Watering Tips for Healthy Trees

by Cynthia Nazario-Leary

Tree root depth has a major impact on how often trees need water. Established trees have much deeper and more extensive root systems than lawns or vegetable crops, and can tolerate periods of drought. For established, deep-rooted trees and shrubs, water less frequently but consistently for longer periods, so that water reaches deep into the soil. Deep watering encourages the growth of deeper roots, making the tree more drought tolerant and can lessen the likelihood of salt buildup in the soil. Frequent, shallow watering encourages undesirable fine, surface roots that are more prone to water stress, insect and disease damage, and can be easily injured by cultivation, drought, or burned by fertilizers. Newly planted trees require more frequent watering than established trees since they have not had sufficient time to establish deep root systems. Once the tree has become established and its roots are able to find water in the soil, watering frequency can decrease. If using irrigation, make sure to move the irrigation outward as the tree grows to match the canopy of the tree. Frequency of watering will also be influenced by the planting environment. Hotter, windier, and full sun areas will require more watering than cool, protected, shady areas.

When watering, either by irrigation or by hand, water should be distributed evenly on the ground and up to the the tree’s dripline (outer edge of tree’s leaf canopy). It should not be sprayed onto the trunk or canopy of the tree. Leaves and trunks that remain wet can increase the chance of fungal or bacterial diseases.

The best time of day to water with sprinklers is early morning, so that tree leaves, grass, and other landscape plants can dry during daylight hours and reduces chances of disease. Avoid watering at midday. In strong sunlight, drops of water on leaves can focus the light like a lens, which can cause burn spots on susceptible plants. Water loss by evaporation from the leaves and soil is also highest at midday.

Mulching around the tree can help control weeds as well as reduce evaporation.

A large selection of native and canoe plant trees and shrubs will be available at our annual Arbor Day 1,000 Hawaiian Tree Give-Away coming up Saturday, November 4 (see page 5). MNBG is growing 19 species in its nursery for this event, and MECO will be providing another 5 species and 500 trees from local native nurseries on Maui.

To give these trees a good start on life it’s important to understand their watering needs. Healthy trees require a regular and planned watering routine. Key factors to good watering include: understanding how much and how often to water, depth of tree root-zone, type of soil, and the planting environment.

Continued on page 2
of water from the soil. However, remember that trunks should not remain wet, so do not apply mulch so that it touches or buries the base of the trunk. Removal of weeds and grasses around the trunk and out to the dripline of the trees also reduces competition for water and nutrients.

Trees and deep-rooted shrubs should be watered to a depth of 18-20 inches. The amount of water needed to saturate to this zone will depend on soil type. In soils where water drains quickly, trees will need to be watered more frequently. Incorporating organic matter, such as compost, into these soils will increase their water holding capacity. Water moves quickly in shallow or sandy soils, moderately in a properly prepared loamy soil, and more slowly in clay or compacted soils. Most clay soils hold water more tightly and slowly absorb it. Avoid watering too quickly and frequently. Water should not sit too long on the surface of the soil and should be applied only as fast as the soil can absorb it. Some of the clay soils in Hawai’i have water movement properties that resemble those of sand, so it’s important to observe drainage for your particular soil.

Overwatering trees can lead to damage or death. Plant roots require oxygen to breathe and when soils are waterlogged oxygen is limited and roots are unable to grow and function well. This can lead to root death and loss of tree. A dry soil surface is not always a sign of water need and may not be a true indicator of what is going on down deep near the tree root. To tell if a tree needs water, feel and smell the soil. Within the first 2-3 inches the soil should feel mildly moist. Soil that is too wet and gone too long without oxygen usually smells sour or rotten.

Some signs of overwatering to keep an eye out for are:
- Stunted or slow growth of the plant
- Yellowing of young or new leaves.
- Wilting of young shoots and stem
- Leaves that are green but brittle
- Water-soaked spots or blisters on stems or leaves
- Brownish-colored or rotting roots

If you catch symptoms of overwatering soon enough the tree can usually come back if it receives only the water it needs. Most water related problems with plants can be eliminated by making simple changes to your watering practices. Learning to water efficiently and effectively is not only good for your trees but will also save water.

Richard Masato Nakagawa

September 28, 1947 – May 19, 1917
By Tamara Sherrill

Richard Nakagawa, conservationist, nurseryman, and inventor in service of native Hawaiian plants, passed away this spring. Richard worked as the nurseryman for the Maui Department of Land and Natural Resources Division of Forestry and Wildlife (DOFAW) for 20 years. He was a trip leader and member of the Native Hawaiian Plant Society beginning in 1987. He co-wrote the wonderful 2002 book “Growing Plants for Hawaiian Lei: 85 Plants for Gardens, Conservation and Business”. In 2003, he became a founding Board member of D.T. Fleming Arboretum at Pu’u Mahoe.

After Richard retired from DOFAW in 2007, he worked for Maui Nui Botanical Gardens as a propagation specialist from 2008-2010. As his dear friend Fern Duval writes, “Because of Richard we have saved from extinction the Moloka’i Kokia (Kokia cookei), Maui’s Kaula tree (Colubrina oppositifolia), Maui’s ‘Alani (Melicope knudseni), Mahoe (Alectryon macrococcus), and Kanaloa of Kaho’olawe (Kanaloa kahoolawensis) and many other less rare species. In fact it was often only Richard who for years was entrusted with propagation of such rare species… Richard was an incredibly meticulous technician who knew the Hawaiian native plants VERY WELL.”

My memories of Richard began visiting him at his nursery at DOFAW. He was always tinkering with something and excited to share. People frequently dropped by. I started going on hikes with the Native Plant Society, and I loved his quiet demeanor and intense curiosity. Throughout the years, I learned his gift for synthesis of information. In conversations about technical problems, he would quietly listen. After a long while, he would say, “Hmm…what if you tried…” Out would come a perceptive but novel idea, which not only gave hope; it often worked. Richard showed me what the qualities of attentiveness and experimentation can do. He is missed.
With Gratitude from Our Garden:
Maggie Sniffen for garden hose bibs and volunteer refreshments, Gloria Adlawan for napkins, Anna Mae Shishido for volunteer drinks and a new golf cart battery, Jennifer Rose for garden clippers, Diane Carr for gardening hats, Anonymous for a new nursery cart, Cindy Singer for gardening gloves and volunteer drinks, and Maui Forest Bird Recovery Project (māmane seeds), and Richard Nakagawa for tools and rare books on Hawaiian Plant Propagation.

MNBG Contributions to the Community:
Kihei Elementary School (hala brushes), Hālau O Ka Hanu Lehua (‘ākia), Hālau Kekuaokalā‘au‘ala‘iliahi (ti leaf), Na Hanona Kulike ‘O Pi‘ilani (ti leaf), Kahana Gardens (lei materials), Hālau Ka Malama Mahilani (wauke), U.H. Maui College (Cyperus pennisetiformis), Hawaiian Islands Land Trust (hala seedlings), Kaho‘olaw Island Reserve Commission (‘ala cuttings), Ha‘iiki Elementary School (ma‘o, kupukupu, mau‘u ‘akī‘aki, ti leaf, ohai, pōpolo, nehe, pā‘ū o hi‘iaka, ‘ilima), YMCA (hunakai, ‘īhī lā‘au, ‘ākulikuli, ‘īhi), Maui Natural Area Reserve (Vigna owahuenis, Vigna marina), George Kahumoku (Kalo), and Keiki O Ka ‘Āina Program (lau hala).

Mahalo to our Interns & Volunteers:
Erika Magarifuji, Kanoe Kamaunu, Pōmai Kahaiali‘i, Ke‘ala Bethke, Travel for Teens Program Participants, Keiki O Ka ‘Āina Program Participants, and Lā ‘Ulu Volunteers: Kamehameha Schools Maui National Honor Society, Vicki Shortell, Thomas Craig, Dorothy Pyle, Nio Kindla, Gordean Kakalia, Alex Quintana, David Hubbard, Na‘one Kama, Cynthia Nazario-Leary, and MNBG’s Weed & Pot Club.

Wish List
- Garden gloves (all sizes)
- Rakes (leaf or landscaping)
- Medium sized picks
- Shovels
- Sickles
- Hand pruners (clippers)
- Outdoor tables & chairs
- Dehydrator for making Taro Flour
- Blender for making Taro Flour
- Hawaiian Miles (for interisland travel for staff training)
- Handicapable gardening tools: for ideas, visit http://disabilityworktools.com and click “Gardening”

*If you would like to contribute to the purchase of one or more of these items please call 808-249-2798. 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.

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

MAUI NUI BOTANICAL GARDENS
MISSION STATEMENT
The mission of the Maui Nui Botanical Gardens is to foster appreciation and understanding of Maui Nui’s plants and their role in Hawaiian cultural expression by providing a gathering place for discovery, education, and conservation.

Give Online! Make a donation, pledge or renew your membership by visiting www.mnbg.org and clicking on “make a donation”.
E Komo Mai Bessie and Kaili

We are thrilled to welcome two new staff members, Bessie Ku'uipo King Waggoner and Kaili Kosaka. Bessie began in August as our part-time Grounds and Maintenance gardener, and Kaili joins us October 2 as the full-time Horticulturalist. Bessie has most recently been the General Manager for the Garden of Eden in East Maui, and has also worked with Hike Maui, exotic plant management, and as a naturalist at Haleakalā National Park. Bessie’s work ethic, plant knowledge, and teamwork have already made a difference. Kaili has a B.A. in Environmental Studies from U.H. Hilo and just completed her internship with the Kupu Conservation Leader’s Program as a Botanist Assistant with the DLNR on Kaua‘i, where she gained experience in propagation, seed collecting, and seed storage. We are excited to welcome these two women to the team!

Aloha old playground & A dream of a Keiki Garden

In May, the County of Maui Department of Parks and Recreation demolished the playground that has been on site since Maui Nui Botanical Gardens was the County Zoo in the late 1970’s. The County decided it was no longer safe to repair and maintain. Because the Parks Department has no plans to rebuild, our Board requested that they amend our lease to include empty area which is currently excluded from the lease. The Department agreed, and we have begun the process of re-applying for our lease. We hope that this change will clear a way to eventually build the Keiki Garden originally conceived by former director Joylynn Paman. The conceptual plan features a Hawaiian Alphabet Garden and plantings with interactive play features that teach keiki ages 3-9 about plants in migration, ahupua’a, wai, mo’olelo, land/sea counterparts and other themes. Although it may be a long way off, we are excited to include the former playground area in our lease so that this Keiki Garden dream can someday be realized.

Lā ‘Ulu Event a Hit!

The inaugural Lā ‘Ulu – Breadfruit Day in August exceeded everyone’s expectations. More than 2,000 people participated, twice what we expected. Visitors were unusually engaged and interested, with people crowding around the free activities and organizations’ booths throughout the day. Popular foods like ‘ulu curry and ‘ulu popsicles sold out early, and we were excited to see all of the beautiful ‘ulu tree varieties go to their new homes. The community seemed to enjoy this celebration of ‘ulu season, so we have already begun preparing for next year’s Lā ‘Ulu event. Our deepest gratitude to our sponsors Ulupono Intitiative and Maui Breadfruit Company, and to those organizations who traveled to Kahului to hō‘ike.
Saturday
November 4th, 2017
9 a.m. to 12 p.m.
Maui Nui Botanical Gardens
at 150 Kanaloa Avenue in Kahului

Free Hawaiian Trees include ʻaʻaliʻi, ʻalaheʻe, ʻānapanapa, hala, hala pepe, hao, kamani, koa, koaia, kokiʻo, kou, milo, nānū, ʻōhai, ʻōhiʻa ʻai, ʻōhiʻa lehua, pōhinahina, ʻūlei, wauke, wiliwili, and more!

Learn about the great works of many local nonprofit conservation groups and how you can get involved in your community.

Free hands-on Hawaiian cultural activities and tree care advice from certified arborists.

This event is funded by the Kaulunani Program of the DLNR Division of Forestry and Wildlife and the USDA Forest Service and sponsored by the Maui Electric Company. MNBG is an equal opportunity provider.
We strive to represent in our garden, and to provide to the public, as many species of native plants from Maui Nui as possible. Occasionally, this means we venture into wild areas to make collections. On a recent trip we collected a precious few cuttings of ‘āhinahina (Artemisia australis) from rocky coastal cliff sides in Ha‘ikū. This endemic shrub, also known as hinahina, not to be confused with Argyroxiphium sandwicense (silversword) also called by the same Hawaiian names, can be found across all the main Hawaiian islands and thrives at a variety of elevations. It can be easily differentiated from Artemisia mauiensis, a similar species present in our garden, by its wider, less needle-like leaves. In the Hawaiian landscape, both species of Artemisia are prized for their delicate silvery foliage.

The small weevil Hypurus bertrandi, a leaf mining weevil of portulaca species, are damaging the ‘ihi at the Gardens. Their offspring are inside the leaf, which make it difficult to treat with pesticides. The damage leaves brown or black scars in the leaf which causes the plant to become weaker. To protect the new ‘ihi plants from being attacked, we purchased a small greenhouse stand with a plastic cover to keep out the pests. The ‘ihi that were left inside grew quickly with full succulent leaves without damage. Using the protected greenhouse seems to be a good way to keep the plants healthy and pest/disease free. Other susceptible plants may benefit from this method and hopefully help with keeping them alive!

‘Ai Pono Breakfast

‘Ai is the Hawaiian word for eating. Pono means correct, right, or righteous. So ‘Ai Pono translates to “Eating Right!”

Here is a quick and easy ‘ai pono breakfast I love to make:

Nā Lako (Supplies / Ingredients):
- Steamed ‘ulu (breadfruit)
- Steamed ‘uala (sweet potato)
- Granola
- Almond milk (Or any milk of your choosing)

Ka Hana (The Work / Procedure):
- Steam ‘ulu for 2 hours, or bake for 1 to 1.5 hours at 350 degrees.
- Steam ‘uala for 30 minutes.
- Peel ‘ulu, remove core, cut 1/4 of the ‘ulu into bite size pieces.
- Peel ‘uala and cut it bite size pieces.
- Place steamed ‘uala and ‘ulu in a bowl.
- Add granola to taste.
- Pour the cold milk on top
If you love working with native plants, you’ll love the Weed & Pot Club! This volunteer gardening group meets every Wednesday morning, from 8:30 AM to 10:30 AM. Spend your morning helping the Gardens thrive through weeding and propagation. Come prepared to work with covered shoes and gardening attire.

**Mahalo Weed & Pot Club**

Anna Mae Shishido  
Becky Lau  
Cindy Singer  
Connie Luk  
Diane Carr  
Enid Sands  
Gloria Adlawan  
Irene Newhouse

Janet Allan  
Jennifer Rose  
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Sandy Viloria

Stephanie Seidman-Czar  
Suzanne Halsey  
Tom Takeuchi  
Vilma Seiler

MNBG appreciates Kaunoa’s RSVP partnership for its support of MNBG volunteers. Like MNBG, Kaunoa provides opportunities for people 55 and better to learn and grow through a variety of programs throughout Maui Nui. Call (808) 270-7986 for more information.

**Imu Workshop was Master Class in Hawaiian Food**

In July, our imu (underground oven) site not used since 2005 was given new life by board member Chris (Ikaika) Nakahashi. Ikaika taught an intensive two-day workshop that showed participants how to gather materials responsibly, create, set, ignite, seal, and open an imu; traditional Hawaiian names for the parts of the imu; how to place the food, monitoring and timing; opening the imu, and serving, including making traditional niu (coconut) leaf plates and platters (pictured, right). We were impressed with how many different imu recipes Ikaika shared and made: there was poe, a type of steamed banana coconut pudding, kululo, the traditional sweet taro desert, pork, turkey, chicken, 'ulu, 'uala, kalo, pumpkin, corn, carrots, and much more to sample at the end. It was a fascinating demonstration of the versatility of this traditional Hawaiian cooking method.
We are extremely grateful to all who have made donations to the Gardens over the years. We make every effort to assure an accurate membership list; however, if your name was omitted or misspelled, please contact us at info@mnbg.org and we will be happy to update our records.

“Grow Events at MNBG” 2017: Contributing Members

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Aloha Aina
Lee Altenberg
Anonymous
Kathy Baldwin
Bryan Berkowitz
Alexander & Patty Bevil
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LOCATION & HOURS
150 Kanaloa Avenue
Keōpūolani Park, Kahului
Across from the War Memorial Sports Complex
Monday-Saturday
8:00 am - 4:00 pm*
Closed Sundays & Major Holidays
*Weather permitting

GROUP RESERVATIONS
Reservations are required for group activities.

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See Page 5 for details.