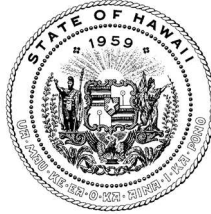


DAVID Y. IGE
GOVERNOR OF
HAWAII



DEPT. COMM. NO. 41

SUZANNE D. CASE
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

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FIRST DEPUTY

M. KALEO MANUEL
DEPUTY DIRECTOR - WATER

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CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

November 1, 2021

The Honorable Ronald D. Kouchi,
President
and Members of the Senate
Thirty-First State Legislature
State Capitol, Room 409
Honolulu, Hawaii 96813

The Honorable Scott K. Saiki, Speaker
and Members of the House of
Representatives
Thirty-First State Legislature
State Capitol, Room 431
Honolulu, Hawaii 96813

Dear President Kouchi, Speaker Saiki, and Members of the Legislature:

For your information and consideration, I am transmitting a copy of the Relating To The Natural Area Reserves System, Natural Area Partnership Program And The Financial Condition of the Natural Area Reserve Fund report, as required by Section 195-6.6, Hawaii Revised Statutes (HRS). In accordance with Section 93-16, HRS, a copy of this report has been transmitted to the Legislative Reference Bureau and the report may be viewed electronically at <https://files.hawaii.gov/dlnr/reports-to-the-legislature/2022/FW22-NARS-FY21.pdf>.

Sincerely,

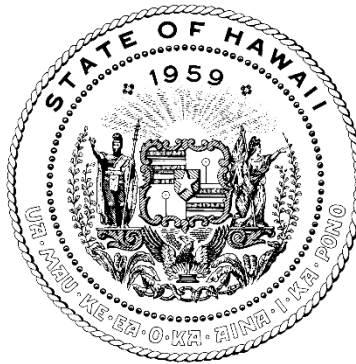
A handwritten signature in black ink that reads "Suzanne D. Case".

SUZANNE D. CASE
Chairperson

Enclosure

**REPORT TO THE THIRTY-FIRST LEGISLATURE
STATE OF HAWAI‘I
2022 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
November 2021

**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 402, including the Watershed Partnerships Program, Hawai‘i Invertebrate Program, Rare Plant Program, and the Information and Education Program.

FY 21 Accomplishments at a glance:

\$6.2m	24,463	69,700	25,271	11,681
Federal, County, and private funds leveraged	Trees and shrubs planted	Hours of youth intern service contributed	Acres of invasive plant control	Volunteer hours donated

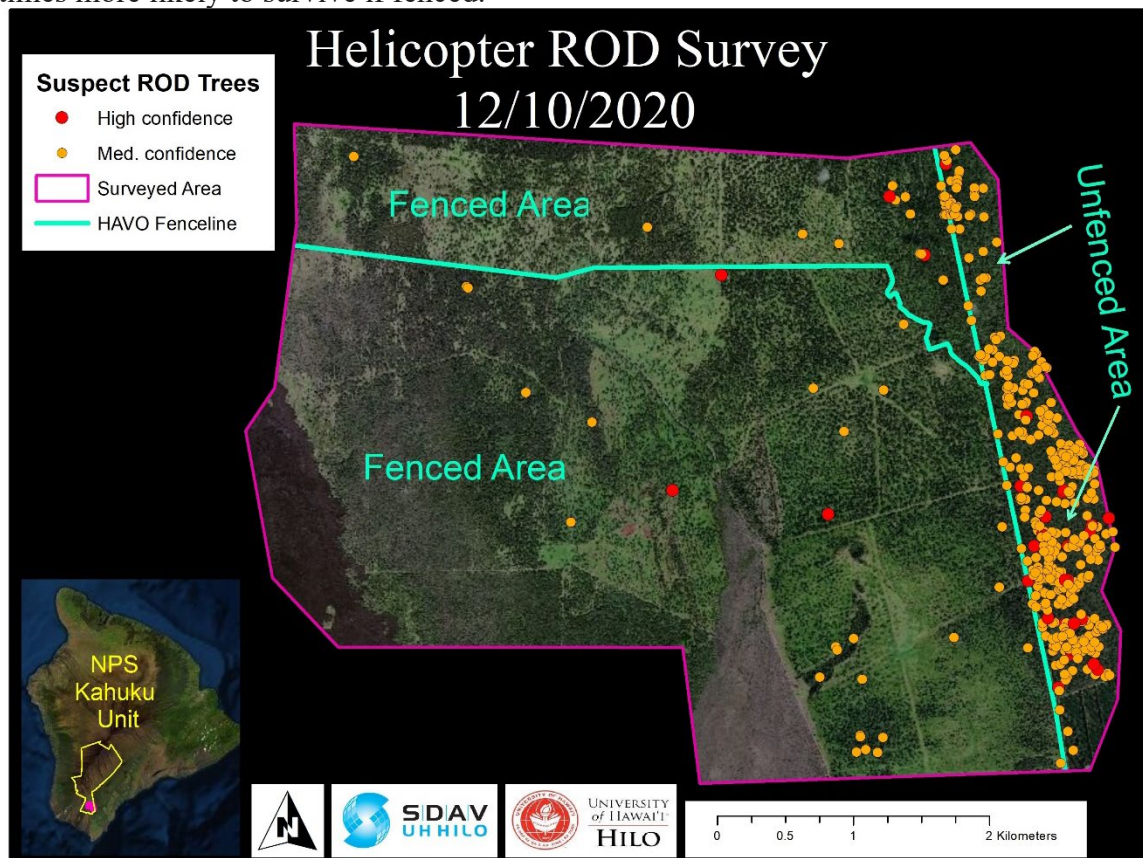


In periods of economic crises, decisionmakers have invested in conservation as a proven way to create short-term jobs that have a long-term impact. This year, roughly \$3 million in Coronavirus Relief Fund monies were used to establish the Kupu Aina Corps, a statewide green jobs program run by DBEDT that matched over 360 recent graduates and displaced workers with short term employment and college education until the end of 2020. Kupu’s jobs program produced an estimated \$6.5 million in economic benefits for Hawai‘i. This year, the State Legislature passed H.B. 1176, which will provide DLNR \$5 million in American Rescue Plan (ARP) funding for a new state green job youth corps that will focus on addressing unemployment and diversifying Hawaii’s economy while improving sustainability and climate resilience.

Throughout the COVID-19 shutdowns, the Department has continued to find creative solutions to maintain safe working conditions while proceeding with the projects. For example, the Department is continuing to strive towards the goal to protect 30% of priority watershed forests by 2030, which is a central part of the Sustainable Hawai'i Initiative. Watershed fencing is a key part of improving Hawaii's water infrastructure. The CIP fence projects are the main ways to protect the green infrastructure of forests, which significantly increase freshwater capture by absorbing cloud moisture and recharging aquifers. Forests are also proven to dramatically improve water quality by reducing erosion. The fence projects provide local "green" jobs that help displaced workers.

New data has shown fencing and hoofed animal removal to be highly effective at reducing Rapid 'Ōhi'a Death (ROD). Hoofed animals like pigs, goats, sheep, and cattle, are wounding trees which allows the fungal disease to enter and infect 'ōhi'a. Below, the suspected dead trees in an unfenced strip of land on the right versus a fenced area clearly shows the difference a fence and animal removal makes. Additionally, newly released studies have shown that 'ōhi'a seedlings were three times more likely to survive if fenced.

Unfenced areas had up to **69 times more dead 'ōhi'a** (including ROD) than neighboring protected fenced areas. Fencing is the main landscape-level tool to protect forest health.



FY21 Branch Highlights



A rare fern previously thought to be extinct was rediscovered. Staff from the Plant Extinction Prevention Program on Kaua'i discovered a single *Adenophorus periens* fern, and will soon return to monitor and collect spores to grow in nurseries. Once enough plants are grown, it will be planted back into protected areas. PC: Susan Deans

Pia was recommended to be added to the Natural Area Reserves System. This area above Niu in East O'ahu has a unique rainforest. Some species of plants are only found in Pia – and nowhere else in the world. This designation will lead to additional protection for this 300-acre area, which was generously donated by a private landowner to the DLNR. Hikers can visit this Reserve along the Hawai'i Loa Ridge Trail.



The 'Ahihi Kīna'u Natural Area Reserve began collecting revenue from out-of-state visitor parking fees. Approximately \$70,000 was raised in the first eight months. If DLNR is granted a ceiling in the Natural Area Reserve special fund, fees will support marine and rare anchialine pools protection, human use (restrooms, trash collection, signage), and other management.

Waiea tract was recommended to be added to the Natural Area Reserves System. These 1,260 acres in South Kona are in the agricultural district and formerly leased out for pasture. The area contains unique koa and 'ōhi'a forest, and DLNR has secured funding to fence this area from hooved animals. There are many other lands leased for pasture that contain high-value forest and other natural resources that are most appropriate for DLNR to manage.



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 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.

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 FY 21, State funds were matched over 3:1 by Federal dollars. This program includes nurseries and seed storage facilities on Kaua‘i, O‘ahu, Maui, and Hawai‘i Island that prevent extinction by propagating and storing plants for reintroduction into protected habitats. The Program also includes the Plant Extinction Prevention Program that focuses efforts on the 257 native plant species with fewer than 50 individuals remaining in the wild.

Photo: Ma‘o hau hele (Hibiscus brackenridgei) Hawai‘i’s State Flower is an endangered species being managed for recovery by DLNR.

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. The program mentored 41 year-round interns providing approximately 69,000 hours of service.

To celebrate the 50th anniversary of Earth Day and create an oral history project, DOFAW sponsored a state-wide essay contest. Hawai'i high school students were asked to interview a relative about a native landscape treasured by both the elder and the student, a *wahi pana*. 81 students from public and private schools, representing five islands, entered the contest. Winning essays can be read here: <https://dlnr.hawaii.gov/dofaw/education/wahipana2020/>

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 21, State funds were matched 7:1 by Federal funds. This program includes the Snail Extinction Prevention Program, a partnership with the U.S. Fish and Wildlife Service to prevent the extinction of rare Hawaiian land snail species and preserve the ecosystems upon which they depend.

Photo: A new population of yellow-faced bee (Hylaeus anthracinus) was successfully established in Ka'ena State Wilderness Park. PC: Sheldon Plentovich/USFWS.

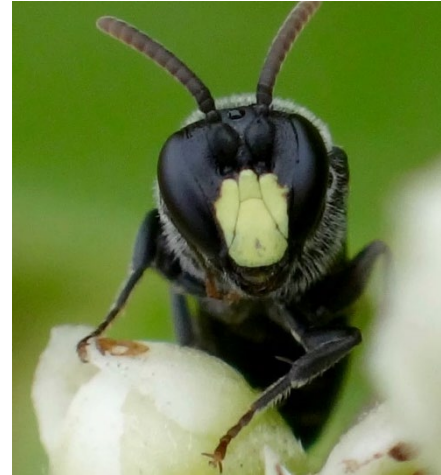
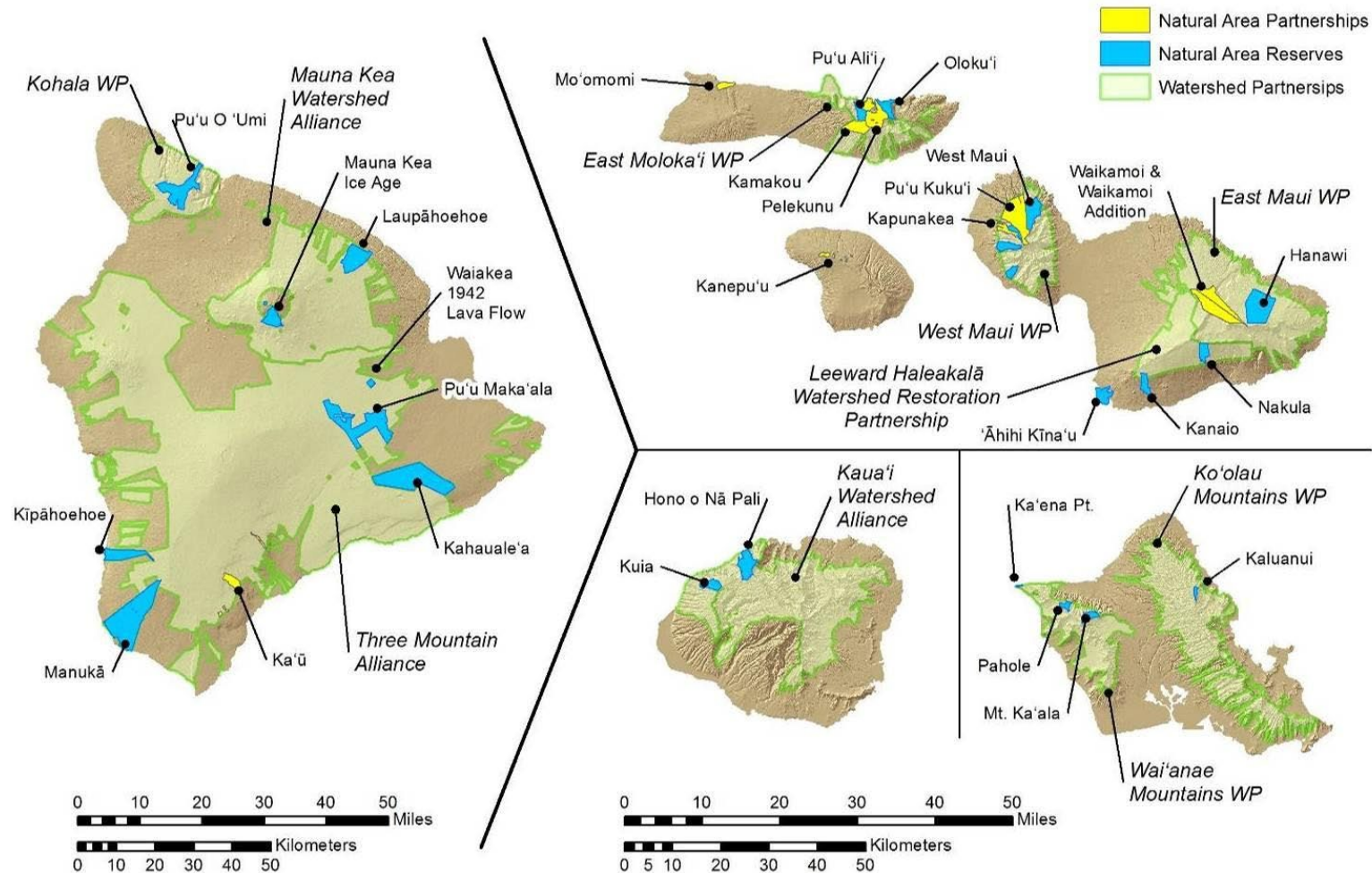


Photo: A fence protects a forest on the left from hooved animal damage in the Leeward Haleakalā Watershed Restoration Partnership on Maui. The unfenced areas on the right are formerly koa forests that are being eaten and trampled by feral hooved animals.



Natural Area Reserves, Natural Area Partnerships, and Watershed Partnerships



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

FY 21 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 Nā Pali	NAR	39	1,937	54	16	0.70	4.95
	Kuia	NAR	63	147	199	144	-	4.70
	Lihue Kōloa Forest Reserve	NAR	9	40	111	16	-	0.04
	Honopu	NAR	-	-	-	-	1.16	1.16
	Kauai Invasive Species Committee	WP	741	-	-	-	-	-
	Kaua'i Watershed Alliance	WP	103	7,077	-	-	-	13.10
O'ahu	Pahole	NAR	38	650	2,758	300	-	7.00
	Ka'ena Point	NAR	3	65	225	20	-	0.40
	Mt. Ka'ala	NAR	10	1,526	436	30	0.75	9.75
	Poamoho ('Ewa Forest Reserve)	NAR	2	1,300	54	-	-	-
	Kaluanui	NAR	150	540	115	-	-	-
	Various other locations	NAR	-	10	1,136	250	-	1.00
	O'ahu Invasive Species Committee	WP	28	-	-	-	-	-
	Wai'anae Mountains WP	WP	15	-	-	-	-	-
	Ko'olau Mountains	WP	184	**	-	1,377	0.60	14.50
Maui, Moloka'i, and Lana'i	'Āhihi-Kīna'u	NAR	20	626	65	-	-	4.40
	Hanawī	NAR	50	6,411	-	-	-	14.30
	Nakula	NAR	300	1,500	3,760	-	-	8.90
	Kanaio	NAR	510	1,450	569	-	-	7.60
	West Maui	NAR	-	5,461	-	-	1.26	4.86
	Pu'u Ali'i & Oloku'i	NAR	-	2,950	-	-	-	6.65
	Mauna Kahalawai (West Maui)	WP	41	9,512	-	74	0.07	5.20
	Leeward Haleakalā Restoration	WP	8,366	5,524	-	238	1.03	18.31
	East Maui	WP	195	7,201	-	16	-	6.42
	East Moloka'i, Kamakou, Pelekunu	WP/NAPP	440	15,947	-	3,041	3.50	41.00
	Mo'omomi	NAP	13	175	-	429	-	3.75
	Pu'u Kukui	NAP	29	4,750	5,160	2,750	-	7.17
	Waikamoi and Waikamoi Addition	NAP	1,529	7,944	-	192	-	18.60
	Kapunakea	NAP	87	1,232	-	15	-	1.19
	Kānepu'u	NAP	9	529	-	551	-	8.13
Hawai'i	Mauna Kea Ice Age	NAR	-	3,894	-	-	-	0.81
	Pu'u O 'Umi	NAR	37	3,531	489	-	-	15.64
	Laupāhoehoe	NAR	13	17	-	-	-	1.12
	Kahauale'a	NAR	2	150	49	-	0.19	2.77
	Kīpāhoehoe	NAR	58	1,336	664	-	-	9.24
	Pu'u Maka'ala & proposed extension	NAR	468	12,799	3,160	20	-	55.91
	Manukā	NAR	9,514	25,550	50	-	-	29.69
	Pu'u Wa'awa'a Sanctuary	NAR	43	3,748	131	16	-	15.53
	Koai'a Corridor Sanctuary	NAR	1	222	1,140	-	-	2.90
	Various other locations	NAR	1,422	158	4,131	-	2.80	1.55
	Three Mountain Alliance	WP	630	34,477	-	-	-	8.20
	Kohala	WP	30	780	-	111	0.47	17.00
	Mauna Kea Watershed Alliance	WP	64	1,100	-	-	-	5.78
	Ka'ū	NAP	16	2,000	7	2,075	-	8.64
TOTAL			25,271	174,266	24,463	11,681	13	388

Acronyms:

WP: Watershed Partnership

NAR: Natural Area Reserve

NAP: Natural Area Partnership

*This partnership co-managed Poamoho and Kaluanui areas. The accomplishments are noted in those Reserves fields.

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. Below, a fence is being installed in the Ko'olau Mountains in Waiawa, O'ahu.



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. Research on micro-propagation, cryo-preservation, and seed banking is underway to secure collections in storage until they are needed for species recovery.
- Over the last year, staff on O'ahu successfully grew the first collections of *Isodendron pyriform*, an endangered plant found growing on steep cliffs in the Wai'anae Mountains. These keiki plants will be used to produce seeds that can then be planted into protected areas to establish new populations – the first step in recovery for this rare species.
- 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 11,706 plants of 176 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.



Rare plants are grown at nurseries for planting on O'ahu, Maui, Kaua'i, and Hawai'i Island

world. In the last year, 386,192 seeds from 298 collections of 70 rare species were processed and stored. In addition, over 11 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 Hawaiian plants. In the last year, they received 142 new collections from 24 different species and sent hundreds of individual plants out to be planted at restoration projects statewide.

Plant Extinction Prevention Program:

- Plant Extinction Prevention Program (PEPP) and DOFAW botanists worked to conserve 200 Threatened or Endangered and other rare plant species. Staff focus on priority actions: surveys, monitoring, collecting seeds, controlling threats from invasive species, and conducted restoration out-plantings at over 100 sites.
- In January 2021, DOFAW completed a comprehensive review of the status of our native flora that revealed severe declines in the numbers of remaining plants of many important species. As a result, 24 species were added as new targets for the Plant Extinction Prevention Program. With 257 species of native plants now on the PEPP list, 20% of Hawai'i's endemic plant species have fewer than fifty individuals remaining in the wild. These critically rare species are on the brink of extinction and urgent actions are underway to prevent their extinction.

Hawai'i Invertebrate Program (HIP):

- Endangered orange-black damselflies were raised and released. These insects are known from just a single population on the island of O'ahu. As a result of their hard work, a second population of the species is now established on O'ahu, at the Dillingham Military Reservation.
- Captive rearing, releases, and research continued with the State insect, the Kamehameha butterfly (pictured at right). The DLNR is researching what factors may be limiting their successful reintroduction back into areas of O'ahu where they have disappeared.
- HIP has received competitive federal grants to continue work on additional rare and endangered species, including picture-wing *Drosophila*, black-line damselfly, Hawaiian leaf-roller moths, and other rare invertebrate species.



Snail Extinction Prevention Program (SEPP):

- The Snail Extinction Prevention Program works with both public and private partners across the state to protect Hawaii's unique land-snail species, known as the "jewels of the forest", from extinction. Conservation includes surveys and threat assessments, predator control, construction of predator-proof fences, captive propagation, and reintroduction back into the wild. Estimates suggest that over 100 snail species are facing imminent extinction.
- Over the past year SEPP released over 5,000 rare snails from captive rearing back into the wild.
- With partners at the University of Hawai'i, current and future critical habitat has been mapped under climate change projections for endangered Hawaiian tree snails on O'ahu.
- With assistance from the Bishop Museum Malacology Department, three new undescribed species of tree snails were discovered on Maui.



Undescribed Partulina species in the West Maui Forest Reserve. PC: Emily Spenser

STATUS OF PUBLIC HUNTING OPPORTUNITIES

Under 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 utilized in many areas within Natural Area Reserves, with most lands now open to hunting every day, year round. 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'u 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 elimination of seven vacant positions within LNR 407 during the last legislative session is a significant setback. The Department will seek ways to reinstate the top priority positions as the budget situation improves. These civil service positions provide experience and long-term oversight for highly complex natural resource management programs, and their duties cannot be contracted. Having stable staffing is key for effective program management as specialized conservation work requires extensive training in wilderness safety 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 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. The Department has been seeking a legislative ceiling increase to use these funds, however these requests have not been granted, and the funds remain unused. This is significantly impacting the Department's ability to keep the NAR safe, sanitary, and protected from multiple threats, including invasive species and poachers.

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.

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. This report summarizes Watershed Partnership activities that were carried out using FY20 funds, which largely occurred during FY 21.

