui-based staff also assisted with work in Kānepu‘u on occasion during FY 09. Protection from axis deer, control of non-native plant species, and fire prevention are the primary management activities. The primary management accomplishments in Kānepu‘u Preserve during FY 09 included: 1) 63 contractor and volunteer hunts were conducted with 78 deer removed; 2) regular monthly fence maintenance, repair and inspections of Kānepu‘u and Kahue boundary fences were completed; 3) intensive weed removal inside and around the two small enclosures in Kānepu‘u unit (Lapaiki iki and Kānepu‘u iki) was conducted - weeds removed include Christmas berry, lantana, guinea grass, koa haole and other invasive species; 4) a new interpretive trail is near completion which connects the two native plant enclosures within Kānepu‘u unit; 5) completed installation of one water tank to feed Kānepu‘u unit and another tank to feed Kahue unit; and 6) several miles of fire breaks were routinely mowed and maintained to prevent potential fire damage.

In FY 10, TNC plans to continue contracting and/or granting funds to carry out ungulate control, fence maintenance, weed control and fire control.

KAPUNAKEA PRESERVE

Landowner:

Kā‘anapali Land Management Corp.

Managing Partner

TNC

Entered NAPP:

FY 92

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, 34 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 WMMWP work crew. During FY 09, the WMMWP was again contracted to support animal control and monitoring, conduct selective *Tibouchina herbacea* and strawberry guava (*Psidium cattleianum*) removal, maintain infrastructure, and provide occasional

access to researchers. The primary management accomplishments for Kapunakea Preserve in FY 09 were: 1) Eight pigs were removed from lower, less native habitat (upper elevation areas remain pig free); 2) ungulate activity transects were monitored with minimal damage reported; 3) fences were inspected six times with 200 meters and one gate added to improve barrier efficacy; 4) aerial surveys were conducted to locate strawberry guava (*Psidium*) outliers and to monitor any pig activity; 5) 430 *Psidium cattleianum* were treated and 130 outliers were pulled to prevent expansion into pristine areas; 6) 60 *Tibouchina herbacea* individuals were detected in the upper bogs and manually removed; and 7) TNC served on the WMMWP Executive Committee and supported funding and watershed activities.

In FY 10, TNC plans to continue contracting with the WMMWP to carry out ungulate control, fence maintenance, weed control, threat monitoring and other routine management activities.

PELEKUNU PRESERVE

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| Landowner: | TNC |
| Managing Partner: | TNC |
| Entered NAPP: | FY 92 |

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 FY 09 but centered on completion of a privately funded contract with ProHunt, a New Zealand based conservation organization teaching and demonstrating hunt techniques that incorporated a single baying dog per hunter, the latest Global Positioning System (GPS) technology and an on-call helicopter to sweep the Valley for ungulates. ProHunt captured a total of 84 pigs and 39 goats in the Preserve between May and July 2008. TNC applied these techniques in November and were able to capture nine pigs in 3.3 hours using dogs acquired from ProHunt. In FY 09, TNC began to develop its own hunt dogs to hunt in this style. While ProHunt experienced success in Pelekunu, their main recommendation was the NAR's continued aerial shooting of the Valley, due to the steep terrain which can create unsafe conditions for hunters and dogs.

In FY 10, management efforts will focus on development of an ungulate management plan for the valley in light of the new techniques learned from the Prohunt project. Weed control efforts will focus on manual control of habitat-modifying weeds like the African tulip tree and investigating control methods for *Clidemia hirta*. Stream monitoring will also be implemented to continue to assess distribution of stream life. Community outreach efforts will continue with public lectures, preserve overlook hikes, and summer youth programs.

KAMAKOU PRESERVE

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| Landowner: | Molokai Ranch, Ltd. |
| Managing Partner: | TNC |

Entered NAPP:

FY 95

The 2,774-acre Kamakou Preserve helps increase regional protection efforts for the important watershed and native communities found in East Molokai. Kamakou Preserve protects 40 rare plant species, 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 FY 09, feral ungulate control activities included: completion of the ProHunt contract, implementing 26 staff hunt sweeps incorporating techniques learned from the ProHunt contract (resulting in 26 pig and two goat captures), live pig trapping (resulting in 11 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. Over 180 outplantings were made of a rare Molokai mint in the preserve in support of the PEPP. 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 FY 10, 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

Landowner:

TNC

Managing Partner:

TNC

Entered NAP Program:

FY 95

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 FY 09, 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 at a rate of .5 acres/year. Community outreach programs included preserve hikes and off-site activities.

In FY 10, TNC will continue with kiawe removal efforts, continue 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

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| Landowner: | Haleakala Ranch Company |
| Managing Partner: | TNC |
| Entered NAP Program: | FY 95 |

The 5,230-acre Waikamoi Preserve helps increase regional protection efforts for an important watershed and the native species found in the EMWP. 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 during FY 09 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 EMWP, which was completed at year end FY 09. Go Deep focused on ungulate removal in a 12,000 acre core area that includes Waikamoi Preserve and adjacent EMWP lands.

Major accomplishments for FY 09 included: 1) Approximately 290 acres of previously unsurveyed area in upper Unit 1A were intensively surveyed, and all ginger found was mapped and controlled. Over 46 acres were surveyed in the known densely infested areas, with all ginger found mapped and controlled; 2) 15 rare plants, including *Cyanea horrida*, were documented in new locations throughout Waikamoi and the East Maui Watershed area; 3) visiting researchers' collected new invertebrate species while updating Waikamoi's invertebrate inventory, and some conducted molecular research to study adaptive radiation of native biota; 4) Guy Hughes conducted a vegetation recovery study in Waikamoi, revealing remarkable recovery of native shrubs (300%), ferns and bryophytes and a 50% reduction of alien grass since ungulates were removed from the area (over 14 years); 5) 66 hunts were conducted in the preserve by TNC staff; 6) 17 pigs were removed within the preserve; 7) one deer was removed from the Deer Management Unit by TNC staff; 8) all existing trails, landing zones, and camps were improved; 9) 16 miles of fences in the preserve were inspected and all repairs were completed; 10) 300 meters of fence were added and 67 meters repaired at locations determined to be porous; 11) initiated increased ungulate control efforts in Units 1A and 2 using in-house staff and two dogs purchased from Pro Hunt; 12) ungulate transects in Units 1A, 1B and 2 were monitored in March of 2009, indicating a continuing trend toward very low to no activity.; and 13) TNC actively participated in the EMWP and supported additional funding for several EMWP key projects.

In FY 10, TNC plans to continue to minimize all ungulate damage in Waikamoi Preserve through regular control efforts and rigorous fence inspections while ramping up control of habitat-modifying weeds and conducting a pilot project on the restoration of altered conifer habitat to improve native forest bird and watershed habitat.

KA‘Ū PRESERVE

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| Landowner: | TNC |
| Managing Partner: | TNC |
| Entered NAP Program: | FY 07 |

TNC's 3,511-acre Ka‘ū Preserve on Hawai‘i Island protects biologically rich and intact native forest in and near the 68,500-acre Ka‘ū Forest Reserve on Mauna Loa's southwest flank, one of the largest areas of intact forest land in the State. These forest ecosystems provide sanctuary to 153 endemic plant species (many rare or endangered) and support one of Hawaii's richest remaining assemblages of endangered forest birds. In FY 09, pigs were removed from within the

Ka‘ū Preserve’s ~1,200 acre fenced unit through staff and public hunting. In the interest of developing the capacity for contract hunting in Hawai‘i, a professional hunter was contracted to remove the remaining animals from the fenced unit (which is now ungulate-free as of January 2009). TNC staff worked to enhance public hunting in the adjacent Ka‘ū FR by coordinating access through the preserve, maintaining roads and providing fence step-overs. Twenty-five public hunts were coordinated in FY 09. Infrastructure on the preserve was improved with the installation of two helicopter landing zones, a remote camp, dog kennels, a check-in kiosk, and a work shed. Control work on kahili ginger was nearly completed in the Kāhilipali unit, with 37 acres removed so far. Weed survey and control work to remove all high priority weeds was conducted on 70 acres within the Kaiholena unit. TNC staff assisted Three Mountain Alliance with the completion of a comprehensive weed management plan for the Ka‘ū-Kapāpala management area. Outplanting of rare species commenced within the ungulate-free unit, in cooperation with the PEPP. A rare species survey was conducted in the Keāwa unit by the National Tropical Botanical Garden which detected new populations of *Lobelia hypoleuca*, *Stenogyne macrantha* and *Trematolobelia grandifolia*. Community outreach and environmental education programs continued with volunteer work days, service learning trips for students, a teachers’ workshop, informational booths at events, and Christmas bird count coordination.

In FY 10, TNC staff will continue to maintain the fence, monitor for animal ingress, and remove them whenever detected. Strategies to enhance hunter access to the Ka‘ū forest will be implemented, including construction of additional fence step-overs and a hunter shelter at Kaiholena, and drafting a plan to increase public access along the forest edge. The kahili ginger population in the Kāhilipali unit will be eliminated, and 100+ acres will be surveyed for high priority weeds within the Kaiholena unit. In addition, weeds in the preserve will be mapped using high-resolution aerial photos and TNC staff will assist partners with the implementation of Three Mountain Alliance’s weed management plan. Protective fencing will be constructed to protect rare plants in small exclosures within the unfenced unit. Efforts to build Ka‘ū community understanding and support for the preservation of Ka‘ū’s native forests, and enlist volunteer assistance for preserve management, will continue with outreach and education activities.

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

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

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 now and in the coming years.

4. STATUS OF PUBLIC HUNTING OPPORTUNITIES

On Molokai, the status of public hunting opportunities varies depending on the preserve. 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. The 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 preserve. 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 Kau Preserve and will continue to investigate ways to enhance hunter access into Kau forest.

For additional information on the NAPP, please go to <http://hawaii.gov/dlnr/dofaw/napp>.

5. FINANCIAL REPORT

NAPP is supported primarily through NARF. In FY 09, state expenditures were \$979,096. As NAPP provides matching funds on a 2:1 basis, these state funds were matched by at least \$489,548 in 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 FY 10 will be guided by completed, BLNR-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 received 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 09 was \$15,648,925 with prioryears encumbrances of \$4,407,749. FY 09 NARF revenues were \$6,194,792 with \$5,946,872 from the Conveyance Tax, \$232,897 from the investment pool and \$15,023 from miscellaneous (See Table B). Due to the slow real estate market, FY 09 revenues were only 45% of the record FY 06 revenues of \$13,893,045.

FY 09 expenditures totaled \$8,497,492 representing expenditures of approximately \$4,084,121 for FY 08 encumbrances, \$4,413,371 of FY 09 encumbrances, and \$355,432 central services fees. Of the FY 09 \$9,510,481 spending cap, all operating funds were encumbered. Outstanding FY 09 encumbrances totaled \$5,420,739.

The cash balance of the NARF at the beginning of FY 10 was \$8,411,637 with \$2,990,898 as the available cash balance. Projections are for revenues to remain flat in FY 10 due to a continued weak real estate market. Actual Conveyance Tax revenues for the first two months of FY 10 were \$755,976, down from FY 09 revenues of \$991,852 during the same period. However as the recovery progresses in the coming months, as suggested by economic indicators, real estate activity is expected to increase. Of note is the passage of Act 59 Session Laws of Hawaii 2009, which temporarily reduces Conveyance Tax transferred to the NARF from 25% to 20% while increasing the rates charged to high end properties.

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

FY 09 transfers totaled \$4,934,588 which were: \$1,968,000 to the Forest Stewardship Special Fund through direct transfers that included Forest Stewardship Program (\$450,000) pursuant to §247-7, forest reserve management (\$1,043,000) and Kula (Maui) Forest Reserve Restoration Project (\$475,000); Hawaii ISC (\$2,850,000); \$10,439 to the Department of Accounting and General Services (DAGS) Risk Management for insurance premiums and \$106,149 to DLNR Administrative Services Office (ASO) for an accountant & partial funding of an account clerk and data processing analyst. These expenditures are reported on in their respective legislative reports.

FY 10 transfers are expected to total \$3,905,000 and include: Forest Stewardship Program (\$600,000) through direct transfers pursuant to §247-7, HRS; forest reserve management (\$1,200,000); Hawaii Invasive Species Council (\$2,000,000); \$10,000 to DAGS Risk Management for insurance premiums; and DLNR ASO for an accountant and for clerical support (\$95,000).

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

1. WATERSHED PARTNERSHIPS PROJECTS

Watershed Partnerships Program

The Watershed Partnerships Program is a successful public-private venture responsible for protecting the most important watershed forests of every major mountain on all six main Hawaiian Islands. These forests form the living sponge that allows billions of gallons of fresh water to soak into the ground instead of running off directly into the ocean, and action which would carry sediment and pollutants onto our beaches and reefs. Along with preventing erosion, this forested sponge slowly releases the water to refill our aquifers, providing the fresh water supplies upon which all residents, tourists, agriculture and industry depends. The Program began in East Maui in 1991 and has now grown to 11 partnerships encompassing over 2.2 million acres of public and private lands (over one half of the total land mass of the Hawaiian Islands).

In 2001, the Hawaii State Legislature authorized the use of the NARF support projects undertaken in accordance with watershed management plans negotiated with private landowners. This allowed partnerships to pursue other federal, county, and private funds by using state funds as leverage. In FY 09, \$3.2 million was allocated from the NARF to the 11 partnerships to implement management plans, of which \$2.5 million was awarded via a competitive grants program. Partnerships leveraged an additional \$5 million in 2009 and expect to reach a similar level in 2010. Due to a reduction in the NARF in FY 10, only \$965,000 is available for allocation. DOFAW provided \$1,215,000 of a USFS ARRA grant award to the Watershed Partnerships to temporarily sustain some partnership actions in 2010, however, additional federal funds are not expected for FY 11.

The benefits of managing our most mauka lands as partnerships are many:

- threats are addressed more economically across landownership boundaries
- limited state funds are leveraged to obtain federal, county and private funds
- resources and expertise are pooled to reduce redundancy
- private landowners increase their capacity and desire to protect their forests
- ecosystem services are provided such as cultural resources, recreation, education, native species preservation, and rural jobs.

The 11 partnerships are:

| | |
|-----------|---|
| Kaua‘i: | Kaua‘i Watershed Alliance (144,000 acres) |
| O‘ahu: | Wai‘anae Mountains Watershed Partnership (59,762 acres) Ko‘olau Mountains Watershed Partnership (98,737 acres) |
| Moloka‘i: | East Moloka‘i Watershed Partnership (19,000 acres) |
| Maui: | West Maui Mountains Watershed Partnership (48,000 acres) East Maui Watershed Partnership (100,000 acres) Leeward Haleakala Watershed Restoration Partnership (43,000 acres) |
| Lana‘i: | Lana‘i Forest and Watershed Partnership (20,000 acres) |
| Hawai‘i: | Kohala Watershed Partnership (65,500 acres) Three Mountain Alliance (Mauna Loa, Hualalei, Kilauea- 1,160,000 acres Mauna Kea Watershed Alliance (484,000 acres) |

There are over 50 private landowners and 24 public agencies currently involved in partnerships. An additional 12 partners are in the process of signing memorandums of understanding (MOU) on Mauna Kea and in the Waianae Mountains. All partnerships have management plans approved by their members which guide their actions, providing clear objectives and measurable outcomes.

The **main threats to watershed health** are:

- **Destructive Animals:** feral ungulates like pigs, goats, sheep, mouflon, and deer trample and kill plants, tear up the ground with their hooves, & increase erosion
- **Destructive Weeds:** habitat-modifying invasive species that shade out natives, especially those that are shallow rooted and contribute to erosion.

The **most important management actions** include:

- Fencing priority watershed areas
- Removing ungulates
- Controlling invasive species
- Monitoring forest health
- Outplanting, restoration and rare species management
- Education and community outreach.

Highlights of Watershed Partnership Activities, Accomplishments, and Challenges in FY 09, Plans and Management Objectives for FY 10

The 2009 Conveyance Tax funds will allow \$965,000 in grant funding to the Watershed Partnerships in FY 10. A one time infusion from the USFS of \$1,215,000 through ARRA will save 20 watershed staff positions and provide crucial operational funds for fence materials and invasive species control work. These federal funds are expected to be stretched through 2011 but will only partially help make up for further expected reductions in Conveyance Tax revenues

(and hence NARF income). In FY 11 other sources of matching funds are expected to provide an additional \$2 million for a total of 75% in non-state funding for partnership overall budgets.

Kaua'i Watershed Alliance-144,004 total acres

FY 09 Watershed Partnership Program Grant Funds: \$260,368

FY 10 Watershed Partnership Program Grant Funds: \$125,000

FY 10-11 ARRA Funds: \$182,000

Other leveraged funds: \$193,926

FY 09 Accomplishments:

- Completed the final EA for the East Alaka'i Protective Fence (2,000 acres)
- Approved Conservation District Use Permit for East Alaka'i Protective Fence
- Mapped vegetation along proposed fenceline
- Contracted for Phase I fence construction, construction to begin in Oct. 09
- Controled priority weeds in core watershed areas- Alaka'i plateau and Wainiha Kahili ginger, guava, Australian tree fern
- Constructed trial pig traps equipped with automatic feeders and game cameras
- Planned for construction of weatherports and radio repeaters
- Collected baseline data on ungulate activity to provide long-term analysis
- Aerial mapping and GIS database analysis
- Tested new technologies to target Australian tree fern in inaccessible terrain

Ko'olau Mountains Watershed Partnership – 98,737 total acres

FY 09 Watershed Partnership Program Grant Funds: \$227,514

FY 10 Watershed Partnership Program Grant Funds: \$100,000

FY 10-11 ARRA Funds: \$120,000

Other leveraged funds: \$277,264

FY 09 Accomplishments:

- Removed approximately 10,000 weeds from priority summit control areas
- Contracted with Resource Mapping Hawaii to complete surveys of 39,000 acres
- *Miconia calvescens* surveys
- Removed invasive weeds within Laie, Kalauao, and Manana
- Created a database and photo survey-points of weed control work (Appendix A).
- Improved helicopter access to summit landing zones
- Constructed six corral traps for pigs on partnership lands
- Removed 60 goats, 41 pigs in 51 partnership hunts, utilized 130 volunteer hunters
- Surveyed 46,000 meters of ungulate transects to determine pig activity
- Monitored 847 acres in fenced enclosure
- Drafted the Ungulate Management Plan
- Initiated stream monitoring programs in Kipapa and Waikakalaua
- Conducted monthly weed control trips with partners to remove large weed trees

East Moloka'i Watershed Partnership – 32,983 total acres

| | |
|--|-----------|
| FY 09 Watershed Partnership Program Grant Funds: | \$124,740 |
| FY 10 Watershed Partnership Program Grant Funds: | \$107,528 |
| FY 10-11 ARRA Funds: | \$0 |
| Other leveraged funds: | \$305,000 |

FY 09 Accomplishments:

- Maintained seven miles of fence
- Conducted quarterly weed and ungulate surveys
- Completed Makolelau fence construction
- Conducted quarterly ground hunts above fence- removed 195 goats, nine pigs, three deer
- Conducted three days of goat hunts below the fence- removed \$2,343 goats
- Conducted live trapping in Kamakou Preserve
- Implemented goat collaring, trained dogs, GIS mapping, and goat trapping
- Surveyed and controlled all priority weeds (strawberry guava, blackberry and *Clidemia*) in 2,100 forested acres and 1,000 buffer acres
- Assist with weed early detection surveys and rapid response
- Coordinated Moloka'i Earth Day celebration with 1,200 participants
- Engaged 116 volunteers in 538 hours of ungulate and weed removal.

West Maui Mountains Watershed Partnership (WMMWP) – 48,000 total acres

| | |
|--|-----------|
| FY 09 Watershed Partnership Program Grant Funds: | \$217,500 |
| FY 10 Watershed Partnership Program Grant Funds: | \$117,000 |
| FY 10-11 ARRA Funds: | \$170,000 |
| Other leveraged funds: | \$255,000 |

FY 09 Accomplishments:

- Maintenance, replacement and inspection of 12.5 miles of fences (14,083 acres)
- Ground based feral animal control
- Weed management -strawberry guava, *Tibouchina*, *Clidemia*, blackberry, *Cortaderia* and weed prevention strategies
- Developed and maintained weed/ungulate database to direct future management
- Monitored ungulate disturbance and weed transects, updated photo survey-points
- Conducted aerial surveys and ground scouting
- Refined thermal Cam and Forward Looking Infra Red techniques for ungulate monitoring
- Website updates, brochures, signage, events, and hikes
- Americorps and YCC training

East Maui Watershed Partnership– 100,000 total acres

| | |
|--|-----------|
| FY 09 Watershed Partnership Program Grant Funds: | \$441,900 |
| FY 10 Watershed Partnership Program Grant Funds: | \$100,000 |
| FY 10-11 ARRA Funds: | \$220,000 |
| Other leveraged funds: | \$237,630 |

FY 09 Accomplishments:

- Received Mayor's Imi Pono no ka Aina Award for Conservation Leadership in Maui County

- Inspected and maintained 9,970 meters of fence
- Monitored weed and ungulate transects in 7,000 acres of primarily native forest
- Completed a three year collaborative project to dramatically reduce ungulates in 12,000 acres of fenced areas
- Achieved a dramatic decline in ungulate activity along 21 monitoring transects
- Improved and maintained hunter check stations
- Facilitated hunter access to Ko‘olau Forest Reserve
- Provide public outreach and environmental education programs
- Continued ungulate and weed management in Ko‘olau Forest Reserve
- Initiated 6 miles of fencing in upper Hana Forest Reserve and the creation of landing zones and camp sites.

In addition, Kipahulu Ohana in East Maui was awarded \$33,220 for constructing a fence, controlling ungulates and removing invasive weeds adjacent to important state conservation areas. The fence is over 75% completed. Approximately 1.4 acres along the fenceline has been cleared of invasive weeds such as strawberry guava, Australian tree fern, and *Clidemia*. Work has been accomplished by over 50 volunteers over 17 work days.

Leeward Haleakalā Watershed Restoration Partnership – 43,175 total acres

FY 09 Watershed Partnership Program Grant Funds: \$343,830

FY 10 Watershed Partnership Program Grant Funds: \$100,000

FY 10-11 ARRA Funds: \$170,000

Other leveraged funds: \$719,500

FY 09 Accomplishments:

- Conducted archeological and biological surveys in preparation of an EA for fencing at Kahikinui and Kaupo
- Constructed the first phase of 1.5 miles of fence at Kaupo-Nu‘u
- Inspected existing watershed fences
- Biological control of banana poka reduced biomass of populations from 50-95%
- Manual control of *Bocconia* (Mexican Tree Poppy)
- Cooperated with partner agencies in weed control especially for silk oak, Christmas berry, pine and gorse (using aerial survey methods and spray operations)
- Monitored vegetation within demonstration exclosures
- Conducted 11 volunteer work trips, planted an additional 11,611 native plants
- Hosted 20 summer YCC and nine Americorps interns
- Received funding for a volunteer coordinator
- Worked with the community on planning to reduce feral cattle

Three Mountain Alliance – 1,116,300 acres

FY 09 Watershed Partnership Program Grant Funds: \$448,320

FY 10 Watershed Partnership Program Grant Funds: \$165,000

FY 10-11 ARRA Funds: \$175,000

Other leveraged funds: \$1,498,000

FY 09 Accomplishments:

- Maintained 10,900 acres fenced, ungulate-free units
- Conducted feral animal control on 34,100 acres

- Controlled 391 acres of weeds- removed 1900 faya, 600 strawberry guava, 200 raspberry
- Completed a Weed Management Plan
- Assisted reforestation at Keauhou Ranch and other Three Mountain Alliance lands (1463 plants)
- Reintroduced 1,613 rare plants at Keauhou, Kilauea, and Wright Rd. Units
- Maintained 16 miles of access roads
- Collected 800,000 seeds
- Purchased materials to replace the Kapapala Forest Reserve boundary fence, 16 miles of fence at Puu Maka‘ala NAR, 5 miles at Manuka NAR, and 800 acres Henahena Unit at Puu Waa Waa
- Marked 6.5 miles of fence alignment at Lupea, North Kona,
- Completed archeological fieldwork for Lupea fence
- Assisted with the Ka‘u Kapapala Watershed Management Plan
- Completed the annual forest bird surveys at Keauhou/Kilauea and Kulani
- Safe Harbor Agreement baseline draft report completed
- Puu WaaWaa and Kona Refuge montly fence inspections and maintenance
- Baited pg traps twice monthly at rare plant enclosures
- Puu Waa Waa weed control- 35 acres fountain grass, 100,000 fireweed, ~17,700 others
- Puu Waa Waa volunteers out-planted 1,012 common and rare plants
- Volunteers completed the last mile of the Reservation Trail
- Removed 324 feral cattle from Honuaula Forest Reserve, 13 from Ka`u Forest Reserve
- Conducted four air assisted hunts/reconnaissance in Kapapala Forest Reserve
- Conducted six standards-based teacher workshops for 85 participants
- Held a secondary environmental education programs during spring break- 14 students
- Assisted with Hawaii Nei Art contest including field trips,
- Recorded six radio Public Service Announcements
- Held seven volunteer trips with 195 participants
- Participated in two job fairs (300 students) and UH Hilo presentation
- Presentation and field trip for 30 UH-Hilo HIP interns

Kohala Watershed Partnership – 68,000 total acres

FY 09 Watershed Partnership Program Grant Funds: \$235,500

FY 10 Watershed Partnership Program Grant Funds: \$100,482

FY 10-11 ARRA Funds: \$96,500

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|------------------------|--|
| Other leveraged funds: | \$118,500 plus \$2,695,000 ARRA funds for Pelekane Bay Watershed Restoration Project |
|------------------------|--|

FY 09 Accomplishments:

Puu O Umi NAR: constructed a six acre fenced enclosure, outplanted rare species

Upper Laupahoehoe Nui NAR: Surveyed 2.5 miles of fenceline, transported materials

Waimanu Bog Plateau: Upgraded the fence to be an ungulate barrier, kahili ginger control

Kanea`a-Ponoholo: upgraded four miles of fence, controlled strawberry guava over 10 acres, eradicated feral cattle, initiated pig trapping, discovered additional populations of native snails and gardenia

Pu`u Pili: determined 2.5 miles of fenceline, reduced cape ivy infestation 90%, controlled three acres of kahili ginger, found rare and endangered plant species

Koai`a Corridor: constructed four miles of fence, spot sprayed fountain grass over 300 acres, outplanted 1,500 plants in cooperation with NARS, State Tree Nursery and volunteers

Waimea Nature Camp: more than 150 children educated over 8 weeks

Evolving New Watershed Partnerships in Wai`anae and Mauna Kea

FY 09 Watershed Partnership Program Grant Funds: \$34,000 each

FY 10 Watershed Partnership Program Grant Funds: \$0

FY 10-11 ARRA Funds: \$34,000 to Waianae only

Other leveraged funds: \$68,000

FY09 Accomplishments:

The Mauna Kea Watershed Alliance met four times to develop a MOU and scope of work for a management plan. A planner was hired and has begun conducting interviews and collecting information to create the watershed plan. Partners have agreed on a list of watershed values and threats. The MOU has been signed by four partners and three others have indicated they will also sign.

A part-time coordinator has been hired to develop a MOU and management plan for the Wai`anae Mountains Watershed Partnership and Mauna Kea. Two private landowners have agreed to sign the MOU.

Commission on Water Resource Management and U.S.G.S. statewide gage network.

FY 09 Watershed Partnership Program Grant Funds: \$48,896

FY 10 Watershed Partnership Program Grant Funds: \$0

FY 10-11 ARRA Funds: \$0

Other leveraged funds: \$27,504

FY 09 Accomplishments:

- Hydrologic data collection at four stream gauging sites in East and West Maui
- Data updated hourly
- Published online <http://hi.water.usgs.gov> including graphs of daily mean discharge
- Streamlined data validation allowing quicker publication of data
- 16 stream gauging stations may be discontinued in FY 10 due to reduced funds

Support for Watershed Coordinator and related positions at DOFAW branches

In FY 09 watershed coordinators were allocated \$430,000 to support their positions in addition to the grant amounts reported above. The Hawaii Association of Watershed Partnerships was allocated \$83,741 to hire a coordinator, conduct trainings, and create a website. An additional \$560,000 from the NARF was allocated for existing temporary positions to assist with coordination and watershed management on forest reserve, NARS and partnership lands. \$45,000 was allocated for DOFAW administration of the Program and other overhead costs. The total amount budgeted for the Watershed Partnership Program in FY 09 was \$3,767,030.

FY 10 Challenges

The Program will no longer provide funding for watershed coordinators except through the grant process, and the Hawaii Association of Watershed Partnerships will no longer receive funding. Partnerships are depending more heavily on federal funds but these funds require a non-federal

match. Without available state funds, these federal funds will not be attainable. Many of the partnerships have already down-sized by not replacing staff that have left.

The reduction of Conveyance Tax income threatens to leave partnerships without key funds that have helped to leverage \$4 million in funds for the protection of Hawaii's watershed forests. Due to the current economic conditions the State's funding has been reduced by 60% since FY 09. If special funds are further affected, watershed partnerships will lose the significant ground that has been gained by this important, nationally-recognized program. Building partnerships is like building a house. The mountain tops are like a roof for our islands. If we don't maintain the roof, the entire structure will be threatened and our past efforts wasted. Forest protection is the key to the continued sustainability of our water supplies: it deserves our continued investment.

For detailed information on the Watershed Partnerships, please go to
<http://hawaii.gov/dlnr/dofaw/wpp> or <http://hawp.org/>

YOUTH CONSERVATION CORPS AND PUBLIC OUTREACH

DOFAW coordinated and participated in a number of outreach initiatives including: website management, press releases, public outreach events, teacher workshops, volunteer opportunities, classroom visits, and the Youth Conservation Corps (YCC) Program.

The largest component of DOFAW's outreach program is the YCC Program. The YCC is funded by the NARF and the Corporation for National and Community Service. In 2007, DLNR received a nationally competitive grant from the Corporation for National and Community Service to support the YCC for FY 08, FY 09, and FY 10.

YCC Programs:

The summer YCC and Hana Hou (second year) programs provide training and hands-on learning opportunities for high school and college-aged youth. Summer YCC participants work in small teams with multiple natural resource managers throughout the State. The 2009 YCC Summer Program consisted of 13 teams on five islands including Oahu, Kauai, Maui, Molokai and Hawaii. A total of 132 youth participated: 103 as first year volunteers and 29 as team leaders. 25 youth took part in the Hana Hou Program and worked in a more focused setting assisting one or two natural resource organizations. The Summer Program lasts six weeks for program participants, and seven weeks for team leaders and Hana Hou participants. Hana Hou and team leaders receive an educational award, and all participants earn a cash stipend in addition to the opportunity to earn college credits through the UH Manoa. In 2009, summer YCC program participants assisted with: endangered species restoration, trail maintenance, out-planting, species monitoring, and invasive plant removal.

The year-round component to YCC is operated as an AmeriCorps program. The Program enables young adults to gain entry-level experience as they work alongside natural resource professionals. The Program was developed with the intent to compliment the summer YCC Program and provide more in-depth training for youth interested in pursuing a career working in the natural resource conservation field. YCC supports conservation organizations and increases local resource knowledge for Hawaii's youth. In FY 09, DOFAW enrolled 25 full-time members each committing 1,700 hours of service toward conservation efforts in the State. Conservation projects include invasive species management and removal, fencing, coordinating outreach

events, and dryland forest management.

In addition to the summer and year round programs, DOFAW was awarded 70 AmeriCorps CAP (education award only) minimum time slots.

To see articles about the YCC Program in the news, visit:

<http://smalltalk.honadvblogs.com/tag/hawaii-youth-conservation-corps/>,
<http://www.westhawaiitoday.com/articles/2009/07/10/local/local01.txt>

Finally, based on anticipated NARF reductions in FY 10, DOFAW applied for and was awarded ARRA funds totaling \$1,150,293 to: 1) waive the federal match requirement for the existing YCC Program in FY 10; 2) provide additional federal support (\$239,319) for YCC in FY 10; and 3) fully federally fund the State of Hawaii Recovery YCC for 45 interns in full-time conservation positions for 42 weeks (\$863,451), the affiliated admin overhead (\$45,523) and required travel to the annual Corporation for National and Community Service meeting (\$2,000). To view an article with more information about the program, please visit:

<http://hawaii.gov/gov/news/enewsletters/2009/august/August23-28>

Additional Outreach:

DOFAW has transitioned over from hard copies to e-copies of the newsletter “na leo o ka aina”. Rather than featuring a biannual production of “na leo o ka Aina”, DOFAW and partner updates will be posted on <http://www.dofaw.blogspot.com/>.

Staff maintains the DOFAW website to provide up-to-date information and resources about the many DOFAW programs and services. During FY 09, DOFAW completed transitioning the website over from www.dofaw.net to <http://hawaii.gov/dlnr/dofaw>. The website continues to be improved and modified when the need to do so is demonstrated.

Outreach staff coordinated and facilitated one Project Learning Tree (PLT) facilitator workshop for ten educators in February of 2009 as well as the Hawaii’s PLT executive committee meeting. The outreach coordinator and an AmeriCorps Intern facilitated four PLT teacher workshops statewide on Kauai, Maui, Hawaii Island, and Oahu thereby improving the availability of resources and standards-based curriculum to 60 educators.

In addition to managing the programs detailed above it, is the goal of the Information and Education Coordinator to increase the DOFAW’s presence in the community. Assisted by an AmeriCorps intern, staff participated in 18 outreach events reaching thousands of community members; led more than 400 residents in various field/service trips to Kaena Point; and offered 11 presentations to elementary through college age students.

DOFAW outreach staff successfully applied for Competitive State and Private Forestry funds to coordinate conservation education materials throughout the state and improve cooperation, efficiency, and effectiveness between conservation education partners. Funding for the proposed projects will be awarded by the USFS in FY10.

Despite that DOFAW’s outreach staff is limited to one permanent full-time outreach coordinator and one YCC AmeriCorps intern, DOFAW continues to improve the effectiveness of outreach efforts through securing grants and implementing programs that have demonstrated success

nationally. Through these and other initiatives, DOFAW works to improve environmental literacy in the State and contribute to a more environmentally conscientious and healthy island community.

CONCLUSION

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

Native Ecosystem Section 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

To download a pdf copy of this report, please go to <http://hawaii.gov/dlnr/reports>

LNR 407 NATURAL AREAS MANAGEMENT BUDGET SUMMARY FY 09

Table A: FY 09 NARS Expenditures (General Fund Appropriation G-09-047)

Total = \$1,140,836

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|--|-------------|
| NARS 'A' Personnel Expenditures FY 09 (22 positions) | = \$972,210 |
| NARS 'B' Operating Expenditures FY 09 | = \$168,626 |

FY 10 NARS Allocation (General Fund Appropriation G-10-047)

Total = \$ 900,915

| | |
|--|---------------|
| NARS 'A' Personnel Allocation FY 10 (22 positions) | = \$ 832,343* |
| NARS 'B' Operating Expenditures FY 10 | = \$ 68,572 |

* 14% Admin. GF restriction replaced with Federal ARRA funds

FY 10 NARS First Quarter Drawdown (General Fund Appropriation G-10-047)

Total = \$ 194,306

| | |
|--|-------------|
| NARS 'A' Personnel Allocation FY 10 (22 positions) | = \$177,163 |
| NARS 'B' Operating Expenditures FY 10 | = \$ 17,143 |

Table B: NAR Fund Revenues FY 09 (S-09-342)

Total = \$10,494,889

| Revenue Source | Timeframe | Amount |
|--------------------------------|-------------------------|--------------------|
| FY 09 Conveyance Tax transfers | 7/1/2008 – 6/30/2009 | \$5,946,872 |
| Investment pool revenues | 7/1/2008 – 6/30/2009 | \$232,897 |
| Other | 7/1/2008 – 6/30/2009 | \$15,023 |
| | Total Revenues = | \$6,194,792 |

Table C: FY 09 NAR Fund Drawdown (Special Fund Appropriation S-09-342)
Total = \$18,852,819

| | |
|--|---------------|
| NARF ‘A’ Personnel Expenditures (22 positions) | = \$1,193,711 |
| NARF Operational Expenditures | = \$7,303,781 |
| Transfers | = \$4,934,588 |
| Encumbrances | = \$5,420,739 |

FY 10 NAR Fund Allocation (Special Fund Appropriation S-10-342)

Total = \$9,040,009

| | |
|--|---------------|
| NARF ‘A’ Personnel Allocation FY 10 (24 positions**) | = \$1,440,650 |
| NARF ‘B’ Operating Allocation FY 10 | = \$3,694,359 |
| Transfers | = \$3,905,000 |

FY 10 NAR Fund First Quarter Drawdown (Special Fund Appropriation S-10-342)

Total drawdown = \$3,405,798

| | |
|--|---------------|
| NARF ‘A’ Personnel Allocation FY 10 (24 positions**) | = \$ 347,189 |
| NARF ‘B’ Operating Allocation FY 10 | = \$1,881,572 |
| Transfers out | = \$1,177,037 |

** Of 24 positions, 19 are full with 5 held vacant due to hiring freeze.