On March 17, like many others, Maui Nui Botanical Gardens closed to the public and postponed all scheduled events, training, and volunteering to do our part to protect employees and the public. Like many others, we have lost revenue. Our docent training and seed storage project funding for 2020 was cut in half in May, a direct result of hotel closures and the Transient Accommodations Tax falling off a cliff. This is the first time that the Garden been closed since we opened to the public in 2001. Our core team is working hard to keep weeds at bay, improve amenities, and reorganize the nursery, among many other projects. Soon we will welcome back essential volunteers, and we are working towards reopening with social distancing guidelines in place. Many of you tell us you are finding new hope in gardening at home. During the closure, we have been leaving free plants outside our gate every Monday morning, and are selling plants by posting on Instagram and Facebook weekly. As we go through this crisis together across the globe, we are grateful to gain new perspectives on what we thought was important and find new ways to work together. We hope that your ‘ohana is healthy and that there are many spots of brightness in the darkness for you during this time.

If you are able, please consider a donation to help us make up the shortfall. A new short video about our work can be found on our website blog page.
A groundbreaking achievement has been made in the efforts to recover one of the rarest plants in the world. Discovered in 1992 on a small islet off of heavily bombed Kaho’olawe, Kanaloa kahoolawensis was a new endemic Hawaiian genus and species. Only two wild plants were ever known; the last died in 2016. Since it was discovered, many unsuccessful attempts have been made to propagate this species. Starting in 2008, the last two plants in existence were carefully raised to maturity on Maui, one at Maui Nui Botanical Gardens. In January 2020 as a pandemic spread across the globe, the two plants on Maui bloomed simultaneously for the first time. We worked with the second location to collect and deliver pollen for hand pollination and attempt to produce viable seeds. In April, for the first time in 28 years, viable seeds were germinated from one of the cultivated plants by horticulturalist Anna Palomino. This amazing, hopeful event may mean the beginning of true recovery for a species that embodies Kaho’olawe. The working group for this species has decided to raise all the new seedlings together so that they may cross pollinate more easily. To help fund this important effort, please donate to the Plant Extinction Prevention Program at: http://www.pepphi.org/.
With Gratitude from Our Garden:
Maui Ocean Center for Audio Tour wands and chargers, Carmon Slater for cloth masks, Jody (Becky Lau) for garden gloves, Anna Mae Shishido for volunteer drinks, Sid & Gloria Adlawan for volunteer drinks and garden gloves, Courtney Turner for irrigation supplies, Diane Carr for umbrellas, hats, a folding saw and buckets, Jeff Gray & Maui Eco Compost for mulch and delivery, Jennifer Rose for folding saws and clippers, Paul Kastner for office supplies, and Kanoe Kamaunu for ʻopihi shells.

MNBG Contributions to the Community:
Pūnana Leo o Maui (ʻukiʻuki), Lihikai Elementary School (ʻukiʻuki, kupukupu, ʻih, maʻo, ʻōhiʻa lehua, alaheʻe, nehe, ʻaʻaliʻi, hala pepe), Kula Elementary School (ʻaʻaliʻi, hala pepe, ti, kalo), Maui Nui Seabird Recovery Project (ʻāhinahina), Keiki o ka ʻĀina Program (kalo), Hawaiian Islands Land Trust (hala, pāʻū o hiʻiaka, hame, kaman), Haʻikū Elementary School (hala pepe, naupaka kahakai, hinahina, hame), Puʻukukui Elementary School (ti, naupaka, kō, ʻaʻaliʻi), Maui Ocean Center (ʻōhai), Kamehameha Schools Maui (ti, ʻōhai, maʻo, ʻaeʻae, ʻalaʻalawaiinui, ʻukiʻuki), Coral Reef Alliance (maʻo, kāwelu, ʻuki ʻuki and other seeds).

Mahalo to our Interns & Volunteers:

Wish List

- Umbrellas
- Garden gloves (all sizes)
- Rakes (leaf or landscaping)
- Medium sized picks
- Shovels
- Sickle
- Hand pruners (clippers)
- Leaf shredder
- Wood chipper
- Outdoor tables & chairs
- Hawaiian Miles (for interisland travel for staff training)
- Power point projector

Check out MNBG’s wish list on AMAZON by visiting this link: http://a.co/eWBZKw3

We are no longer accepting drop offs of used plastic pots. If you have new or used cement or ceramic pots to donate, please give us a call and we will be happy to arrange a pick up.

Mahalo Weed & Pot Club

- Gloria Adlawan
- Janet Allan
- Diane Carr
- Mikki Clark
- Paul Kastner
- Perrisa Kilmer
- Becky Lau
- Renee Leiter
- Jennifer Rose
- Fred Rymsha
- Janet Rymsha
- Enid Sands
- Vilma Seiler
- Anna Mae Shishido
- Maggie Sniffen
- Linda Tesar-Amimoto
- Malie Unabia-Verkerke
- Sandy Viloria
- Robin Yamashita
New Plantings:ʻĒkaha
By: Maikaʻi Kama, Nā Hua Hoʻohuli i ka Pono Kupu member

Planted in February 2020, Maui Nui Botanical Gardens now hosts Asplenium nidus, generally known as bird’s nest fern, is called ʻēkaha, ʻēkaha kuahiwi, or ʻākaha.

Early Hawaiians used to weave ʻēkaha fronds into lauhala products to provide pattern and color contrast. The fronds were also used on kuahu (hula altars), and in canoe-building ceremonies, in which the tree stump was covered with the ʻēkaha ferns before the waʻa (canoe) was shaped. Medicine was also derived from this plant’s leaves, and when combined with salt, kō, and ʻaukoʻi would create an ointment for pūhō kolokolo kokoʻole (body sores).

ʻĒkaha is indigenous and grows relatively slowly; although, they can live beyond five years and reach a height and width of at least four feet. These ferns grow either terrestrially (on the ground) or epiphytically (in trees or on rocks). ʻĒkaha prefer full shade to partial sun because the leaves are easily burnt. These beautiful plants can be placed in a container, but will need to stay well-drained to prevent the roots from rotting.

New Staff and Kupu Members

We are pleased to introduce four new members of the MNBG team.

Seed Storage Technician Cathy Davenport (pictured on left) joined us in February with the support of Hawaiʻi Tourism through the Aloha ʻĀina Program. Cathy has a M.S. Botany from UH Manoa; over 20 years teaching UHMC courses such as Ethnobotany, Hawaiian Field Biology, among others; and she’s a retired Hawaiʻi State Agricultural Inspector. Cathy says she enjoys the work of the seed bank, even the tedious parts like counting miniscule seeds. She is part of an ambitious effort to step up our management and collection of wild sourced Maui County seeds, with a special emphasis on coastal species and ʻōhia lehua.

Kupu member Vanessa Scott (center) moved to Maui from California this January to join our team for a one-year term. Vanessa has a Bachelor’s in Environmental Studies from UC Santa Cruz, and has extensive experience with farming and community gardens as well as leading work days and children’s activities connecting groups to nature, agroecology, forest restoration, and sustainability. She started a Master’s in Sustainable International Agriculture in Germany and is a certified Ayurvedic yoga teacher.

Horticulturalist Emmely Felipe (right) also joined the team as a staff member in February. Emmely is Pursuing an AAS in Agriculture and Natural Resources from UH Maui College. She has experience with conventional and organic agriculture through her work on campus as an Agriculture Assistant and an extensive knowledge of native Hawaiian plants. She helped with MNBG’s seed storage and plant collection last summer with Nā Hua Hoʻohuli i ka Pono as a Kupu member.

Na Hua Hoʻohuli i ka Pono and Kupu member Maikaʻi Kama (pictured above, with the ʻēkaha fern) began part time service in October. A former Hui Kapehe intern and active with marine projects on Maui, he has an AA in Liberal Arts from UH Hilo and is working towards his Bachelor’s with an interest in teaching. Maikaʻi has taken the lead on creating a compost area for the Garden and most recently, getting our team familiar with Slack, a project management app that is improving our ability to work together remotely during the shutdown.
We all know our furry feline friends, *Felis catus*, as excellent companions that bring immeasurable joy to our lives. However, these cute and cuddly creatures have been a steady problem at Maui Nui Botanical Garden, as well as for the rest of Maui. Cats are natural born predators, and have contributed to a minimum of 14% of the modern bird, mammal, and reptile extinctions and to the decline of at least 8% of critically endangered birds, mammals, and reptiles (Medina et al., 2011). According to a study conducted by Loss et al. (2013), free-ranging domestic cats kill 1.3–4.0 billion birds and 6.3–22.3 billion mammals annually. Their study suggests that free-ranging cats cause substantially greater wildlife mortality than previously thought and are likely the single greatest source of anthropogenic mortality for US birds and mammals.

Additionally, cats can be dangerous vectors for a disease called *Toxoplasmosis*, a disease caused by infection with the parasite *Toxoplasma gondii* that up to 74% of cats will host in their lifetime. This is an especially alarming concern for us gardeners. According to a case-control study conducted in Erecheim, Brazil (Jones et al., 2006), adults and children who worked in the garden were 2.4 times more likely to be diagnosed with acute toxoplasmosis than those who did not garden. This is due to soil contamination spread through cat faeces which also can infect other wildlife, such as the endangered Hawaiian monk seal and Nēnē (Hawaiian Goose), both of which have had numerous documented deaths from the disease (Work et al., 2016). Infected faeces are often found in public areas, and can persist to contaminate our watersheds. In humans, this parasite is linked to a range of health issues including death.

Despite these harmful effects, the policies for management of free-ranging cats are controlled by animal welfare issues rather than ecological impacts. The State of Hawai‘i Department of Health estimates that there are over 500,000 cats on Maui. Thousands of these are feral, non-domesticated animals left to hunt and capture prey in the wild. Currently, the main control method used for managing free-ranging cats is a highly ineffective method of Trap-Neuter-Release (TNR), which is potentially harmful to wildlife populations, but are implemented across the United States without widespread public knowledge, consideration of scientific evidence or the environmental review processes typically required for actions with harmful environmental consequences (Loss, et al., 2013). Supporters of TNR claim that the sterilization-based TNR will eliminate reproduction; their assumption is that cat colony size will decline over time through the euthanasia of unhealthy cats, placement of adoptable cats, and the death of cats from natural causes. However, the results of a study conducted by Castillo et al. (2003), contradicted the assertion that managed cat colonies decline in size over time. Even though the number of original colony members decreased over time, illegal dumping of unwanted cats and supplemental food attracting additional strays prevented the colonies from decreasing. Furthermore, these results highlight the role that human interference and negligence play in the population fluctuation of managed cat colonies.

Controlling the population size of cat colonies and the number of new cats joining the colonies is and will continue to be an impossible task as long as the colonies are established in places where public access is unrestricted and unregulated. It is important that we work together to encourage responsible pet ownership, licensing efforts, spaying and neutering of cats, and keeping cats indoors. We need to enact and enforce legislation prohibiting abandonment of cats and feeding strays, and post warning signs in public wildlife areas. Fully enclosed feral and stray cat sanctuaries have also been shown to work well at controlling cat populations and are the most humane effort for the cats to live out their lives safe and protected. One example of this is the Lanai Cat Sanctuary, which houses over 600 cats who get to live out their lives in luxury, with regular veterinary care, plenty of food and space to roam. However, space and resources may be an issue. There is no be all end all approach to controlling the feral cat situation. In order to control the overpopulation of feral cats on Maui we all need to do our part to create a balanced and multidimensional approach that is in the best interest of the environment, the health of the communities, and protection of wildlife so we all can thrive. (Article References on Page 9)
Construction and Improvements

The long-awaited construction of a new volunteer work area, nursery, and equipment storage began in February. The first phase, completed in March, was to prepare the last undeveloped acre on the Garden’s leased area for grading and building. Kona Winds Construction was contracted to turn several years of green waste accumulation into mulch and remove the kiawe trees and old fencing. Jason spent several weeks carefully manipulating tons of green waste and kiawe into mulch and future firewood for imu, all while keeping the ground the same grade as it was originally. We are very grateful for their skill in this important first phase, and especially appreciate their wisdom and forethought about future steps in the project. Several old trees were retained for shade and windbreaks. For the first time in two decades we can see the lay of the land, and it is naturally a beautiful area. The next phase is to create a gravel driveway and turn around, and establish grass. Last, we will move the existing equipment storage containers into the area and build roofs to create a protected work areas for volunteers and staff. We will complete this project by February 2021. Ultimately this will be the location of a nursery to replace the one created in 2001, which will free up space in the old nursery for dedicated Garden parking.

Another exciting new development is a donated water fountain and bottle filling station with filtered and chilled water, with its own protective shed. We contracted Orvill Garren of G.W. Construction to create a shelter with barn doors that swing open flush against the walls when not locked. Orvill is a hard-working craftsman who made the small structure attractive and functional. Maui Plumbing and ELCCO Electric installed the fountain, which replaces our weekly chore of purchasing and hand carrying filtered water and ice to supply volunteers, staff, and visitors. The station, located next to our office deck, will save thousands of plastic bottles and is a top-of-the-line unit selected by an anonymous donor. This project was completed in April.

Both these projects were funded by private family foundations. We want to express our gratitude for being willing to invest in future infrastructure that will vastly improve our functioning for the community that depends upon us. Member donations to our annual appeals also helped to fund the development of the new work area, and your future donations will help us complete the project.
The 2020 Docent Training Program at Maui Nui Botanical Gardens has been offering an exciting fun-filled immersion into ethnobotany for this year’s docent trainees. Led by Lisa Schattenburg-Raymond, a respected cultural practitioner and lecturer at UH Maui College, students have been learning the uses for various native Hawaiian plants found in the MNBG collection so they can make examples of Hawaiian crafts and tools to share with visiting tourists, school groups and community groups.

For the first 2 workshops, we processed pia (Taccia leontopetaloides), also known as Polynesian arrow root, into a powder similar to cornstarch. After harvesting the root, they grated and pounded it and added it to water. The starchy material sank to the bottom, and the water was replaced each day for several days to reduce bitterness. The pulp was then laid out in the sun. When dry, it was ground using a mortar and pestle until a powder was formed. Now it can be used for cooking or more commonly into haupia, a delicious traditional Hawaiian dessert. It also has several medicinal uses as well, such as for scrapes and burns, and the leaf stalks are excellent for making hats and brooms.

The docent training will continue virtually due to the COVID-19 closure. Lisa will be making samples and artifacts to fully stock docent bags for all docents who complete training, to be used in future tours.
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Feral Cat Article References:

Jones, J., et. al. (2006). Recently acquired Toxoplasma gondii infection, Brazil. Emerging Infectious Diseases, 12(4), 582 -587.


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Membership
Yearly memberships help to fund important botanical and educational programs, research and conversation efforts. Fill out the enclosed donation envelope or call 249-2798 to become a member.

Leave a Legacy
Play a lasting part in protecting Hawai‘i’s native plants through planned giving. Consider making a bequest to the Maui Nui Botanical Gardens in your will or trust. Call 249-2798.

LEARN MORE
Our work conserving native Hawaiian plants through seed storage and crop cultivar collections is highlighted in a short video we made during the closure. Visit www.mnbg.org to see the people and projects that need your support.

Hala signifies a time of transition. During this time of rapid change, please consider helping us make up for revenue losses that resulted from the pandemic.