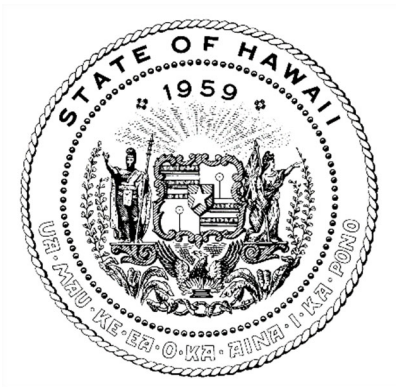


**REPORT TO THE THIRTY-SECOND LEGISLATURE
STATE OF HAWAI‘I
2024 REGULAR SESSION**

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

Section 195-6.6, Hawai‘i Revised Statutes (HRS), requires a 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 LNR 402, including the Watershed Partnerships Program, Hawai‘i Invertebrate Program, Rare Plant Program, and the Information and Education Program.

FY 23 Accomplishments at a glance:

13	12,593	68,000	10,497	14,596
Miles of fence constructed	Trees and shrubs planted	Hours of youth intern service contributed	Acres of invasive plant control	Volunteer hours donated



The Natural Area Reserves and Watershed Partnerships programs are essential for wildfire coordination, response, and prevention. Staff are on the front lines of firefighting as trained wildfire fighters and incident commanders. These programs work across landowner boundaries to put firebreaks and water sources where they are most strategic across the landscape. For example, the East Molokai Watershed Partnership coordinated a firefighting plan with multiple landowners, the Department of Land and Natural Resources (DLNR), and the County, and raised funding to clear various firebreak roads across the south slope of Moloka‘i. That road has been highly successful in stopping damaging wildfires that could have spread further towards residences, public roads, and forests. In addition to the cross-boundary planning, fundraising, and project implementation, the watershed partnerships help with logistics, such as assuring that DLNR and County fire fighters have keys to gates on private access roads in case they need immediate access during a fire. However, these partnerships are soft-funded, have relatively small crews (most less than a dozen staff) and yet they are responsible for this essential wildfire task, plus management of many other threats. Even the maintenance of existing firebreaks does not have stable, reliable funding and the partnerships must seek grants to continue this work over

time. After the Lahaina fire tragedy, it is important to revisit the State's investment in these essential programs to make sure Hawai'i is better prepared for future disasters. Additional civil service staff and funding dedicated to maintaining and expanding firebreaks and water infrastructure, firefighting equipment, and coordination support would provide an ounce of prevention that will undoubtedly save lives and Hawaii's lands from the increased threat of damaging wildfires.



In 1998, a fire burned 15,000 acres on the South slope of Molokai. This firebreak road was then installed by the Watershed Partnership, and a similar fire in 2009 was successfully contained to roughly 8,000 acres in the same location. The relative success in 2009 compared to 1998 is attributed to the Partnership's efforts to convene the Molokai Fire Task Force and install firebreaks and coordinate firefighting logistics.

A firebreak road installed by the East Molokai Watershed Partnership prevented a fire from spreading east (left) in 2009. A similar fire that burned before the firebreak spread twice as far a decade earlier.

FY23 Branch Highlights



DLNR received a large grant from the Dept. of Defense to protect watershed forests that supply water to the entire island, including the Pacific Missile Range Facility. In FY23, the program

completed a DoD-funded fence along the rim of Kalalau that is protecting forests from turning into bare dirt by goats, deer, and pigs (as shown above).

O‘ahu



As our islands become hotter and drier, forests become even more essential for replenishing freshwater supplies. DLNR is building a network of landscape-level protected areas across the Ko‘olau mountains, and completed the 730-acre Opae‘ula fenced unit this year.

Maui Nui



On Molokai, DOFAW has used State Watershed CIP funds to provide the needed match for large Federal grants that support wildfire prevention and management of the large Axis deer population. DOFAW has cleared and repaired firebreak roads on the south slope of Moloka‘i to provide firefighting access and to stop fires from expanding to communities and forests; however, many more roads need clearing.

Hawai‘i



Pu‘u Maka‘ala Natural Area Reserve now protects 1,100 acres from predators – one of the State’s largest predator grids. These intensively trapped areas protect endangered forest birds from cats, rats, and mongooses. Additionally, over 3,600 acres were fenced to protect forests from hooved animals in Hawai‘i Natural Area Reserves this year.

Programs

The main activities of the programs supported by the Native Ecosystem Protection and Management program are fencing and control of hooved animals such as cattle, sheep, deer, and pigs; control of other invasive species (weeds, non-native predators); reforestation; rare plant and wildlife protection, monitoring, propagation, and reintroduction; fire prevention and suppression; maintenance of infrastructure; and public outreach. These programs also provide emergency response by responding to wildfires and natural disasters, and maintaining roads, shelters, signs, and helipads.

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.

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

Rare Plant Program: Perpetuates the unique native flora of Hawai‘i. In FY 23, State funds were matched over 3:1 by Federal dollars. The Program supports plant nurseries and seed storage facilities on Kaua‘i, O‘ahu, Maui, and Hawai‘i Island. These facilities grow thousands of threatened and endangered plants every year for restoring native plant communities in protected habitats. The Program also includes the Plant Extinction Prevention Program which focuses efforts on the 260 rarest native plant species with fewer than 50 individuals remaining in the wild. Nearly 10% of Hawai‘i’s native plants are extinct. Together, these programs provide a safety net, preventing further extinction of plant species found nowhere else in the world.



An unknown Lobelia species was found through drone surveys in remote cliffs of Kualoa on O‘ahu. New plant species are still being discovered during surveys of remote areas.

Hawai‘i Invertebrate Program: Insects and other invertebrates are experiencing catastrophic declines worldwide and those declines have a cascade of impacts on native ecosystems and people. Hawai‘i is no exception to this trend, which is why Hawai‘i Invertebrate Program seeks to stabilize and recover rare native invertebrate species through captive rearing, translocations, habitat enhancement, research, and policy. HIP includes the Snail Extinction Prevention Program, a partnership with the U.S. Fish and Wildlife Service. Estimates suggest that over 100 snail species are facing imminent extinction.

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.

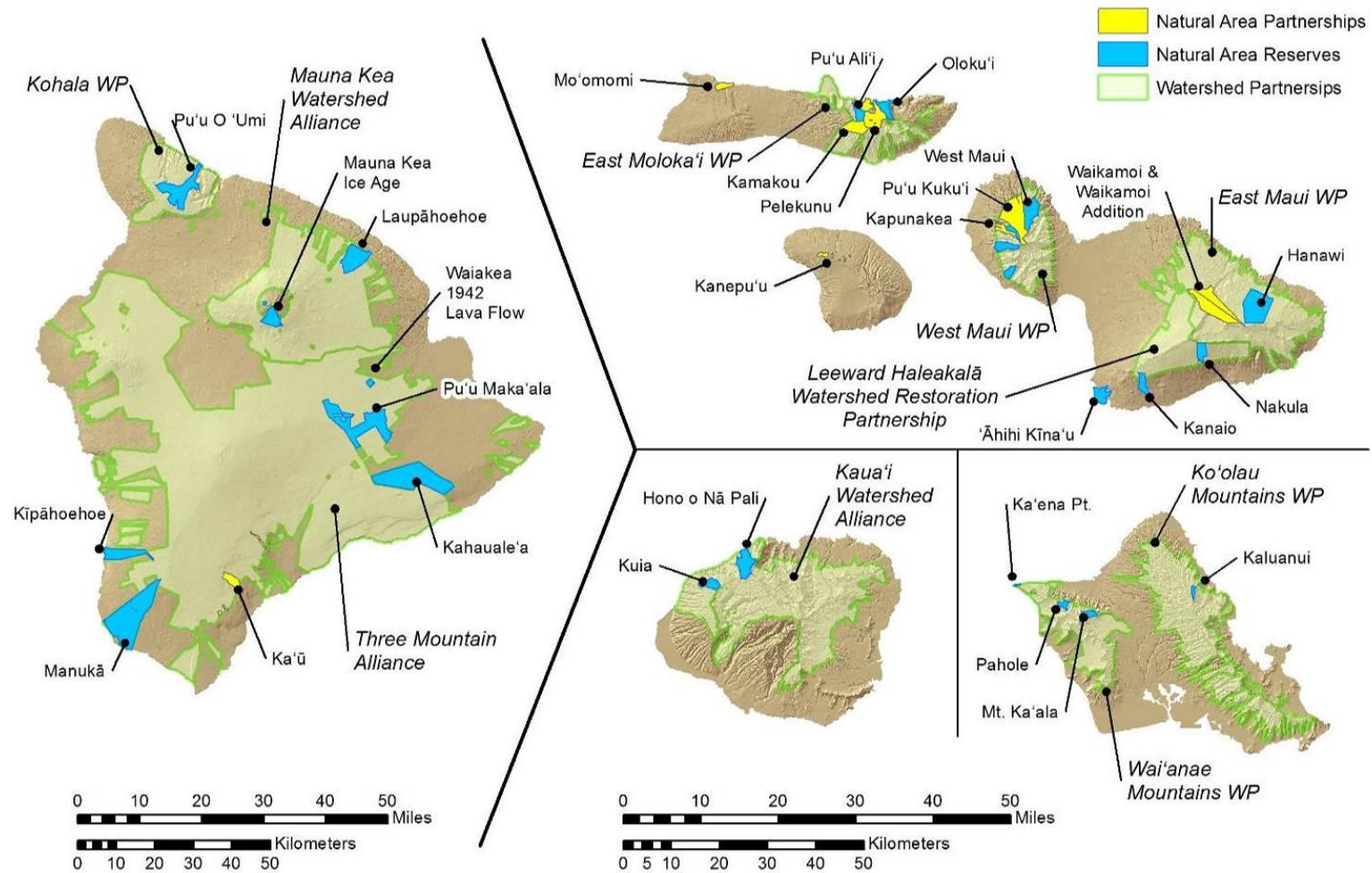
Information and Education Program: Connects with communities through press releases, community events, presentations, websites, social media, field trips, classroom visits, volunteer trips, educator workshops, and Youth Conservation Corps internships. Through the Project Learning Tree program DOFAW supports the training of local educators in connecting students with nature. The Youth Conservation Corps Program enables young adults to gain entry-level experience as they work with natural resource professionals. In FY23 the program worked with roughly 40 year-round workplace training placements through a partnership with local non-profit Kupu. These positions, which include both Americorps-subsidized Conservation and Leadership Develop Program members and the new Kupu ‘Aina Corps positions funded through the Green Jobs program, provided approximately 68,000 hours of service.



Legislators learning about wildfire prevention and preparedness at Pu'u wa'awa'a, Hawai'i.



Natural Area Reserves, Natural Area Partnerships, and Watershed Partnerships



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

FY 23 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
Kaua'i	Hono O Na Pali	NAR	10	3,578	395	160	-	5.40
	Kuia	NAR	33	133	460	570	-	4.81
	Lihue Kōloa Forest Reserve	NAR	6	23	50	-	-	0.15
	Honopu	NAR	25	238	5	-	0.23	2.50
	Kauai Invasive Species Committee	WP	131					
	Kaua'i Watershed Alliance	WP		9,000				13.10
O'ahu	Pahole	NAR	43	650	1,418	3,452		7.00
	Ka'ena Point	NAR	7	65	1,129	700		0.40
	Mt. Ka'ala	NAR	25	1,526	79	475		9.75
	Poamoho (Ewa Forest Reserve)	NAR	-	1,300	444	-		*
	Kaluanui	NAR	4	540	-	-		4.50
	Pia	NAR	1	-	283	-	-	-
	Various other locations	NAR	73	741	1,003	888	2.00	
	O'ahu Invasive Species Committee	WP	22					
	Wai'anae Mountains WP	WP						
	Ko'olau Mountains	WP	253	** 2306		157	-	17.00
Maui, Moloka'i, and Lanai'i	'Āhihi-Kīna'u	NAR	17	626	260	1,000		4.40
	Hanawī	NAR		6,411				14.30
	Nakula	NAR		1,500				8.90
	Kanaio	NAR	50	1,450				7.60
	West Maui	NAR		5,461				8.00
	Pu'u Ali'i & Oloku'i	NAR		2,950				6.65
	Mauna Kahalawai (West Maui)	WP	34	9,512		215	1.50	4.90
	East Maui	WP	376	11,650		170	-	6.40
	East Moloka'i, Kamakou, Pelekunu	WP/NAPP	137	15,947	-	36		11.00
	Mo'omomi	NAP	16	175	-	480		3.75
	Pu'u Kukui	NAP	60	4,750	1,674	2,683		8.12
	Waikamoi, Kapunakea, Kanepu'u	NAP	1,704	7,944	-	1,322		15.00
Hawai'i	Mauna Kea Ice Age	NAR		3,894	650			0.81
	Pu'u O 'Umi	NAR	84	3,531	200	43	1.00	17.14
	Laupāhoehoe	NAR	13	17				1.12
	Kahaule'a	NAR	2	150				2.77
	Kipāhoehoe	NAR	68	4,099	1,106		6.05	10.97
	Pu'u Maka'ala & proposed extension	NAR	173	12,802	2,021	291	0.12	55.91
	Manukā	NAR	6,742	25,550	52	22	0.29	29.69
	Waiea	NAR	6	1	129			0.21
	Pu'u Wa'awa'a Sanctuary	NAR	84	3,748	117			15.53
	Koai'a Corridor Sanctuary	NAR	8	222	293			2.90
	Various other locations	NAR	119	168	50		1.75	8.47
	Three Mountain Alliance	WP		34,477			-	20.30
	Kohala	WP	97	1,834	363	1,310	0.50	16.00
	Mauna Kea Watershed Alliance	WP	42	1,100	400			5.78
	Ka'ū	NAP	33	2,000	12	622		8.64
TOTAL			10,497	179,763	12,593	14,596	13	360

*Multiple agencies may alternate duties to maintain the same length of fence in quarterly maintenance schedules.

**Co-managed Poamoho with KMWP.

Acronym s:

WP: Watershed Partnership

NAR: Natural Area Reserve

NAP: Natural Area Partnership

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.



'Ākiapola'au in Pu'u Maka'ala Natural Area Reserve. The program has installed the largest predator grid in the state to protect forest birds.

Additional Statewide Accomplishments

Hawaiian Mid-Elevation Rare Plant Facilities:

- DOFAW's Rare Plant Program uses an integrated approach to plant conservation that protects native plants where they live and uses specialized nurseries to grow plants for restoration and store seeds in seed banks. Cutting-edge research on micropropagation, cryo-preservation, and seed banking is underway. These technologies will secure collections of native plants in storage until they are needed for species recovery.
- Plant nursery facilities shelter living collections of Hawaii's rarest plants and produce thousands of young plants for ongoing restoration and reforestation projects. Last year, over 18,000 plants of 165 endangered species were produced for restoration projects statewide. These plants were transferred to protected habitat to resume their roles in native ecosystems and prevent extinction.



A new nursery facility has doubled our capacity for growing rare plants at Koke'e, Kaua'i

- The Seed Conservation Lab at Lyon Arboretum maintains twelve million seeds of threatened and endangered Hawaiian plants, the single largest collection of its kind in the world. In the last year, 1,452,523 seeds from over 550 collections of 155 rare species were processed and stored. In addition, over 13 million 'ōhi'a seeds are now secured at Lyon Arboretum, providing an important safeguard against Rapid 'Ōhi'a Death.
- Lyon's Micropropagation Lab continues to maintain over 34,000 germplasm cultures of threatened and endangered plants. In the last year, they received 150 new collections from 44 different species and sent hundreds of individual plants out to be planted at restoration projects statewide.



Monitoring an endangered species of naupaka on the north shore of Molokai. PC: Kawaila Purdy

Plant Extinction Prevention Program:

Over the last year, staff on Kaua'i planted hundreds of *Cyanea rivularis*, a rare species only found on Kaua'i, back into protected habitat for the first time. Moloka'i staff planted *Scaevola coriacea* at Kalaupapa National Park. On Maui, staff published the discovery of a new native

plant species, *Clermontia hanaulaensis*, from Mauna Kahalawai and collected hundreds of seeds for future out-planting. Hawai‘i Island cooperated with Kamehameha Schools to successfully add *Vicia menziesii* to their conservation nursery collection. Read more about accomplishments of the Rare Plant Program here: https://dlnr.hawaii.gov/ecosystems/files/2023/02/Rare-Plant-Program-Highlights-2022_FINAL.pdf.

- Plant Extinction Prevention Program (PEPP) and DOFAW botanists worked to conserve 235 rare plant species. Staff focus on priority actions included surveys, monitoring, collecting seeds, controlling threats from invasive species, and restoration out-plantings at over 100 sites.



Clemontia hanaulaensis, a new native plant species discovered by the Maui Nui Plant Extinction Prevention Program on Mauna Kahalawai, Maui

Hawai‘i Invertebrate Program (HIP):

- The HIP continues to direct vital resources to stabilize and recover populations of rare, threatened and endangered insect species, leveraging state funds to obtain federal grants.
- In FY23, HIP was awarded \$383,972 from the DOD Readiness and Environmental Protection Integration program, to continue work with nine endangered insect species (including picture-wing *Drosophila* flies, damselflies and yellow-faced bees).
- Awarded additional federal funds to support a Survey Entomologist to conduct surveys and assess the status of native insects statewide, as well as prioritize conservation and management needs.
- HIP has also received competitive federal grants to continue work on invasive invertebrate species. For example, HIP is working to control the invasive southern house mosquito using incompatible insect technique in endangered forest bird habitat in collaboration with the Hawai‘i Department of Health.

- A total of 2,647 endangered orange-black damselflies were raised at the DLNR-DOFAW Insectary in Kawainui and released to a reintroduction site at the Dillingham Military Reservation and a declining population at Tripler Army Medical Center in FY23, contributing towards the continued effort to recover populations of the damselfly on O`ahu.
- In collaboration with UHM, captive rearing is underway for two highly endangered picture-wing fly species: *Drosophila hemipeza* and *D. montgomeryi*. Additionally, a total of 180 *D. montgomeryi* were reared, and 10,724 *D. hemipeza* were reared and released at the Manoa Cliffs Restoration Area on Mount Tantalus and the Ekahanui Management Unit in Honouliuli FR in FY23.
- Two species of Hawaiian leaf-roller moths have also been reintroduced into areas of Oahu where they had previously disappeared. A total of 379 *Omiodes anastrepta* and 388 *O. continuatalis* have been released and monitoring will continue to evaluate population establishment.



Hawaiian orange-black damselfly.

Snail Extinction Prevention Program (SEPP):

- In 2023 the SEPP captive rearing facility was moved from Kailua to the Waimano State Complex in Pearl City. The new larger facility has allowed SEPP to expand efforts to encompass more species and to generate more individuals to release back into the wild. Funding for the project came from State CIP funds and from US Fish and Wildlife Service Recovery Implementation Funds.
- SEPP currently maintains around 40 species of rare and endangered snails in captivity, many of which no longer have wild counterparts. These “jewels of the forest” rely on these extreme measures to prevent extinction.
- Over the past three years SEPP has released over 10,000 rare and endangered snails from captive rearing back into the wild with partners at the Bishop Museum and the Honolulu Zoo.
- SEPP has received a \$500,000 Competitive State Wildlife Grant from the U.S. Fish and Wildlife Service to partner with the Kohala Watershed Partnership and the Parker Ranch to conserve the last existing large tree snail species on Hawai‘i Island.



Governor Josh Green has declared 2023 the Year of the Kāhuli, to both draw attention to this extinction crisis and to plant these species back in the public conscience. Festivities surrounding this proclamation include the release of a documentary highlighting the work of SEPP and partners across the state, as well as a Kāhuli Festival at the Bishop Museum in September of 2023.

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 utilized in many areas within Natural Area Reserves, with most lands now open to hunting year-round daily. Staff animal control, including fencing, trapping, staff hunting, snaring, and aerial shooting are used as needed, or as resources permit, in specified areas where public hunting is not able to reduce hooved animal impacts to low enough levels. 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 Preserve is open for public hunting 365 days a year, with no bag limit. During extreme fire hazard or unsafe road conditions, all or portions of the preserve may be closed. Kanepu‘u, Pu‘u Kukui, 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, or ranch employee hunting.
- Mo‘omomi Preserve does not have public hunting due to safety concerns and limited resources for administration and enforcement.

ANALYSIS OF THE PROBLEMS AND ISSUES ENCOUNTERED

The hiring process for external recruitment is taking longer than expected, however the Department is attempting to fill vacancies as quickly as possible. The Department continues to request establishment of critically needed priority positions. These civil service positions provide experience and long-term oversight for highly complex natural resource management programs, and their duties cannot be contracted. These staff serve as wildland firefighters and natural disaster responders. Having stable staffing is key for effective program management as specialized conservation work requires extensive training in wilderness safety, disaster response, and knowledge of remote landscapes and hundreds of species of plants and wildlife.

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 is raising revenues through parking fees for non-residents at ‘Āhihi Kina‘ū NAR. Assessing a fee was identified by the management plan 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. The Department has received a recurring ceiling authorization to use these funds in FY23, where they will be used to keep the NAR safe, sanitary, and protected from multiple threats, including invasive species and poachers.

For FY23, income for the NARF was \$20,780.63 and expenditures were \$140,448.44.

CONTACT INFORMATION

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.