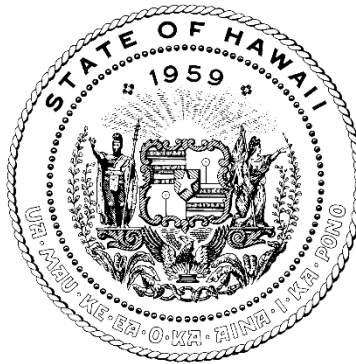


**REPORT TO THE TWENTY-NINTH LEGISLATURE
STATE OF HAWAI‘I
2018 REGULAR SESSION**

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



Prepared by

**THE STATE OF HAWAI‘I
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF FORESTRY AND WILDLIFE**

In Response to Section 195-6.6, Hawai‘i Revised Statutes

Honolulu, Hawai‘i
October 2017

**REPORT TO THE TWENTY-NINTH LEGISLATURE
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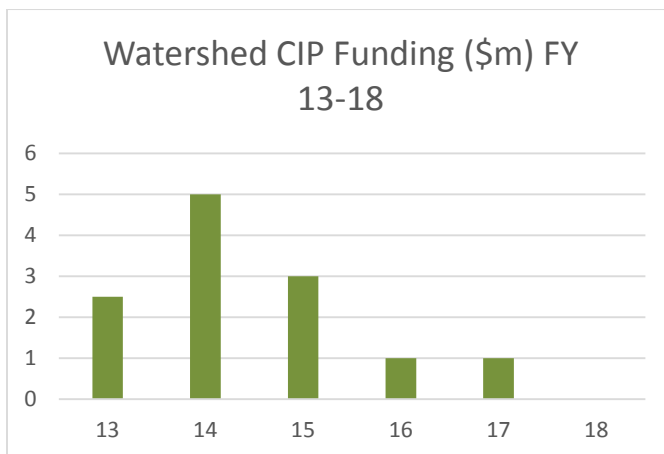
Section 195-6.6, Hawai‘i Revised Statutes (HRS), requires the Department of Land and Natural Resources (Department) to prepare an annual comprehensive status report on the Natural Area Reserves System (NARS), the Natural Area Partnership Program (NAPP) and the financial condition of the Natural Area Reserve Fund (NARF). This report also covers other programs within LNR 407 and a portion of 402, including the Watershed Partnership Program, Hawai‘i Invertebrate Program, Rare Plant Program, and the Information and Education Program.

FY 17 Accomplishments at a glance:

16%	41,357	72,000	19,770	24,409
Percent of top-priority watershed forests protected	trees and shrubs planted	hours of youth intern service contributed	acres of invasive plant control	volunteer hours donated

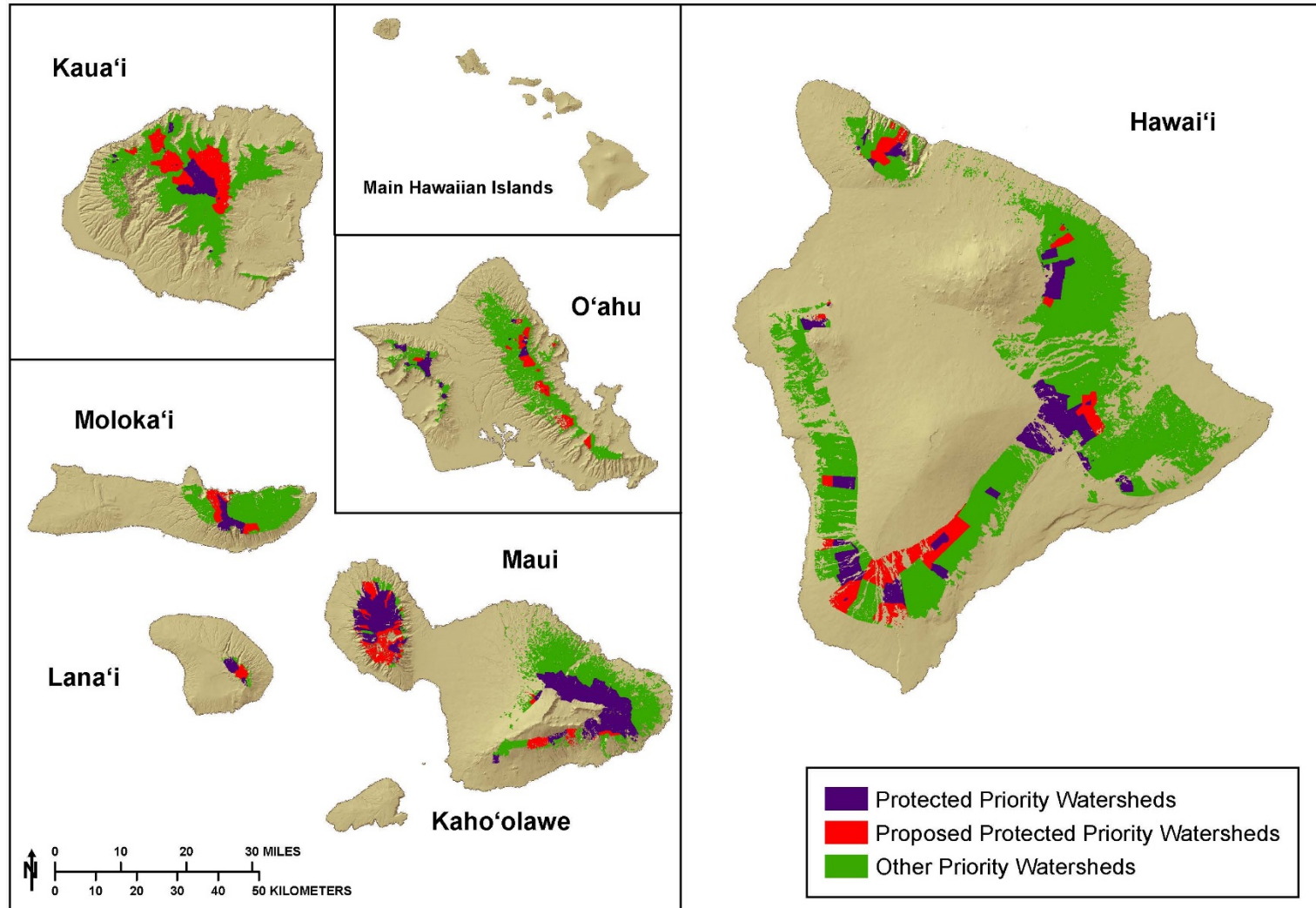
Sustainable Hawai‘i Initiative: 30x30 Watershed Protection Goal

At the 2016 International Union for Conservation of Nature (IUCN) World Conservation Congress, Governor David Ige launched the Sustainable Hawai‘i Initiative to protect 30% of priority watershed forests by 2030. To reach the goal of 253,000 acres by 2030, the Department will need an average of \$5 million per year in capital improvement project funding to build approximately 217 miles of fence (see map on next page). Hawai‘i is halfway to its goal, and the Department needs additional capital improvement project funding to stay on track. Protecting native forests is a critical tool for adapting to climate change’s drying effects, and will make Hawai‘i more resilient in extreme weather events by reducing drought, landslides, flooding, and runoff.



A fence in Wai‘anae protects forest from goats. Goats destroyed the unfenced forest, and the barren lands are eroding.

30x30 Watershed Plan

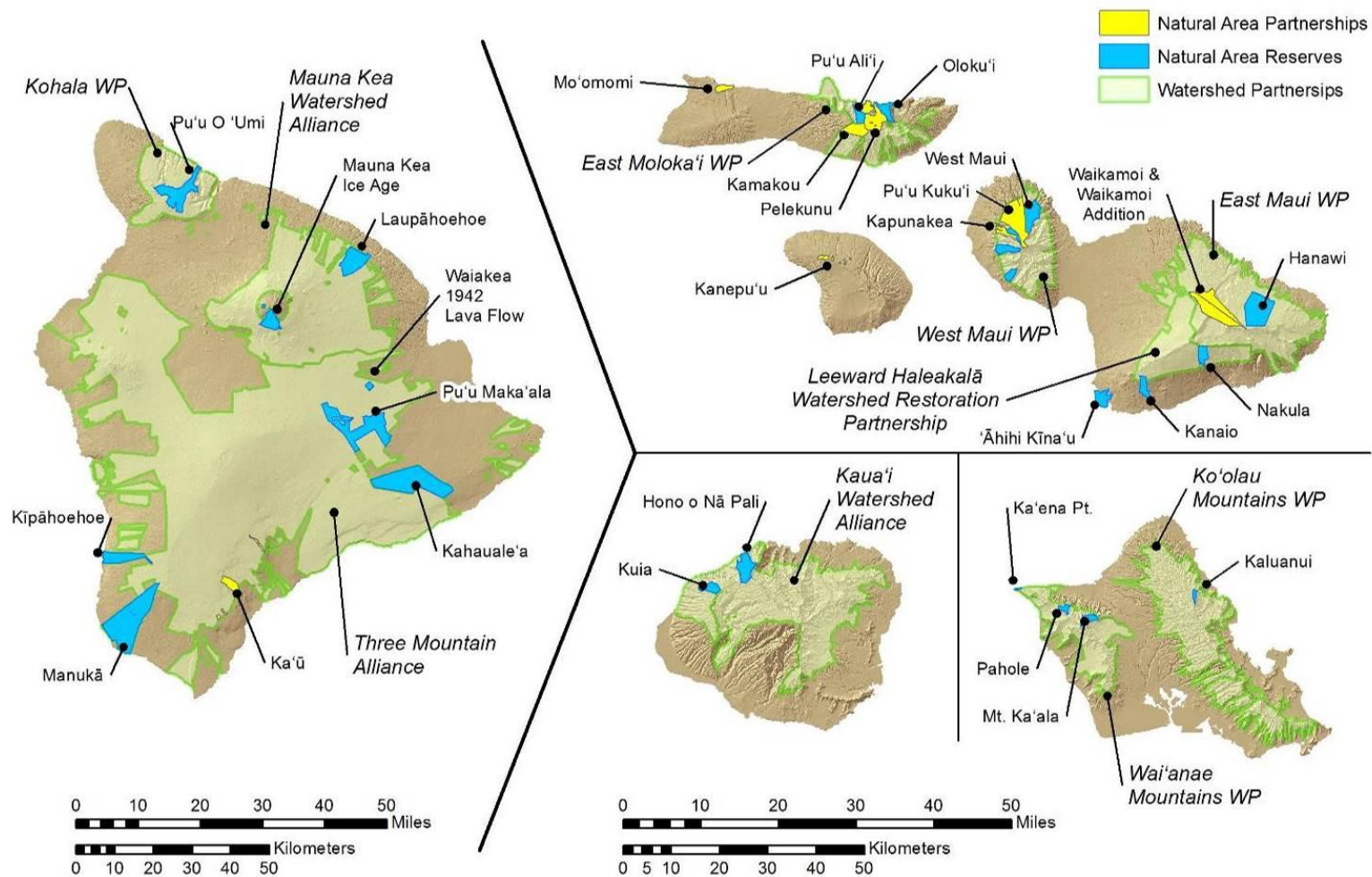


Features approximate and subject to change. DOFAW 587-4170.

Hawai'i is approximately halfway to the 2030 goal of protecting 30% of the priority watershed forests (purple areas). Areas in red are proposed to be protected to reach the 2030 target.



Natural Area Reserves, Natural Area Partnerships, and Watershed Partnerships



Locations of project sites detailed in this report. Acronyms: WP: Watershed Partnership.

1. Programs

The main activities of the programs supported by LNR 407 are: fencing and control of hoofed animals such as cattle, sheep, deer and pigs; control of other invasive species (weeds, non-native mammalian predators); reforestation; rare plant and wildlife monitoring, propagation, and reintroduction; fire prevention and suppression; maintenance of infrastructure; and public outreach. These programs also provide emergency response by responding to wildfires on non-departmental lands, and maintaining roads, shelters, signs, and helipads.

The complementary programs supported by LNR 407 are:

Natural Area Reserves: State lands that preserve in perpetuity specific land and water areas which support communities, as relatively unmodified as possible, of the natural flora and fauna, as well as geological sites, of Hawai‘i.



[Ka‘ena Point Natural Area Reserve, O‘ahu](#)

Watershed Partnerships: Voluntary alliances of public and private landowners committed to protecting over 2 million acres of the most important watershed lands in Hawai‘i. Organizations and agencies compete for funding through an annual Request For Proposals, and State funds leverage Federal, County, and private monies on a 1:1 basis, doubling the impact of the state investment.

Natural Area Partnerships: Private lands permanently dedicated to conservation. State funds are matched with private funds, providing long-term protection, financial support and management to protect, restore and enhance unique natural resources.

Rare Plant Program: Perpetuates the native flora of Hawai‘i. In Fiscal Year (FY) 17, state funds were matched 3:1 by federal dollars. This program includes nurseries and storage facilities to prevent extinction by propagating and storing plants for reintroduction into natural habitats. The Program also includes the Plant Extinction Prevention Program that protects the 237 species that number fewer than 50 individuals remaining in the wild.



[Endangered *Lysimachia iniki*,
Kaua‘i](#)

Hawai‘i Invertebrate Program: Directs resource management, monitoring, research, conservation, and policy relating to rare and federally listed threatened and endangered native invertebrate species. In FY 17, State funds were matched 4:1 by Federal dollars.

This program includes the Snail Extinction Prevention Program, a partnership between DLNR and the United States Fish and Wildlife Service to prevent the extinction of rare Hawaiian land snail species, and preserve the ecosystems upon which they depend.

Information and Education Program: Connects with communities across demographics and islands through press releases, community events, presentations, websites, social media, educator workshops, field trips, classroom visits, volunteer trips, and Youth Conservation Corps internships.

2. Summary of Accomplishments

FY 17 Accomplishments		Prog.	Invasive plants search & control	Protected from hooved animals	Planting common and T&E species	Volunteer Contributions	Fence (new constructed)	Fence (maintained)
Location			Acres	Acres	Number	Hours	Miles	Miles
Kauaʻi	Hono O Nā Pali	NAR	59	2,500	70	0	0.6	3.3
	Kuia	NAR	263	129	637	1,889	0.0	4.1
	Līhue Kōloa Forest Reserve	NAR	0	18	0	0	0.0	0.2
	Kauaʻi Watershed Alliance	WP	191	6,928	0	0	4.4	8.6
Oʻahu	Pahole	NAR	41	650	1,581	1,616	0.0	7.0
	Kaʻena Point	NAR	4	65	140	1,240	0.0	0.4
	Mt. Kaʻala	NAR	19	50	0	419	2.0	3.0
	Poamoho (Ewa Forest Reserve)	NAR	135	1,300	33	0	3.5	8.0
	Kaluanui	NAR	0	0	0	0	4.0	0.0
	Various other locations	NAR	0	0	527	200	0.0	0.0
	Koʻolau Mountains	WP	806	1,298	2,482	0	0.3	17.2
Maui, Molokaʻi, and Lānaʻi	ʻĀhihi-Kīnaʻu	NAR	4	626	1,594	2,569	0.0	4.4
	Hanawī	NAR	0	6,411	0	168	0.0	14.3
	Nakula	NAR	377	1,500	11,555	1,040	0.0	8.9
	Kanaio	NAR	224	1,450	1,100	1,576	0.0	7.6
	West Maui	NAR	0	5,461	0	0	0.0	3.6
	Puʻu Aliʻi	NAR	0	1,330	0	0	0.0	6.5
	Olokuʻi	NAR	0	1,620	0	0	0.0	0.1
	West Maui Mountains	WP	50	8,843	127	0	0.0	3.3
	Leeward Haleakalā Restoration	WP	1,274	5,145	0	1,530	0.0	9.4
	East Maui	WP	113	7,201	225	0	0.0	6.4
	East Molokaʻi	WP	295	750	1,600	0	0.0	13.0
	Kamakou	NAP	1,762	7,736	0	116	0.0	1.3
	Moʻomomi	NAP	29	175	0	926	0.0	3.7
	Pelekunu	NAP	1	11,900	0	0	0.0	0.0
	Puʻu Kukui	NAP	232	8,824	0	9,448	0.7	5.4
	Waikamoi	NAP	1,016	5,954	6	227	0.0	9.7
	Waikamoi Addition	NAP	0	969	83	60	0.0	3.5
	Kapunakea	NAP	29	1,232	0	9	0.0	6.0
	Kānepuʻu	NAP	16	346	0	475	0.0	8.1

(Continued on the next page)

Acronyms: T&E: Threatened and Endangered. NAR: Natural Area Reserve. NAP: Natural Area Partnership. WP: Watershed Partnership.

FY 17 Accomplishments (continued)		Prog.	Invasive plants search & control	Protected from hooved animals	Planting common and T&E species	Volunteer Contributions	Fence (new constructed)	Fence (maintained)
Location			Acres	Acres	Number	Hours	Miles	Miles
Hawai‘i	Mauna Kea Ice Age	NAR	0	3,894	0	0	0.0	0.8
	Pu‘u O ‘Umi	NAR	267	2,422	221	0	1.6	10.0
	Laupāhoehoe	NAR	0	17	0	43	0.0	1.1
	Kahauale‘a	NAR	1	154	0	0	0.0	2.8
	Kīpāhoehoe	NAR	113	1,331	1,570	0	0.0	9.2
	Pu‘u Maka‘ala	NAR	575	12,065	7,973	16	0.0	60.3
	Manukā	NAR	10,513	1,459	4,077	8	5.7	33.4
	Pu‘u Wa‘awa‘a Sanctuary	NAR	0	3,872	1,435	0	0.0	19.0
	Koai‘a Corridor Sanctuary	NAR	222	222	3,585	0	0.0	2.9
	Various other locations	NAR	0	36	0	49	2.8	0.8
	Three Mountain Alliance	WP	216	31,383	0	0	0.0	35.0
	Kohala	WP	546	7,868	736	0	1.0	34.5
	Mauna Kea Watershed Alliance	WP	321	525	0	0	2.5	6.2
	Ka‘ū	NAP	55	2,000	0	686	0.0	8.6
TOTAL			19,770	157,659	41,357	24,409	29.2	391.6

Acres protected from hooved animals include both areas within the watershed priority areas that are in wet and mesic climates, as well as ecosystems important for other reasons, such as native dryland forests.

In addition to the accomplishments listed in the previous chart, notable milestones include:

Location		Program	Accomplishment
Kauaʻi	Kauaʻi Watershed Alliance	WP	Completed the 6.8-mile Halehāhā pig/deer fence on Kauaʻi, representing a major step toward protection of 1,348 acres of high priority watershed that is also vital endangered forest bird habitat.
	Poamoho	NAR	Completed the Poamoho north and south fences and most pigs have been removed.
Oʻahu	Koʻolau/Waiʻanae Mtns.	SEPP	Controlled predators and monitored 50 different populations of rare snails.
	Kawainui	HIP	Established the first State insectary facility to propagate and reintroduce rare species back into natural areas from which they have been wiped out, including our State Insect, the Kamehameha butterfly. Also established a captive rearing facility to recover rare snail species that are at risk of imminent extinction. The facility currently houses 15 species, three of which no longer occur in the wild.
	Lyon Arboretum, Mānoa	RPP	Received 186 separate collections representing 53 species in the Micropropagation Laboratory. The lab has an inventory of 30,706 collections. Also added 599 new collections of seeds from 97 species to the Seed Conservation Laboratory. A total of 1,083,654 seeds were deposited into the seed bank.
Maui, Molokaʻi, & Lānaʻi	ʻĀhihi-Kīnaʻu	NAR	Finished construction of a 626-acre fence and offered 545 hours of public hunts to assist with removal of 193 goats and deer. The parking lot has also been completed.
	Nakula	NAR	Ongoing planting, fencing, and hooved animal removal from Nakula NAR has led to an increase from 6 to 24 nesting Hawaiian Petrel burrows. The tree planting will also help make a bird-suitable forest for the planned Kiwīkiu bird translocation.
	East Maui	WP	Made major progress in a systematic plan to curb the spread of invasive Himalayan ginger into pristine watershed area in the upper parts of Keʻanae Valley (Koʻolau Gap).
	Leeward Haleakalā	WP	Developed a native seed ball outreach program with local schools children for restoration and erosion reduction on the barren southern slopes of Haleakalā.
	East Molokaʻi	WP	Removed 18,000 weeds that were threatening the health of East Molokaʻi.
Hawaiʻi	Three Mountain Alliance	WP	Fenced the first 2,000-acre management unit in Kaʻū.
	Mauna Kea Watershed Alliance	WP	Executed a 10-15 year agreement with the Department of Hawaiian Home Lands to conduct restoration at Waipāhoehoe, on the mountain slopes above Hilo.

Acronyms: NAR: Natural Area Reserve. NAP: WP: Watershed Partnership. SEPP: Snail Extinction Prevention Program. HIP: Hawaiʻi Invertebrate Program. RPP: Rare Plant Program.

Additional statewide accomplishments include:

Hawaiian Mid-Elevation Rare Plant Facilities:

- Four nurseries propagated 314 different types of rare plants with 9,613 individuals out-planted back into natural habitats.

Plant Extinction Prevention Program (PEPP):

- Led a conservation campus at the 2016 IUCN World Conservation Congress, co-sponsored with the Harold L. Lyon Arboretum. The campus trained participants from 20 countries on cutting-edge plant conservation techniques used in Hawai‘i.
- Protected 176 threatened and endangered plant species and 134 PEPP species from extinction, including reintroduction of 43 PEPP species totaling 4,820 plants into protected habitat, representing an almost two-fold increase of plantings from last year.
- Discovered plant species new to science and others that were thought to be extinct.
- Effectively halted plant extinctions since PEPP’s inception in 2003. Before PEPP, Hawai‘i had been experiencing approximately one extinction per year.



Plant Extinction Prevention botanist monitors *Cyanea rivularis*. There are fewer than 10 individuals of this species remaining in the wild.

Hawai‘i Invertebrate Program:

- Re-invigorated the State Mosquito Working group to increase communication and collaboration across the many agencies and institutions dealing with mosquitos and the diseases they spread.
- Developed a public database to house both historical and contemporary invertebrate data and receive online permit applications. This is a collaborative project with the Department of Business, Economic Development and Tourism.



Released 974 lab reared Kamehameha butterflies at five sites in the Ko‘olaus. At four of the sites, caterpillars were found within a few weeks of the releases, indicating successful mating and egg laying.

Snail Extinction Prevention Program (SEPP):

- Conducted candidate endangered species surveys on Lāna‘i, Maui, and Hawai‘i Island, with partners at the Bishop Museum, University of Hawai‘i and the United States Fish and Wildlife Service.
- Received funding from the United States Fish and Wildlife Service to survey, monitor and construct a predator-proof fence on Maui to protect endangered snail species from invasive predators.

Kāhuli or Hawaiian tree snails have beautiful shells and are famous in Hawaiian lore for their ability to sing. Unfortunately, kāhuli have been severely impacted by invasive predators, and now most species are threatened with extinction. The species featured (*Achatinella lila*) was recently reintroduced to its former range on O‘ahu from captive propagation efforts. This was the first time in history that a Hawaiian snail has been reintroduced to the wild (Photo: David Sischo, DLNR).



Information and Education Program:

- The Youth Conservation Corps Program enables young adults to gain entry-level experience as they work with natural resource professionals. Internships often lead to future jobs or advanced educational degrees in natural resource management. The program mentored 42 year-round interns in addition to 15 weeks of project service learning for a number of teams throughout the summer program and 10 summer interns. These individuals dedicated approximately 72,000 hours of service.
- Project Learning Tree (PLT) Program is a national program that provides Hawai‘i’s educators with locally- and nationally-relevant resources that connect to state standards. The Department’s Division of Forestry and Wildlife (DOFAW) uses PLT’s standards-based, field tested materials. The PLT program completed workshops with 86 educators, and trained 91 afterschool program leaders.

International Union for the Conservation of Nature World Conservation Congress:

LNR 407 managed the contract and helped coordinate the 2016 IUCN World Conservation Congress. Held every four years, this was the first Congress to be held in the United States, drawing over 10,000 participants engaged in global and local conservation efforts, making it the most widely attended Congress ever. The Department delivered the Closing Report for the final report on the Congress (<http://dlnr.hawaii.gov/reports/>), reporting \$2.9 million in State funds appropriated for the Congress to be returned to Hawai‘i’s general fund. Through the Congress, the State of Hawai‘i contributed to the “Hawai‘i Commitments” outcome of the congress via resolutions relating to conservation and sustainability. The six goals relating to a culture of conservation, the challenges of the planet, preservation of the ocean, wildlife trafficking, private sector engagement, and climate change, will be revisited in connection with the 2020 Congress.

2. STATUS OF PUBLIC HUNTING OPPORTUNITIES

Under Natural Area Reserves System (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 a control option in many areas within NARS, with most NARS acreage now open to hunting every day with no bag limit (rules available online). Staff animal control (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. Staff continues to work with hunting organizations and others to find ways that the animal control goals of the program can provide opportunities for the hunting community.

In Natural Area Partnership Preserves on private land, the public hunting opportunities vary:

- Kamakou and Pu‘u Kukui Preserves are open for public hunting 365 days/year, with no bag limit. During extreme fire hazard, unsafe road conditions, et cetera, all or portions of the Preserve may be closed. Kānepu‘u and Ka‘ū Preserves also have volunteer hunt programs.
- Waikamoi Preserve’s conservation easement allows ranch employees to hunt. Public hunters are permitted to hunt in portions of the Preserve when it does not interfere with management, guided hikes, and ranch employee hunting.
- Kapunakea Preserve’s conservation easement requires that there be no unaccompanied public hunting. The Preserve is closed to hunting with dogs due to snaring.
- Mo‘omomi Preserve does not have public hunting due to safety concerns and limited resources for administration and enforcement.

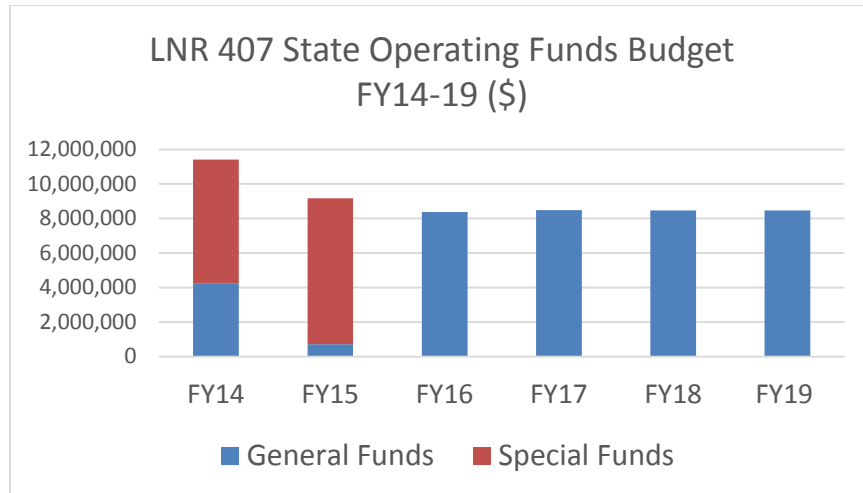
3. ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED

These programs are highly reliant on steady sources of funding. Even a single year of budget cuts can undo decades of progress if fences and firebreaks are not maintained, invasive weeds are allowed to spread, etc. Budget cuts can even result in extinction of native Hawaiian species, which rely on active and sustained management. Many of these programs rely primarily on Federal funding and are anticipating significant cuts with the proposed President’s budget. To prevent extinctions and major losses to the programs, State funding will need to be maintained or increase.

Establishing civil service staff positions is often more cost-effective and high-quality than contracted labor. The specialized conservation work requires extensive training in wilderness safety and knowledge of remote landscapes and plants and wildlife. DOFAW would like to reduce reliance on contracted work, saving State overhead costs and decreasing disruptive turnover rates. However, DOFAW lost four civil service positions in the State’s budget for FY 18, mostly impacting the Natural Area Reserves. Recovering these positions and establishing new positions is a priority.

4. FINANCIAL CONDITION OF THE NATURAL AREA RESERVE FUND (NARF)

Since FY 16, the NARF’s spending ceiling and conveyance tax funding source have been eliminated and replaced by general funds, pursuant to Act 84, SLH 2015. However, the Department will begin to raise revenues into the NARF through parking fees at ‘Āhihi Kīna‘ū NAR. Assessing a fee was justified by the management plan as a way to collect revenues to support management of the NARS. The spending ceiling will need to be increased to enable the Department to use those parking fee revenues.



This figure does not include funding specifically allocated for the 2016 IUCN World Conservation Congress (\$100,000 general funds and \$3.9m special funds in FY 15).

5. CONCLUSION

Detailed project plans and accomplishment reports are available at <http://dlnr.hawaii.gov/ecosystems> or from the Department/DOFAW Native Ecosystem Section Manager at Emma.Yuen@hawaii.gov or (808) 587-4170.

Notes:

This legislative report does not contain a section on the compliance with Chapter 42F, HRS, since Chapter 42F, HRS, is no longer applicable to the types of grants issued under NAPP.

Due to the time required for contracting, this report summarizes Watershed Partnership activities that were carried out using FY16 funds, which largely occurred during FY 17. This report includes only actions funded by the State Watershed Partnerships Program Grants; additional partnership work is funded by federal, county and private funds.



Watershed protection fence in the Kaluanui Natural Area Reserve, O'ahu