

From the Director's Desk

Dear all,

It's been only a few months [well 6 months to be exact] since our last newsletter but it sure feels like 6 years! So much of the world as we know it has changed that it is hard to even imagine the mindset I was in when I wrote the last note for Kukui! In that newsletter, I mentioned that we had just closed to the public as we were going to press in response to the COVID-19 pandemic. Around the middle of June, and with few daily cases being reported in Hawaii, we opened back up with an online reservation system. That approach worked extremely well, both to regulate the number of visitors (to avoid congestion), but also as a way to minimize potential exposure to both staff and visitors alike. Unfortunately, with the recent rise in cases in the state, and the enactment of several new restrictive measures by the mayor and governor, we once again had to close in early August but were able to reopen using the online reservation system again in early October. We have not been idle here at Lyon, and the many articles in this newsletter are testimony to that fact!



First off, a (near) secret plant sale! Tim has been wanting to trial run a few ideas with the upcoming plant sale in November so, despite being closed, we held a 3-day *by online reservations only* plant sale in late August and it was a huge success. Essentially a very limited number of people were able to drive up to Lyon, peruse the plants for sale, purchase a few and then head out. We controlled reservations at the gate and all the available slots were filled with very short advance notice, and with minimal advertising! But, for those who missed out, don't worry! This was a dry run for what we hope will be a bigger plant sale in November with a similar online registration system to regulate the number of visitors at any one time and maintain everyone's safety. So, stay tuned to our website and social media accounts for details on that (and also take a look at the article in this newsletter for more details).

On the subject of horticulture, we are finally overhauling our greenhouses – both the exterior (roof and siding) as well as all the benches! It is exciting and thus far Clancy and Kim have completed the roof on the greenhouse behind the Hawaiian Rare Plant Program. Next up is the main greenhouse but some considerable reshuffling of plants is necessary before we bring a lift in to help with the roof replacement there.

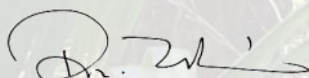
There have also been some major overhauls on the arboretum grounds – these include improvements to the newly established new 1st valley trail where a donation of a mechanized wheelbarrow allows us to bring in material, such as gravel far into the arboretum grounds to improve trail surfaces; the complete overhaul of Spice Hill, which is now largely done (except that we are missing the visiting school kids to come and take advantage of this revamped section!); and a largely completed Garden of Remembrance with the fountain repositioned and a new commemorative wall for the bronze plaques that were made on behalf of several generous donors who helped underwrite the original garden concept (see adjacent photo). All of these projects were underway as of the last newsletter but are close to completion now (there's always a little something that still needs to be done).



Finally, I wanted to highlight some of the work that our education staff (and everyone else at Lyon who has been interviewed) are doing to keep our connection going with the broader community through short Facebook live interviews. These have gone out to the community typically on Wednesday mornings at 10AM. Everything from how to make a Shaka rope tie for a Hale, to the virtues of insectivorous (aka carnivorous) plants have been discussed, and we hope to continue this fun activity even after the pandemic is behind us!

I hope all of you out there are taking all necessary precautions to stay safe during these really difficult times and we hope to see you, if not at our upcoming plant sale, then sometime in the near future!

Mahalo to all and please take care,



EDUCATION DEPARTMENT NEWS

Whether people have children in school or not, the impact that the coronavirus pandemic has had on schools is something that many people have probably heard about. There has been a huge ripple effect caused by schools going virtual and taking precautions for COVID, affecting places that usually host countless groups of school children on field trips. The Arboretum Education program is no exception. Usually by this time of the year, the Education Department would have had the entire school year booked for field trips. Since the coronavirus arrived in Hawai'i, the Education



Department has had to make the difficult decision to cancel field trips, nature camp, and community classes. It is a concern because much of the income generated from those offerings help to support the Education Department and the kind of programs that were offered. However, while the department does miss the visiting keiki, the staff have been very busy working on a variety of projects to continue to support teachers and schools, and to prepare for the day that school groups can return to visit the Arboretum. The department has created online resources for students and teachers, as well for the general public, such as

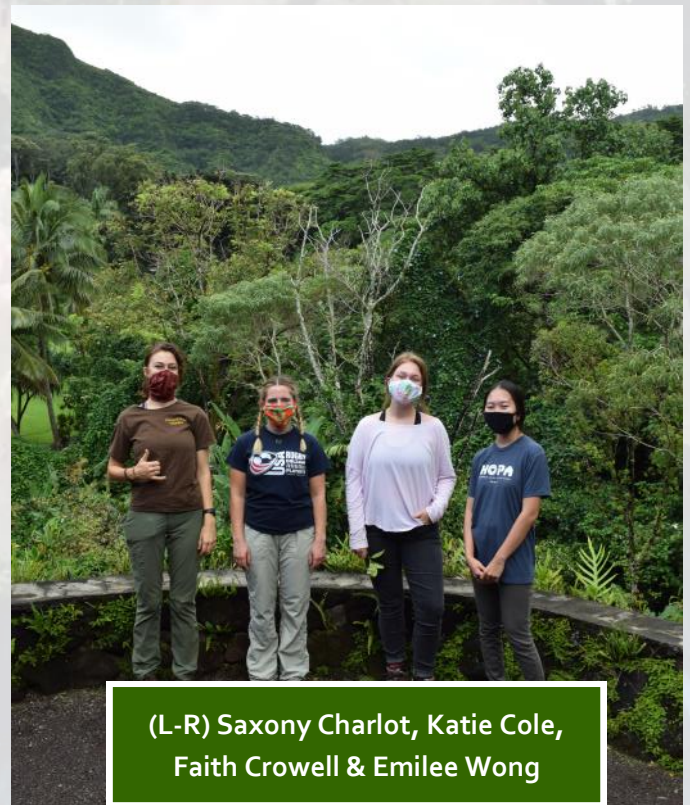
virtual tours and short videos so one can still enjoy the Arboretum from home. The two virtual tours give the viewer a 360 degree experience and provide information about a few of the plants found in the Ethnobotanical Garden as well as the newly renovated Spice Hill. Admittedly, the virtual tour cannot replace an actual visit to the Arboretum but it does provide a little bit of education about the plants, animals, and collections found at Lyon. The Department will continue to navigate the education program through the pandemic and develop programming that will not only provide for the needs of the schools and the general public but keep everyone safe as well.

- Raedelle Van Fossen

2020 SUMMER INTERNS

This summer, with generous support from the Friends of Lyon Arboretum Association (FLA), the Arboretum was able to host four summer interns for two months in June and July. The Education, Greenhouse, Grounds, and the Seed Conservation Lab each welcomed an intern to learn about their specific department but also how the Arboretum operates as a whole. Faith Crowell interned for Education, Saxony Charlot, who was the previous year's Grounds intern, worked this summer in the Greenhouse and Emilee Wong interned with the Seed Lab. They were all based here in the islands, however, the Grounds Intern, Katie Cole, hailed all the way from Maine. It was a challenge for Katie to get to the Arboretum as she was required to quarantine for 14 days. Katie was very determined to get to Lyon despite having to quarantine and the Grounds Department was very glad she showed such tenacity because Katie proved to be a great intern and contributed much during her short time! The Arboretum is very grateful for the support that FLA has provided for the internship program as the interns not only provides much need help for the departments, but helps to grow future stewards of places like the Arboretum, if not the Arboretum itself. Mahalo FLA!

- Raedelle Van Fossen



(L-R) Saxony Charlot, Katie Cole,
Faith Crowell & Emilee Wong

2020 TRAIL BUILDING INTERNS



(L-R) Xavier Duarte,
Rosemary Gunther



Herb & Spice Garden Trail

Our Grounds Department also received a very generous donation from long time arboretum supporter and volunteer, Richard Carlson. His donation made it possible for Lyon to host 2 additional interns for trail building. Xavier Duarte and Rosemary Gunther were selected as this years interns. They did an excellent job in doing maintenance and upkeep on our current trails, as well as building a new trail in our updated herb and spice garden. If you get a chance to, please make a reservation to hike the grounds and see the work that Xavier and Rosemary did along side our grounds staff.

Lyon Arboretum would like to thank Mr. Carlson for his countless years of support and generosity to secure internships for trail building.

- Derek Higashi



Manoa Cliffs Trail



Ho'omaluhia Botanical Garden



Koko Crater Botanical Garden



Lyon Horticulture Department

UPCOMING HOLIDAY PLANT SALE



It's that time of year again when the Horticulture Dept. is gearing up for our Holiday Plant and Craft Sale. However, in order to ensure the safety of our visitors and staff during this challenging time we will be making some changes to the format of the sale. To minimize the number of people attending the sale at any one time, and allow for social distancing, all visitors will be **required to register ahead of time** for a specific time slot. In addition, we will hold the sale over the course of three days (**Thursday, Nov. 19th – Saturday, Nov. 21st**), as opposed to our typical single day. This will allow us to stagger visitation and eliminate the need for shuttles, or off-site parking, and provide sufficient spots in our main parking lot for all registered visitors. Each registration will provide access for one vehicle and attendance of up to four people from the same household. Customers will have 45 minutes to browse the sale, select their favorite plants and crafts, and then complete purchases. In accordance with **UH Mānoa COVID-19 guidelines**, all customers attending the sale will be required to wear a face covering, practice social distancing, and assess their health status prior to attending the sale. We have also decided to limit the number of participating vendors, close the Visitor Center facilities, and limit the sale venue to outdoor areas. We greatly appreciate your cooperation and continued support, and feel confident that with these changes we can hold a safe and successful plant sale in the November.

Here at Lyon we understand the challenges that the pandemic has brought many of you over the last +6 months and we want to do everything that we can to help support our community. Gardening and caring for house plants has given many people an opportunity to relieve stress, and to feel a sense of accomplishment and optimism. That's why we are excited to be offering so many interesting, unique, and useful plants to the community through our upcoming sale. Some of the **plants you can expect to find at our sale** in November include **"house plants"** (*Philodendron*, *Hoya*, *Anthurium*, *Calathea*, *Monstera*, and *Begonia*), **edibles** (herbs, citrus, cacao, miracle berry, vanilla orchid, fruit trees), **ornamentals** (*Gardenia*, ti (*Cordyline*), bat flower, assorted vines (including blue jade), pua keni keni, gingers, and *Heliconia*), **natives** ('ōhi'a, *Hibiscus*, ko'oko'olau (*Bidens* spp.), mamaki, koa, and hō'awa), **carnivorous plants**, **hanging baskets**, and **succulents**. The Hui Hana volunteer group will also be offering their hand-made **dried holiday wreaths** and arrangements for sale in order to help support Lyon. Finally, a note that we will do our best to stagger our sale inventory over the duration of the 3-day sale so everyone who registers has a chance to purchase most of what they are looking for!

Be on the lookout for more details in the coming weeks on how to register, any updates as the situation continues to evolve, and opportunities to help support Lyon through these challenging times. Mahalo and see you soon!



Philodendron 'Florida Ghost'



Anthurium clerinervum



Begonia maculata



Calathea zebrina



Tropical Pitcher Plant



Philodendron gloriosum



Kokio ke'oke'o

BLUE JADE VINE AT LYON

The blue jade vine, or *Strongylodon macrobotrys*, is a native of the Philippines and is prized in tropical gardens around the world for its pendant clusters of turquoise flowers. It is considered a liana, developing a thick woody stem and reaching lengths of more than 15 meters at maturity. In its native rainforest habitat bats and birds are attracted to the ample nectar produced by these vibrant pea-like flowers. As they fly from flower to flower drinking the sugary substance within, they transfer pollen from one flower to another, pollinating as they feed. The result is a large round legume pod that develops over the course of several months and can contain up to twelve seeds. The seeds are quite large, think kidney bean on steroids, and have a unique pattern on the thin seed coat. Pollination is required for fruit and seeds to develop, so cultivated plants are often hand-pollinated. Vegetative propagation is difficult, but jade vine plants can also be grown from cuttings and air-layers.

We have several mature specimens of blue jade vine that can be seen on the grounds at Lyon. All date back to a 1969 accession from the University of Hawaii at Mānoa campus. They typically flower at Lyon from February to May, with March being the peak time to observe their beautiful blossoms by the hundreds. This spring when our plants flowered, the Horticulture Dept. set out to try their hand at pollination in order to get seeds for propagation. Some of the hand-pollinated flowers started to develop fruit, but unfortunately, one by one they all aborted from the vine leaving us without any seeds to show for our effort. But, the Horticulture Dept. didn't give up, instead they visited another jade vine in our collection to scout for seeds. Upon close inspection, the vine had several large fruits starting to develop high up in the canopy. It appeared that where artificial hand-pollination had failed, the birds (or bats??) at Lyon seemed to have effectively pollinated a handful of flowers out of the thousands that were produced this spring. In total, the Horticulture Dept. collected five jade vine legumes, yielding fifteen seeds in assorted shapes and sizes. According to our records, this is the most seeds that have been collected from this accession of jade vine since it's planting nearly five decades ago. Many of the seeds collected this year have already germinated and grown into substantial vines. These seedlings will be used to supplement our living collections on the grounds at Lyon, as well as to propagate more plants, for sale to the public, at our upcoming plant sales.

Although our initial efforts to propagate this magnificent and rare vine met some challenges, with a little help from nature we were successful in getting the next generation of plants to grow! With this accomplishment, we've furthered our efforts to conserve this threatened liana in our living collections and ensured that visitors to Lyon can enjoy it's pendant clusters of vibrant turquoise flowers for many years to come.

- Timothy Kroessig



An act of kindness initiates opportunities for students and Lyon Arboretum...



Devon Gordon was an undergraduate student at UH Manoa, who also worked as a student worker in the micropropagation lab. He graduated this past spring with a BS in Botany. While working at Lyon, he received 2-weeks of vital training at the Cincinnati Zoo and Botanical Garden-Center for Conservation and Research of Endangered Wildlife (CREW), renowned for their expertise in the cryopreservation of collections comprised of critically endangered plants.

This training for Devon started with a gift made by Vonnie Turner, a former volunteer at Lyon Arboretum. Recognizing a need for the micropropagation lab, she created the Turner Student Research Grant through the UH Foundation, which provided financial support to Lyon Arboretum in the initiation of its Hawaiian Rare Plant Program Cryopreservation Research Project.

Upon his return, Devon incorporated his newfound knowledge and initiated the cryopreservation project by gathering the necessary equipment and supplies, then running a test trial on a few native Hawaiian species. The results were very positive, and as a result the cryopreservation project is now expanding to include all

of the most critically imperiled native Hawaiian plants housed within Lyon's micropropagation collection.

This donor's initial kindness has led to significant conservation contributions in Hawaii.

- ◆ The long-term storage capability of cryopreservation helps to save time and resources in the preservation of plants in perpetuity – versus the continued efforts to manually propagate and restore *in vitro* subcultures in the lab and/or plants in the greenhouse.
- ◆ The positive outcome of Devon's work now expands collaboration opportunities with other government entities. Upon his graduation from the University of Hawaii at Manoa, Devon was hired full-time as a Botanical Support Technician at the Lyon Arboretum, a position which is grant supported by the State of Hawaii DOFAW-DLNR. This position will greatly increase the work capacity for the micropropagation project as well as allow Devon to continue his work in cryopreservation of native Hawaiian plants for the State of Hawaii.
- ◆ National interest in Lyon's cryopreservation research project has led to a successful competitive bid for the 2019 USFWS Recovery Challenge Award.
- ◆ The Lyon Arboretum's efforts to be a robust program in cryopreservation will include talents from other conservation research groups and organizations, in hopes to furthering the plant conservation efforts worldwide.

These additional larger grants were made possible for Devon and Lyon Arboretum through an initial gift by this donor who we thank for being and advocate for conservation.

To learn more about how you can support the Lyon Arboretum, please contact Audrey Hirayama at audrey.hirayama@uhfoundation.org.

Please send donations to:

Lyon Arboretum / UHF

3860 Mānoa Rd, Honolulu, HI 96822

You can also donate online: www.uhf.hawaii.edu/LyonArboretum

Name: _____ Phone: () _____ — _____

Address: _____ City: _____ Zip: _____ Email: _____

Payment method: _____ check (payable to UH Foundation; Memo: Lyon Arboretum acct#12043404)

Or Credit Card: _____ (Visa) _____ (Master Card)

Account #: _____ — _____ — _____ — _____ Exp date: _____ / _____ Security code: _____

Signature: _____



At the Friends of Lyon, this summer, we said good-bye to Tamika Wright, our administrative assistant, who joined us last year. Tamika left to focus on her biology graduate work that was to take her to the neighbor islands. We wish her well in her new adventures to learn and support our local environment. In her place, we welcome Sharlene Hirai, an engaged community member and Mānoa resident of 25 years. She has brought a wonderful energy and can-do attitude to these uncertain times.

We are also saying good-bye to two of our long-time board members: Mary Ann Bell and Duane Okamoto. We wish to say thank you to and wish to share a little about their time with us:

Mary Ann Bell, FLA Board Member

Mary Ann joined the FLA board in 2012. Prior to being on the board she was involved with the Arboretum as a volunteer. As a FLA board member, she helped on numerous projects and spent a great deal of her time on research and resolution for many of them. She provided valuable data for the follow up of a Task Force that was formed to address recommendations from a 2004 FLA audit which was to create an MOA to document the working relationship between FLA and LA. She contributed as a liaison between the FLA Board and a colleague who was formerly on the Task Force as the FLA representative. She also assisted in collecting information on the intent of the donors for the Trudy Taylor Library. It involved much of her efforts to coordinate with the friends of the late Trudy Taylor to fund a memorial in the form of a library when the Master Plan for the Arboretum is complete.

She worked tirelessly on all major FLA fundraising events, the Garden of Remembrance, and helped with numerous projects. Many of the fortunate board members who had the privilege of serving with Mary Ann found it was a real benefit getting to know and work with her.

Duane Okamoto, FLA Treasurer

Duane Okamoto has been invaluable in guiding and improving the Friends of Lyon Arboretum. He served for 8 years as a FLA board member, officer, and committee chair. He brought a wealth of experience and skills to the board from his background in business management, government operations, and private consulting and he was always ready to meet the call for FLA whether it was working as a fundraiser or writing a grant. He was elected Treasurer twice during his tenure on the board applying his expertise to reorganizing the financial statements for clearer presentation and understanding. Informally, Duane came to be regarded as the FLA historian having an institutional knowledge of FLA unparalleled by anyone else on the board. As Duane comes to the end of his board service, he's recognized and appreciated for his dedication to FLA, his knowledge and insights, his readiness to always lend a hand, and his friendship to so many.

Wish List

- *Fruits for Jams & Jellies*
- *All-natural mosquito repellent*
- *Garden decorations for the Children's Garden (i.e. bird bath, mini water fountain for water plant container)*
- *Gardening Gloves (Various Sizes)*
- *Mosquito Spray (with DEET)*

Mahalo for your support!

John Hall—Trailside Plant books for sale in gift shop

Mandy Bowers—Guava for Jams & Jellies

Elsie Horikawa—plants for future sales

Suzan Harada—sponsorship to professional society memberships for Horticulture Department

Mālama Mānoa - grant funding to Education Department

Mānoa Heritage Center - invitation to our Education Department to work with them on their BWET grant project

Alpha Delta Kappa—generous donations and continued support to our Education Department



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Harold L. Lyon Arboretum**

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MONDAY—FRIDAY
BY REGISTRATION ONLY**

PLEASE CHECK OUR WEBSITE
FOR DATES AND TO REGISTER
TO VISIT THE ARBORETUM

Arboretum Staff

Director

Dr. Rakan Zahawi

Administration

Destin Shigano, Derek Higashi

Education & Volunteer Programs

Raedelle Van Fossen, Jenna Watling,
Hadley Andersen

Grounds & Collections

Liloa Dunn, Nathan Kamaka, Robert Santiago,
Isaiah Kalahiki, Jesse Adams, Tylor Schwarze,
Richard Sears

Micropropagation Lab

Nellie Sugii, Cindy Yamamoto,
Doug Okamoto, Devon Gordon,
Libby Dingeldein, Dr. Miriam San Jose,
Dr. Leland Werden

Seed Lab

Dr. Anna Sugiyama, Nathaniel Kingsley,
Olivia Clark

Horticulture

Tim Kroessig

GIS Lab Manager

Jessica Adinolfi

Facilities / Maintenance:

Clancy Ako, Kim Zane

Community Classes at Lyon

Although in-person community classes are not currently being held, you can still learn from the Arboretum's community from your very own home. Our team interviews someone at Lyon for a Facebook Live almost every week, usually at 10 am on Wednesdays. Many members of Lyon's 'ohana have appeared to share their knowledge with us, and recurring guests include Facilities Manager Clancy Ako, who has been teaching us some basic lashing techniques, and Horticulture Manager Tim Kroessig, who has been answering viewer-submitted questions for home gardens. If you can't catch us live on our Facebook page, check our YouTube Channel Lyon Education (<https://bit.ly/2GgT2FU>) and watch on your own schedule.

Volunteer at Lyon!!

Interested in volunteering at Lyon? Check out our web site at:

<https://manoa.hawaii.edu/Lyon>

Once there, look under the "Support and Opportunities" menu. Select "Volunteer".

Follow the instructions, and pick a group or department that interests you.