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THE VOICE OF HAWAII'S GREEN INDUSTRY

HAWAIISCAPE.COM

NATIVE PLANTS ISSUE

THE PIONEER OF DRY FOREST RESTORATION

NATIVE TREE PLANTING

COMMERCIAL USE OF THREATENED AND ENDANGERED NATIVE PLANTS

Landscape Industry
Council of Hawai'i - Foundation
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Editors
Russell Galanti
Hannah Lutgen
Chris McCullough

Advertising Sales
Michael Roth
rothcomm@gmail.com

Executive Director
Garrett Webb
palmsinkona@yahoo.com

Designer
Roann Gatdula

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PRESIDENT'S LETTER

BY CHRIS MCCULLOUGH

OUR AMAZING NATIVES AND THE ADVANTAGE OF ADAPTABILITY

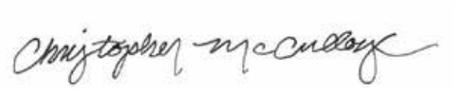
Imagine our islands devoid of plant life! This is difficult to do when we venture outside in nature and see all the diversity of flora we now have in Hawai'i. Yet every plant we see is an introduction, whether it be of natural or man-made origin. Long before the human settlement of the Hawaiian Islands the development of native plant life took place over hundreds of thousands of years. Seeds and spores came by air and by sea, sailing on ocean currents, drifting in the high winds of the atmosphere, even hitching rides with migratory birds. This greening of the islands was a very slow process. It is believed that one new plant landed on our shores and established itself in this isolated place every 100,000 years! And these pioneer plants adapted and evolved to establish themselves, often in fascinating ways.

When Polynesians arrived in Hawai'i they found islands teeming with a diverse native flora. These plants, many found nowhere else on earth, became part of the culture of Hawai'i. Yet the arrival of early Polynesians affected the environment of Hawai'i in many ways. While it created a more diverse Hawaiian flora, it also led to the disappearance of many endemic plants. These plants were sensitive to changes in their ecosystem, and many declined due to the clearing of land for agriculture and the introduction of non-native plants and animals. Many introduced 'invasive' plant species were fast growing and lead to a crowding out of native and endemic species. Unable to adapt to the changes, many endemic plants gradually disappeared over time. From the onset of human settlement in the Islands, it is estimated that one endemic plant vanished every nine months. Of the 50,000 Hawaiian endemic species, only 2,600 remain today. Of these 2,600 remaining endemic species, roughly thirty percent are endangered. Hawai'i is often referred to as the 'Endangered Species Capital of the World.' Of the world's endangered plant species, half of them are found in Hawaii.

So, let's revisited that history. One new plant established every 100,000 years pre-human arrival, one endemic plant extinct every nine months post human arrival. Pretty shocking, much like our current situation with the Corona virus. Evolution in fast motion! Therefore, for this column my focus on native biota is twofold. First, the focus is to promote the use of native plants in our landscapes, which I have attested to in former columns and throughout my horticulture career. It is critical for us as stewards of these beautiful islands to utilize native plants in our landscapes to promote their continued existence and the culture they represent in Hawai'i.

But the second consideration of native plants is to look at the advantage of adaptability, the quality of being able to adjust to new conditions. Just as the flora of old Hawai'i adapted to their new environment, we as citizens of the islands and the Global community must now 'adapt' to our new world. The adaptation to our 'new normal' will be challenging for many. Yet adapt we must, the virus gives us little other choice. We must evolve our personal lives and businesses to meet the demands of a Covid-19 reality, no matter how challenging it may be.

Hopefully, like the adaptation of plants to a new environment, we will overcome our challenges to survive. And much like native plants, these challenges will be detrimental in the beginning, as the virus is, like an invasive species trying to take over the health of our island community. Like our native plants we must cultivate the health of our community carefully to preserve our success. We are in the midst of a major adaptation. Let's hope that like native plants, even though we have suffered a major setback, we can one day thrive again. We, like our native biota, must adapt to the challenges presented to continue to grow to a new normal. I will close with a quote from Charles Darwin, "It is not the strongest of the species that survives, nor the most intelligent. It is the one that is most adaptable to change." I pray that we may we find the strength and guidance to adapt and thrive in our new and challenging world.



Chris McCullough, LICH President

LICH NEWS

TY MCDONALD, EXTENSION AGENT, KONA COOPERATIVE EXTENSION, UH-MANOA

Face-to-face training with safe-distancing guidelines: face covering, six-feet spacing between participants, in semi-open meeting room with cross ventilation and high ceiling. Photo credit: Murli Fedorowski

BACK IN THE SADDLE AGAIN

Due to unprecedented uncertainty after the COVID-19 pandemic first came to town earlier this year, the Hawaii Island Landscape Association and University of Hawaii Kona Cooperative Extension decided to cancel our annual 10-week Landscape Maintenance Training (LMT) program slated for spring 2020.

However, with relatively few COVID-19 cases developing in the ensuing months and a strong desire to provide some amount of educational opportunities this year, the HILA board of directors optimistically moved ahead in rolling out a new educational initiative in the works since late last year. Unlike the LMT program, which primarily focuses on preparing folks for the national certification testing program, the new workforce development program is geared toward providing opportunities to earn recertification CEUs for existing certified landscape professionals. Also, in reflecting the practical nature of landscape horticulture, this series of four face-to-face classes, held monthly (more or less), all include a hands-on element to complement classroom instruction.

The first class, Basic Botany and Horticultural Principles, was successfully conducted in July and went off without a hitch – with all participants practicing now-standard six-feet physical distancing while wearing face coverings. Following the classroom portion, instructor Erin Lee from Four Seasons Hualalai Resort led the attendees through the ornamental plant nursery at Hawaiian Gardens for a hands-on show-and-tell to demonstrate best horticultural practices in tropical landscapes. It was great to conduct a training outdoors and in-person again, a very important feature of effective horticultural events and activities.

The second class, Irrigation Hydraulics, Design and Troubleshooting, was instructed by Lynnett Tohara of Diamond Sprinkler and Farm Supply in late August. With a combination of indoor and outdoor seating, this workshop was originally planned to safely accommodate 20 people; and we had to turn folks away as the spaces quickly filled up.
In deciding to go ahead with these face-to-face classes, we knew that certain factors would be totally out of our control and that resiliency would be the order of the day. Sure enough, in the couple weeks leading up to this irrigation class the Big Island experienced a steady and significant increase in COVID-19 cases. As the comfort level of some folks decreased and the "mayorally-induced" restrictions increased, we agreed upon an eleventh-hour reduction in class size – down to nine participants plus one instructor. We plan to offer a second session this winter for those that could not attend. Although disappointed, everyone was very understanding and appreciated our consideration and commitment to safety first.

At press time, we had two more classes scheduled this fall, including Equipment Operation & Maintenance at Mauna Kea Resort in October. Tony Savarese from All Tool Kona provided instruction on proper equipment fluid mixing and storage, as well as operation and maintenance practices for a wide variety of landscape equipment, both gas-powered and battery operated. The final class of this series, Proper Pruning Techniques, will be held at a later date and instructed by Diana Duff.

All classes are three hours and approved for 3.0 CEU by NALP. For more information about the classes and possible tuition assistance through the state's Workforce Development Division visit www.hilahawaii.com or contact me at tym@hawaii.edu.

LICH NEWS

CHRISTOPHER MCCULLOUGH, LICH BOARD MEMBER

LICH UPDATES

After a brief hiatus on the mainland, **Jonelle Oshiro**, LA LEED AP, has returned to Hawaii as the official Landscape Architect for the US Army Garrison of Hawaii (USAG-HI) DPW. Oshiro has been licensed in Hawaii as a Landscape Architect since 1991 and has worked for several large firms including the renowned Walters, Kimura Motoda and PBR.

Governor David Ige has nominated **Matt Lyum** of Performance Landscapes to the State Advisory Committee on Pesticides. Lyum holds a RUP License Cat 3&6 as well as a contractor's license.

COVID-19 AFFECTS LICH CONFERENCE 2020

The COVID pandemic has led to many unfortunate changes. One of those changes is the cancellation of the LICH Conference for 2020. The LICH board of directors decided it was best to cancel this year based on issues related to social gatherings and economic downturn. The next conference is expected to be held in Fall of 2021. For those looking for certification credits, please take a look at the following announcements along with future opportunities to get on the Hawaiiscape website to get or stay certified.

CONGRATULATIONS BRANDON AU

Congratulations to Brandon Au with the Division of Urban Forestry (DUF) for becoming a Registered Consulting Arborist with the American Society of Consulting Arborists! Brandon and his boss, DUF Administrator Stan Oka, are the only two arborists on O'ahu with these credentials. This recognition provides a set of national resources (knowledge, contacts, and tools) that strengthen their consulting abilities while making them even more valuable, credible arborists. "Mahalo to this division and Stan for allowing myself and the other staff to develop our professional status through certifications and experiences that you can't get anywhere else," said Brandon. "It's never an individual accomplishment, as the support needed for this is more than one can achieve alone."

HOW TO GET CERTIFIED OR STAY CERTIFIED IN 2020

If you have kept your LICT Certification current with NALP,
First, Register for Employment Training Fund

When approved, call Margo at 703 456-4209 for easy Registration
$257.50 (for second module)

NALP Certification lapsed? Retest and keep your company on the Find a Landscape Certified Professional list (see www.hawaiiscape.com)
$272.50 For Full Test

Find Webinars to help you study:
Go to the Events Calendar on the LICH website!
Questions? Call Garrett Webb, LICT Hawaii State Administrator
808 960-3650

LICH Landscape Industry Council of Hawai'i

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Dark green patches of recovering native dry forest at Auwahi. Photo credit: Makana Creative.

The Pioneer of Dry Forest Restoration

By: Hannah Lutgen

Dr. Art Mederios, pioneer of dry forest restoration in Maui. Photo credit: Auwahi Forest Restoration Project.

"You want to change the world? Change human brains."
So says Dr. Arthur (Art) Medeiros.
"If you muster people in the right way, if you catch the right angle, amazing things are possible."

Art is a renowned plant botanist and the pioneer of Hawaii dry forest restoration. Born and raised in Kaneohe, Oahu, he grew up exploring in the woods behind his house and was shocked when he discovered that none of the plants were native to Hawaii. He learned about native plants, developing his passion for botany through the encouragement of his mentor, Dr. Harold St. John. Art started his career by volunteering his time to control invasive species such as Clidemia (Clidemia hirta) on Molokai and Maui. He became a botanist first, then pursued a PhD in botanical sciences at the University of Hawaii at Manoa. Art went on to work as a research biologist at Haleakalā National Park and US Geological Survey for 34 years.

The leeward slopes of Haleakalā are commonly referred to as tree graveyard, a sad remnant of the past. What was once a diverse, native dry forest, is now pastureland consisting of non-native, invasive Kikuyu (Cenchrus clandestinus) grass. When others gave up and deemed the severely degraded dry forest on Haleakalā as hopeless, Art persevered, fighting to save the dry forest from extinction. In collaboration with the conscientious-minded landowner, community members, and scientists, Art created the Auwahi Forest Restoration Project. He developed the first successful template for ecological restoration in treacherous terrain. Art, his crew, and thousands of community volunteers constructed fences to exclude cattle, feral pigs, goats and deer, controlled the invasive species, and densely planted native pioneer species such as ʻaʻaliʻi (Dodonaea viscosa) to establish the understory. By re-establishing the native shrub understory, the non-native grasses were quickly shaded out allowing rare native trees, shrubs, ferns, sedges and vines to flourish. The remaining native trees successfully started producing seed and propagating naturally without the need for human assistance. Using this method, 56 acres of native dry forest are actively being restored. Art Medeiros did the once thought impossible; he inspired the community and they worked together with the generous support of the landowner, Ulupalakua Ranch, to save the native dry forest from extinction.

"In native forests...there is less competition: Species have different niches that fit into each other like machine parts..."

Auwahi is located on the southern slopes of Haleakalā volcano on the island of Maui, between 3,000-4,000 feet elevation. The native dry forest at Auwahi, and another forest, Puʻu waʻawaʻa on Hawaii island are arguably the most biologically diverse and culturally valuable ecosystem in the state. However, only 4% of those native dry forests remain (Gustafson et al, 2014). Before restoration, the area consisted of a thick mat of non-native grasses and few remnant, incredibly old, native trees that were slowly dying. After restoration efforts by the community volunteers and the Auwahi Forest Restoration Project crew, patches of Auwahi forest are now recovering and increasingly diverse, containing 70 native plant species, nine endangered plants, and habitat for the endangered Blackburn Sphinx Moth (Manduca blackburnii). The open pastureland of non-native grasses was hot, dry, and windy, and the grasses competed with the native plants. By contrast, the native dry forest is cool, moist, and shady, and works in harmony. This recovering native forest helps preserve Hawaiian culture and biology, conserves soil moisture and contributes to aquifer recharge.

Top picture-Auwahi restoration area a few months after initiating forest restoration. Bottom picture-six years after restoration began, native species are flourishing. Photo credit: Auwahi Forest Restoration Project.

Kolea (Myrsine lanaiensis) with pink foliage. Photo credit: Hannah Lutgen.

The bright red colors of the Maua (Xylosma hawaiiense) liko, or new leaves. Photo credit: Dr. Art Medeiros.

Endangered 'Iliahi (Santalum haleakalae) flowering at Auwahi. Photo credit: Hannah Lutgen.

Community volunteers, scientists and Auwahi crew members digging holes with a modern metal o'o (Hawaiians tool traditionally made o'o from the hardwood of the kauila tree (Alphitonia ponderosa) which along with many other dense hard woods, grows in Auwahi and planting native shrub seedlings. Note the thick non-native grass and remnant native trees in the background. Photo credit: Fernando Juan.

"If you muster people in the right way, if you catch the right angle, amazing things are possible."

Art is a humble, compassionate leader. To me, one of the many beneficiaries of his wisdom and support, Art is a walking plant encyclopedia, and his knowledge of ethnobotany is extraordinary. Art personally inspired me to plant native trees at my house. Art offers restoration volunteer trips up the mountain so that residents may experience the beauty and the cultural value of the ecologically balanced forest at Auwahi. During these work trips, he invites participants to plant a native seedling that will live on for future generations to enjoy.

Touring the restored native forests with Art and Erica von Allmen, Project Coordinator at Auwahi Forest Restoration Project, was one of the most memorable experiences of my life because I was able to see, touch and smell rare native plants. I had never seen or experienced such vibrant colors, like the bright reds of Maua (Xylosma hawaiiense) and pinks of Kolea (Myrsine lanaiensis.); it was like walking through a Monet painting. Art continuously gives back to the community and supports the native Hawaiian culture. He educates and shares his knowledge, exchanging information around the world with other scientists. Art dedicates his time and shares his vision with youth to enlighten and create passion in the next generation. Teaching people about native Hawaiian plants and their ethnobotanical uses is critical to preserving the Hawaiian culture and biota.

"People suddenly realized oh my, we can do this."

There are countless benefits to incorporating native plants into the landscape. Ecologically, native plants support a functional biota and conserve soil moisture, reduce erosion, stabilize coastlines and streambanks, tolerate salt and extreme weather conditions, and are less susceptible to pests and diseases.

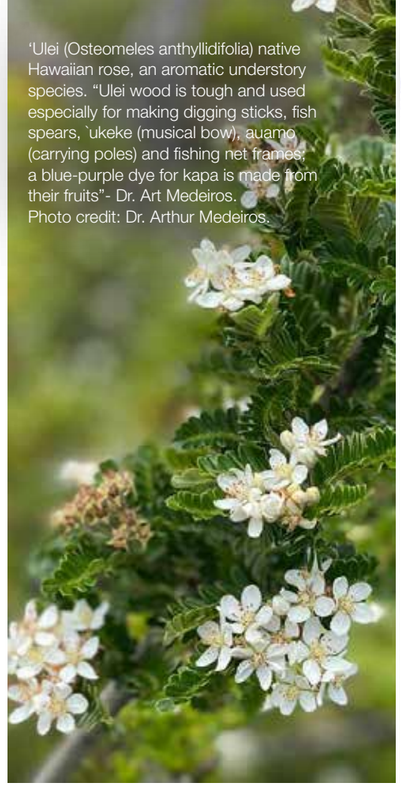
Makai view from Auwahi Forest Restoration Project. Background: Kahoolawe island, Foreground: lush, native plants.
Photo credit: Hannah Lutgen.

Practically speaking, natives require less water, fertilizer and maintenance compared to non-native plants, making natives economically viable as it requires fewer man hours and materials to sustain. Aesthetically, natives have beautiful colors, textures, and fragrances. Many Hawaiian plants are endemic (they only grow in Hawaii), which leads to a great opportunity to show tourists plants, gardens, and native habitats that they have never seen before and can see nowhere else in the world.

Some landowners have established native gardens, installed signs, and charged people for an educational tour. Culturally, native plants are extremely valuable to the Hawaiian people. For example, more than 80% of the dry forest tree species at Auwahi have native Hawaiian uses for medicines, tool making, canoe construction, making kapa (clothes), dye production and religious rituals (Medeiros et al. 1998). All of these benefits combined provide landscapers the opportunity to change Hawaii for the better, making these extraordinary islands into a paradise that can be enjoyed by locals, tourists, and wildlife alike while maintaining worldwide diversity and promoting Hawaiian culture.

“Landscapers have a tremendous opportunity to influence the world.”

Whether you are a gardener, farmer or landscaper, anyone can plant natives. If you are interested in native plants but are unsure where to start, here are a few of Art's best recommendations. “Start small, set a base objective, after you achieve it, keep growing and expanding." He adds that it is important to select the right plant and genotype for the right location and reminds us that native Hawaiian plants have the advantage because they are tough and tolerate or prefer rough conditions. “Landscaping can mimic natural biodiversity - plant two to three colors, [and a mix of] textures of plants…it’s pleasing to the eye." Use plants, start by incorporating a cultural



‘Ulei (Osteomeles anthyllidifolia) native Hawaiian rose, an aromatic understory species. “Ulei wood is tough and used especially for making digging sticks, fish spears, `ukeke (musical bow), auamo (carrying poles) and fishing net frames; a blue-purple dye for kapa is made from their fruits”- Dr. Art Medeiros.
Photo credit: Dr. Arthur Medeiros.

Truck load of native seedlings ready to be planted at Auwahi in forest restoration areas. Native trees (halapepe, holei, ‘aiea, kolea), shrubs (‘a’ali’i and pilo) and vines (maile).

plant, then add a biological plant, then add an ecological plant to create beneficial layers. Help yourself, and help others get to know the native plants. Working with others is the best way to learn and grow. Knowing the history and cultural use of these plants gives you skills and increases your, and the community's, sense of pride in Hawaii's uniqueness. Knowledge of native plants can also help reduce dependence on non-native plant imports and help prevent future invasions. Art's final piece of advice? "Try things that haven't been tried before…if people don’t know about native plants, this may be the only chance to show them."

Hawai‘i is more than 2,000 miles away from any land mass and is the most isolated archipelago in the world. Art cautioned, "isolation created beautiful biology but created tremendous vulnerability." Together, we can look after Hawai‘i.

For more information, please visit the following educational resources:

Auwahi Forest Restoration Project
https://www.auwahi.org/

Native Hawaiian plants
http://nativeplants.hawaii.edu/

Picture identification tool for all plants in Hawai‘i
http://www.starrenvironmental.com/

The Hawaiian Electronic Library
https://ulukau.org/index.php

Hawiian Plant Life Vegetation and Flora, by Robert J. Gustafson, Derral R. Herbst, Philip W. Rundel

References:
Gustafson, R. J., & Rundel, P. W. 2014. Plant Communities. In D. R. Herbst (Ed.), Hawaiian Plant Life Vegetation and Flora (pp. 35-37). Honolulu, HI: University of Hawaii Press.

Medeiros, A.C., C.F. Davenport, and C.G. Chimera. 1998. Auwahi: Ethnobotany of Hawaiian Dryland forest. Cooperative National Park Resources Studies Unit, University of Hawai’i. Technical Report 117.

`Ohi`a lehua trees with Carex wahuensis as understory, shrub plantings. Stone walls line a path on a slope at Lyon arboretum. This design allows for easy weeding, the slope provides good drainage, and the wall helps keep grass at bay.

NATIVE TREE PLANTING

By Heidi Leianuenue Bornhorst

Q: How do you plant a native Hawaiian tree and get it to thrive?

A: Just like any other tree, but with a bit more TLC and attention to Details

Planning, Species selection, soil prep, weed and turf grass control, proper planting depth, watering to fully establish, monitoring for pests and diseases, mulching, follow-up care, and other Horticultural and Arboricultural best practices should all be used for growing native trees.

We want to select a healthy well grown specimen from the nursery. Not too big and not too rootbound. If you can, inspect the roots before you buy.
For home gardens a one-gallon planting pot size is good. For Commercial or public gardens, larger sized trees have better success rates.

Some people think that native plants are easy to grow and tough, drought and salt tolerant, adapted to Hawaii and so on. This is TRUE, BUT ...
This doesn't mean stick them in the weedy hard ground and walk away and then get mad at the Hawaiian plant due to your lack of care and understanding of basic horticulture/ plant growth.
(I have had clients, and even friends like this !) Some native trees are super tough, but all need good care and horticultural observation and tending.

First as Arborists say **"Right tree right Place"**

As we Landscape maintenance Professionals say to Landscape Architects, **"Look UP!"** and overlay all of the Utilities Before planting! Sometimes they miss the obvious like electrical lines right overhead (that the tree will grow into). We also like to avoid irrigation main lines, electrical and sewer, and other underground infrastructure, in our tree root zone.

It's also good to try and visualize how large the tree will be in the future.
As I ask my clients **"What tree, or trees, would you LIKE to grow? And why?"**

I tell them to dream big and then we can get practical. I worry when people like to google stuff and come up with some super rare, high cloud forest plant that they want in their sea level, salt windy Lanikai garden ....
Some trees just won't grow or thrive in home gardens, and even less so in commercial and publi c landscapes, especially if they have a "low bid" maintenance crew, or (mow blow and go weed eater and Blower demons on the job).

For years people told us that **`Ohi`a lehua** was impossible to grow, that they grew too slow, etc. One of them was even the state botanist who got a PhD on Metrosideros!

What a challenge to a Horticulturist! We figured out how to grow them (mostly in the Nursery at Ho`omaluhia Botanic Garden; Big Mahalo to Kevin Kojima, Jimmy Pang, and Paul Weissich!) Now, happily we see many in our gardens and landscapes, and in Natural Area Restoration projects.

We want our landscapes and trees to grow successfully and for a long time.
For beginners I like to choose something TOUGH, for almost guaranteed success.

Often with natives, coastal or dryland forests trees can grow in wetter upland areas, if you provide good drainage and full sun, but the reverse is rarely true.
A rainforest tree will struggle or even fail in coastal areas, with heavy salty winds, and sandy soil.

Irrigation is key for all, even if they are xeric in nature. Trees need four to five years to become fully established in the ground.

The best form of irrigation is an automatic, above ground, pop-up system, supplemented as needed with hand watering.
*Checked and adjusted/ repaired MONTHLY, supplemented with lots of hose bibs in the design, so you can supplement with gentle hand watering.
As I used to tell my Palolo After School Science Club keiki, "Water like a gentle Rainforest mist, not like a Fire Fighter with a blasting high pressure hose! "
A **xeriscape technique** says that the best irrigation is a smart observant Gardener at the end of the water hose !

Rinsing off the leaves of your plants is a good Horticultural method. It helps wash off incipient pest insects. Observing as you water is one of the definitions of Horticulture; Intimate contact with, and detailed care of special precious plants and trees.

Kou tree at KCC/ Culinary Institute. This newly planted Kou tree could use a mulch dish or other barrier to keep the grass at bay.

Flowers of Kou make a great easy to string lei, and the lei resembles `Ilima our flower of Oahu. True kou has very attractive large refreshingly green leaves. The leaves and flowers of kou both make excellent mulch.

I like to rinse, and "play water" like a good trade wind Rainstorm, especially on these Brutally hot days. You know how plants just really thrive and seem to "come alive" after a good rain? Their leaves all shiny and sparkly clean, the pests blasted and blown away .....

Leave the leaves and keep lawn Grass Away!

So often, I see turf grass and the way it is maintained in modern Hawaii gardens as detrimental to tree growth.
Trees prefer a Fungal based soil microflora, while grass thrives with a Bacterial one.

Tree leaves are one of the most readily available and economical sources of mulch for healthy soil regeneration.

Clear the turf grass away from your tree planting area. Keep the grass at least a foot away from the trunk of your trees, use mulch in bare soil areas, but not right next to or piled against the tree trunk.

Make an edger with stone or brick set at ground level, a MOW CURB to easily mow the grass around the tree.
Leaves are a valuable resource for tree and plant growth and should not be viewed as "Rubbish". Remember kids, only humans make trash and rubbish! Leaves can be transformed into life giving mulch and Living soil building compost.

There are attractive akamai ways to manage your leaves and mulch and keep that dang alien grass, far, far away. Wet it down thoroughly, and the leaves won't blow away. Adding moisture activates the organic acids that make mulch so amazingly beneficial.

Make a small rounded mound of good, well-drained soil and plant your tree in the good soil, again free of alien grass.

Plant trees in a planter area using shrubs and groundcovers, ferns or boulders under the tree area, rather than grass. The leaves of the tree can naturally drop in the root zone and you don't need to rake them up.

BAN the Blower! Yes, the crew loves them! And yes, when budget time rolls around, they always ask for a bigger blower! It's a good tool, BUT a bad weapon of soil destruction and disease spreading, and just general, a passive aggressive noisy annoyance in the wrong hands. **So, manage blowers carefully.** Please.

Weed eaters Abunai for plants ! So much tree and plant damage is inflicted by string trimmers in the wrong, careless, "it's not edible, or recognizable to me, so it has no value", hands.
Damaged trunks, slow down root growth and can lead to many plant health problems.

Wounds to tree trunks, inflicted by weed eaters are like that "death by a thousand small cuts". Every time the trunk is damaged, dinged or sliced the damage is multiplied. Trees may not die right away, but over time they are weakened, and the wounds are an entry point for insects and diseases.
Again, they can be a useful tool, but so often staff is poorly trained and managed.

Plant the tree at the **CORRECT PLANTING DEPTH.** Not too deep and not too shallow but just right. measure the planting puka depth before planting. I have had mystery plant failures on some of my consulting jobs. A slow mysterious decline. Often, they were planted too deep.

Soil will settle with gravity and time, so if in doubt, plant it a bit high, or on a mound.

Measure the puka before removing the plant from its pot. Get the depth exactly right. Water the new plant and double check for correct soil depth. Water deeply and re-check/ adjust the depth. Easier to correct it right then, than months down the road.

As a landscape supervisor, it's good to be onsite and observing on tree planting day. In the tree's entire life, its only field planted once. People take short cuts, it's just human nature. I've even seen crew plant the whole pot! Way easier than carefully gently removing the root ball, checking for root insect pests, and ensuring the proper planting depth.

A gentle caring touch greatly increases survivability rates.

Keep your Planting crew hydrated, start early and take a break! Tired, hot grumpy workers tend to make costly mistakes that affect future tree health. So, Don't Rush, do it right and take your time on planting day. All the landscape site planning and preparation, careful plant selection is all for naught if you plant it upside down! Or too deep !!

I had two clients with **valuable Gardenia trees** that were languishing. Other crews or individuals had planted them, and I was brought on board to diagnose the problem.

I looked, at the poor trees, I examined them, did some excavation to find the original potting depth. I did QnA with the clients. After a lot of investigation, we found out that they were planted too deep in heavy clay soil.

By this time some were dead and some just had that off color, chlorotic, limp leaved look that you know is Not good ! They were valuable enough to the clients and to me, that we did the big excavation, careful root ball extraction, remedial re-planting, and so on.
So much easier and less back breaking to just do it right the first time. As I was sweating and swearing, I wondered at my career choice. I should be in that AC office and in a meeting ! NOT !!
When I figured it out for the one client, the lightbulb went off for the other!

Those trees were planted too deep too!

"Plant me a koa tree Don't you Cry for me"- Brother Israel IZ Kamakawiwo`ole
We've all been inspired by this poem/ song snippet by the late great Bruddah IZ to plant more KOA trees. This Koa tree was planted and nurtured in Kapi`olani park by Irrigation Specialist and Horticulturist John Takata. He added mulch regularly, irrigated it and put an attractive protective barrier. Koa tree thrive in the uplands but with DMPs we can grow them in more marginal areas. Admiring the tree are three UH Horticulture grads: Rachel Kariel Morton, Lynne Kaneshiro Constantinides and Heidi Bornhorst, plus Goku.

Some of my Tree selections for some of our main climate zones in Hawaii are:

For Coastal, sandy soil:
- True Kou
- Milo
- Hala (pictured)
- `A`ali`i
- Naio

For mid elevations:
- Koki`o ke`o ke`o, Hibiscus waimeae
- Loulu palms (pictured)
- Manele
- Lonomea
- Wiliwili
- Naio

For higher elevations with good organic soil:
- ʻOhiʻa lehua (pictured)
- Hapu`u / Hawaiian Tree ferns
- Koai`a
- Koa

COMMERCIAL USE OF THREATENED & ENDANGERED NATIVE HAWAIIAN PLANTS


Sesbania tomentosa Photo credit: Dr. Orville Baldos

Are you a landscaper who would like to add more rare native plants in your project? Are you a nursery owner who would like to grow and sell rare native plants? Are you a homeowner looking to add that unique Hawaiian edge to your garden? It's relatively easy to start doing so. However, there are some rules and regulations that you need to know regarding the sale and use of threatened and endangered native Hawaiian plants.

What's the difference between native, endemic and indigenous plants?

Native plants are plants that arrived on the Hawaiian Islands millions of years ago by wind, waves, or wings prior to human contact. Endemic plants are native plants that evolved in Hawaii's isolated ecosystem. Many native plants are endemic, meaning that these species only exist in Hawaii. Indigenous plants are native to Hawaii and other places throughout the world.

What are threatened and endangered Hawaiian plants?

The U.S. congress passed the Endangered Species Act (ESA) in 1973 to prevent rare species from going extinct. Plants listed on the Threatened and Endangered list (T&E list) are either threatened (T, likely to become endangered) or endangered (E, in danger of extinction).

With hundreds of plants on the T&E list, Hawai'i is referred to as the "endangered species capital of the world." More than ONE-FOURTH of Hawai'i's native plants are at risk of never being seen and enjoyed again. The loss of these extraordinary plants would be catastrophic for Hawai'i, and a great loss to the world.

What are the benefits of planting native T & E plants?

There is a wide selection of native plants that showcase the aesthetic, cultural and recreational values unique to Hawai'i. Native plants are tough-they are adapted to Hawai'i's diverse climates and soils. Once native plants are established in suitable habitat, they require less water, fertilizer and maintenance compared to non-native plants. It saves everyone time, labor, money, and resources to plant and use native Hawaiian plants. Incorporating native plants in the landscape also helps reduce the spread of invasive plants, harmful pests, and novel diseases potentially found on imported plants. People may plant native plants at any time.

However, there are regulations and permits required for the commercial use of T & E plants.

Homeowners who want to plant with T & E plants

Homeowners who begin and continue to plant Hawaiian T & E species in their gardens, and keep them in their homes are doing a big service in keeping Hawai'i the extraordinary and unique place that it is. To use T & E plants, simply purchase them from a reputable nursery, making sure that a red tag is on it (see image on next page). Please, only use your T & E plants for enjoyment inside your home, or for planting in your garden. Purchasing nursery-bought T & E plants and planting them in the wild is harmful in that it may potentially introduce diseases, pests and negatively affect the genetics of wild T & E plants.

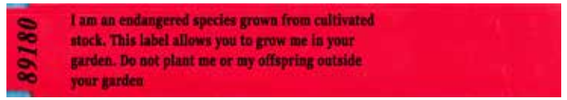
Can people work with T & E plants?

Yes, however, a permit is required for commercial use of T & E plants. The State of Hawaii's Department of Land and Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW) in conjunction with the U.S. Fish and Wildlife Service (FWS) administers permits. A permit is also required for research, survey, monitoring, collection, possession, propagation, outplanting, or transfer of non-cultivated rare and T&E plants.

What is the protocol regarding the commercial use of T & E plants?

1. Check the State of Hawai'i's Department of Land & Natural Resources (DLNR) and Division of Forestry and Wildlife (DOFAW) regulations regarding Threatened and Endangered Plants (13-107-6), permit guidelines, and the list of T & E permitted plants (see links at the end of the article).
2. Apply for Rare Plant Permit, fill out the Application For Commercial Use of Hawaiian Threatened and Endangered Plant Species (see links at the end of the article).
   - Submit application 90 days prior to expected start date.
   - Only permitted T&E plant species from cultivated stock can be used commercially.
3. Upon receipt of permit, the permit holder is required to:
   - Ensure all commercial T&E plants sold are tagged with the scientific name and source of origin.
   - Keep records of species name, date, and number of propagules or plants sold, given away, or donated.
   - Allow authorized DOFAW representatives to inspect plants, permits, books, and/or records.
   - A copy of the signed permit must be carried with the permit holder(s) at all times while in the field. (this is when collecting from the wild)

Brighamia insignis Photo credit: Dr. Orville Baldos



Commercial use T & E plant tag. Photo credit: Dr. Orville Baldos

Excerpted from Commercial Use of Native Hawaiian Plants: Laws and Requirements for the Propagation and Sale of Threatened and Endangered Hawaiian Plant Species by Orville Baldos, Andrew Kawabata and Joanne Lichty Imamura, University of Hawaii College of Tropical Agriculture and Human Resources (UH-CTAHR) OF-52, March 2019, available at https://www.ctahr.hawaii.edu/oc/freepubs/pdf/OF-52.pdf. Re-written by Hannah Lutgen with permission from the authors.

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Baldos, O.C., Kawabata, A., Litchty Imamura, J. 2019. Commercial Use of Native Hawaiian Plants. Laws and Requirements for the Propagation and Sale of Threatened and Endangered Hawaiian Plant Species. Cooperative Extension Publications. University of Hawai'i at Manoa College of Tropical Agriculture and Human Resources. Available at https://www.ctahr.hawaii.edu/oc/freepubs/pdf/OF-52.pdf

Links:

Regulations governing commercial use of Hawai'i's T&E plants are administered by the State of Hawai'i's Department of Land & Natural Resources (DLNR) Division of Forestry and Wildlife (DOFAW), under Hawai'i Administrative Rules, Title 13, DLNR Subtitle 5, Forestry and Wildlife, Part 1, Forestry, Chapter 107: Threatened and Endangered Plants (13-107-6): "Com*mercial Use Plant Species". Available at: https://files.hawaii.gov/dlnr/dofaw/rules/Chap107s.pdf*

State of Hawaii Division of Forestry and Wildlife (DOFAW). Permit Guidelines. Available at: http://dlnr.hawaii.gov/dofaw/permits/

State of Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife. APPLICATION FOR COMMERCIAL USE OF HAWAIIAN THREATENED AND ENDANGERED PLANT SPECIES.

Available at: https://dlnr.hawaii.gov/ecosystems/files/2020/04/T-E-Plant-Commercial-Use-Application_APPLICANT-NAME-HERE_DATE-HERE.pdf

State of Hawaii Department of Land and Natural Resources Division of Forestry and Wildlife THREATENED & ENDANGERED PLANTS OF HAWAI'I

Available at: https://dlnr.hawaii.gov/dofaw/rules/endangered-plants/

New Friends: James Keach, New CTAHR Extension Agent on Kauai County

Interview by Russell Galanti, CTAHR Extension Agent, Oahu

We are fortunate to have two new hires, James Keach was another recent hire into the ornamental extension ohana. I asked James to also sit down with me to discuss his interests, duties, and thoughts on the industry. Hana hou!

Q: Hi James thanks for interviewing, lets start at the start! What is your area of responsibility? How long have you been in this position?

A: I officially started at the beginning of last October, but I was back-and-forth to Hilo a lot to finish up projects there. I really got going on Kaua'i around November. I started running the local Master Gardener training course around the beginning of the year and now that that's wrapped-up I'm excited to have more time to get out to other stakeholders. My job description includes 'ornamental, floriculture, nursery, turf, and landscape' as well as coordinating the local Master Gardener chapter, so it's pretty broad. I've worked or interacted a little with most of these sectors at some point in my career, but have to admit that turf is totally new. I'm still learning a lot about the industry on Kaua'i too, and it's been fun to see similarities and differences with the industry on Big Island or Singapore.

Q: So you have Master Gardener duties. Who are they and do they have an interaction with the landscape industry?

A: The Master Gardeners are a group housed in the University that seeks to apply science-based practices in order to go a level deeper in their gardening. They also have a mandate to help the greater community, and you'll see a lot of our volunteers at plant-related events across the island and the state.

One neat thing about this group is that is draws people in from all walks of life. While many of our volunteers are retired, we also have quite a few who are actively working with local companies or non-profits. I know a few who work in the landscape industry here and view this as job-related training, covering some of the new scientific discoveries that they might not have heard of or which came out after they started their jobs. Having folks like this in our group is a real treat, since they often share their experiences and give a real-world take on the topics.

Q: Outside of the career, tell me a little bit about yourself.

A: I'm originally from Maryland, and have loved plants since I was a kid. I originally came to Hawai'i around 15 years ago on a one-semester internship to study orchids at UH. I moved back, after getting my Bachelors at Hampshire College, and worked for Frankie's Nursery in Waimānalo as well as Pioneer Hi-Bred in Kunia. I left Hawai'i to go to graduate school because I was really interested in plant breeding and wanted to learn more. I did my Masters at Washington State University on breeding with wild species of wheat. My PhD work was on breeding impatiens with their wild relatives to bring in resistance to downy mildew, and that project is still ongoing with my advisor at Cornell's Long Island Research & Extension Center. I lived briefly in Thailand at the end of my degree, doing a series of internships on vegetable breeding and extracting medicine from plants, and then moved to Singapore where I worked in the research division at Gardens by the Bay: Singapore's 'horticultural themepark'. I missed plant breeding and getting out into the field though, and when I saw an opening to breed sweetpotatoes and taro on Big Island I jumped at the chance! That position was only temporary, but it was great being back in Hawai'i. As I came closer to the end of the timeline for that position several of the extension agents at the University suggested I apply for the position opening up on Kaua'i. I thought it would be a good chance to get back into ornamentals and also give me an opportunity to help make sure that the science gets out into the community, something I think is really critical.

Q: Hey a fellow Marylander! Crabs and football, am I right? That's great that you are into breeding. What are some interesting breeding directions in the ornamental crop industry?.

A: A: I could go on-and-on about this, but two areas that I think are really relevant here are developing edible ornamentals and making selections from an area's native species. So many of the plants we use for landscaping and gardening can also be delicious: dahlias, taro, hibiscus, sweetpotato, etc. I like seeing work that accentuates both sides of these plants, especially for folks who might have limited gardening space. I also like seeing our native species used in landscaping, but especially some of the new selections folks have made for manageable growth habit, novel visual characteristics, adaptability, etc. I know several other folks from the University are doing great work with this, and some of our prized native species are even catching on internationally!

In fact, so many places I visited around the world use material which originated in Hawai'i and I'd love to see this translate into more opportunities for local growers and landscapers to showcase their expertise. I visited Taiwan several times when I lived in the area and was really blown away by the amount of time and public resources they're investing in their ornamental breeding programs. They're well known for their work with phalaenopsis orchids, but I also saw things like thornless Crown-of-Thorns, scented hibiscus (bred from our native species!), selection for flowers and foliage that look good both fresh or dried, and more! How could we invest in something like this?

Q: How can people get in touch with you and the master gardeners?

A: My email is jkeach@hawaii.edu, and I always tell people it's fine to prod me if they don't get a response: I'm out in the field a lot and sometimes messages fall through the cracks. If you live on Kaua'i and want to get on the list for the next round of Master Gardener training, send me an email!

The Master Gardeners have a helpline for gardening questions and you can email them at kauaimg@ctahr.hawaii.edu Before the pandemic they were also out at the Saturday farmers market at Kaua'i Community College, selling seeds and answering plant questions. We're waiting to hear back when it will be safe to resume there, but keep an eye out for us as markets reopen.

Millenial Rising

by Chris Dacus

American agriculture workers are rapidly aging. According to the U.S. Labor Department, the median age for farmers and ranchers is 55.9 years, second among tracked occupations. Millennial Rising is a new column featuring millennials bringing new energy, fresh ideas and they are succeeding!

Our first rising millennial is Taylor Marsh. He is a professional who spent 12 years painstakingly removing invasive plants, building ungulate fences on the island of Maui, and restoring degraded ecosystems on O'ahu. Although he made small gains in a conservation career, he knew there had to be a large scale & efficient approach to better leverage limited resources. So he started a business, got married and is hot on the trail of hydroseeding native plants.

"I have been impressed by his experience in native landscape restoration in Hawaii, his knowledge about hydromulch technologies and his passion for healing Hawaii's landscapes."

-Carolyn Wong, USDA-NRCS

Q: Where were you raised
A: I was raised in Florida and Georgia but lived in Hawaii for 15 years now. I developed a love for the outdoors at a young age and that interest led me to Hawaii to start a career in conservation.

Q: High school/college?
A: I graduated from UH Manoa in Environmental Studies in 2009

Q: Favorite restaurant?
A: Pig and the Lady in Chinatown. Love me some French/Vietnamese food and the cocktails are amazing.

Q: Favorite plant
A: That's tough! If I had to say a few, they would be wiliwili or lapalapa. They're gorgeous trees and who doesn't like trees?

I think wiliwili is the most stunning and weird tree and they're both endemic to Hawaii. I'm sure a botany nerd friend would shame me for choosing a more commonly found tree as my favorite and they would rather mention an obscure, rare species. I just say to them, "Hey, common natives are threatened and special too!"

Q: The landscape and agriculture are aging communities you're bucking the trend - why
A: I hope that I'm bucking the trend of an aging agricultural community. The once-booming ag industry in Waimanalo seems like a graveyard of farms now. There seems to be a revitalization and locally-grown products are on the rise in the islands and I aim to be on that train. Not only is there a growing revitalization of Hawaiian culture and language happening but there is growing interest in perpetuating local food production, native Hawaiian plants and restoring landscapes. It's really inspiring to be a part of.

Q: Who and/or what was the inspiration to start this business
A: My inspiration to start this business was through working in conservation on Maui and on O'ahu for the past 12 years. I saw the disappearance of native forests due to invasive species and felt the need to do more. I was part of field teams that hiked (more like crawled) through the nastiest vegetation and terrain to hunt for invasive species like the Miconia plant as well as worked to restore highly degraded forests back to native-dominated forests. The restoration work was incredibly important and successful but lacked the large-scale impact that it needs. Addressing large scale problems like wildfire, erosion, invasive species damage, and the lack of landscape-scale tools lead me to start my own business to research and develop and commercialize a tool never widely used in Hawaii; native hydroseeding.

""His work in developing native Hawaiian species hydroseed will be useful in many different projects, from roadside landscaping to large-scale restoration following fires and other disturbance."

- Danielle Frohlich, SWCA

Q: What are you trying to accomplish
A: Native Ecosystem Services aims to provide the efficacy and cost-effectiveness of hydroseeding and direct seeding methods while utilizing native seeds for landscape-scale revegetation. Yes, a native hydroseed service! We currently have funded R&D but we hope that the products and services will be available in 2022.

"Taylor is both systematic and creative in his approach and his current work to develop and make available native plants and seeds for the restoration of ecosystems and the development of novel approaches to successfully apply seed to the landscape throughout the state is exactly what is needed."

- Tim Chambers, Oahu Army Natural Resources Program

Q: Waimanalo is the beginnings of your hydroseed farm.
A: We're looking at seed mixes containing a mix of hardy species: a'ali'i, koa, Carex wahuensis, aweoweo, 'ūhaloa, and pili grass are what we are proving effective at the moment. This is what is needed for Kaho'olawe type erosion problems. One of the most promising is a'ali'i since it produces the most viable seeds, seeds germinate rapidly, it creates a dense shrub that can compete with invasives, and withstands full sun, drought and high winds. The goal with the seed mix is to establish a stand of native vegetation that will transform the landscape and require few resources.

Q: Your mix looks to compete with Buffel & Guinea grass
A: There's a huge wildfire and climate change component to my goals. Once a wildfire burns through an area, you have a small window of about 6 - 12 months to get in there and restore it. Otherwise, you will be potentially dealing with annual fire from these highly flammable dry grasses like Buffel grass and Guinea grass. Landowners can avoid these high maintenance and costly fire species by investing in native species recovery.

Q: New plants coming soon from the nursery?
We also have a nursery and we contract-grow native plants for our customers. The nursery is currently taking a different approach to native plants such as indoor natives, hanging baskets and "mini native ecosystem" planting kits.

Q:Are you wholesale and retail?
Wholesale native seeds and native plant nursery

Q: How will the landscape industry be improved by your generation?
Much respect to the current generation. The new generation of nurserymen and/or entrepreneurs can keep expanding on promoting native plants and can keep innovating to make new tools, products and services that improves the 'āina for the future generation.

"Great to see additional native plant sources on Oahu for the landscape industry, and the active research towards ecosystem restoration that Taylor is pursuing."

-Rick Quinn, Helber Hassert & Fee

Q: How can people connect with you
A: I can be reached at:
Native Ecosystem Services LLC
(808) 469-9432
www.NativeEcosystemServices.com
Instagram @NativeEcosystemServices

Thanks for the Q&A.

Chris Dacus is a regular contributor to Landscape Hawaii magazine and a LICH Director Emeritus.

Figure 1. Extremely severe take-all patch infestation on a golf putting green in Hawaii.
Photo credit: Zhiqiang Cheng

Research update on management of turfgrass fungal disease take-all patch in Hawai‘i

by Zhiqiang Cheng, Ph.D., Depart. of Plant ane Environmental Protection Sciences, CTAHR University of Hawaii at Manoa, Honolulu, HI 96822

Summary Points:

- Chlorothalonil and Acibenzolar-S-methyl resulted in the best disease suppression among all treatments.
- It is recommended that fungicide programs should be used in conjunction with beneficial cultural practices to better manage take-all patch.

Take-all patch or take-all root rot, a root fungal disease of turfgrass, has been confirmed in some southern states in the USA. This disease was initially discovered on bermudagrass, and thus has been previously called bermudagrass decline or bermudagrass winter decline. This disease has been confirmed in Hawaii previously, but seemed to become more commonly found and wide spread in recent years. The causal pathogen is commonly considered to be Gaeumannomyces graminis var. graminis. Its major hosts are warm-season turfgrasses, including: bermudagrass, seashore paspalum, zoysiagrass, St. Augustinegrass, and centipede grass. It most occurs on stressed, closely mowed turfgrass, such as golf putting greens and tee boxes. In Hawaii, this disease most occurs on bermudagrass and seashore paspalum, the two turfgrass species used in most golf courses. Take-all patch usually starts as yellow circular patches ranging from 0.5 to 3 feet in diameter. Turf in patch area gradually turns brown. The roots darken and become thin and shortened, sometimes losing feeder roots and root hairs. When infestation is severe, a majority of the roots can become very dark in color or even lost, and patches may become bare to form irregular-shaped larger patchy areas. In Hawaii, the disease symptom is usually evident in late fall, winter, and spring with moderate temperatures, because cool, moist weather favors growth of the causal fungus. This disease is especially active in winter when bermudagrass becomes less active in Hawaii. Figure 1 shows extremely severe infestation on a golf putting green in Hawaii. Management of take-all patch on putting greens and tee boxes is challenging. Several cultural practices are considered useful against this disease: raising mowing height on greens and tee boxes when feasible, especially when turf is under stress or less active in moderate temperatures; managing thatch properly; avoiding heavy irrigation, especially late in the day; enhancing root growth by providing nitrogen (not excessive nitrogen though) and potassium; and improving drainage in wet areas.

Figure 2. Take-all patch field research plots.
Photo credit: Zhiqiang Cheng

This research was conducted on a bermudagrass chipping green at a golf course on the Big Island (Figure 2). The test consisted of 7 fungicide programs and an untreated control (Table 1), arranged in randomized complete blocks with 4 replicated plots per treatment.
Each plot was 5 ft by 5 ft, with buffer area between plots. The treatments were applied 14 days apart at label rates, for a total of 7 times. Data on disease severity/incidence and overall turfgrass quality were measured prior to treatment, and 13 days after each fungicide application (i.e. immediately prior to the next fungicide application). Two trained people (the author, and a manager at the golf course) took measurements to minimize potential bias from one person, and data were averaged for analysis.

Table 1. Details of treatments.

Treatment	Rate/1000 sq. ft	Frequency
Chlorothalonil and Acibenzolar-S-methyl	3.5 oz	14 days
Azoxystrobin and Difenoconazole	0.5 oz	14 days
Azoxystrobin and Acibenzolar-S-methyl	0.2 oz	14 days
Chlorothalonil and Acibenzolar-S-methyl + Azoxystrobin and Acibenzolar-S-methyl	3.5 oz + 0.2 oz	14 days
Penthiopyrad + Chlorothalonil and Acibenzolar-S-methyl	0.5 oz + 3.5 oz	14 days
Penthiopyrad	0.5 oz	14 days
Thiophanate-methyl	1.6 oz	14 days
Untreated Control		14 days

Data were evaluated according to the following rating scale:

• Disease severity/incidence (1-9): 1 = no infestation, and 9 = 100% infestation.

• Overall turfgrass quality (1-9): 1 = poorest or dead turf, and 9 = outstanding or ideal turf.

Results indicated that Chlorothalonil and Acibenzolar-S-methyl (Daconil Action) resulted in significant disease suppression (6.3 suppressed to 3.8, $p < 0.05$, Figure 3), but non-significant turfgrass quality improvement (4.8 improved to 5.2, $p > 0.05$) after repeated applications. None of other treatments resulted in significant disease suppression or turfgrass quality improvement. It is recommended that fungicide programs should be used in conjunction with beneficial cultural practices mentioned above to better manage this turfgrass fungal disease.

Acknowledgement

We thank staff at Mauna Kea Golf Course for their collaboration with this field research. We also thank staff at Makena Golf Club and Hoakalei Country Club for their collaborations with additional demonstrations on take-all patch treatments. This research was made possible by author's Hatch and Smith-Lever projects, and industry collaboration.

Key References

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Disclaimer: Any mentioning of specific pesticides is for research/information only, and NOT for recommendation purposes. Always read and follow labels before any treatment. University of Hawaii is not responsible for any consequences of treatments you apply.

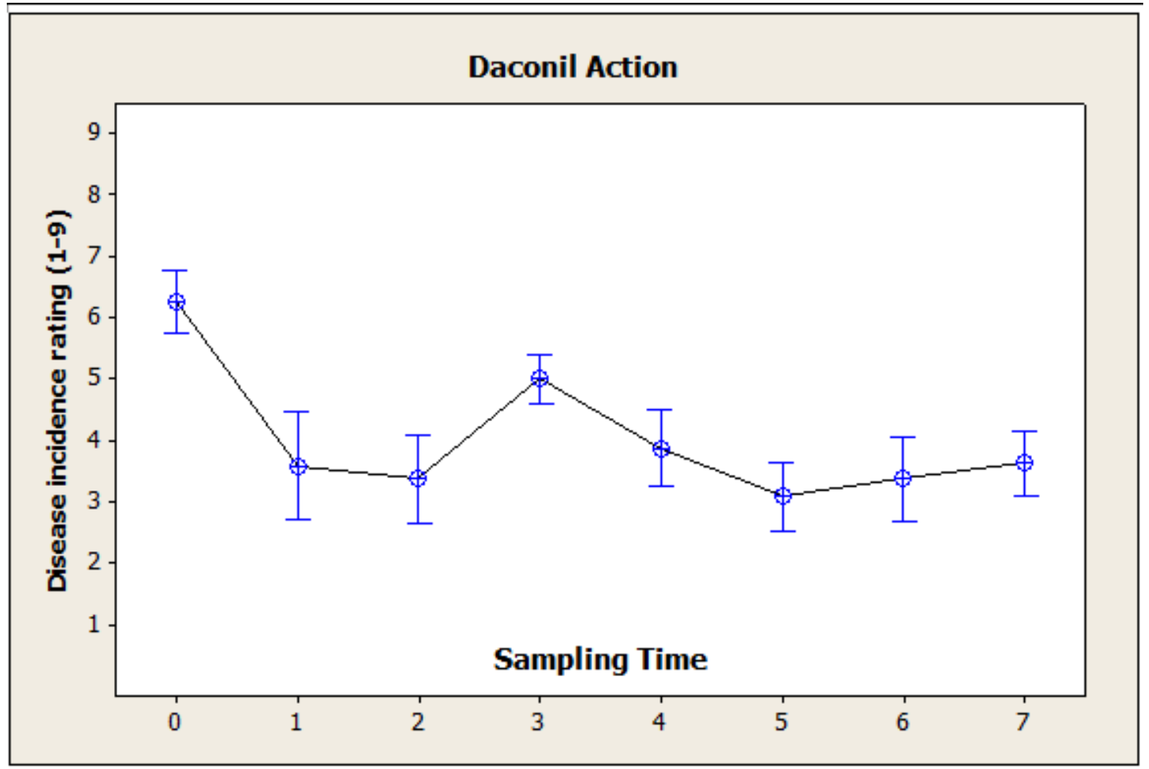


Figure 3. Take-all patch severity (1-9 scale, 1 being no infestation, 9 being most severe infestation) under Chlorothalonil + Acibenzolar-S-methyl (Daconil Action) treatment. Error bars are SE from the mean.

About the author: Dr. Zhiqiang Cheng is an Associate Professor and Extension Specialist at CTAHR, UH Manoa, running state-wide turfgrass and landscape pest management program.

Coconut Rhinoceros Beetle (adult)

An Update from the Coconut Rhinoceros Beetle Response

by Kaili Kosaka and Koki Atcheson

The Coconut Rhinoceros Beetle (CRB) is an invasive pest that was discovered at Mamala Bay, Oahu in 2013. The adults feed on the developing fronds of coconut, date, royal, and fan palms and breed in decaying plant material (soil, compost, mulch, green waste). They are spreading in Oahu causing great concern to the agricultural and landscape industries as well as the natural environment.

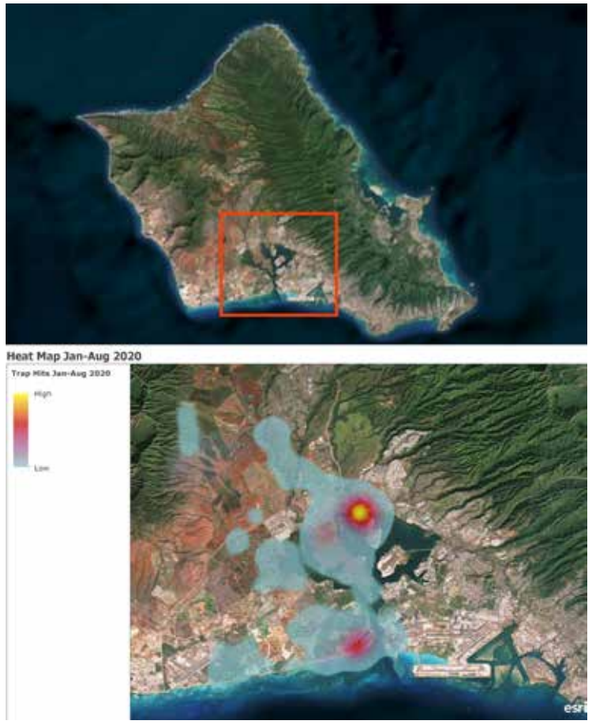
CRB continues to be a problem in the Central Oahu area. The most concentrated population is Pearl City Peninsula with other hot spots including Waipio Peninsula, Iroquois Point, and Ewa Beach. Recently, we have found CRB consistently in Mililani and Kunia, and occasionally in West Oahu. We are working to prevent populations from establishing in these areas.

If you are transporting green waste it is important to:
Chip or grind green waste and transport it to an active composting facility like Hawaiian Earth Products or Island Topsoil.
Avoid moving green waste to and from high-risk areas.
If possible, chip and transport on the same day (during daylight hours) because CRB are nocturnal.
DO NOT stage green-waste in a high-risk area overnight.

Remember to decontaminate trucks and tools for hitchhiking beetles, inspect palms for damage before transporting, and keep green waste in a durable sealed container if you are unable to take it to a facility to be processed.

For FREE resources to stop the spread of CRB, including information, presentations, inspections, and treatment, please contact the CRB response team at beetlebustershi@gmail.com or (808) 679-5244.

Kaili Kosaka and Koki Atcheson are the outreach specialists for the Coconut Rhinoceros Beetle (CRB) Response Program in Joint cooperation between the University of Hawaii, Hawaii Department of Agriculture and the United States Department of Agriculture.



A heat map showing coconut rhinoceros beetle (CRB) trap finds from Jan. 2020- Aug. 2020. Yellow areas show the highest number of trap finds over Pearl City and Iroquois Point. The trap finds count is determined by the number of CRB recovered in each trap during its regular servicing.

EDITOR'S NOTE

Hospital Laundry, June 1974. Ceramic tile mural. 13 ft wide X 11 feet high. School Street façade of United Public Workers Building (renamed in 2006: Henry B. Epstein Building), Honolulu, Hawai'i. © The Jean Charlot Estate LLC. With permission.

The author of "Sister's Under the Skin" from the Previous issue on women and diversity would like to submit a correction to her story regarding the portion of the article referencing Cathy Lederer. Corrections below.

I wanted to respond immediately, because I haven't forgotten what it feels like to be afraid of the unknown and to operate from that fear-based space. When the pandemic hit, I went to my board; the first thing we did was step up food distributions for the islands, increase the Utilities Program, and offer virtual Learning Sessions. -Cathy Lederer

Cathy Lederer's family roots are from the plantations on Maui. She says her parent's generation had a penchant toward believing in doing things for the "greater good" and it takes a village to make things work. She is the youngest of 7 children and believes she was raised with a sense of collective action because of her parents. All the children had to pitch in at their home from making and cleaning up at meals to food distributions; everyone has to pitch in to make things work. Her response to the pandemic was to immediately coordinate food distributions, increase their Utilities Program, and continue with outreach education through virtual Learning Session. Topics covered emergency housing assistance, financial help, communicating during difficult times, and tools for online organizing.

The Learning Session goal is to offer information that is responsive to current issues so people can make informed decisions.

She is especially proud of the many union volunteers at the food distributions that have been taking place since March and are still operating on Oahu and Maui. Some volunteers come out every week. There are unions like IATSE, where all of its members are out of work due to COVID who volunteer gladly, wanting to do something to help our community. They are an example of how we need to come together to emerge out of this crisis. Cathy also coordinates large scale, union driven community service events such as the "Labor of Love" which is a collaboration of unions, organizations, and businesses that partner together to improve Hawai'i' Public Schools. She feels when we unite, we build healthier and stronger communities.

Cathy believes the key to the future lies in education and welcoming new energy to the labor community. She also believes during this unprecedented time, it is of great importance to be flexible and patient with each other and to not deal with obstacles alone, but together, as a community.

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