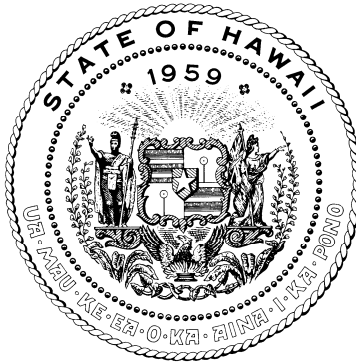


**REPORT TO THE TWENTY-SEVENTH LEGISLATURE
REGULAR SESSION OF 2013**

**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 REVISIED STATUTES**

**HONOLULU, HAWAII
OCTOBER 2012**

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LIST OF ACRONYMS

BLNR Board of Land and Natural Resources
CIP Capital Improvement Project
DLNR Department of Land and Natural Resources
DHHL Department of Hawaiian Homelands
DOE Department of Education
DOFAW Division of Forestry and Wildlife
EMWP East Maui Watershed Partnership
EMoWP East Moloka‘i Watershed Partnership
ESA Endangered Species Act
FSP Forest Stewardship Program
FY Fiscal Year
GIS Geographic Information System
HAWP Hawai‘i Association of Watershed Partnerships
HDOA Hawai‘i Department of Agriculture
HISC Hawai‘i Invasive Species Committee
HRPRG Hawai‘i Rare Plant Restoration Group
HRS Hawai‘i Revised Statutes
ISC Invasive Species Committee
KWA Kaua‘i Watershed Alliance
KWP Kohala Watershed Partnership
KMWP Ko‘olau Mountains Watershed Partnership
LHWRP Leeward Haleakalā Watershed Restoration Partnership
MISC Maui Invasive Species Committee
MoMISC Moloka‘i Invasive Species Committee
NARF Natural Area Reserve Fund
NAR Natural Area Reserve
NARS Natural Area Reserves System
NAPP Natural Area Partnership Program
NIP Native Invertebrate Program
NPS National Park Service
OISC O‘ahu Invasive Species Committee
OANRP O‘ahu Army Natural Resources Program
PEP Plant Extinction Prevention
RCUH-PCSU Research Corporation of UH -Pacific Cooperative Studies Unit
T&E Threatened and Endangered
TMA Three Mountain Alliance
TNC the Nature Conservancy
UH University of Hawai‘i
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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NATURAL AREA PARTNERSHIP PROGRAM,
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THE FINANCIAL CONDITION OF THE
NATURAL AREA RESERVE FUND**

Section 195-6.6, Hawai'i 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 20 reserves comprised of approximately 123,431 acres on five islands. NARS was established to protect the best remaining 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 threatened and endangered (T&E) plants and animals benefit from the protection efforts through NARS. Major management activities involve fencing and control of feral ungulates (wild, hoofed animals such as cattle, sheep, deer and pigs), control of other invasive species (weeds, small mammalian predators), fire prevention and control, rare plant restoration, monitoring, public outreach, and maintenance of existing infrastructure, such as trails and signs. For detailed information on the NARS, please go to <http://hawaii.gov/dlnr/dofaw/nars>.

NARS Commission

The NARS Commission (<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 Section 195-6, HRS.

- The NARS Commission (Commission) met two times in Fiscal Year (FY) 12.
- BLNR or its authorized representative, with the approval of the Commission, recommended the issuance of 58 Special Use Permits for research, education, large group hikes, educational and commercial filming.

- Experimental Tropical Forest permits for Laupāhoehoe NAR on the Island of Hawai‘i are issued through the United States Forest Service, as authorized.

The Commission discussed and recommended areas to DLNR as reserves, and advised management of existing reserves. In FY 12, the Commission recommended the establishment of the Kaluanui NAR on O‘ahu. Recommending priority areas to be added to NARS helps to ensure that a wide spectrum of unique natural areas is preserved for Hawai‘i’s current and future generations.

Statewide activities and accomplishments

In FY 12, the Strategic Plan for the NARS continued to be implemented. (<http://hawaii.gov/dlnr/dofaw/nars/SP9.4.08.pdf>). Operational management plans were developed for each island program to prioritize and coordinate future activities to meet NARS’ statutory mandates.

NARS staff coordinated DLNR’s watershed initiative to fulfill the environmental goals of Governor Neil Abercrombie’s “A New Day in Hawai‘i” plan. To implement these central goals of the Abercrombie administration, DLNR released “The Rain Follows the Forest – A Plan to Protect Hawai‘i’s Source of Water.” In addition to establishing the DLNR’s plans and policies on watershed protection, NARS staff also conducted many high-profile media and outreach events. The plan and outreach materials for this initiative are available at <http://hawaii.gov/dlnr/rain>. Further information on this initiative is provided to the Legislature in a report specifically detailing the implementation of the watershed initiative per Section 134 of Act 106, Session Laws of Hawai‘i (SLH) 2012.

NARS staff conducted ground and aerial surveys for feral ungulates. Fencing continues to be an important tool to facilitate reduction in animal populations. Existing fences were inspected and maintained, and new fences were constructed. Public hunting, control by NARS staff using 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, DLNR’s Division of Forestry and Wildlife (DOFAW) Wildlife Program, 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. Volunteers provide significant manual labor to assist in weed control efforts. NARS staff also coordinates efforts with the respective Island Invasive Species Committee (ISC’s) where possible, particularly when responding to new weed outbreaks in NARS. Monitoring of rare plant populations, collection of seeds and propagules, and outplanting of T&E plants are ongoing efforts to protect and enhance the rare plants found within NARs.

Staff worked to prevent fires in and around reserves, 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-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 133 miles of existing trails 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 151 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 85 miles of roads, mostly on Hawai‘i and O‘ahu, were maintained to provide hunter and management access.

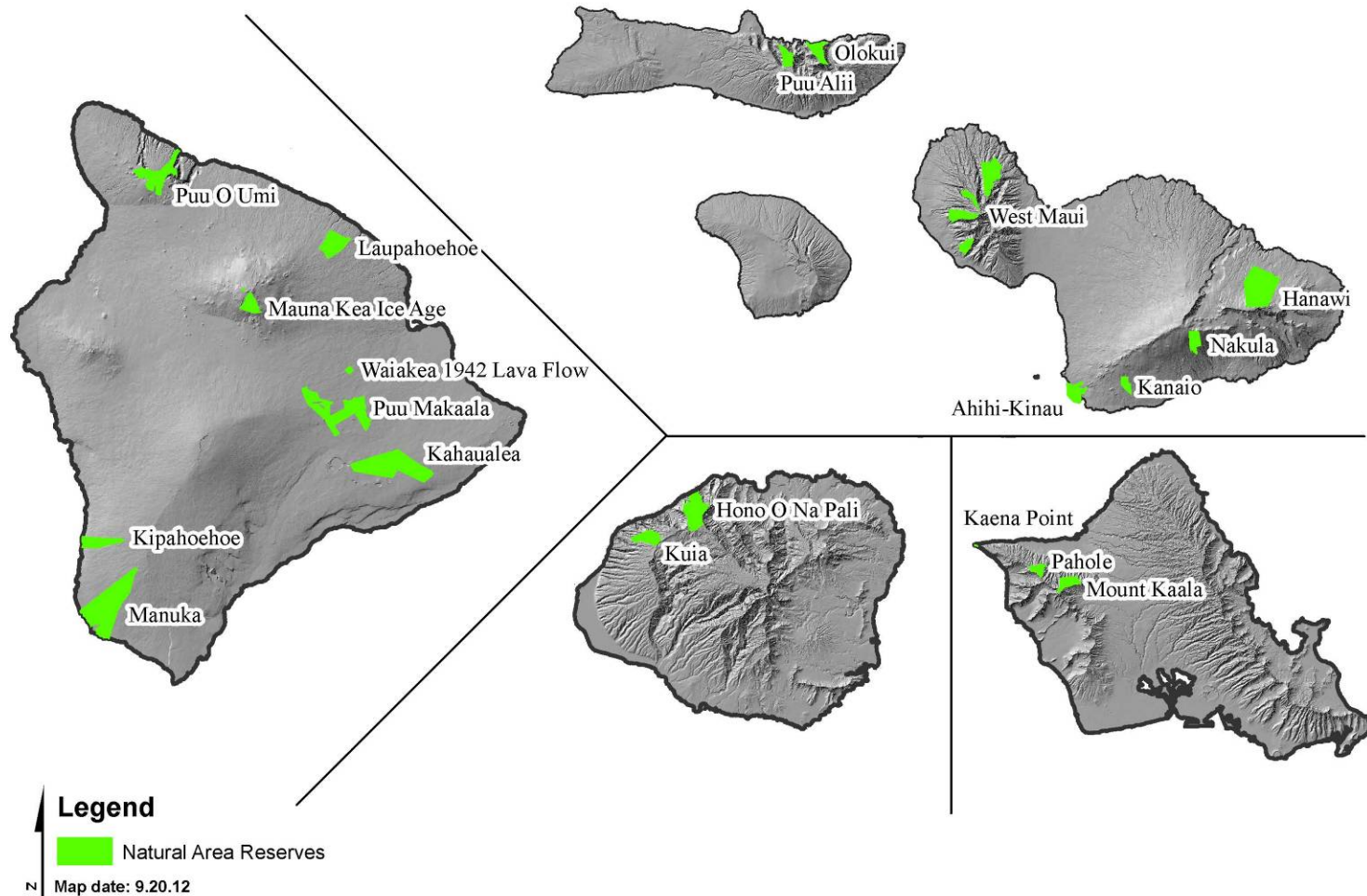
Staff training for needed skills remains important. Training during FY 12 included wilderness first aid, first responder, defensive driving, firearms safety, cardiopulmonary resuscitation (CPR), fire response, all terrain vehicle (ATV) operation, helicopter safety, chainsaw, herbicide and pesticide use, ungulate control methods, procurement procedures, ArcGIS, leadership, negotiation, and mediation skills. In addition, NARS staff attended the Hawai‘i Conservation Conference, 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 Maui and Hawai‘i districts where natural resource managers share field methods and develop new skills.

Outreach and coordination of volunteers has increased the public’s appreciation of NARS and Hawai‘i’s unique natural resources. Staff led volunteer trips, outreach presentations, and guided hikes and field visits for numerous groups, including visiting dignitaries, staff from cooperating agencies, school groups, and the University of Hawai‘i (UH). NARS Administrative staff responded to multiple requests for information from the public (as forwarded by the DLNR Public Information Officer) and created press releases for news media published statewide. NARS Administrative staff continued participation with the national Natural Areas Association, the Hawai‘i Conservation Alliance, the Pacific Island Climate Change Co-operative, the Forest Stewardship Advisory Committee, the Hawai‘i Conservation Conference, the Bioprospecting Commission (DLNR representative), and provided ongoing assistance to other DOFAW programs. NARS managers serve on the Executive Committees of various Watershed Partnerships including Kohala, Three Mountain Alliance (TMA) and Mauna Kea.

Finally, NARS staff continues to leverage resources and increase effectiveness by working with the watershed partnerships and other federal, state and private conservation partners. These partnerships provide additional funding for NARS from federal and private sources, as well as in-kind staff and operational support to NARS.



Natural Area Reserves System



Reserve activities and accomplishments by island

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

Kaua'i

Ongoing management includes maintenance of existing fences, invasive weed control, and rare plant protection through seed collection, propagation, and outplanting. Weeds controlled in reserves included 19,581 *Psidium cattleianum* (strawberry guava), 244 *Lantana camara* (lantana), 3,719 *Rubus argutus* (blackberry), 429 *Grevillia robusta* (silk oak), 2,995 various grasses and 1,529 miscellaneous other weed species. In addition to work inside reserves, DOFAW staff participated in similar activities with other DOFAW programs, and partners of the Kaua'i Watershed Alliance (KWA). Staff assisted with the installation of a strategic fence across the Blue Hole basin crater in the Lihue Koloa Forest Reserve, at the base of Waialeale and the headwaters of Wailua River which created an 18 acre ungulate free area to protect low land wet forest resources including T&E plant species. Staff also assisted with the control of three forest fires, and continued to receive training that will better prepare staff for such emergency events. Specific accomplishments within individual reserves include:

Hono o Nā Pali (3,150 acres; mesic and wet forest with perennial streams): Completed management plan/final environmental assessment for the reserve; surveyed fence lines and fence enclosures; implemented remote field monitoring protocol; received a United States Department of Agriculture (USDA) Forest Service grant to implement a predator control program to protect endangered seabirds, Awarded Capital Improvement Project (CIP) funding for watershed protection to begin construction of a 3.3 mile strategic fence, designed to keep pigs from entering the Alaka'i wilderness preserve. Public hunters removed 152 pigs and 121 goats from the reserve (Hunting Units G and E) in 1,480 hunting trips.

Kuia (1,636 acres; dry and mesic forest with perennial streams): mapping and inventorying of rare plant enclosures including detailed rare plant inventories; maintenance and repair of damaged fencing; conducting intensive weed control within fenced enclosures, targeting strawberry guava, silk oak, lantana, blackberry, weedy grasses, and other various weeds; ongoing management of the construction of an 85 acre fenced enclosure within the Kuia NAR; A total of 168 various common native species such as *Acacia koa*, *Alyxia stellata*, *Antidesma phatyphyllum*, *Boehmeria grandis*, *Dodonea viscosa*, *Charpentiera elliptica*, *Coprosma kauaiensis*, *Eragrostis varibilis*, *Hedyotis terminalis*, *Ilex anomala*, *Pleomele aurea*, *Rumex albescens*, and *Sophora chrysophylla* were outplanted to compliment rare species that were re-introduced and/or wild ones that currently exist within the reserve. The following T&E plant species historically found within the reserve were re-introduced in FY 12: *Solanum sandwicensis*, *Remya kauaiensis*, *Hibiscus kokio*, *Delissea kauaiensis*, and *Psychotria hобыi* for a total of 65 planted. Public hunters removed 110 pigs and 47 goats from the reserve (Hunting Unit H) in 1,096 hunting trips.

O'ahu

Ongoing management includes weed control, ungulate monitoring and removal, fence maintenance, T&E plant work (propagation, outplanting, monitoring and emergency protection), habitat protection, and supervising the O'ahu Army Natural Resource Program's (OANRP) two Implementation Plan actions in the O'ahu Reserves. Staff also surveyed and managed as well as secured funds to manage new areas proposed as NARS. FY 12 is the tenth year that O'ahu NARS staff have supervised and coordinated work done by OANRP in the NARS under the authority of an annual NARS special use permit. This past year OANRP conducted a minimum of 137 actions in O'ahu's three reserves and supported research into answering management questions that will likely benefit the NARS as a whole.

NARS contributed expertise and staff assistance in other DOFAW lands by conducting surveys, monitoring rare plant populations, collecting seeds and cuttings from T&E plants and controlling invasive species. Staff assisted Dr. James Leary, UH, in developing Incision Point Injection technique on the ten invasive weed species and coauthored *Practitioner's Guide for Effective Non-Restricted Herbicide Techniques to Control and Suppress Invasive Woody Species* (UH College of Tropical Agriculture and Human Resources, May 2012). Staff continued to monitor and/or conduct herbicide field trials on various problematic species in order to gain more effective and/or efficient control methods. Species include *Rubus argutus*, *Psidium cattlenium*, *Sphagneticola trilobata*, *Blechnum appendiculatum*, *Lantana camara* and *Leucaena leucocephala*. As part of the O'ahu rare plant program, NAR staff conducted native and rare plant work outside of the reserves at the following locations: Honolulu Watershed Forest Reserve, Kuaokala Game Management Area, Mokuleia Forest Reserve, Palikea, UH, Waiakea Timber Management Area, and Waianae Kai Forest Reserve.

In addition to general volunteer service trips to each Reserve, O'ahu DOFAW began a partnership with Mililani High School to create an Adopt-A-Forest Stewardship and Learning Program for O'ahu schools. Twelve volunteer and student learning trips were conducted in the NARS along with hosting a KUPU summer interns.



*Air layer of rare tree
Reynoldsia
sandwicensis for
outplanting carried
by NARS Staff*

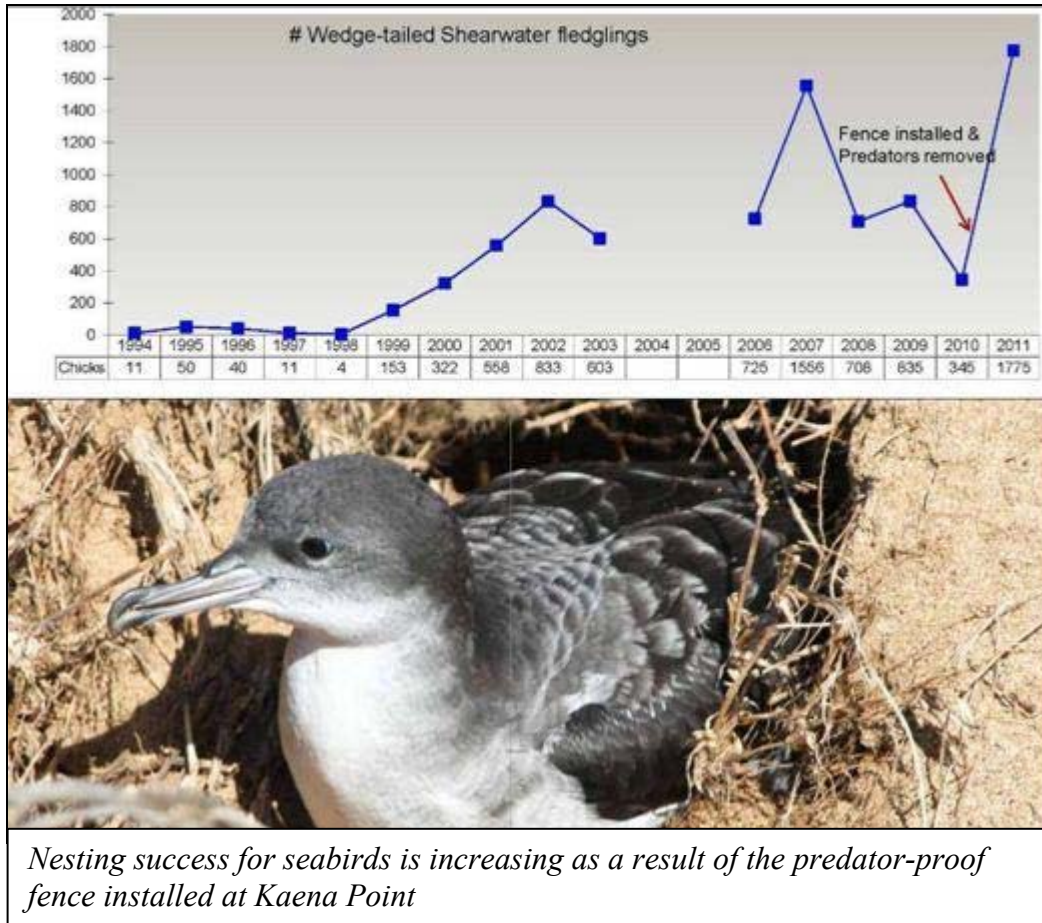
Specific accomplishments within individual reserves include:

Pahole (658 acres; dry and mesic forest): Ungulate control work is focused on 5 fences exclosures which almost entirely enclose the NAR. It needs to be noted that the materials used for pig fencing, although generally accepted as sufficient for excluding pigs, doesn't exclude small pigs and reinvasions can and have occurred numerous times. As such, NARS staff, USDA's Wildlife Services and OANRP spent 957 hours on fence work including retrofitting existing perimeter fences, as well as inspecting and maintaining fences. These same groups also worked 1,265 hours monitoring and controlling ungulates. NARS staff led 2 escorted public hunts expending 21 staff hours and 63 volunteer hours removing one pig in the newest fenced exclosure. Wildlife game cameras and GPS dog tracking collars were used to aid in the control effort. Weed control is focused primarily around numerous sites to protect native dominated forest and/or rare taxa protection. A total of 705.8 person hours were spent controlling weeds covering approximately 54.45 acres. Weeding efforts primarily targeted *Schinus terebinthifolius*, *Psidium cattelianum*, and *Toona ciliata*. Weeding of native-dominated forest was done in both mesic koa (*Acacia koa*) forest and mesic 'ōhi'a (*Metrosiderous polymorpha*) forest. Incipient targets include highly invasive species found in isolated locations and are unknown to be established in the Northern Waianae Mountains or they are highly invasive species found on heavily traveled corridors. A total of 31.5 person hours were spent surveying and controlling incipient weed species in a total search area of 3.7 acres.

Ka'ala (1,100 acres; dryland to wet shrub forest): maintained fences; monitored ungulate activity and conducted control when necessary; monitored and removed feral goats in the adjacent upper Mokulē'ia Forest Reserve to reduce the potential for goat ingress into the NAR; maintained lower Ka'ala access road; and completed remaining portion of the boardwalk replacement project in collaboration with partners. Weed control is currently focused at the summit bog where it is native dominated. Staff spent 121.75 person hours controlling weed targets such as *Spaghnum palustre* and *Hedychium gardnerianum*. *Juncus effusus*, *Psidium cattlenium* and *Leptospermum scoparium* are controlled when seen. Staff also partnered with OANRP to begin surveys and control work within the newly completed 300 acre Manuwai fence unit where invasive animal control efforts have been initiated. As part of NARS rare plant program, staff monitored and surveyed plants in the lower western portion of NAR identifying three T&E species occurring in that area.

Ka'ena Point (12 acres; coastal dune ecosystem): In collaboration with Pacific Rim Conservation and USDA's Wildlife Services, staff maintained the predator proof fence and conducted predator control activities for a total of 8 visits totaling 54 hours. The majority of this work consisted of rodent baiting with one instance of spotlighting and one instance of fence repair. USDA's Wildlife Service's expended a total of 154 field hours on 23 visits conducting spotlight shooting, trapping, fence inspection and repair. No depredations of Wedge-tailed Shearwaters or Laysan Albatrosses were reported. Other accomplishments include installed updated signage regarding resource issues and rules; conducted wedge-tailed shearwater census. Weed control continues to focus on *Leucaena leucocephala* and a total of 213 person hours were spent controlling target species. Staff continues to monitor and control *Achyranthes aspera* var *aspera* and

Verbecina encelioides within the NAR, when seen. Staff participated in implementing emergency actions of the DLNR Ka'ena Point Stewardship Group's final action plan, including: delineating designated roads, road maintenance, sign installation and maintenance, and protecting the sandy cove from off road vehicles by bordering the area with boulders.



Proposed Poamoho NAR (1,500 acres; mesic to wet forest): Staff are working on the administrative aspects of a NAR designation. NAR Staff partnered with OISC on *Tibouchina herbacea* surveys and control spending a total of 30 staff hours. Three volunteer trips contributed 40 days of labor to controlling weeds in a four acre area focusing on *L. scoparium* (19), *P. cattlenium* (3,735), and *Tibouchina herbacea* (14). Funds for a 1,500 acre watershed scale protection fence were secured as part of the Rain Follows the Forest initiative and matched by the OANRP program.

Proposed Kaluanui NAR (450 acres; mesic to wet forest and cliff): The Commission approved adding Kaluanui to the NAR system. Staff secured funds for a 450 acre fence to protect listed plants and animals and watershed function through the United States Fish and Wildlife Service (USFWS) and the State's Watershed Partnership Program.

O'ahu NAR Rare Plant Program FY 12 Accomplishments (T&E Species)					
Species <small>Listing Status</small>	planted (#)	Collect	Monitor	Emergency protection	Weed
<i>Caesalpinia kavaensis</i> ^E			X		X
<i>Capparis sandwichiana</i> ^{Species of Concern (SOC)}		X	X		
<i>Cenchrus agrimonioides</i> var. <i>agrimonioides</i> ^E	27				X
<i>Colubrina oppositifolia</i> ^E		X	X	X	X
<i>Cyanea calycina</i> ^{Proposed Endangered (PE)}			X		
<i>Cyanea grimesiana</i> ssp. <i>obatae</i> ^E	2	X	X		X
<i>Cyanea humboldtiana</i> ^E			X		
<i>Cyanea longiflora</i> ^E	2		X		X
<i>Cyanea superba</i> ^E	7	X	X		X
<i>Cyrtandra dentata</i> ^E					X
<i>Delissea waianaeensis</i> ^E	102	X	X	X	X
<i>Euphorbia herbstii</i> ^E					X
<i>Exocarpus gaudichaudii</i> ^{SOC}			X		
<i>Flueggea neowawraea</i> ^E					X
<i>Gardenia brighamii</i> ^E					X
<i>Hesperomannia arborescens</i> ^E					X
<i>Isodendrion longifolium</i> ^T	22				
<i>Isodendrion pyrifolium</i> ^E			X		
<i>Labordia Cyrtandrae</i> ^E			X		
<i>Lobelia yuccoides</i> ^{SOC}			X		
<i>Plantago princeps</i> var <i>princeps</i> ^E					X
<i>Platydesma cornuta</i> var. <i>decurrens</i> ^{PE}	3		X		X
<i>Pleomele forbesii</i> ^{PE}			X		
<i>Pteralyxia macrocarpa</i> ^{PE}					X
<i>Reynoldsia sandwicensis</i> ^{SOC}	3	X	X		
<i>Sesbania tomentosa</i> ^E	64		X		
<i>Schiedea nuttallii</i> ^E					X
<i>Schiedea obovata</i> ^E	4				X
<i>Shiedea pentandra</i> ^{SOC}			X		
<i>Solanum sandwicense</i> ^E	1	X			
<i>Zanthoxylum kauaense</i> ^{SOC}			X		

Maui

Management of Maui District NARS (Seven reserves, 21,493 acres) includes fence construction, ungulate control, people/human impact management, invasive weed control, rare plant and animal protection and monitoring, and public outreach in reserves on Maui and Moloka'i. American Recovery and Reinvestment Act funds were used to fully staff temporary field crew (four personnel) to perform weed control and fence building. In addition to conservation management within NARS, NARS staff assisted a variety of watershed partnerships and other conservation partners. For example, staff assisted East Moloka'i Watershed Partnership (EMoWP) in conducting aerial shooting missions that removed 1197 goats from the south slope of Moloka'i. Specific accomplishments within individual reserves include:

‘Āhihi-Kīna‘u (2,045 acres; recent lava flows, anchialine ponds, and nearshore marine ecosystem): Continued to partner with the Nature Conservancy (TNC) of Hawai‘i’s Marine Program to finalize the draft Management Plan. Staff worked with the United States Army Corps of Engineers, its contractors, other DLNR divisions and federal agencies to complete unexploded ordinance surveys. Staff provided a management presence; hired a volunteer coordinator to develop a volunteer program; continued to maintain access restrictions for the two-year closure meant to prevent damage to resources due to recreational overuse; deterred many incidents of illegal activity including poaching, theft, and illegal entry into closed areas with DLNR's Division of Conservation and Resources Enforcement (DOCARE), the Maui Police Department, and the Maui Citizens Patrol; paved entrance to parking area; maintained contracts for the maintenance of portable toilets, daily opening of parking area and trash removal; installed power pole and connected it to ranger station/office to facilitate on-site management.

Hanawi (7,500 acres; ‘ōhi‘a wet and cloud forest, alpine grassland, and perennial streams): Kept pigs out of 2,000 acres which required maintenance of over 10 miles of fence. Staff maintained existing shelters and completed construction of 1.5 miles of a new mid-elevation fence to protect a larger region of core habitat for endangered wildlife and plants. Assisted with forest bird surveys by re-marking transects and monitored weeds and pig activity along these transects.

Nakula (1,420 acres; leeward montane koa/‘ōhi‘a forest and alpine shrublands): This reserve was established in FY 11. Staff constructed three miles of fence to fully enclose a 420 acre unit containing the best remnant forest and removed 140 goats from the unit by driving them out of the fence before fully enclosing. Staff began transport of materials for another 1.5 miles of fence to secure the reserve’s Western boundary.

Kanaio (876 acres; halapepe and lama dry forest): Contractor completed work on reserve perimeter fence and enclosed a 1,600 acre fenced unit. Staff inspected and maintained boundary fence and are working on organizing a special public hunt to assist with feral ungulate removal inside the unit. Staff, volunteers and Youth Conservation Corps (YCC) controlled and performed weed management this year as follows: wattle control in 95 acres, Christmas berry control in 250 acres, bocconia (*Bocconia frutescens*) control in 190 acres. Monitoring of the Christmas berry control site shows >90% reduction in Christmas berry cover after one control effort.

West Maui (6,702 acres; pili grassland, mesic, wet, and cloud forest, montane bogs, and perennial streams): Kahakuloa section: Staff conducted 10 of 12 scheduled helicopter fence inspection trips to maintain 3.5 miles of lower boundary fence. Staff used cattle panels for fence replacement in heavily vandalized sections of fence. Staff checked snares and there was zero pig sign in the area. Pana'ewa section: staff inspected and maintained boundary fence six times with support from West Maui Mountains Watershed Partnership (WMMWP), monitored snares and removed 11 pigs. Fences were upgraded and extended and cables and ladders were installed into Halona gulch to assist staff access without helicopter support.

Pu'u Ali'i (1,330 acres; wet shrubland and forest with perennial streams): To prevent ungulate damage, staff inspected and maintained 6.5 miles of existing fence; implemented snaring in uppermost of two fenced units (450 acres) and removed four pigs in first month. Staff cooperated with the National Park Service (NPS) Inventory and Monitoring Program doing vegetation surveys.

Oloku'i (1,620 acres; mesic forest, wet shrubland and forest with perennial streams): Protected this remote and near-pristine area by aerial shooting and surveying conducted along the north shore of Moloka'i from Wailau to Waikolu Valleys and removed 686 feral ungulates (goats, pigs, and deer) during nine missions.

Hawai'i

NARS Hawai'i Island staff continued management of eight reserves (94,953 acres) and participated in a number of cooperative partnerships. In addition, staff participated in the management of the Hawai'i Experimental Tropical Forest, Pu'u Wa'awa'a Forest Bird Sanctuary and Koai'a Corridor. Staff also assisted with fence materials procurement, contracts and job inspection for Mauna Kea fencing and hosted both YCC summer teams and four 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, and extensive rare plant protection and restoration (reintroducing over 2,500 plants of T&E and common native species). During FY 12, staff built over 1.3 miles of new fencing to support the protection of native ecosystems.

For outreach and education, staff conducted a number of volunteer trips and developed and distributed outreach materials to several hundred people during special events such as Earth Day, the Merrie Monarch Parade and the Hawai'i County Fair; hosted the Hawai'i Nei Art contest featuring native species artwork in cooperation with the Wailoa Art Center, NPS and TMA; assisted with the coordination of the annual Pu'u Wa'awa'a "Run for the Dry Forest" event including 5 km and 10 km trails runs; and provided school children with educational opportunities both inside and outside the classroom. Annual Christmas Bird counts were held at the Kūlani portion of the Pu'u Maka'ala NAR. Additionally, the Hawai'i Island NARS program worked with the Youth Challenge Academy to introduce a natural resource component to their program. The NARS Program conducted several field trips and presentations with school groups, community groups, including hunting groups, and elected officials.

Specific accomplishments within individual reserves include:

Mauna Kea Ice Age (3,894 acres; alpine community): Continued coordination with the Office of Mauna Kea Management on protection of the unique natural and cultural features on the summit including meetings and funding an archaeological inventory and a cultural resources management plan; reviewed permit requests to access the NAR for research and for educational opportunities; maintained a 9.9 acre fenced unit for the protection of the endangered silversword and other rare alpine species; monitored six monitoring transects inside and outside of the fenced unit; controlled animals (15 sheep removed). The Hawai'i Island NARS Manager continued to participate as a member on the Mauna Kea Management Board and participated in the Environment Subcommittee and Administrative Rules Subcommittee. The NARS Program also consulted with the Kahu Ku Mauna, the cultural advisory committee for the Office of Mauna Kea Management, on management actions within the NAR and reviewed and commented on numerous environmental impact statements and environmental assessments on projects in the vicinity of the NAR.

Pu'u O 'Umi (10,142 acres; wet forest, montane bog, and perennial streams): Supported the Kohala Watershed Partnership efforts to implement the Kohala Watershed Management Plan; maintained existing fenced units and constructed 1.3 miles of new fence in the remote portions of the Reserve to protect watershed and native species habitat. Staff were trained in monitoring techniques to assist with study of the newly discovered population of Hawaiian petrels and Newell's shearwaters in the NAR, and additional surveys were conducted in partnership with the Kaua'i Seabird Recovery project and USDA's Wildlife Services; maintained over 19 miles of trails; maintained cabin, controlled key weeds and ungulates (12 pigs removed) in sensitive areas; and outplanted T&E plant species. Analyzed data collected along 22 miles of transects in FY 11 and compared it with data from 1995 and 2001.



*Hawai'i Island
NARS staff
partnering
with the
Kohala
Watershed
Partnership
and Maui
NARS staff to
manage the
Puu O Umi
NAR in Kohala*

Laupāhoehoe (7,894 acres; wet forest with perennial streams): Continued to participate in the planning and implementation of the Hawai‘i Experimental Tropical Forest (<http://www.hetf.us/>) including review and distribution of permits, monthly planning meetings, etc; fence maintenance; rare plant monitoring and outplanting; ungulate control (15 feral pigs removed); invasive species control; and installation and collection of data for six vegetation monitoring plots. The Hawai‘i Island NARS Manager assisted with the establishment and on-going meetings of the Laupāhoehoe Advisory Council that will continue to assist with the development of a management plan for the area.

Kahauale‘a (22,521 acres; wet forest with volcanic activity): Continued to monitor the eruptive activity at Kilauea (commencing July 21, 2007) by coordinating with the United States Geological Survey (USGS) Hawaiian Volcano Observatory, Hawai‘i Civil Defense, DOCARE, and other agencies as the NAR remains closed to public use due to safety concerns, adding and maintaining signage; special animal control permits were issued to hunters to access the safe areas of the NAR and assist with feral animal removal. A partnership with the neighboring landowner was forged to assist with boundary fencing along a portion of the NAR near Volcano. Two 5 acre units (0.5 miles of fence) were constructed to protect areas for rare plant restoration, where volunteers assisted in weed control in the 10 acres. Six monitoring plots were surveyed in each of these units.

Kīpāhoehoe (5,583 acres; mesic to wet forest): maintained fenced enclosure of 1,500 acres; conducted rare plant protection through seed collection and outplanting; invasive species control; continued road and trail maintenance.

Waiākea 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 12.

Pu‘u Maka‘ala (18,730 acres; wet forest): Maintained fencing; continued weed control in the 2,500 acre Wright Road Unit; 3 miles of monitoring transects were also read and analyzed in the 330 acre Aku Unit and weed controlled continued here as well; scouted areas for new conservation units and released the Pu‘u Maka‘ala NAR management plan and draft Environmental Assessment; cooperated with TMA in conducting rare plant outplanting, invasive weed control; and supervised volunteers. Multiple management actions were achieved in the newly added Kūlani section including the re-establishment and reading of over six miles of native forest bird monitoring transects; upgrades to 5 miles of fencing and replaced 6 gates; survey of over 7.5 miles of ungulate monitoring transects; monitored outplants of the endangered silversword; and conducted multiple outreach trips including hosting the annual Christmas Bird counts. Cooperation with the Youth Challenge Academy, which currently occupies the Kūlani facility, is on-going. We have assisted to integrate a natural resource management component into their program, partnering with the NARS Program and TMA. Coordination and discussions with other state departments have been on-going regarding the future of the Kūlani facility.



Flowering endangered Mauna Loa Silversword at Kūlani (to left) and Youth Challenge Academy Cadets and NARS staff planting endangered Mauna Loa Silverswords at Kulani (below)



Manukā (25,550 acres; coastal to subalpine forest): Removed feral pigs and goats in cooperation with adjacent landowners; controlled invasive fountain grass in the lower 14,000 acres of the NAR; cleaned tons of trash from the coastal areas and illegal dumping sites including one event hosted in partnership with the Hawai‘i Wildlife Fund; conducted rare plant outplanting and constructed small protective fencing around a new population of the endangered *Pleomele hawaiiensis*; maintained existing fence units, roads, and trails, initiated construction of 1.75 miles fence to protect the top 1000 acre portion of the NAR from ungulates, radio-collared 2 sheep to assist with ungulate control and monitoring; monitored fenced units in the coastal area for native coastal vegetation recovery and controlled weeds in these units; monitored and controlled goats in the makai section of the NAR (four goats removed); continued to update draft Manukā NAR management plan and commence development of a draft environmental assessment.

Other Areas: The Hawai‘i Island NARS Program assisted with management of other protected areas outside of the eight Reserves. These activities included assisting with invasive weed control, fire break maintenance, rare species outplanting, and the removal of feral ungulates from the Pu‘u Wa‘awa‘a Forest Bird Sanctuary (504 feral pigs, 8 sheep removed) and the Pu‘u Wa‘awa‘a Cone Unit. Staff also worked at the Koai‘a Corridor doing restoration planting (1,350 common trees and 425 rare species planted, seed collection (18 pounds), weed control and installation of walkovers for public access). NARS partnered with the DOFAW Forestry staff to control 14 acres of fountain grass at Kamilo. Additionally, NARS staff assisted the TMA with vegetation transect monitoring in the Lupea project area on Kamehameha Schools land. The NARS program is assisting with the Hawai‘i Island Axis Deer Working Group and has committed staff time and resources to ensuring the successful control of this newly discovered threat.

Rare Plant Species Restoration and Protection

The focus of the NAR Fund (NARF) support of the Rare Plant Program for FY 12 was providing matching funds for projects primarily supported by Section 6 of the federal Endangered Species Act (ESA). These projects include habitat protection and enhancement within the NARS on the island of Hawai‘i; support for the propagation and storage efforts of the six Rare Plant Facilities: the four mid-elevation nurseries of Volcano (Hawai‘i), Pahole (O‘ahu), Olinda (Maui) and Kōke‘e (Kaua‘i), plus the Lyon Arboretum Micropropagation Laboratory and Lyon Seed Conservation Laboratory (O‘ahu); and the statewide Plant Extinction Prevention Program (PEP).

The first step in developing a **Statewide Rare Plant Database** was the entry of the rare plant monitoring data collected by PEP. The development of the database was partially funded by NARF. Detailed demographic information provided by PEP is serving as a template for data entry for a statewide information program. The Rare Plant Facilities continue to improve upon their existing databases and standardize the data collected as they progress towards the goal of state-wide unification. The database will expand to include data from members of the Hawai‘i Rare Plant Restoration Group (HRPRG) as funds become available to support a web-based data entry www.hrprg.org.

The Hawaiian Rare Plant Facilities consist of Volcano, Pahole, Koke‘e, and Olinda Mid-elevation Nurseries, the Lyon Arboretum Micropropagation Laboratory, and the Lyon Seed Conservation Laboratory. These are propagation/storage facilities for rare plant taxa which function as part of a state-wide network across Hawai‘i. They represent a concerted effort to prevent native plant extinction by 1) propagating and increasing plant numbers for reintroduction into their natural habitat, and 2) storing species for which there is no adequately protected habitat and to safeguard against extinction for those taxa which have very few wild individuals remaining. The Rare Plant Facilities work closely with PEP, NARS, NPS, Watershed Partnerships, botanical gardens, and other public and private cooperators across the state. Collaboration occurs with federal, state and private land managers to replant species into appropriate habitats. The number of rare plant taxa propagated for outplanting this fiscal year was 49, with 2,630 individuals outplanted back into natural habitats. The Lyon Arboretum Micropropagation Laboratory received 121 separate collections representing 54 native Hawaiian species. Of all the collections received, 66 (55%) are from species which are federally listed as Endangered, while 15 (12%) came from species that are Proposed Endangered. The Lyon Seed Conservation Laboratory received 527 individual seed accessions, representing 128 Hawaiian species. Of these collections, 372 (70%) were from Endangered species and 61 (11%) from Proposed Endangered species.

Hawai‘i’s Plant Extinction Prevention Program (PEP) leads the largest T&E plant protection effort in the State, spanning the main Hawaiian Islands, and is supported with federal, state, and private funding. To address the extinction crisis and focus efforts on the most critically rare Hawaiian plants, PEP implements recovery actions for species that number fewer than 50 individuals remaining in their natural habitats. These are coined “PEP” species or taxa. PEP (<http://www.pepphi.org>) focuses efforts on preventing the extinction of its 213 target species.

Plant Extinction Prevention Program FY 12 Highlights

PEP Staffing	<ul style="list-style-type: none"> • 4 FTE island coordinators on Kaua‘i, O‘ahu, Maui, and Hawai‘i • 0.75 FTE island coordinator on Moloka‘i • 1 FTE statewide coordinator • 1 FTE technicians on Maui • 3 part-time technicians on O‘ahu
FY 12 Highlights	<ul style="list-style-type: none"> • Implemented protection actions for 130 T&E plant species and 19 Proposed Endangered plant species. • Population monitoring implemented for 111 species, placing 63 of these into <i>ex situ</i> cultivation at a cooperating rare plant nursery, botanical garden, at Lyon Arboretum’s Micropropagation or Seed Storage Lab. • Surveys were conducted for 33 PEP species. • Non-native animal and plant threats managed for 58 PEP species to protect the wild plants. Threat management entailed alien plant control, ungulate-proof fence construction and maintenance, rat trapping, and bagging fruits to protect them from invertebrate and rodent pests. • Reintroduction of 21 PEP species totaling over 880 plants into protected habitat to establish new populations of these critically rare species.

The main focus in the **Hawai‘i 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 12, NAR staff planted over 2,500 common and rare plants from Volcano Rare Plant Facility and State Tree Nursery with support from NARF and ESA funds (Section 6 grants). Additionally, staff maintained fences, protecting over 21,500 acres of rare plant habitat.



The endangered Clermontia peleana, one of the most endangered plants on earth is being reintroduced to several sites in the Pu‘u Maka‘ala NAR, including Kūlani in cooperation with NARS, PEP, the Volcano Rare Plant Facility and the Hawaiian Silversword Foundation

Native Invertebrate Program (NIP)

The Native Invertebrate Program (NIP) was created in June 2009. The objective of this program is to expand the knowledge and resources available to effectively direct resource management, monitoring, research, conservation, and policy decisions relating to federally listed T&E Hawaiian invertebrate species, as well as other native invertebrate species. Conservation and management efforts have not historically focused on invertebrates, despite the fact that they constitute more than 95% of the wildlife in the State. This is unfortunate considering that our native insects, spiders, snails, and crustaceans showcase astounding biological diversity and unique ecological adaptations, as well as provide untold educational and research opportunities.

More importantly, Hawaiian ecosystems are dependent upon the ecological services completed by a diverse assemblage of native invertebrates. Hawaiian tree and plant species could not exist without the pollination services and nutrient cycling which native invertebrate communities provide, and native invertebrates are essential food resources for populations of our native birds and bats. Consequently, conservation and management efforts which protect native invertebrate communities inherently protect the native plants and animals which depend upon them in perpetuity.

The need to effectively manage native invertebrate 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 1 moth, 1 wolf spider, 40 tree snails, 1 amphipod, 11 fruit flies, and 5 damselflies. Additional listings are imminent, for example in September 2011, USFWS determined that seven species of Hawaiian yellow-faced bees are warranted for listing, and have now been designated as species of concern. The hiring of a DOFAW staff entomologist at the end of FY 09 was the first step towards developing the NIP, and addressing what has been a longtime management deficit at DLNR. Not only are we now able to provide guidance to DLNR staff regarding management of invertebrates on state lands, we are also working actively with federal agencies and private landowners to address management needs on private and federally managed lands.

Threats to native invertebrates include, but are not limited to, habitat destruction and alteration, loss of native host plants, and the invasion and establishment of non-native species. It is therefore necessary for the staff entomologist to collaborate frequently with other DOFAW staff and partner agencies to address the multitude of issues affecting native invertebrate conservation. Addressing the broad ecological impacts of invasive insect pest species remained a high priority of the program in FY 12.

Native Invertebrate Program (NIP) Staff

The NIP now supports 1 full-time State position and 1 full-time Research Corporation of Hawai'i- Pacific Cooperative Studies Unit (RCUH-PCSU) position. Despite limited personnel, the program is growing steadily, supporting new research and management projects, and facilitating partnerships with other state agencies, federal agencies and non-governmental organizations. We are collaborating wherever possible to obtain funds to address specific research, management and conservation needs.

- 1) *Entomologist V* – NIP manager position. Provides support for projects, plans, permits, relating to native invertebrate species with which DLNR is involved. Seeks both State and Federal funds to support monitoring, research, conservation and management efforts. Supported with State special funds. Position converted from temporary to permanent in FY 12.
- 2) *Bee Research Entomologist* – Survey entomologist position hired in December 2011 for a 1-year term to survey rare native yellow-faced bee species on O‘ahu and Hawai‘i Islands, (funding from federal grants matched with State funds):

Native Invertebrate Program (NIP) FY 12 Accomplishments:

- Received second year of funding from nationally competitive grant from the USDA’s Forest Service to survey and monitor naio thrips infestation on Hawai‘i Island (in conjunction with DOFAW Forest Health program). FY 11 - FY 13 funds total \$128,647; FY 11 \$41,200.00. Monitoring was completed in conjunction with UH, Dept. of Plant and Environmental Protection Sciences. Entomologist completed nine trips to Hawai‘i Island for survey, outreach and training.
- Received nationally competitive Department of Defense Legacy Resource Program grant funding for a project entitled: “Assessing abundance and distribution of 20 yellow-faced bee species on O‘ahu and Hawai‘i Island.” Funds total \$109,123, and project began in December 2011.
- Received first year of funding from USDA’s Forest Service to conduct census of wiliwili (*Erythrina sandwicensis*) populations and monitor long-term wiliwili health on O‘ahu, Maui and Hawai‘i islands (in conjunction with DOFAW Forest Health program and UH, Dept. of Plant and Environmental Protection Sciences). FY 12 - FY 14 funds total \$132,000.00; FY 11 \$45,000. Entomologist completed a total of field five survey work trips to Maui and Hawai‘i Island.
- Applied for and received USFWS ESA Section 6 funding to establish a Snail Extinction Prevention program. FY 12-FY 13 funds total \$100,000, project began in August 2012.
- Received NAR funds to continue development of the statewide native invertebrate database to centralize historical and contemporary records/information for integration into conservation and management planning. Funds totaled \$25,000.
- Conducted monitoring of native wiliwili trees to assess the impacts of the invasive erythrina gall wasp and the introduced biological control agent released to control it. Monitoring was completed in conjunction with the Hawai‘i Department of Agriculture (HDOA) Plant Pest Control (HDOA-PPC) staff at 13 field sites across O‘ahu, Maui and Hawai‘i islands. Entomologist completed a total of 4 surveys on O‘ahu, 10 survey trips to Maui, 3 to Kaua‘i, and 12 to Hawai‘i Island.
- Completed third year of surveys of the endangered Blackburn Sphinx moth in

Pu‘u wa‘awa‘a Experimental Forest (in collaboration with the USFWS and TMA Watershed Partnership), to observe larval ecology and determine if sequential sampling may be used to estimate population densities for mitigation purposes.



Caterpillar of the Endangered Blackburn Sphinx moth at Pu‘u Wa‘awa‘a

- Conducted post predator-proof fence construction invertebrate surveys at Kaena Point NAR, and funded laboratory specimen sorting and identification at UH Manoa.
- Participated in meetings with USFWS and regarding penalties for unlawful take of endangered *Achatinella* tree snails at Mt. Ka‘ala by Hawaiian Electric Company, as well as mitigation and future preventative actions.
- Reviewed and issued 31 Native Invertebrate Scientific Research and Collecting permits.
- Worked to develop a Myoporum thrips rapid response plan for O‘ahu, in cooperation with HDOA and OISC and Army Natural Resources Program.
- Conducted tropical fire ant control efforts in Mokuleia Forest Reserve and Pahole Natural Area Reserve in collaboration with Army Natural Resources Program.
- Organized a three day bioblitz (rapid biological assessment) in the Kūlani Section of Pu‘u Maka‘ala NAR.
- Participated in National Moth Week by hosting a light-trapping event in Poamoho section of Ewa Forest Reserve. Summary of event posted at: <http://nationalmothweek.org/2012/08/17/guest-post-cynthia-king-about-nmw-event-oahu-hawaii/>
- Provided funding to UH Manoa to support digitization of the UH Insect Museum collections, for integration into the Statewide Invertebrate Database.
- Provided funding to UH Manoa to support continued research on the effects of rat baiting/removal on native ecosystems in the Waianae mountains.
- Continued development and implementation of a statewide Invertebrate

Conservation Strategy with the objective of establishing cooperative relationships with relevant stakeholders at agencies, institutions, and organizations which participate in, or benefit from, invertebrate research, management or conservation: HDOA, UH, USDA, USGS, USFWS, United States Army Environmental, Hawai'i Wildlife Fund, Bishop Museum, TNC, Hawai'i Invasive Species Committee (HISC), University of California Berkeley, Cornell University.

- Maintained NIP website to provide project and contact information to the public: www.hawaii.gov/dlnr/dofaw/native-invertebrate-conservation-program/nativeinvertebrate
- Represented the native invertebrate program at the Office of Mauna Kea Management Wekiu Bug Working Group, Hawai'i Biological Control Working, International Symposium on Biological Control of Weeds.
- Presented paper and/or poster presentations at the following conferences:
 - Hawai'i Conservation Conference, Honolulu, HI. 2-4 August 2011. Poster presentation: *Assessing the impacts of an invasive thrips (Klambothrips myopori) on naio (Myoporum sandwicense) in Hawai'i.*
 - Hawai'i Conservation Conference, Honolulu, HI. 2-4 August 2011. Poster presentation: *Estimating population densities and potential take of Blackburn's sphinx moth at Pu'u Wa'awa'a and Pu'u Anahulu*
 - Society of American Foresters National Meeting, Honolulu, HI. 2-4 November 2011. Paper presentation: *Assessing impacts of a new invasive thrips on Myoporum sandwicensis.*
 - Pacific Entomology Conference, Honolulu, HI. 22-23 February 2012. Plenary session presentation: *They are the 99%: How the State is finally reaching out to all its constituents.*
 - Entomological Society of America Pacific Branch Meeting, Portland, OR. 25-28 March 2012. Poster presentation: *Mysterious migrations of the Myoporum thrips.*
 - Entomological Society of America Pacific Branch Meeting, Portland, OR. 25-28 March 2012. Poster presentation: *Hawaiian tree under attack by Tasmanian thrips.*

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

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

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. Having 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.

Realizing the budgetary challenges expected due to the slow economic recovery, 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. 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, SLH 2005 (Legacy Land Conservation Act).

Other actions by staff to address the shortfall in state funding support from the Conveyance Tax and the state General Fund:

- 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 Hawai'i's natural resources;
- Increase cooperative efforts among multiple agencies, non-governmental organizations, landowners, and private citizens to maximize conservation efforts while increasing available match;

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. Unfortunately, some members of the public do 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 state General Fund under program LNR-407 (see Table A). In FY 12, general fund expenditures were \$663,606.83 in personnel costs and \$11,908.82 in operational costs, totaling \$675,515.65. This funding was supplemented by federal grants on a project-by-project basis and by state special funding from NARF, which is reported on pages 33 and 48.

6. PLANS AND MANAGEMENT OBJECTIVES FOR THE NEXT FISCAL YEAR

Governor Abercrombie's *A New Day in Hawai'i* plan guides DLNR to ensure *mauka* watersheds are fully functioning so fresh water resources can be utilized and enjoyed by the people of Hawai'i in perpetuity. The well-established programs of the NARS largely implement this priority initiative of the administration.

Act 106, SLH 2012, requires a separate report specifically on the status of the watershed initiative, which will provide more detail on accomplishments, and is available at: <http://hawaii.gov/dlnr/reports>. However, future plans for the watershed initiative are included in the proposed LNR 407 biennium budget request.

The "Rain Follows the Forest" watershed plan has a ten-year goal to double the amount of protected watershed areas, estimated to require \$11 million per year and create 150 local jobs. A budget request is included in LNR 407 for general funds needed to reach this target. In 2012, Governor Abercrombie tasked DLNR to meet these goals within the next six years. The Legislature in 2012 provided \$2.5 million for watershed capital improvement projects, and a similar amount from special funds. Similar amounts are requested CIP and B funds for FY 14 and FY15, in the prospect to accelerate forest protection accomplishments.

The Watershed Plan requires ongoing actions that require permanent and experienced staff. Infrastructure (such as fences) funded by the Legislature require regular maintenance to protect these investments. The request to establish forestry and wildlife, NARS, and planner positions would create a stable workforce to fulfill these needs. As well, motor vehicles and equipment are requested for the positions.

The Legislature in 2012 approved DLNR's request to convert seven temporary positions to permanent in order to provide more stability for these long-term positions. This budget request continues with this direction set by the Legislature to convert an additional ten positions that will be required in the long-term. These positions have secure funding from

NARF and need to be made permanent in order to retain adequate existing staffing to ensure proper management and administration of DOFAW programs.

In FY 13, NARS staff will continue to assist in the watershed initiative.

Plans and management objectives 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. The program is working toward standardizing the monitoring database used by NARS and watershed partnerships to increase the consistency of reporting accomplishments and monitoring results

Specific Plans and Objectives by Branch (FY 13):

Hawai'i: The NARS Program will continue the process to update the management plan for Manukā NAR, including collaboration with other interested DLNR divisions; continue cooperation with USGS Hawaiian Volcano Observatory to monitor the current lava flow within Kahauale'a NAR; finalize the Pu'u Maka'ala NAR management plan and continue to work with the TMA and other state departments to advance management goals in the area 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 and the Lahomene CIP watershed protection project in the Puu O Umi NAR; continue participation in the Hawai'i Experimental Tropical Forest, particularly as it overlaps with Laupāhoehoe NAR and develop a management plan with input from the Laupāhoehoe Advisory Council; and continue collaboration with the Office of Mauna Kea Management 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:

The NARS Program on Maui will continue working to protect Hanawi NAR through fence construction, 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; removal of ungulates from 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 West Maui Mountains Watershed Partnership (WMMWP); continue to work to remove animals from the fenced mauka unit in Pu'u Ali'i NAR; continue aerial shooting of large feral animal (particularly goat) populations on the north shore of Moloka'i; continue implementation of access restrictions for Ahihi-Kinau (maintaining closed areas, conduct monitoring surveys, and finish the management plan in coordination with the Ahihi-Kinau Advisory Group and TNC.

O'ahu:

The NARS Program will continue ungulate removal from all fenced units within Pahole and Ka'ala NARs; continue monitoring and removing rodent predators within the Ka'ena Point Predator Proof Fence; continue predator suppression efforts outside the fence as well; continue implementing new herbicide efficacy trials; continue with programmatic

weed control; initiate weed seed viability trials; 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 Mākua and O‘ahu training area mitigation process; continue implementation of the successful rare plant program; continue active participation in the DLNR Ka‘ena Point Stewardship Group; and continue monitoring of seabird populations at Ka‘ena Point.

Kaua‘i:

The NARS Program will continue to monitor the construction of the 85 acre fence located in the Kawaiula valley of Kuia; continue restoration of degraded land within the Kuia fence; conduct weed control sweeps and surveys for weed distribution. The program will work with the Na Al Hele program to enhance the Alakai boardwalk, will solicit for services to construct the CIP funded 3.3 mile Kilohana to Pihea fence; construct remote weather platforms for remote field operations; continue to institute predator control activities within the Hono O’ Na Pali NAR, continue implementation of the successful rare plant program, collaborate to support activities by the Kaua‘i Watershed Alliance (KWA). The program has been and will continue to work with the environmental education program to reach out to local communities.

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 Hawai‘i is bought or sold, has funded the Program. For more information on NAPP, see <http://hawaii.gov/dlnr/dofaw/napp>.

PU‘U KUKUI WATERSHED PRESERVE

Landowner: Maui Land & Pineapple Co.

Managing Partner: Maui Land & Pineapple Co.

Entered NAPP: FY 94

With over 8,304 acres, the Pu‘u Kukui Watershed Preserve (PKW) forms the core of regional protection efforts of the West Maui Mountains Watershed Partnership’s (WMMWP) 48,000 contiguous acres that serves as a significant water source for West Maui residents and industries. Fourteen native natural communities, two of them rare, are found in the preserve along with over 40 rare plant species (8 listed as T&E species), six endemic species of land snails and three native forest birds. In FY 12, accomplishments included maintaining 48 percent of the preserve as ungulate-free for

five or more years, continuing ungulate control where ungulates remain (23 pigs were removed by public hunters, 35 by staff), installing .8 miles of 8 ft fencing, inspecting and maintaining 5.8 miles of existing fencing, monitoring of alien threats, invasive weed control, and rare species protection and restoration out plantings in cooperation with PEP PKW represented WMMWP in various capacities to support funding and watershed activities such as the *Hahai no ka ua i ka ulu la'au* (Rain Follows the Forest) initiative.

Goals for FY 13 are to advance the existing level of management to maintain the native ecosystem as an intact watershed and protect the habitat of rare Hawaiian plants and animals. Management will include monitoring of weed distribution and weed control activities, continuing to increase the ungulate-free acreage in the Preserve by installing an additional 1.5 mile of eight foot fences for axis deer exclusion in partnership with WMMWP, inspecting and maintaining fences annually, continuing permit hunting program, continuing to participate and provide leadership in WMMWP, offering monthly volunteer service trips open to the community, providing support for approved research projects in the watershed and increasing community outreach.

KĀNEPU‘U PRESERVE

Landowner: Castle and Cooke Resorts, LLC

Managing Partner: TNC

Entered NAPP: FY 92

The Kānepu‘u Preserve on Lāna‘i comprises 590 acres in seven distinct units and was created to protect and enhance the lama/olopua (*Diospyros/Nestegis*) 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. TNC subawards with Tri-Isle RC&D Council, Inc. to accomplish essential stewardship activities in Kānepu‘u Preserve. Management activities were conducted primarily by a subcontractor, Bob Hera, including ungulate control, fence maintenance, invasive plant control, fire control, and occasional restoration and research support. TNC staff provides routine oversight and assists with management activities throughout the year. The primary management accomplishments during FY 12 included: 1) 36 contractor and volunteer hunts were conducted with 33 deer and 1 mouflon sheep removed; 2) Three newly fenced native dominated subunits continue to be ungulate free; 3) 709m (.44 mile) of new fence was installed; 4) Regular monthly fence maintenance, repair and inspections of Kānepu‘u and Kahue boundary fences were completed; 5) Intensive weed removal inside and around the two small enclosures in Kānepu‘u unit (Lapaiki iki and Kānepu‘u iki) and the new Kahue iki subunit was conducted — weeds removed include Christmasberry, lantana, corky passionflower, and other invasive species; 6) A buffer area around Kānepu‘u unit was surveyed for fountain grass with 14 plants found and controlled; 7) Several miles of fire breaks were routinely mowed and maintained to prevent potential fire damage.

In FY 13, TNC plans to continue subawarding through Tri-Isle RC&D 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

Kapunakea Preserve is a 1,264-acre preserve that 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.

TNC sub-awards with Tri-Isle RC&D Council, Inc. to accomplish essential stewardship activities through the WMMWP. In FY 12, WMMWP conducted animal control and monitoring, maintained infrastructure, and provided occasional access to researchers. In addition, TNC staff conducted management activities during the period to hunt and scout for ungulates. The primary management accomplishments in FY 12 were: 1) Six pigs were removed from lower, less native habitat (3 via snares and 3 via hunting); 2) Ungulate activity transects were monitored with only 1.4% ungulate activity (upper elevation areas continue to be ungulate free after more than 5 years); 3) Boundary fences were inspected monthly with multiple improvements and enforcements added, including responses to vandalism; 4) "Malama 'Āina" signs created by WMMWP were installed at all of the stream curtains in the hopes of preventing future vandalism; 5) One aerial survey was conducted to locate outlier habitat-modifying weeds (e.g., *Psidium cattleianum*), *Tibouchina herbacea*, *Clidemia hirta*) and to monitor any pig activity; 6) Weed control to prevent expansion into pristine areas included 242 *Psidium cattleianum*, 32 keiki *Clidemia hirta*, and 114 total *Tibouchina herbacea*; 7) A *Partulina perdix* and a *Liparis hawaiiensis* (both Species of Concern) were recorded ~between ~2900-3000' elevation; and 9) TNC served on the WMMWP Executive Committee providing support for fundraising and providing management leadership.

In FY 13, TNC plans to continue granting funds through a subaward for WMMWP to carry out ungulate control, fence maintenance, weed control, threat monitoring, and other routine management activities.

PELEKUNU PRESERVE

Landowner: TNC

Managing Partner: TNC

Entered NAPP: FY 92

The Pelekunu Preserve, located on the north shore of Moloka'i, 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. 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, reducing the spread of non-native plants, and monitoring native stream life for changes in species densities are the primary management activities.

Due to the high cost of helicopter access to the Valley, and reduced staff and budget, access to the Valley in FY 12 was minimal. Weed control activities and targeted ground hunts could not be conducted. TNC's primary means of ungulate control in Pelekunu was to support NARS continued aerial shooting of Moloka'i's north shore with mapping, spotting and flight-following services. Aerial shooting of pigs, goats and deer is only conducted in areas of steep terrain that are unsafe for hunters and dogs. Lack of ground hunts appears to be resulting in increased animal activity in the valley.

Stream surveys looking at the native freshwater fish, shrimp and limpet species conducted in FY 12 suggest one limpet species is in the process of recovery after overharvesting. Local community members including one with an interest in marine conservation and one with childhood ties to the valley participated in this biennial monitoring effort to survey 4 miles of the best remaining stream system in the state.

In FY 13, management efforts will include support of NARS aerial shooting efforts and ground hunts, if funding is available. Community outreach efforts will also continue with public lectures, preserve overlook hikes, and summer youth programs.

KAMAKOU PRESERVE

Landowner: Moloka'i 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 Moloka'i. Kamakou Preserve protects 40 rare plant species, 23 of which 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.

In FY 12, TNC contracted Pono Pacific to conduct systematic Global Positioning System (GPS)-documented animal and weed control "sweeps" of priority areas. Animal control sweeps using one dog per hunter were conducted over a quarter of the Preserve in its most remote and intact areas. Weed removal sweeps for Clidemia, passion fruit, strawberry guava, and blackberry were also conducted over more than a third of the preserve. Monitoring data indicates improvement in forest health along the preserve's eastern boundary since 2006. The PEP program continues extinction prevention measures for eleven critically rare species (< 50 individuals in the wild), collecting seed and outplanting nearly fifty plants in FY 12. 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.

In FY 13, priority wet forest sweeps will be the focus of ungulate and weed control efforts, and construction of a 1.7 mile fence to protect 800 acres of the Preserve's most intact wet forest. Other activities will include supporting researchers and conducting community outreach.

MO‘OMOMI PRESERVE

Landowner: TNC

Managing Partner: TNC

Entered NAP Program: FY 95

This 921-acre preserve on the northwest shore of Moloka‘i contains one of the largest and best remaining dune ecosystems in Hawai‘i. Mo‘omomi 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, Mo‘omomi contains significant archaeological, paleontological, and cultural resources.

In FY 12, TNC contracted Moloka‘i Land Trust, an adjacent landowner and conservation partner, to implement predator control and kiawe removal to restore coastal habitat. Moloka‘i Land Trust successfully removed a quarter acre of kiawe and five acres of annual weeds in former kiawe removal areas. Native plant diversity and rare species continue to increase in former kiawe removal plots. Nearly 150 native wedge-tailed shearwaters were banded in April, but 109 of the birds were killed in June, prompting TNC to ramp up trapping efforts and incorporate hi-tech game cameras to aid in the location and capture of the feral dogs responsible for the attacks. Community outreach programs included preserve hikes and off-site activities.

In FY 13, TNC will continue with kiawe removal efforts, predator control, support of training to local partnering agencies in feral dog control, and monitoring of the wedge-tailed shearwaters’ nesting colony. Community outreach and support of research projects will also continue.

WAIKAMOI PRESERVE

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 100,000 acre East Maui Watershed Partnership (EMWP) area. Thirteen bird species have been reported from Waikamoi, including seven threatened and endangered species. Fourteen native natural communities, two of them rare, are found in the Preserve along with 38 rare plant species. Management activities during FY 12 were accomplished both by TNC staff and through a subaward through Tri-Isle RC&D, Inc. to EMWP. Objectives focused on maintaining low to zero levels of ungulates in the Preserve; invasive weed control; rare species protection, resource monitoring, and research; and partnerships.

Major accomplishments for FY 12 included: 1) All fences (18 miles) surrounding Waikamoi Preserve were checked at least once during each quarter. All Unit 1A and 1B fences (10 miles) were checked once every two months; 2) 35 hunts were conducted with zero pig caught in accessible units 1A and 2; 3) Only minimal sign was detected in over 990 km (615 miles) scouted on the ground during routine activities; 4) Two pigs were removed during the year, the lowest number in the preserves management history; 5) Less than 1% of transect stations had ungulate sign; 6) 34.5 acres were surveyed and treated for Himalayan ginger, with various densities and sizes removed per site; 7)

Twenty-five acres of dense native vegetation suspected of containing spreading ginger in a remote area of Unit 1B were swept, with no ginger found; 8) 1921 total m² of ginger was treated; 9) 1110 pines that were invading portions of Unit 2 were removed; 10) Over 150 pines growing along a vertical pali were treated during trials to test efficacy of Herbicide Ballistic Technology and new nozzle configuration; 11) A rare plant survey was conducted in the unit below Waikamoi's eastern Unit 1B, resulting in locating many individuals of rare plants along with threat detection; 12) 19 species of rare plants were documented in new locations throughout Waikamoi and the East Maui Watershed area; 13) Volunteers outplanted 30 endangered *Phyllostegia pilosa*, and staff located two new wild individuals; 14) Maui Forest Bird Recovery Project spent 3,000 research hours in Waikamoi studying kiwiku (Maui parrotbill) and determined the total number of kiwiku in the study site to be 48 birds; and 15) TNC served on the EMWP Executive Committee and routinely supported funding and watershed management activities.

In FY 13, TNC plans to continue to subaward to Tri-Isle RC&D Council, Inc. to complete the majority of the stewardship activities through EMWP. Management activities will focus on minimizing all ungulate damage through regular control efforts and rigorous fence inspections, and controlling habitat-modifying weeds.

KA'Ū PRESERVE

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 southeast 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 Hawai'i's richest remaining assemblages of endangered forest birds.

In FY 12, through diligent monitoring and regular fence checks, the Ka'ū Preserve's 1,200 acre fenced unit remained ungulate-free. Three kilometers of rust-damaged fences affected by VOG have been replaced. A radio repeater was installed at Kaiholena for increased communications among partners working throughout the Ka'ū forest. TNC staff worked to enhance public hunting in the adjacent Ka'ū Forest Reserve by coordinating access through the preserve, maintaining roads, and working with neighboring landowners and DOFAW to secure permanent access routes along the lower forest boundary. In support of Axis deer eradication efforts, TNC met with Ka'ū landowners and ranchers to ensure cooperation towards a successful control strategy. Monitoring and control work on kahili ginger was completed in the Kāhilipali unit, with 5 acres cleared. Through a partnership with a neighboring landowner and TMA, kahili ginger control work was conducted near the Preserve's Keaīwa unit with 3 acres cleared. Survey and weed control work covered a total of 50 acres within the Kaiholena unit, where the targeted removal of over 40,000 individual *Clidemia* and 19,500 strawberry guava was completed. Monitoring and seed collection of rare species continued within the ungulate-free unit, with unassisted recruitment of 34 *Pritchardia lanigera* seedlings occurring beneath a grove of four mature palms.

Community outreach and environmental education programs continued with volunteer work days totaling 604 hours in contributed labor, service learning trips for students and forest stakeholders, and informational booths at events. TNC also provided office facilities and logistical support towards the community outreach effort for DOFAW's Ka'ū Forest Reserve Management Plan.

In FY 13, TNC staff will continue to maintain and upgrade the fence, monitor for ingress animals and remove them whenever detected. Strategies to enhance hunter access to the Ka'ū forest will include securing funding to survey the forest boundary. The kahili ginger population in the Kī'olokū and Keaīwa units will be monitored and eliminated, and high priority weeds within the Kaiholena unit will be controlled. Future fence alignments will be surveyed, and protected acreage increased. TNC will continue to provide logistical support to the Axis deer eradication effort in south Hawai'i. 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 NAPP. All grants awarded as part of 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 Moloka'i, 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 Mo'omomi 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 Pu‘u Ali‘i 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 Moloka‘i Hunting Working Group.

On Maui, the status of public hunting opportunities also varies depending on the preserve. At Pu‘u 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 Hawai‘i, 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 Lana‘i, TNC utilized volunteer hunts as a method to remove remnant deer from the fence enclosure units.

On Hawai‘i Island, TNC will continue to utilize volunteer hunters to reduce animal numbers within the Ka‘ū Preserve and will continue to investigate ways to enhance hunter access into Ka‘ū forest.

5. FINANCIAL REPORT

NAPP is supported primarily through NARF. In FY 12, state expenditures were \$904,426.52. As NAPP provides matching funds on a 2:1 basis, these state funds were matched by at least \$452,210 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 13 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 T&E species protection, monitoring, research, public education and generating community support. Goals for individual preserves are discussed above.

FINANCIAL CONDITION OF THE NATURAL AREA RESERVE FUND

NARF received revenues from the Conveyance Tax (20% of total Conveyance Tax revenues) on real estate transactions. The cash balance of NARF at the beginning of FY 12 was \$6,067,671.86 with prior year's encumbrances of \$2,560,449.11. FY 12 NARF revenues were \$8,433,647.66 with \$8,432,197.66 from the Conveyance Tax and \$1,450.00 from miscellaneous (See Table B).

FY 12 expenditures totaled \$6,070,989.24 representing expenditures of approximately \$3,279,385.28 of FY 12 encumbrances, \$1,989,680.66 for FY 11 encumbrances, \$384,490.30 for FY 10 encumbrances and \$417,433.00 central services fees. Outstanding FY 12 encumbrances totaled \$3,696,818.28. Of the FY 12 allowed spending cap, \$5,769,170.29 operating funds were encumbered.

The cash balance of NARF at the beginning of FY 13 was \$5,854,600.99 with \$2,356,731.21 as the available cash balance. Projections are for revenues to remain relatively flat in FY 13 due to an uncertain real estate market. Actual Conveyance Tax revenues for the first two months of FY 13 were \$664,919, down from FY 12 revenues of \$1,166,219 during the same period.

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

FY 12 transfers totaled \$3,159,568 which were: \$1,500,000 to the Forest Stewardship Fund through direct transfers that included \$500,000 to the Forest Stewardship Program pursuant to Section 247-7, HRS, and \$1,000,000 for Forest Reserve management; \$1,550,000 to HISC; and \$109,568 to DLNR Administrative Services Office (ASO) for an accountant & partial funding of an account clerk and data processing analyst. These expenditures are reported in their respective legislative reports.

Revenues allowing, FY 13 transfers are expected to total \$3,020,000 and include: \$600,000 to the Forest Stewardship Program through direct transfers pursuant to §247-7, HRS; \$900,000 for Forest Reserve management; \$1,400,000 to HISC; \$5,000 to the Department of Accounting and General Services/Risk Management for insurance premiums; and \$95,000 to DLNR ASO for an accountant and clerical support. Please see Table C on page 48 for summary of NARF combined drawdown.

**OTHER PROJECTS FUNDED BY THE NATURAL AREA RESERVE FUND
(NARF) PURSUANT TO SECTION 247-7, HRS: WATERSHED PARTNERSHIPS
PROJECTS & HAWAI'I YOUTH CONSERVATION CORPS (YCC)**

1. WATERSHED PARTNERSHIP PROGRAM

The Watershed Partnerships Program is a successful public-private venture responsible for protecting over 2 million acres of the most important watershed lands on every major mountain on all 6 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, 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 public and private lands encompassing one half of the total land mass of the Hawaiian Islands.

In 2005, the Legislature authorized the use of NARF to 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 these State funds as leverage. In FY 2008 approximately \$3.1 million was allocated from NARF for grants to watershed partnerships. Due to a reduction in the percentage of the conveyance tax going to NARF and the decrease in real estate value and sales, in FY 12 only \$1.6 million was available for watershed protection. The partnerships leveraged an additional \$ 4.9 million in 2012 from non-state sources, achieving more than a 3:1 ratio of non-State to State funding. State funds from NARF are crucial to this ability to leverage these monies.

Due to the success of DLNR's 2012 Watershed Initiative, \$2.5 million in CIP funds and another \$2.5 million from special funds such as the NARF were allocated to the watershed partnership program in FY 13.

The benefits of managing our 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
- other ecosystem services are provided such as cultural resources, recreation, education, native species preservation, and rural jobs.

The eleven partnerships are:

Kaua'i: Kaua'i Watershed Alliance (144,000 acres)

O'ahu: Wai'anale Mountains Watershed Partnership (59,762 acres)
Ko'olau Mountains Watershed Partnership (98,737 acres)

Moloka‘i:	East Moloka‘i Watershed Partnership (19,000 acres with an addition of potentially another 20,000 acres pending)
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 60 private landowners and 24 public agencies currently involved in partnerships. 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 12, Plans and Management Objectives for FY 13

Conveyance tax transfers to the NARF allowed DOFAW to award approximately \$1.6 million in grants to the Watershed Partnerships in FY 12. A request for proposals from partnerships for FY 13 special funds has recently been completed but contracts are still pending, hence, reports below indicate an interim status of expenditures and work still in progress utilizing 2011 and 2012 grant funds only. CIP funds have been released, fencing materials are being ordered and the Requests for Proposals for project labor, where required, are in process. All funds are expected to be awarded and contracted by December 2012.

Kaua‘i Watershed Alliance - 144,004 total acres

FY 11 State Watershed Partnership Funds:	\$161,171
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FY 12 State Watershed Partnership Funds:	\$179,998
FY 13 State Watershed Partnership Funds:	\$299,997
FY 13 Capital Improvement Project Funds:	\$200,000

Total Annual Watershed Partnership Budget: \$750,000, 21% State Funds (FY 11)

Recent Accomplishments:

- Completed construction of the Wainiha Protective Fence (7,050 acres protected)
- Monitored 5 pig traps with motion-activate game-cameras within fences
- Monitored 4 traps with one-way gates allowing animals to leave fences, not return
- Monitored 8 game cameras on main animal trails within fenced areas
- Monitored 3 vegetation and ungulate transects (3.1 miles total)
- Removed 52 ungulates from within protected fenced watershed areas
- Updated the watershed plan to include Rain Follows the Forest objectives
- Inspected and maintained 6.2 miles of protective watershed fence
- Repaired and added skirting to bottom of fences where required
- Prevented the ingress of any new animals to protected areas since Sept. 8, 2011
- Reduced the ungulate population within protected areas to about 5 animals
- Removed 365 Australian tree ferns, 759 strawberry guava
- Surveyed and treated weeds in an additional 152 acres of priority forest.
- Controlled over 4,000 Australian tree ferns in Wainiha Valley
- Maintained a base-camp for management activities
- Supported a staff of 6

Current Deliverables:

- Inspect and maintain 6.2 miles of fence
- Complete compliance documents for 3 miles of new watershed fence
- Control invasive weeds on 510 acres
- Aerial survey for invasive Australian Tree Fern on 1300 acres
- Integrated Pest Management Strategy for Himalayan Ginger
- Control feral animals on 9,258 acres
- Monitor 3.1 miles of transects for weeds and feral animals
- Construct protective fencing at Hono o Na Pali Natural Area Reserve (CIP)

Waianae Mountains Watershed Partnership - 144,000 acres

FY 11 State Watershed Partnership Funds:	\$105,495
FY 12 State Watershed Partnership Funds:	\$ 82,000
FY 13 State Watershed Partnership Funds:	\$160,000

Total Annual Watershed Partnership Budget: \$250,000, 42% State Funds (FY 11)

Recent Accomplishments:

- Surveyed 5,538 acres of State lands for invasive weeds using aerial imagery
- Controlled 3,662 targeted invasive weeds with staff and partners

- Created digital IDs or signatures for invasive weed species using high resolution aerial imagery
- Conducted site visits and hunter outreach on feral animal control
- Conducted five aerial ungulate surveys in the Waianae Mountains
- Conducted fence inspection and weed control at Hono'uli'uli
- Coordinated the Ka'ena Point Advisory Group
- Conducted seed collection of common natives for outplantings following fire or other forest disturbances
- Worked closely with Leeward Community College; Nanakuli, Pearl City Kapolei, and Waianae High Schools; Mililani Middle School and Punahou to establish nurseries for native plant propagation.
- Conducted weed surveys in the Wai'anae Kai Forest Reserve
- Prepared reports on aerial goat survey and remote imaging protocols
- Completed a draft watershed management plan
- Increased total staff to three
- Inspected and maintained 8.7 miles of fences at Hono'uli'uli

Current Deliverables:

- Inspection and maintenance of 8.3 miles of fence upon completion
- Survey and control invasive species on 160 acres
- Feral goat control on 2,932 acres
- Public outreach re fence construction and animal control
- Planning for future watershed protection fences
- Fence planning and compliance Mt. Ka'ala priority watersheds
- Invasive weed control in priority watersheds
- Outreach to schools and hunters, website development

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

FY 11 State Watershed Partnership Funds:	\$120,000
FY 12 State Watershed Partnership Funds:	\$ 92,500
FY 13 State Watershed Partnership Funds:	\$352,909
FY 13 Capital Improvement Project Funds:	\$500,000

Total Annual Watershed Partnership Budget: \$200,000, 60% State Funds (FY 11)

Recent Accomplishments:

- Developed a weed management action plan including priority species, maps of weed control areas, methods, and data collection techniques
- Removed invasive weeds from upper mauka areas of Poamoho and Wiliwilinui
- Conducted goat control in Kualoa
- Completed an aerial survey for goats and removed 5 animals
- Applied for funding from USFWS and Kamehameha Schools (Contracts pending).

- Engaged partners in planning for watershed fencing in the Northern Koolau mountains
- Completed construction of a fence at Peahinaia

Current Deliverables:

- Construct watershed protective fencing in the northern Koolau mountains
- Inspection and maintenance of 8.3 miles of fence upon completion
- Survey and control invasive species on 160 acres
- Conduct feral animal control on 2,932 acres
- Coordinate public outreach for fence construction and animal control
- Aerial surveys and imagery analysis for Miconia
- Invasive species outreach at O‘ahu schools

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

FY 11 State Watershed Partnership Funds:	\$125,000
FY 12 State Watershed Partnership Funds:	\$ 49,700
FY 13 State Watershed Partnership Funds:	\$120,000

Total Annual Watershed Partnership Budget: \$470,000, 26% State Funds (FY 11)

Recent Accomplishments:

- Retrofitted 1.6 miles of fence to prevent goats from becoming ensnared
- Removed 514 goats, 44 pigs, and 12 deer from the upper watershed
- Surveyed over 1068 acres for weeds
- Inspected and maintained 23.5 miles of fencing
- Removed over 17,000 individual weeds
- Completed three ungulate ground surveys and 2 aerial goat surveys
- Goat numbers are showing a noticeable decline
- South slope vegetation is beginning to recover due to goat control
- Reached over 1,300 residents in outreach activities including field trips, hikes, fire task force meetings, volunteers and Earth Day events

Current Deliverables:

- Feral animal control on 10,100 acres utilizing Forward Looking Infrared technology
- Management plan to extend the partnership to 10-14 new landowners
- Fence construction at Kamakou, Moloka‘i

Lanai Forest and Watershed Partnership - 20,000 total acres

FY 11 State Watershed Partnership Funds:	\$60,000
FY 12 State Watershed Partnership Funds:	\$70,000
FY 13 State Watershed Partnership Funds:	\$90,000

Estimated Annual Watershed Partnership Budget: \$290,000, 20% State Funds (FY 11)

Recent Accomplishments:

- Inspected and maintained Increment 1 fence (1,800 acres).
- Retrofitted 7 miles of fence with deer mesh skirting to prevent animals from going under the existing fence
- Controlled deer in Increments 1 and 2 fences
- Engaged Americorps and YCC interns in conservation work.
- Removed strawberry guava from priority watershed areas with native forest

Current Deliverables:

- Inspect and maintain 7 miles of fencing to protect remnant forest from deer
- Remove invasive species from 603 acres

West Maui Mountains Watershed Partnership – 48,000 total acres

FY 11 State Watershed Partnership Funds: \$165,000

FY 12 State Watershed Partnership Funds: \$201,300

FY 13 State Watershed Partnership Funds: \$330,000

Total Annual Watershed Partnership Budget: \$725,000, 22% State funds (FY 11)

Recent Accomplishments:

- Inspected and maintained 12.5 miles of fences – repaired 6100’, repaired a stream curtain, made improvements to a retro-fitted deer fence
- Conducted ungulate aerial surveys over 364 acres
- Conducted ungulate ground surveys over 46 acres
- Conducted weed ground sweeps of 26.5 acres
- Removed 24 pigs and 2 deer from within priority watershed areas
- Surveyed 11 transects for ungulate sign
- Increased ungulate control devices in areas showing increased activity.
- Monitored vandalism by dirt bikers to ungulate fences
- Completed a Conservation District Use Permit for fencing at Honolua
- Completed drafts of updated Five Year Management Plan and Weed Plan
- Reached 363 residents with outreach events and hikes
- Purchased two office trailers through private funds
- Trained one Americorps volunteer

Current deliverables:

- Interagency wildfire coordination planning
- Mapping fire infrastructure and important resources
- Construct 0.6 miles of new strategic fencing in 9 areas
- Brush and repair 1.75 miles of fence
- Inspect and maintain 7.2 miles of fence
- Aerial survey and ground control of 668 acres of invasive weeds
- Control feral animals on 5,870 acres
- Monitor weed and feral animal transects

- Monitor Honuaula Stream water quality

East Maui Watershed Partnership– 100,000 total acres

FY 11 State Watershed Partnership Funds:	\$125,000
FY 12 State Watershed Partnership Funds:	\$130,000
FY 13 State Watershed Partnership Funds:	\$198,000
FY 13 Capital Improvement Project Funds:	\$425,000

Total Annual Watershed Partnership Budget: \$725,000, 17% State Funds (FY 11)

Recent Accomplishments:

- Inspected and maintained 43 miles of watershed fences
- Completed 21 repairs to fences
- Continued construction of upper Hana Forest Reserve: Phase II Feral Ungulate Control Fence- over 1.1 mile additional fence built
- Cleared 1.3 miles for new fenceline construction
- Removed 16 pigs over 136 hours of hunting with 2 staff
- Surveyed 488 acres for invasive weeds
- Maintained access, hunter check stations and signage for hunting areas in Ko`olau Forest Reserve
- Monitored seven over 10 miles of ungulate and weed transects
- Controlled major weed species
 - Kahili ginger 11 acres
 - Pine spp. 127.8 acres
 - Gorse 137 acres
 - Eucalyptus 136 acres
- Conducted classroom presentations, interpretive hikes, media event, fund raisers, and community events reaching at least 500 Maui residents
- Coordinated the Malama Wao Akua juried art exhibition featuring native species

Current Deliverables:

- Inspect and maintain 7.8 miles of fence
- Monitor and remove priority invasive weeds from 7,000 acres
- Control feral animals on 7,000 acres
- Coordination of Hana Forest Reserve fence protecting 3,000 acres

Leeward Haleakalā Watershed Restoration Partnership – 43,175 total acres

FY 11 State Watershed Partnership Funds:	\$130,000
FY 12 State Watershed Partnership Funds:	\$165,000
FY 13 State Watershed Partnership Funds:	\$185,000
FY 13 Capital Improvement Project Funds:	\$415,000

Total Annual Watershed Partnership Budget: \$1,200,000, 11% State funds (FY 11)

Recent Accomplishments:

- Awarded a contract for Phase I fencing at Department of Hawaiian Homelands (DHHL) at Kahikinui.
- Completed construction of the Nu`u- Kaupo watershed protection fence, creating a 1,023 acre protection area.
- Added skirting to an older section of this fence to reduce breaches, replaced barbed with smooth wire to prevent injury to birds and bats.
- Collected data from experimental koa exclosures and seed ball trials .
- Inspected and maintained 4.5 miles of fenceline at Nu'u Mauka, Kaupō
- Inspected and maintained fencelines at Auwahi, Ulupalakua
- Maintained and controlled weeds in the 33 acres of primary restoration area at Auwahi.
- Completed primary restoration of 13.5 acres in Auwahi III, with over 11,000 native plants planted.
- Controlled bocconia using systematic sweeps over 185 acres.
- Worked with DHHL and MISC to develop a plan to eradicate gorse (*Ulex europaeus*) from the south slope of Haleakalā.
- Launched a control effort following aerial surveys and mapping, using ground-based manual treatment, resulting in 81 populations of this noxious species controlled over approximately 1,000 acres.
- Began developing a plan to map and control bocconia on DHHL lands Due to difficult terrain, remote location, and heavy presence of ungulates, many bocconia plants are confined to gulches, along with many of the remaining native species, making manual and chemical control difficult and dangerous.
- Coordinated a survey of feral cattle at Kahikinui and held an interagency meeting with DOFAW and DHHL regarding population trends and potential control.
- Assisted USGS researchers in documenting differential hydrological performance of side-by-side comparisons.
- Documented an unrecorded and important population of *u`au* (Hawaiian petrel) burrows at high elevation areas of DHHL Kahikinui.

Current Deliverables:

- Survey and flag 3 miles, Phase 2 DHHL Kahikinui Fence.
- Inspect and maintain 22.6 miles of existing fences.
- Coordinate and produce feral animal control plan at DHHL Kahikinui.
- Conduct invasive weed control on 708 acres.
- Re-vegetation of 30 acres
- Community outreach
- Utilize 300 volunteers in reforestation
- Create a data management system

Three Mountain Alliance – 1,116,300 acres

FY 11 State Watershed Partnership Funds:	\$169,500
FY 12 State Watershed Partnership Funds:	\$335,000
FY 13 State Watershed Partnership Funds:	\$357,000

FY 13 Capital Improvement Project Funds: \$510,000

Total Annual Watershed Partnership Budget: \$730,000, 23% State funded (FY 11)

Recent Accomplishments:

- Replaced 5,000 feet of the Upper Waiakea Forest Reserve Boundary fence.
- Controlled 57 feral cattle in the Honuaʻula Forest Reserve including 11 ground hunts and 4 aerial pushes. 54 of the animals were pushed into trap pens and removed by Palani Ranch.
- Conducted 2 aerial surveys for feral cows in the Kaʻu and Kapala Forest Reserves.
- At Puʻu Waʻawaʻa- inspected and maintained 6.5 miles of fences, surveyed and removed 2000 invasive weeds from 110 acres of exclosures, engaged volunteers in 1926 hours of service learning.
- Assisted by Hawaiʻi Community Correctional Center inmates, inspected 26.6 miles of fence lines at Kūlani monthly. An additional 3.5 miles were repaired.
- Controlled weeds along Kūlani fences and roads. Surveyed for and removed weeds over 306 acres
- All activities are now entered into a geo-database including fence work, weed control, outplanting, vegetation survey data, bird survey data, reforestation activities, greenhouse and propagation data, predator control, and rare plant survey and monitoring data.
- Conducted feral animal control on 24,300 acres
- Completed annual forest bird surveys in Kūlani and Keauhou/Kilauea

Current deliverables:

- Complete the final mile of fence at Lupea, North Kona to protect 6,000 acres.
- Fence inspection and maintenance
- Conservation workline - Hawaiʻi Community Correctional Center
- Invasive species control on 2530 acres
- Reforestation at Kūlani
- Data management development
- Outreach at Kapapala Koa Canoe Forest and Kūlani
- Assist BISC with Axis deer control

Kohala Watershed Partnership – 68,000 total acres

FY 11 State Watershed Partnership Funds: \$115,200

FY 12 State Watershed Partnership Funds: \$ 85,000

FY 13 State Watershed Partnership Funds: \$155,635

FY 13 Capital Improvement Project Funds: \$250,000

Total Annual Watershed Partnership Budget: \$800,000, 14% State funds (FY 11)

Recent Accomplishments:

- Completed 1.4 miles of ungulate fencing constructed at the Puʻu o Umi NAR

- Received federal funds to construct the next phase of the Laupahoehoe Nui fence
- Inspected and maintained 11.5 miles of watershed fences.
- Removed 79 pigs from fenced areas.
- Controlled the invasive tree, *Rauvolfia vomitoria* over 2400 acres.
- Controlled kahili ginger, banana poka, strawberry guava over 132 acres.
- Outplanted over 3800 plants with staff and volunteers.
- Volunteers contributed over 1,100 hours of work.
- Completed construction of fencing for Pu'u Pili Biodiversity Unit; continued monitoring protocols for assessment of vegetation recovery.

Current deliverables:

- Inspect and maintain 12.8 miles of existing fence
- Control feral cattle on 300 acres
- Construct 1.5 miles of fence at Pu'u o Umi Natural Area Reserve

Mauna Kea Watershed Alliance

FY 11 State Watershed Partnership Funds:	\$ 85,000
FY 12 State Watershed Partnership Funds:	\$ 74,997
FY 13 State Watershed Partnership Funds:	\$131,000
FY 13 Capital Improvement Project Funds:	\$200,000

Total Annual Watershed Partnership Budget: \$300,000, 28% State funds (FY 11)

Recent Accomplishments:

- Finalized the draft watershed management plan
- Received funding through the Wildlife Conservation Society for restoration at Kanakaleonui, DHHL
- Created operational guidelines
- Worked with 7 new potential partnership members
- Created a 5 year action plan that lists 8 on-the-ground projects
- Applied for federal and private funding.
- Conducted 4 service learning trips totaling 523 volunteer hours to plant and collect seed.

Current deliverables:

- Fence inspection and maintenance 63 miles at the Mauna Kea Forest Reserve
- Feral animal control Kanakaleonui, DHHL, 525 acres
- Gorse control 1200 acres Wailuku Headwaters (DHHL)
- Community outreach
- Continue restoration outplanting at Pu'u Mali Palila Mitigation Area

FY 12 Challenges

Partnerships are depending more heavily on non-State funds, mostly requiring matching funds. Without state monies provided by the NARF, these funds would not be available.

Funding provided by the Watershed Partnership Program is vital to the continued success of watershed protection across the state.

Forest protection is the key to the continued sustainability of our water supplies. Watershed protection through partnerships deserves continued investment through the special funds and CIP funding. Additionally, general funds are needed to fully fund the Watershed Initiative at the level of \$11 million per year to allow the State to achieve the goal of doubling the acres of protected watershed forest over the next ten years. Future generations are depending on us.

2. INFORMATION AND EDUCATION PROGRAM

The mission statement of DLNR is to “Enhance, protect, conserve and manage Hawai‘i’s unique and limited natural, cultural and historic resources held in public trust for current and future generations of visitors and the people of Hawai‘i nei in partnership with others from the public and private sectors.” In order to be effective, staff uses a broad variety of methods to connect with communities across demographics and islands including: websites, social media, press releases, public outreach events and coordination, Project Learning Tree educator workshops, field trips, classroom visits, and the YCC Program. The summary below details the FY 12 statewide education and outreach initiatives coordinated and staffed primarily by the DLNR-DOFAW information and education coordinator, education specialist, and Americorps intern.

The education and information section has just one full time, permanent staff person who is supported by interns and the occasional contract hire. To develop a robust program that meets the needs of all program sections, more permanent staff is needed. Despite these challenges, DOFAW continues to improve and augment outreach efforts by securing grants and implementing programs that have demonstrated success nationally and resonate with local needs and thereby improves environmental literacy contributing to a more environmentally conscious and sustainable island community.

Youth Conservation Corps (YCC) Program

The year-round program is funded by NARF and supported by federal and community grants awarded to program manager, Kupu. DLNR secured 30 year-round Americorps members through Kupu in FY 12. The program enables young adults to gain entry-level experience as they work alongside natural resource professionals. It was developed with the intent to provide in-depth training for local youth interested in pursuing a career working in natural resource conservation and management. YCC supports conservation organizations and increases local resource knowledge for Hawai‘i’s youth. The scope of conservation projects include but are not limited to: invasive species management and removal, fencing, information and education, dry forest management, and native species out-planting. Internships often lead to future jobs or advanced degrees in natural resource management.



Project Learning Tree (PLT) Program

The DLNR-DOFAW serves as the state coordinator for PLT, a national program that aims to “teach students how to think not what to think about complex environmental issues”. DOFAW staff coordinates and facilitates educator workshops to provide Hawai‘i’s traditional and non-traditional educators with locally and nationally relevant resources so they can more effectively incorporate environmental education across disciplines using PLT’s standards-based, field tested materials. In January of 2012, PLT coordinators were awarded a grant of ~\$7,500 to build the capacity of Hawai‘i’s PLT program by developing a steering committee and hosting PLT workshops. The SC met in May 2012. The remainder of grant objectives have been planned and will be executed in FY 13.

In FY 12 outreach staff coordinated and facilitated six PLT educator workshops and certified an estimated 75 Hawai‘i educators. PLT also recruited and trained a new facilitator and continues to strive to integrate PLT in university education programs.

Outreach events, school visits, interpretive site visits, and community meetings



DOFAW information and education staff participated in 18 community outreach events; provided 17 classroom presentations to nearly 500 students at 7 schools; co-coordinated five conferences that reached nearly 4000 people; and more. The DLNR-DOFAW I&E section supported partners by providing staff on interpretive trips reaching approximately 150 students in addition to supporting community at community meetings and informational sessions.

Hawai‘i Environmental Education Alliance (HEEA)

DOFAW staff has continued to support the HEEA achieve its mission to promote and develop high quality environmental education by building relationships to improve networking and professionalism throughout Hawai‘i in the following ways:

- Coordinated the launch of HEEA
- Provide intern office space and guidance
- Support the coordination of the first annual Environmental Education Symposium which resulted in a convening of nearly 150 educators statewide.
- Meet with the DOE to discuss the importance of integrating EE in classrooms and adopting (with amendments if need be) the Hawai‘i environmental Literacy Plan.

For more information on the organization and the work that has developed as a result of this \$80k USFS grant through DOFAW, please visit www.heea.org.

FOCUS Hawai'i

FOCUS is a unique partnership launched on June 13, 2009 between the USDA Forest Service, National Ocean and Atmospheric Administration and the Wyland Foundation that inspires water conservation and natural resource appreciation from the forest to the sea. In 2011 national coordinators decided to host the fun and innovative program in Hawai'i with support of local sponsor and coordinator, the DLNR-DOFAW. FOCUS empowers young people to become clean water ambassadors working within their communities to foster long-term natural resource conservation efforts. Through FOCUS's concepts of study, exploration, and celebration, students and community gain a comprehensive understanding of water management, climate and the importance of sustainable ecosystems in everyday lives. Students across the State of Hawai'i have painted 16 murals representing their connections to Hawai'i's unique natural and cultural resources.

2011: International Year of Forests



In 2011 DLNR-DOFAW celebrated the culmination of the United Nation's designation of International of Forests at the Society of American Foresters International Conference by hosting a display of the Hawai'i FOCUS murals; coordinating a film festival for the public and participants, coordinating the display of 50 state PLR Forest boxes, and moderating and coordinating a media and communications workshop at the conference.

Web, Social Networking, Video, and Traditional Media

DOFAW information and technology staff maintain the DOFAW website: <http://hawaii.gov/dlnr/dofaw> and continue to facilitate transitions that staff hosts on other websites as appropriate. The section has been working with the Chairperson's office on the show "DLNR Revealed", a public access 30 minute program on Olelo.

Staff develops press releases; coordinate media support (b-roll, photos, etc.) as able and maintain a social networking presence by addressing the DLNR's Public Information Office with of-interest details to be "tweeted" via Twitter.

CONCLUSION

Detailed project plans and accomplishment reports for NARS, NAPP, Watershed Partnership Program, Rare Plant Program, NIP and YCC are available through links from DOFAW website <http://hawaii.gov/dlnr/dofaw> or from the:

Native Ecosystem Section Manager
Department of Land and Natural Resources
Division of Forestry and Wildlife
1151 Punchbowl Street, Room 325
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To download a copy of this report, please go to <http://hawaii.gov/dlnr/reports>

LNR 407 – NARS and WATERSHED MANAGEMENT BUDGET SUMMARY

Table A: FY 12 NARS Expenditures (General Fund Appropriation G-12-047)

Total = \$675,515.65	
NARS 'A' Personnel Expenditures FY 12 =	\$ 663,606.83
NARS 'B' Operating Expenditures FY 12 =	\$ 11,908.82

FY 13 NARS Allocation (General Fund Appropriation G-13-047)

Total = \$735,709	
NARS 'A' Personnel Allocation FY 13 (19 positions) =	\$717,137
NARS 'B' Operating Allocations FY 13 =	\$18,572

Table B: NARF Revenues FY 12 (S-12-342)

Source	Timeframe	Amount
FY 12 Conveyance Tax transfer	7/1/2011 – 6/30/2012	\$8,432,197.66
Investment pool revenues	7/1/2011 – 6/30/2012	\$ 0.00
Other	7/1/2011 – 6/30/2012	\$ 1,450.00
Total Revenues =		\$8,433,647.66

Table C: FY 12 NARF Drawdown (Special Fund Appropriation S-12-342)

Total = \$10,354,256.06	
NARF 'A' Personnel Expenditures	= \$ 1,206,533.27
NARF Operational Expenditures/Encumbrances	= \$ 5,988,154.79
Transfers Out	= \$ 3,159,568.00

FY 13 NARF Allocation (Special Fund Appropriation S-13-342)

Total = \$12,640,788	
NARF 'A' Personnel Allocation	= \$ 1,852,192
NARF Traditional Operational Allocations	= \$ 5,268,596
Watershed Grants Program Allocation	= \$ 2,500,000
Transfers Out (Revenues permitting)	= \$ 3,020,000