

# Native Hawaiian Plant Society

*Nanea Nā Pua O Ka 'Āina Aloha*

NHPS Newsletter

February 2022



## Officers

### President

Martha Martin

### Treasurer

Becky Lau

### Secretary

Irene Newhouse

## Board Members

Becky Lau

Martha Martin

Irene Newhouse

Dustin Palos

Tammy Sanchez

Joy Tamayose

## Special Advisor

Fern Duvall

## Newsletter Editor

Mia Charleston

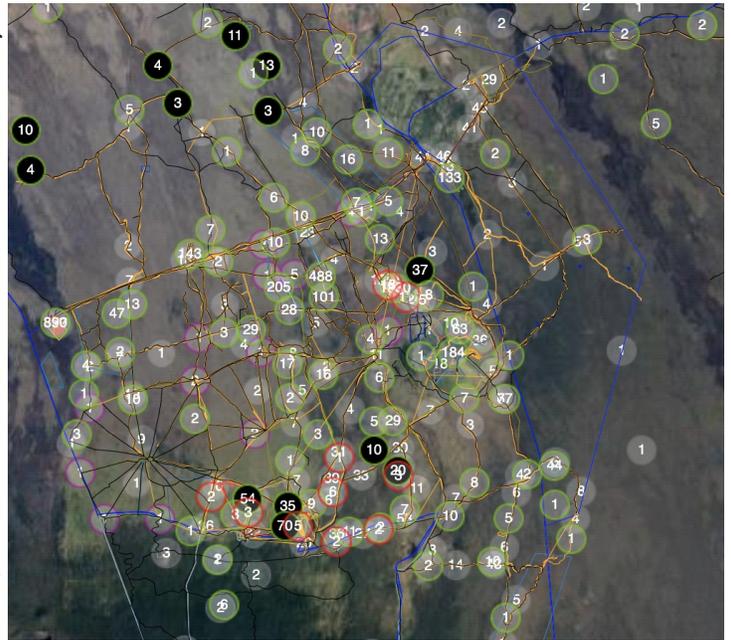


## Place Based Innovations – Creating a data management system for restoration and management of dry forest ecosystems

by  
Sam Aruch Founder Natural Resource Data Solutions Inc

Data management while less than exciting (for most of us), is a daunting yet necessary task for land managers. There is a difference however, between data that informs field work management and the required information to satisfy grants and deliverables.

Over the last several years Natural Resource Data Solutions (NRDS) ([nrdsdata.com](http://nrdsdata.com)) has partnered with the The Nāpu‘u Conservation Project to build a geolocation enabled seed to source plant mapping and monitoring system to the unique dry forest ecosystem at Pu‘u uwa‘awa‘a, in North Kona on the Island of Hawai‘i. These tools include the ability to map restoration areas, track the demographics and frequency of volunteers, track individual rare plants from wild collections into the nursery and back out into the field, manage and review camera trap data, and many other use cases critical to managing hundreds to hundreds of thousands of acres at a time. The system works on Android and iOS devices and syncs to the web. It works off line in remote areas allowing for fast and accurate data collection.



*Dry and mesic forests in the area of Pu‘u Wa‘awa‘a were once considered the most diverse forests in all the Hawaiian Islands (Rock, 1913). Example of photo points for specific native plants*

For common plants over large restoration areas, field crews can map the areas they plant by tracking their path with the NRDS ‘Aina mobile app. They then record the quantity, taxonomy, source, and the condition of the plants planted as well as include plant photos. This information can be used to monitor the success of plantings by comparing photo points and counting surviving plants. In addition, field crew and volunteer hours, as well as grant assignment and funding sources, can be included in the data. This information can be used to monitor the success of plantings by comparing photo points and counting surviving plants.

For very rare plants, the ‘Aina mobile app can be used to GPS the location of each plant. Once planted, a user can go up to a plant in the field, scan its barcode tag and add to or review its monitoring and seed collection history. The system allows the team to track repeat visits over time and record condition and phenology helping to plan ideal seed collection times and track the success of threat mitigation. Seeds or cuttings can be collected from plants and linked directly to the parent plants location beginning a journey of traceability that is critical to rare plant conservation.

Continued on page 2

<b>464</b> Planting Events	<b>47,269</b> Total Plants Planted	<b>2,610</b> Planting Volunteers	<b>211.39</b> Acres Planted (intersect)	<b>495.24</b> Acres Planted	<b>89</b> Number Taxon Planted
-------------------------------	---------------------------------------	-------------------------------------	--------------------------------------------	--------------------------------	-----------------------------------



According to the Pu'uwa'awa'a Management Plan, native plant restoration will be achieved through a combination of planting seedlings, broadcasting native seeds and encouraging natural regeneration. This example is a summary report of volunteer planting trip.

Once seeds are collected they can be transferred to the nursery. The field collection and nursery accession information are now linked. Using the app, nursery workers can track treatments, up potting, and send out plants that are ready to be out planted. Once ready to out-plant accession information follows the out planted plants into the ground. This full cycle field -> nursery -> field tracking approach allows accurate tracking of genetics for rare and common species.

Major benefits of the system include real time decision making capabilities with maps and dashboards, tracking of planting success, photo management and very fast reporting for permits and grants. The system includes its own mapping and customizable dashboards and works with other GIS systems like ArcGIS and Google Earth. NRDS consolidate the many tools previously used by land managers into a single organized platform to measure map and share impact so more time is spent in the field than in the office.

***E mahalo kākou, I ka mea loa'a***  
***Let us be thankful for what we have –Mary Kawena Pukui***

Ka palupalu o Kanaloa (*Kanaloa kahoolawensis*) is the single member of an endemic Hawaiian plant genus found on Kaho'olawe. Pollen samples taken from soil cores, indicate the plant was once widely dispersed throughout the Hawaiian islands in mesic lowlands. The species was declared extinct in the wild in 2015. With support and guidance from Laukahi: The Hawaiian Plant Conservation Network that includes partners such as Maui Nui Botanical Gardens and the Plant Extinction Prevention Program, expert horticulturalists, Anna Palomino and Doug Okamoto, of University of Hawai'i (UH), were able to germinate 23 precious seedlings. At this time, due to climate change concerns, these keiki plants will not be placed in the wild just yet.

*Kanaloa kahoolawensis* leaves alternate, bipinnately compound with one pair of pinnae, each pinnae has 3 leaflets. Flowers of K. Kahoolawensis.



**Planting Tip**

Several studies have shown that certain species of native Hawaiian plants may benefit from the use of mycorrhizal fungi because the fungi are reported to increase the efficiency of phosphorus uptake of the plant. Check with your local native plant nursery to ask if they recommend utilizing this type of root growth enhancer on your specific native.

## President's Message

The members of the NHPS have completed another year of distancing and active monthly work days. A few days of rain and wind on Maui caused scattered power and water outages. This was a small example of what may occur from more intense weather disruptions which global warming will cause. Our organization does not lobby for political actions. Reports and voices from many scientists discuss the importance of reducing global warming and acting to address climate change. When World War II was declared by the U.S. government, I was a nine-year old living in Honolulu. The "war effort" mobilized our country into action requiring drastic restrictions on American lives.

While the threat of global warming is seemingly not as immediate as war, a similar major effort is needed today to combat it. Each of us can start to change our choices to lower the climate threat. Walking, carpooling, riding the bus, taking fewer trips, buying less 'new stuff', using less fossil fuels, growing more food here and planting lots more native trees are possible choices.

Thanks to everyone who works to address climate change and helps plant native plants.

Martha Martin



## Discovery!

The pendent kihi fern (*Adenophorus periens*) is a critically endangered fern that grows on several native tree species. Susan Deans and Scott Heintzman of the Hawai'i Plant Extinction Prevention Program were out in the field on Kaua'i in May of 2021 when they spied the fern. Five gametophytes are currently growing from spores that were collected in the field.

## NHPS Core Projects

### Ma`o Hau Hele (*Hibiscus brackenridgei*) Exclosure By Hank Oppenheimer, Project Leader

2021 was again, like 2020, a challenging year. Mostly because we had a very dry year, but also due to COVID-19 and social distancing protocols. There weren't any formal NHPS service trips to the exclosure, but Plant Extinction Prevention Program staff, along with the State Division of Forestry & Wildlife Native Ecosystem & Management, and Hawai'i Invertebrate Program staff visited a couple of times. The renovations made to the fence in 2020 held up very well, and no animals got into the exclosure. Still, we added rocks around the perimeter to close any small gaps along the bottom just in case. The main focus was on weed control. Instead of spraying herbicide to control the guinea grass, we used large picks and dug out the clumps entirely, disposing most of it outside the fence. The risk of fire is very real especially during drought years, and we are glad Maui Fire Department is aware of the exclosure. We also controlled a lot of lion's ear (*Leonotis nepetifolia*) and koa haole (*Leucaena leucocephala*), bagging all the seed heads and pods and removing them off site to reduce the soil seed bank of these habitat modifying weeds. There were only a few glycine vines to control, which is a sign of progress.



Before



After

In 2017, while monitoring the *Schiedea salicaria* within and (mostly) outside the exclosure with Alex Loomis, who is conducting pollination studies of this and other *Schiedea* (an endemic Hawaiian genus) species for his Doctorate degree at Duke University, we made seed collections. These were sent to Lyon Arboretum's Seed Conservation Laboratory on O`ahu as a safety net. They periodically do germination trials of a small subset of the seeds to test their viability, and insure that the seeds are stored correctly. The seedlings that result from these trials are returned to Maui. This year we got to plant some of those back into the exclosure, increasing the number of plants of this Endangered, Mauna Kahalawai (west Maui) endemic.

Since we got a really good rain in early December, it's likely the Ma`o Hau Hele will break its dormancy, and new seedlings will also emerge from the soil seed bank. Hopefully this recent rain is the first of many- minus the flooding and wind damage!- and the plants thrive once again.

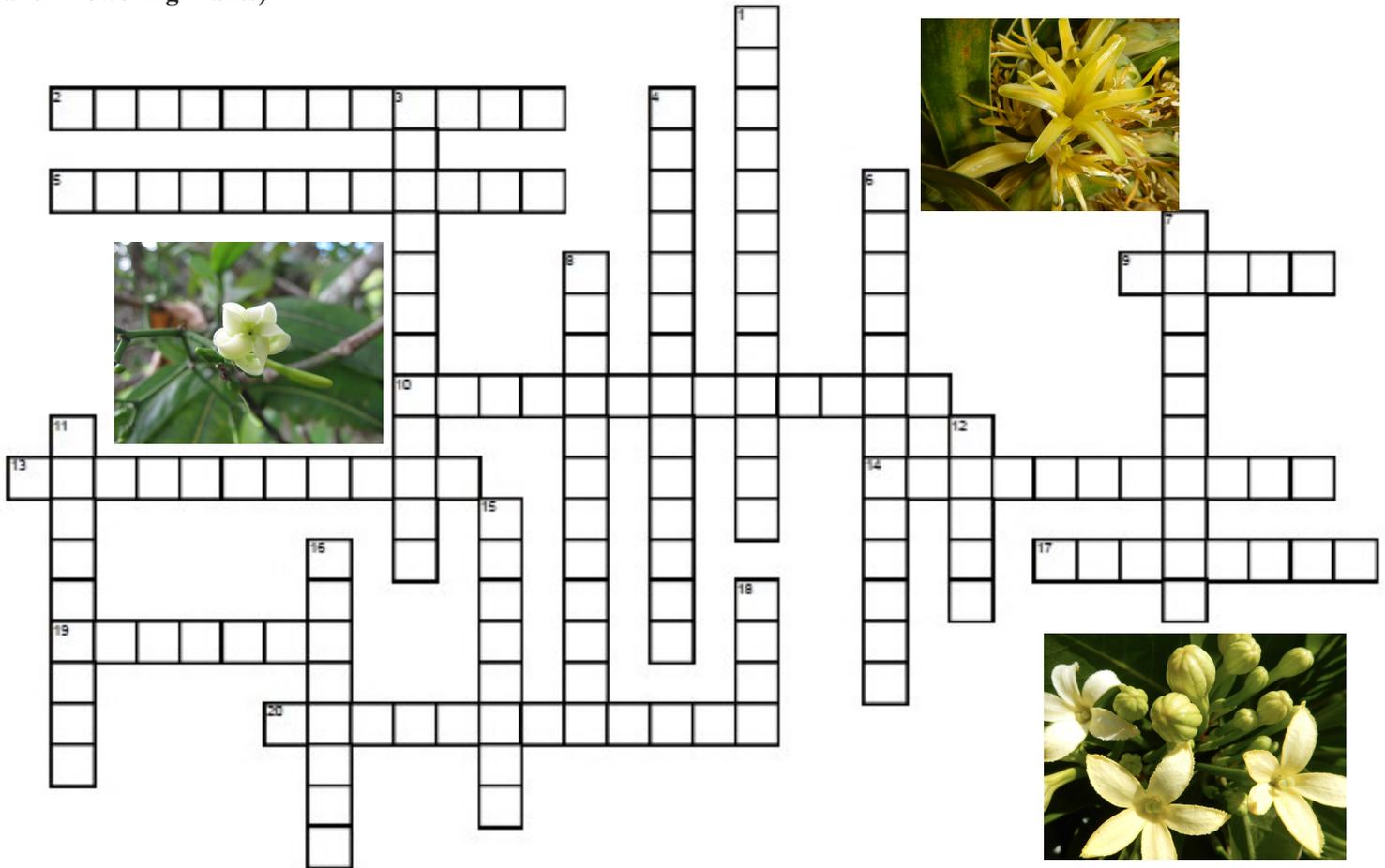
Thanks to Zach Pezzillo at PEPP, Kanoa Severson at NEPM, and Jordan Tabura from HIP for their hard work, and Zach for the great photos! *Mahalo Nui* to Duane Ting and Flyin' Hawaiian Zipline for continue access and support.

Kanoa Severson planting & watering *Schiedea salicaria*



# Plant Puzzles by Chuck Chimera

## Hawaiian Plant Genera with Endemic Species – Time to dust off your botanical Latin (or bust out your copy of the Manual of Flowering Plants)



### ACROSS

2 A succulent perennial herb forming a monotypic genus endemic to the Hawaiian Islands. Named after the botanist who wrote the first flora of the Hawaiian Islands in 1888. The pua maka nui (large-eyed flower) is the only native member of the Begonia family.

5 An endemic Hawaiian genus of 4 species of softwood trees that are uncommon or rare. The name is from the Greek for false, and Cestrum, a genus of American shrubs. The gnarled, often scraggly appearance of these plants is distinctive. The genus is the host plant for the endangered Blackburn's sphinx moth (*Manduca blackburni*), one of the Hawaiian Islands' largest native insects.

9 An endemic genus of 4 species of primarily trees, rarely shrubs in the coffee family. The name honors Jean Bobe-Moreau, a French physician and pharmacist. For canoe construction, the hard yellowish or reddish wood of 'ahakea was the most favorite wood for making gunwales strakes, the forward end piece, and the aft piece.

10 In the Hawaiian Islands there are 5 endemic tree species in this genus, found primarily in wet forest. The plants have a strong carrot smell when cut or bruised. The term for Hawaiian dancers is also 'ōlapa, perhaps because their movements were like the fluttering of 'ōlapa trees.

13 This genus includes at least 23 endemic species, which are the only palm trees native to the Hawaiian Islands. The hard wood of the trunk of taller species of loulou were fashioned into spears by early Hawaiians.

14 An endemic Hawaiian genus of 4 species of shrubs in the Violet family, all rare. The name is from the Greek isos, equal, and dendron, tree, referring to the almost equal petals and the woody nature of the plants.

17 An endemic Hawaiian genus of 34 species of shrubs, subshrubs, or vines, all representing a single lineage in the Caryophyllaceae (Pink family). endangered. The name commemorates a German physician, Christian Schiede.

19 A genus of lily-like terrestrial or epiphytic perennial herbs with 3 endemic species. The silvery leaves of pa'iniu were used by early Hawaiians in lei-making.

20 An endemic Hawaiian genus of 5 species of erect perennial herbs somewhat woody at the base. Only 1 species of this genus in the mint family is extant, with the others extinct.

**DOWN**

1 An endemic Hawaiian genus of shrubs or small trees, with 3 species known, all of them quite rare. This genus in the sunflower family was named in honor of Horace Mann, who collected in the Hawaiian Islands in 1864-1865 with W. T. Brigham and made many contributions to the knowledge of Hawaiian botany.

3 An endemic genus of 3 species of shrubs to small trees occurring in dry forest, on exposed ridges, and lava fields. Like pāpala, the flowers and wood of kulu‘ī were packed into a hollow stem such as bamboo (‘ohe), lit on fire and thrown from a particular cliff. The fiery material would eject much as an aerial display much like modern-day fireworks.

4 An endemic genus of 7 species of shrubs or trees, with 6 species thought to be extinct in the wild and the other one extremely rare. The name means the brother of Hibiscus, because the 2 genera are closely related. The curved corollas are an adaptation to bird pollination, rare in the family.

6 One of three endemic genera in the famed silversword alliance with 5 endemic species native to bogs and alpine regions on Maui and Hawaii. The genus name is from the Greek words for silver, and sword, because of the shape and color of the leaves of the type species.

7 An endemic Hawaiian nettle family genus of shrubs with 1 variable species. Hawaiians used olonā to produce extremely strong cordage. Fishing lines made from olonā were so strong they could land marlin (a‘u) and other large fighting fish.

8 All 5 species of pāpala in this genus are endemic to the Hawaiian Islands. The dried wood of these shrubs to small trees is extremely light and flammable and was used by pre-contact Hawaiians for pyrotechnical displays-burning chips being thrown from high cliffs.

11 An endemic Hawaiian genus of 2 species in the bellflower family, both quite rare. The name honors W.T. Brigham, the first director of the Bishop Museum, who also studied the native flora.

The succulent nature of the stem and the showy white or yellow flowers make them desirable ornamentals.

12 An endemic Hawaiian genus of 4 species of trees with 1 extinct and the others rare. The name is from the Hawaiian name for these plants, koki‘o. One of the extant species persists only in cultivation. All 3 are cultivated for their showy red flowers resembling hibiscus.



MNSRP Ho‘okipa Photo Courtesy of Irene Newhouse



Fleming Arboretum Service Trip  
Photo Courtesy of Mia Charleston

15 A genus of about 40 species of small trees native from the Mascarene Islands to Australia and the Pacific. The name is from the Greek ochros, which means pale yellow, referring to the yellow color of the fruit. In the Hawaiian Islands there are 4 endemic species.

16 The 7 endemic species in this genus (formerly Pleomele and Chrysodracon) are called Hala pepe in Hawaiian. The soft whitish to reddish wood was used by early Hawaiians to make idols (ki‘i) and to decorate altars.

18 This genus of shrubs to small trees, in the Mango family, includes one endemic species endemic to Hawai‘i. The wood of neneleau was used by early Hawaiians used in making calabashes, and the tree is one of the few native plants that re-colonize old sugar cane fields and waste lands at low elevations on Hawaii island.

**Answers on page 7**

**NURSERY NEWS**

DOFAW received a grant from USFWS to provide new nursery space dedicated to fern propagation. The project targets for ferns found on Maui and Molokai that need propagation and outplanting to create more populations (*Asplenium peruvianum insulare*, *Diplazium molokaiense*, *Ctenitis squamigera*, *Pteris lidgatei*). Methods developed by UH-CCRT staff Anna Palomino will be used to propagate ferns from spores to planting size. Field staff from PEPP on Maui and Molokai are currently surveying known and historic sites, collecting propagules, and beginning planning for reintroducing these rare species into protected habitat. By Matthew J Keir, DLNR

**Thank you to our masked up 2021 NHPS Volunteers**

Janet Allen, Anne-Marie Andres, Pat and Marci Bily, Robin Brooks, Terri Brown, Suki Burns, Cindy Canham, Mikki Clark, Mia Charleston, Chris D‘Avella, Brian Denhaan, James Donaldson, Ellen Frye, Martin Frye, Robert Frye, Stephen Frye, Barbara Gray, Maika‘i Kama, Francis Kane, Becky Lau, Christina Levang, Sarah Malick, Carl Martin, Martha Martin, Irene Newhouse, Dustin Palos, Jay Penninman, Benjamin Rachunas, Breanna Rogers, Katie Romanchuk, Tamara Sherrill, Anna Mae Shishido, Johann Josef Smith, Matt Spencer, Andrea Strauchler, Joy Tamayose, Nicolette Van der Lee, Trudy Van der Lee, Dray Wilson, Tiffany Win, Karim Wingedheart, Melinda Walker, Joe Ward and Alana Zedalis

‘A ‘ohe hana nui ke alu ‘ia

*No task is too big when done together by all*



## Update on Rapid 'Ōhi'a Death (ROD)

According to Serena Fukushima, the Maui Invasive Species Committee (MISC) Outreach and Education Specialist, the Department of Land and Natural Resources conducts helicopters surveys regularly to detect ROD and MISC follows up on community reports of 'ōhi'a with symptoms of ROD. Hundreds of samples have been collected and only a single tree has been found to be affected. The tree was destroyed in July of 2019. University of Hawai'i with assistance from the National Park Service, U.S. Forest Service and Department of Agriculture researchers, recently discovered that fenced areas, preventing ungulates from entering, had a significantly lower rate of ROD. To help prevent the spread of ROD:



- 1) Contact MISC if you see an 'ōhi'a with a limb or the crown turning brown (808) 573-MISC.
- 2) Avoid pruning 'ōhi'a trees as this could create a wound that could serve as entry points to the fungus. NHPS will no longer be using 'ōhi'a blossoms in upcoming lei events to prevent any unintentional damage to the trees.
- 3) Clean gear and shoes by brushing off dirt, then spray with 70% rubbing alcohol. Wash your clothes and vehicle ASAP

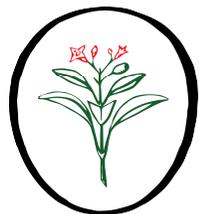
## NHPS 2021 Service Trips

We had lots of fun and went to some amazing places throughout 2021. January's trip benefited the Hawaii Nature Center to replace plantings in areas that had been destroyed by the 2018 floods. We ventured to Ho'okipa with the Maui Nui Seabird Recovery Project (MNSRP) in February where we helped plant over 150 native groundcover plants to reduce the invasive plant population. We hope the 'Ua'u (Hawaiian Petrel) will be happy with the change in scenery. Weeds were pulled on our trip to Kaulawehi rain garden in March. The garden consists of native and lei plants as well as a food garden with a variety of fruit trees. Due to all the rain there were also some weeds to pull at the Ha'ikū School. Work was focused on the section dividing the parking lanes. Kipuka Olowalu is a new project for NHPS members. In April, the priority at this site was to collect seeds and weed areas in the seed forest. A kauila tree (*Alphitonia ponderosa*) donated by the Fleming Arboretum was planted in memory of Martha Vockrodt-Moran. To prepare for the Nature Adventure Camp at the Hawaii Nature Center in May, we helped clear the nature trail. Outdoor classroom activities include hikes, fishing, bug hunts, nature games, and crafts. Irene Newhouse reports the kids had a wonderful time! Pohinahina (*Vitex rotundifolia*), naio (*Myoporum sandwicense*), mao (*Gossypium tomentosum*) and 'ahinahina (*Acyranthes splendens*) were planted in June at the MNSRP at Kamaole III Beach. As usual we had a lovely time up at Pu'u Mahoe Fleming Arboretum. Following a tour of the facility, we helped plant several *Cyperus wahuensis* on the upper tiers of the crater. July we worked at the Maui Nui Botanical Garden (MNBG) improving the look of the plantings located along Kanaloa Avenue. Many of the native plants we have placed in the soil throughout the years have been donated by the MNBG. An outing to Kealia Pond was spent planting near the edge of several of the ponds in September. We learned about several techniques being used to grow keiki native plants. In October, members assisted MNBG prepare for their Arbor Day event. One thousand native Hawaiian trees are given away at this event! December we returned to the Ha'ikū School where we had fun with a light sprinkle of rain to top off the day.

Kealia Pond Service Trip  
Photo Courtesy of Camila Leon

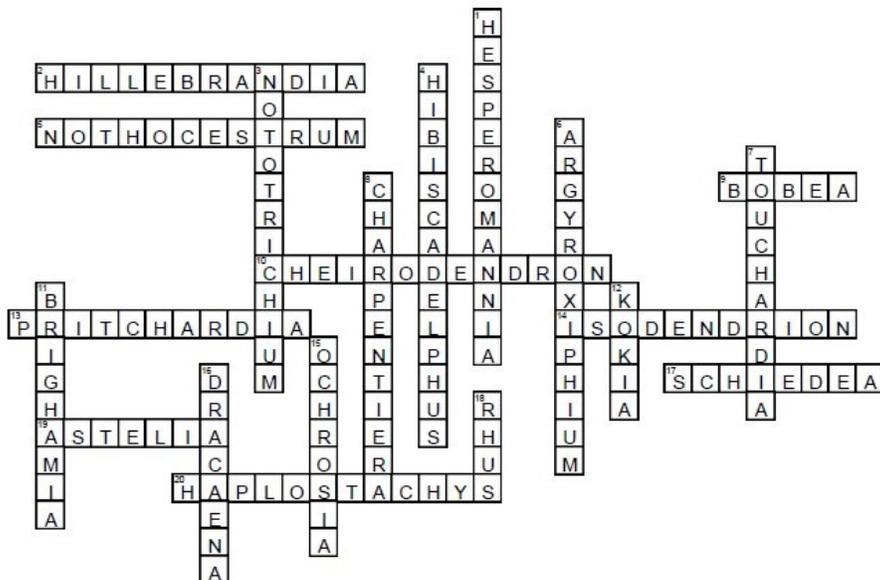


Kipuka Olowalu Service Trip tree dedication to Martha Vockrodt-Moran



Please visit us at [nhps.smugmug.com](http://nhps.smugmug.com) for additional photos

## Plant Puzzle Solution



**NHPS Events & Announcements**

**NHPS Weekly Service Trips**

The native plant garden in the courtyard of the Kahului Public Library has been closed since August, 2021 due building renovation work. When the branch opens again, we can maintain the native plant garden. Becky Lau is the project manager for both Kanahā Pond and Ha'ikū School and can be reached on her cell phone for additional information about these projects. 808-205-7348

**Kanahā Pond update by Becky Lau  
1st and 3rd Thursdays 8:30-11:00**

Kanahā Pond was designated as a state sanctuary in 1951 and as a National Natural Landmark in 1971. The deer population is almost gone, however, the cats are an ongoing problem. Construction of a new fence to keep both the cats and deer out, is currently in the bidding process. We are starting to see some natural regeneration from Ma'oa and Ohai planted a few years back. Bring your camera as you may encounter one of the 3 endangered species of native waterfowl; the Hawaiian Coot, the Hawaiian Duck and the Hawaiian Stilt.



*Photo Courtesy of Anna Mae Shishido*

**Ha'ikū School Project update by Becky Lau,  
Mondays 3:30-5:30**

Over 25 species of native Hawaiian plants have been planted at the Ha'ikū Elementary School. We continue to weed and fill in the fence line and parking. Thank you to the Maui Nui Botanical Garden for donating many of these keiki plants.



A comparison of the native Hawaiian plant progress in the school parking lot area over the last 15 years. The top photo was taken in 2007. The lower photo was taken this year, 2022. Thank you to all who have participated in or donated plants to this project.

*Photos Courtesy of Becky Lau*

**Annual NHPS Membership Meeting & Guest Speaker**

**February 18<sup>th</sup> (Friday) 2022 at 7:00 pm**  
**Speaker: Sebastian Sievert**  
**Location: via Zoom**

Sebastian Sievert will talk about his internship at Haleakala National Park while participating in the E Ola Koa program. E Ola Koa provides Hawai'i's youth the opportunity to stay or return to Hawai'i and serve their local communities. Local youth benefit by being qualified for federal, state and private sector jobs in the fields like Natural and Cultural Resource Management, Education, Feral Animal Removal and more.



Due to covid restrictions, his talk will be virtual via the Zoom application. Participation is, as always, free, but users will need to obtain a registration number by emailing the NHPS Secretary, Irene Newhouse, at [einew@hotmail.com](mailto:einew@hotmail.com). You will receive your registration number as well as detailed instructions for connecting via computer or smart phone.

***Mahalo Nui Loa  
to the following donors for their  
generous contributions in 2021***

**Individual Donors**

- Harold Appleton
- Gordean Bailey
- Diane Carr
- Karen Weidner



**Corporate, Government & Exlosure Partners**

- Maui County Parks and Recreation
- Maui Nui Botanical Gardens
- Ha'ikū Elementary School
- Kahului Public Library
- Duane Ting and family and Flyin' Hawaiian Zipline
- Hawai'i State Department of Land and Natural Resources
- 'Ulupalakua Ranch

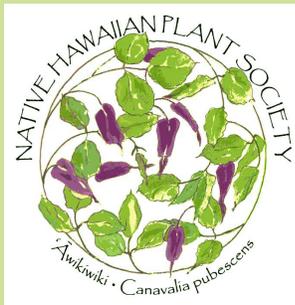
# Native Hawaiian Plant Society

P.O. Box 5021, Kahului, HI 96733-5021

Phone: (808) 875-0745

E-mail: [info@nativehawaiianplantsociety.org](mailto:info@nativehawaiianplantsociety.org)

Website: [www.nativehawaiianplantsociety.org](http://www.nativehawaiianplantsociety.org)



## Save the Date for our Annual Native Hawaiian Plant Society Membership Meeting & Guest Speaker

**February 18<sup>th</sup> (Friday) 2022 at 7:00 pm**

**Speaker: Sebastian Sievert**

**Location: via Zoom**

# DON'T FORGET TO RENEW!

## Membership Form

Name (please print) \_\_\_\_\_

Address \_\_\_\_\_

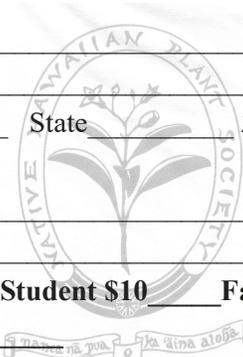
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone (Home) \_\_\_\_\_ (Cell) \_\_\_\_\_

Email \_\_\_\_\_

Donation Categories: Individual \$20 \_\_\_\_\_ Student \$10 \_\_\_\_\_ Family \$25 \_\_\_\_\_

Other \$ \_\_\_\_\_



New Member

Renewal

I would like to volunteer

Only email me the newsletter

*Members over 4 years in Arrears will be dropped From mailing list*

**The Native Hawaiian Plant Society is a nonprofit 501(c)(3) organization founded in 1980**