

State Procurement Office (SPO)
Act 233 Hawaiian Plants Information
www.oha.org/hawaiianplants

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The information provided below is intended to provide notice and explanation of recent statutory amendments to HRS § 103D-408, pursuant to Act 233 (2015), regarding the use of Hawaiian plants in new or renovated landscaping for state projects using public moneys, and to assist with the implementation of Act 233 (2015).

I. Overview of Statutory Changes

In 2015, the State Legislature amended HRS § 103D-408 to set clear mandates for the use of Hawaiian (native and Polynesian-introduced) plants in public landscaping, in furtherance of the preservation of Hawai'i's cultural and ecological heritage, among other purposes. See Preamble, Act 233 (Reg. Sess. 2015). Act 233 amended HRS § 103D-408 by removing the “wherever and whenever feasible” qualification for the use of native plants in public landscaping, and instead requiring new and renovated public landscaping projects to include gradually increasing minimum percentages of Hawaiian plants, subject to exclusions, as discussed below.

Act 233 was signed by Governor Ige on July 13, 2015, and became effective on June 30, 2016. The amendments made by the Act should not affect landscaping plans or projects that had already been solicited or contracted as of its effective date of June 30, 2016.¹

This guidance material is intended to provide guidelines for purchasing agencies to evaluate possible exclusions from HRS § 103D-408(c), and to provide additional information to support the implementation of Act 233.

II. Act 233 Requirements

HRS § 103D-408 defines Hawaiian plants as endemic or indigenous plant species as well as those brought to Hawai'i by Polynesians before European contact, such as kukui, kalo, wauke, niu, noni, and kamani. The law intends to set clear mandates for the use of Hawaiian plants in public landscaping.

¹ Section 3 of Act 233 provides that “[t]his Act shall not be applied so as to impair any contract existing as of the effective date of this Act in a manner violative of either the Hawai'i State Constitution or article I, section 10, of the United States Constitution.”

This law applies to all plans, designs, and specifications for construction of new or renovated landscaping of any building, complex of buildings, facility, complex of facilities, or housing developed by the State with public moneys.

All plans, designs, and specifications for all State-developed, publicly-funded landscaping approved or solicited after the dates described below, must include the minimum Hawaiian plant footprints required by each date, subject further to the conditions and exceptions found in HRS 103D-408(a) and (d).

HRS § 103D-408 continues to require that:

1. Cultivated plants can be used to fulfill Hawaiian plant requirements so long as they do not jeopardize wild plants in their natural habitat;
2. Wherever and whenever possible, the Hawaiian plants used to fulfill these requirements should be sourced from the island and ahupua'a in which they were found or known to occur prior to European contact;
3. Each Hawaiian plant or group of plants used to fulfill these requirements shall be clearly identified with signs for the edification of the general public.

Whereas HRS § 103D-408 formerly required the use of Hawaiian plants “wherever and whenever feasible,” the statute now requires a gradually increasing minimum percentage of public landscaping projects to be composed of Hawaiian plants. Currently, HRS § 103D-408 requires that, subject to exclusions, Hawaiian plants shall compose:

- a. 10% of the total plant footprint for landscaping by 2019;
- b. 25% of the total plant footprint for landscaping by 2025; and
- c. 35% of the total plant footprint for landscaping by 2030.

As noted, this requirement is subject to some exclusions, whereby areas landscaped for certain functions can be excluded from the total plant footprint upon which the minimum percentage of Hawaiian plants is based. Calculation of the total plant footprint and excluded areas are described in greater detail below.

III. Definitions

“Hawaiian plants” are endemic, indigenous, and Polynesian introduced plants. Specifically, Hawaiian plants are defined in Act 233 (2015) as “any endemic or indigenous plant species, including land, freshwater, and marine plant species, growing or living in Hawai‘i without having been brought to Hawai‘i by humans; or any plant species, including land, freshwater, and marine plant species, brought to Hawai‘i by Polynesians before European contact, such as kukui, kalo, niu, noni, and kamani.” HRS § 103D-408e.

“Total plant footprint” refers to the total area of a subject site that will contain vegetation or softscape areas (including areas of plants, groundcover, shrubs, flowers, trees, etc.), measured in square footage. The total plant footprint does not include the built environment or hardscape areas.

“Hawaiian plant footprint” refers to the total area of a subject site that will contain Hawaiian plant vegetation or softscape areas (including areas of plants, groundcover, shrubs, flowers, trees, etc.), measured in square footage.

“**Hardscape area**” refers to the total area of a subject site that contains paved areas, building footprints; walkways, and other hard-surface features such as asphalt, concrete, decking, gravel, or stone.

IV. Calculating Plant Footprints

Calculating Hawaiian plant footprints: The minimum percentage of the total plant footprint required to be Hawaiian plants shall be based on the estimated mature size of the plant from an aerial view. The total plant footprint of the subject site and the Hawaiian plant footprint minimum requirement can be determined by manual calculation or by using the “Area” function of a Computer Assisted Design program.

See Diagrams 1-3 below demonstrating examples of the calculation of total plant footprint and required Hawaiian plant footprint for projects executed in 2019 (10% Hawaiian plant requirement), 2025 (25% Hawaiian plant requirement), and 2030 (35% Hawaiian plant requirement).

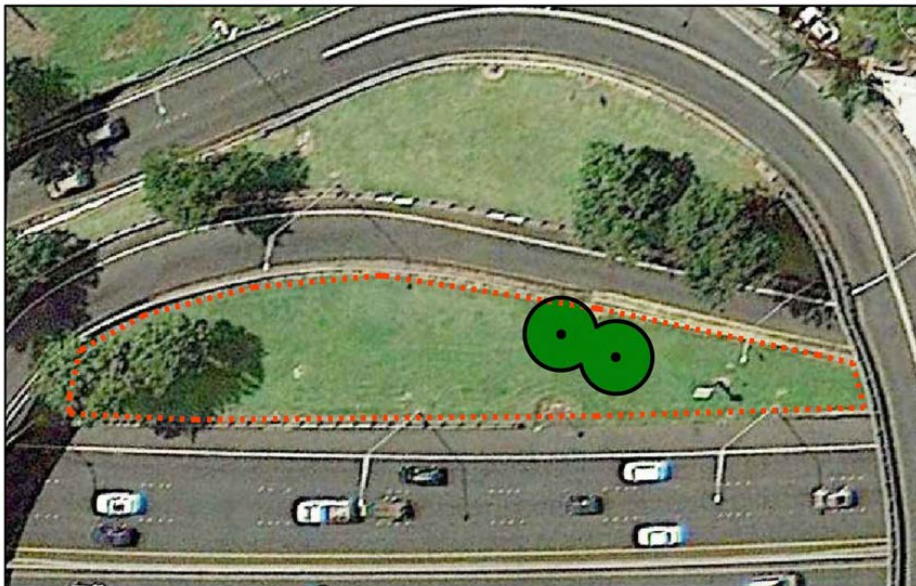
Overlapping Footprints: The footprints of the mature size of Hawaiian plants may be counted toward the requirements, even when Hawaiian plants are planted in overlapping layers. For example, when, from an aerial view, a Hawaiian shrub is located under a Hawaiian tree, the footprints of each may be included in calculations of the Hawaiian plant footprint.

Phased construction: If construction or renovation is segmented or phased, the total plant footprint and Hawaiian plant footprint of the landscaped area for the entire project may be applied to fulfill the Hawaiian plant requirements instead of applying the requirements to each segment or phase of the project individually.

Diagram 1, Example for project in 2019 (10% Hawaiian plant requirement):

Native plant footprint requirement 2019:
10% of total area (10,000 sq.ft.) = **1,000 sq.ft.**

Native tree canopy: **1,282 sq.ft.**
(mature canopy=30' width, 707 sq.ft. per tree, minus canopy overlap 132sq.ft.)

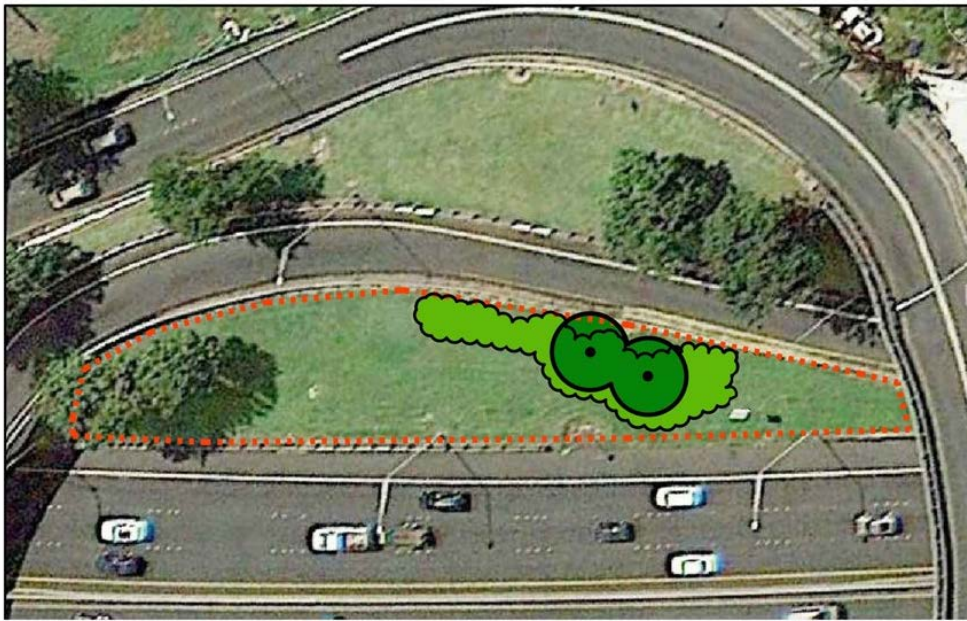


Scale: 0 50' 100'

Diagram 2, Example for project in 2025 (25% Hawaiian plant requirement):

Native plant footprint requirement 2025:
25% of total area (10,000 sq.ft.) = **2,500 sq.ft.**

Native tree canopy (2 trees): 1,282 sq.ft.
Native shrub mass: 1,250 sq.ft.
Total Native plant footprint: **2,532 sq.ft.**

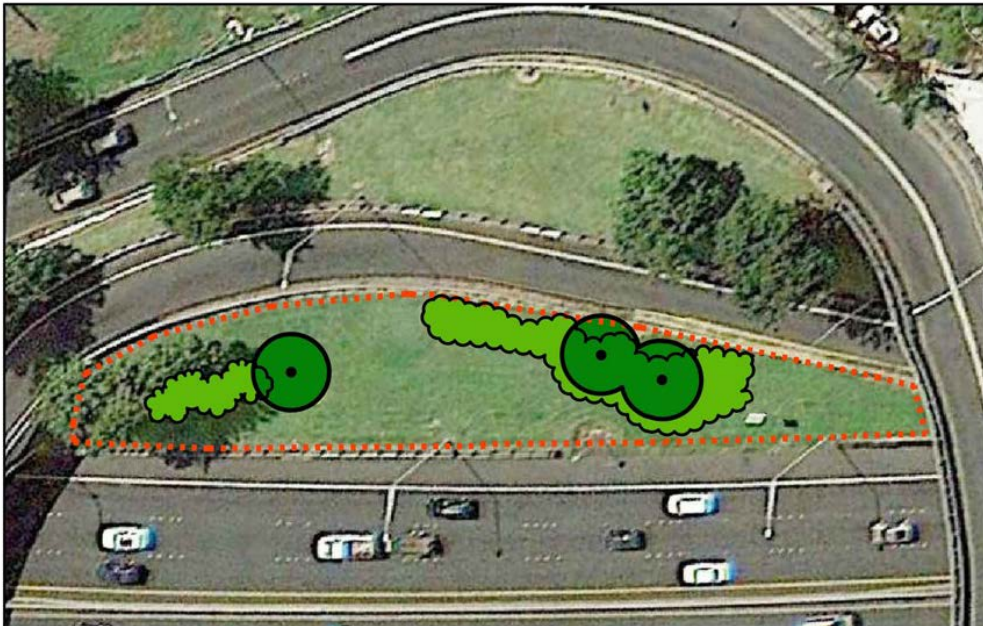


Scale: 0 50' 100'

Diagram 3, Example for project in 2030 (35% Hawaiian plant requirement):

Native plant footprint requirement 2030:
35% of total area (10,000 sq.ft.) = **3,500 sq.ft.**

Native tree canopy (3 trees): 1,989 sq.ft.
Native shrub mass: 1,785 sq.ft.
Total Native plant footprint= **3,774 sq.ft.**



Scale: 0 50' 100'

V. Exclusions from Total Plant Footprint

When there is no Hawaiian plant alternative for a certain project's particular landscaping needs or environmental conditions, an exclusion from the total plant footprint calculation may be warranted for the qualifying area.²

At the sole discretion of the head of the purchasing agency ("HOPA"), an exclusion may be applied only to the footprint area necessary to serve the project functions for which there is no Hawaiian plant alternative including, but not limited to:

- 1) Areas of turf grass necessary for functional lawn space needed and intended for gatherings, events, recreation, roadway shoulders used for pedestrian access, etc. (See Diagram 4 below for an example of a calculation of an exclusion for a functional lawn area);
- 2) Landscaping for extreme environmental conditions (e.g.- where severe erosion threats require a level of control Hawaiian plants cannot provide);
- 3) The canopy footprints of trees designated as exceptional trees under chapter 58, and street trees; and
- 4) Landscaping associated with the following types of properties or uses:
 - a) A "historic property" under HRS § 6E-2 designated as "significant" under HAR § 13-275-6;
 - b) Property listed in the National Register of Historic Places;
 - c) Property listed in the Hawai'i Register of Historic Places;
 - d) Research sites;
 - e) Food or medicinal production plots; and
 - f) Cultural heritage gardens.

Exclusions based on the availability of a certain size plant should be permitted only for trees (but not for shrubs or ground cover).

If large portions of the landscaped area are excluded from the total plant footprint calculation for any of the above excludable uses, the spirit of Act 233 (2015) urges that the purchasing agency make every effort to use Hawaiian plants for the remaining shrubs, ground cover, and trees.

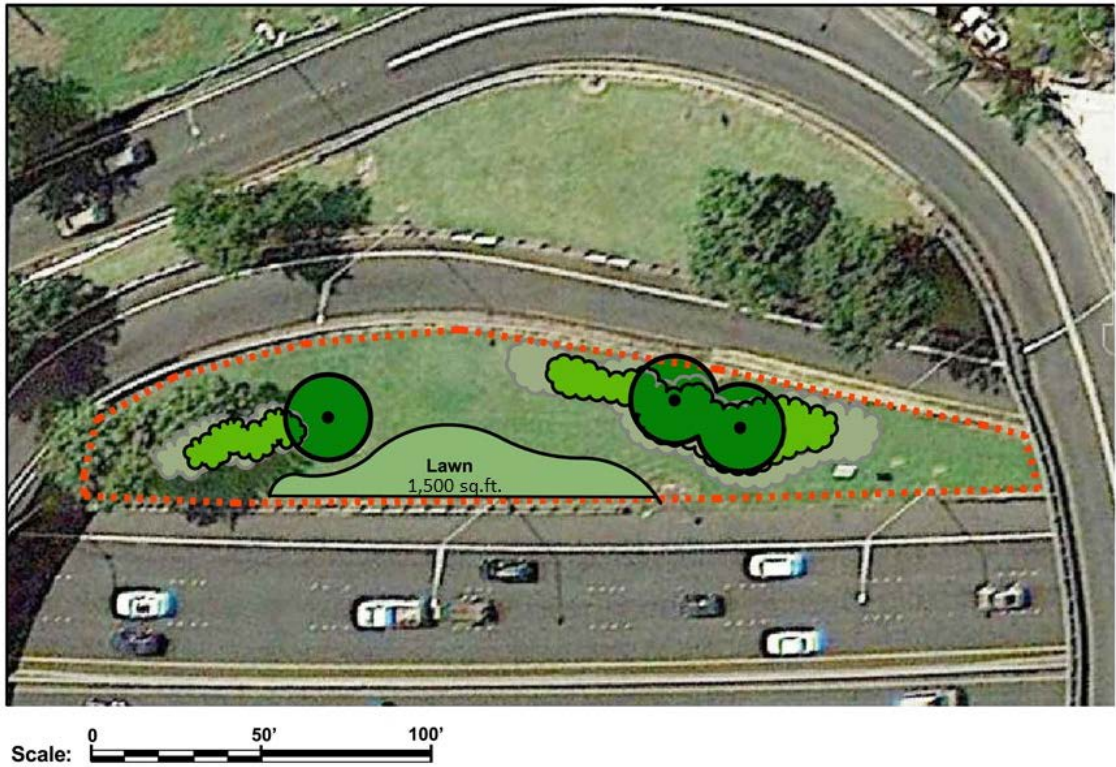
Exclusions for areas adjacent to or near the shoreline, wilderness areas, and native habitats are *strongly* discouraged. In these areas, it is especially important to use Hawaiian plants due to the ecological sensitivity of these areas, the ecological value of extending native habitats to these areas, and the threat that introduction of invasive species poses to these areas. Further, Hawaiian plants are better adapted to these areas than non-Hawaiian plants.

² "[F]or the purposes of satisfying the percentage footprint requirements under subsection (c), the purchasing agency may exclude from total plant footprint calculations those areas where available Hawaiian plant species are not appropriate for the particular landscaping needs or environmental conditions of such areas. The exclusion of such areas shall be determined by procedures, standards, or guidelines established by the policy board at the time of issuance of the invitation for bids, requests for proposals, or other solicitation under this chapter." HRS § 103D-408(d).

Diagram 4, Example of Exclusion for “functional lawn area” in 2030:

Total area 10,000 sq.ft. – Excluded area 1,500sq.ft.= 8,500 sq.ft.

Reduced Native plant footprint required: 35% of 8,500 sq.ft = **2,975 sq.ft.**



Example: The diagram above depicts a plan in which 1,500 sq. ft. are proposed to create a functional lawn area for a roadside shoulder/pedestrian access way. If an exclusion is approved for 1,500 square feet of a 10,000 square foot landscaping project, then the “total plant footprint” subject to the Hawaiian plant minimum percentage requirement is reduced to 8,500 square feet, thereby reducing the required Hawaiian plant footprint. These 8,500 square feet are subject to the minimum Hawaiian plant percentages in HRS § 103D-408(c), as follows: 10% or 850 square feet by 2019; 25% or 2,125 square feet by 2025; 35% or 2,975 square feet by 2030.

VI. Recommended Template/Model Language

Contract Specification

LANDSCAPING: When the project includes new or renovated landscaping, the bidder and any contractors shall comply with the applicable provisions of HRS § 103D-408.

Building Solicitation

If the project includes new or renovated landscaping, the landscaping shall be in compliance with the applicable provisions of HRS § 103D-408.

Notice to Bidders

The Hawaiian plants footprint requirements of HRS § 103D-408 is applicable to this project.

Competitive Sealed Bidding (IFB)

Scope of Services

New or renovated landscaping must be in compliance with the applicable provisions of HRS § 103D-408.

VII. Other Considerations

Use of Full Botanical Names: Landscape architects are encouraged to designate the entire botanical name when identifying plants in landscaping plans to avoid confusion with or substitution of other non-Hawaiian plants (e.g.- merely using *Pritchardia* to refer to native loulou *Pritchardia hillebrandii*, may confuse or result in substitution with *Pritchardia Pacifica* which is native to Fiji). Landscape architects are also encouraged to request nurseries to certify that, to the best of their knowledge, their plants are native and not hybridized to preserve the purity of native plant gene pools as much as possible.

Island and Ahupua'a Specific Plants: In Act 233, the Legislature found that historically, each island, moku, and ahupua'a supported varied and diverse Hawaiian plant life, and that the connections between certain areas and certain plants hold cultural significance and reflect an ecological balance achieved through long-term adaptation to specific local environments. Further, the Legislature found that publicly funded landscaping should embody the cultural and ecological heritage of the place in which the landscaping is located, through the use of Hawaiian plants associated with each project area. Act 233 therefore requires that wherever and whenever possible, Hawaiian plants found or known to occur on a particular island and ahupua'a shall be used for landscaping in that particular island and ahupua'a, and, wherever and whenever possible, shall be sourced from the island on which they are used. (See Resources below.)

Weed Risk Assessment: In Act 233, the Legislature found that the relatively recent influx of non-native plant species and invasive plant species has transformed Hawai'i's urban and natural environment, and that some invasive plants have displaced and endangered Hawai'i's native plants and animals. Although it is not required in Act 233, in order to discourage the use of invasive plants in landscaping and reduce the spread of invasive plant species, best practices include using the Hawai'i Invasive Species Council's Hawai'i-Pacific Weed Risk Assessment to select non-invasive plants and plants with a low risk of becoming invasive in Hawai'i. See **Resources** below.

Avoiding Monocultures: Designers are discouraged from planting monocultures extensively as they place the landscape at risk in the case of newly introduced pests that threaten that specific species.

VIII. Resources

Hawaiian Plants Resources

There are a variety of electronic and print resources on Hawaiian plants. Resources include, but are not limited to, the following:

1. Bishop Museum, Hawaiian Ethnobotany Online Database: Includes endemic, indigenous, and Polynesian-introduced plants. This database allows the user to sort the list by Hawaiian, Scientific, or Vernacular name, and also has a search function. Each plant profile includes the plant's natural habitat, whether it is endemic, indigenous, or Polynesian-introduced, and a photo. Propagation information and traditional uses are provided for many listed plants.

Available at: <http://data.bishopmuseum.org/ethnobotanydb/ethnobotany.php?b=list&o=1>.

2. University of Hawai'i, Native Plants Hawai'i: Includes endemic, indigenous, and Polynesian-introduced plants. This database lists plants alphabetically by scientific name. Each plant profile specifies whether the plant is endemic, indigenous, or Polynesian-introduced, and describes its life span, mature size, landscape uses, ideal growing conditions, and natural environmental ranges.

Available at: <http://nativeplants.hawaii.edu/plant/>.

3. Hawaiian Native Plant Propagation Database, College of Tropical Agriculture and Human Resources, University of Hawai'i at Mānoa. Includes indigenous and endemic plants. This database lists plants by Hawaiian, Botanical, and English name, and has a search function. Each plant profile specifies the habitat and geographical range, propagation information, and describes the mature plant.

Available at: <http://www.ctahr.hawaii.edu/hawnprop/commlist.htm>.

4. "Manual of the Flowering Plants of Hawai'i: Revised Edition Volumes I and II" by W. L. Wagner, D. R. Herbst, & S. H. Sohmer. University of Hawai'i Press, 1990.
5. "Growing Native Hawaiian Plants: A How-To Guide for the Gardener" by Heidi Leianuenue Bornhorst, Bess Press, revised edition 2005. Includes detailed information on growing 75 different plants, photographs, and the cultural significance of the plants.
6. "Hawai'i's Ferns and Fern Allies" (Daniel D. Palmer, Univ. of Hawai'i Press, 2003). Includes indigenous, endemic, and naturalized ferns and fern allies, descriptions, and traditional uses.
7. Hawai'i Backyard Conservation: Ideas for every homeowner. Provides information on conservation practices and how to improve natural resources. See pages 7 and 8 for information on native plants.

Available at:

http://health.hawaii.gov/cwb/files/2013/05/PRC_HawaiiBackyardConservation.pdf.

8. Hawai'i Statewide Sustainable Landscape Masterplan: Includes examples of how native plants can be utilized for a variety of beneficial uses on or around highways.

Available at: [http://www.oahumpo.org/wp-](http://www.oahumpo.org/wp-content/uploads/2013/02/HDOT_Landscape_MasterPlan.pdf)

[content/uploads/2013/02/HDOT_Landscape_MasterPlan.pdf](http://www.oahumpo.org/wp-content/uploads/2013/02/HDOT_Landscape_MasterPlan.pdf).

9. Landscape Industry Council of Hawai'i, Native Plant poster. Provides photographs and information about propagation, spacing, tolerances, and uses, for native vines, grasses and groundcovers; shrubs; and trees and palms.

Available (in form reprinted by OHA) at: <http://www.oha.org/hawaiianplants>

Ahupua'a and Island-Specific Resources

1. City and County of Honolulu Board of Water Supply O'ahu Planting Guide. This website has an interactive map that allows the user to click on an area of O'ahu and then click on the type of plant (grass, fern, shrub, etc.) to find a list of plants found in that area. It states the height and spread of each plant and whether it is endemic, indigenous, or Polynesian-introduced.

Available at: <http://www.hbws.org/cssweb/display.cfm?sid=1360>.

2. Maui County, Department of Water Supply, Landscape and Gardening Handbook. This handbook discusses xeriscaping and techniques for home gardening and landscaping, and provides a "Native and Polynesian Plants for Maui County" list with a map.

Available at: <http://www.co.maui.hi.us/DocumentCenter/Home/View/15460>.

3. Bishop Museum, Hawaiian Ethnobotany Online Database (also included in Hawaiian Plant resources list). Also described above, this website allows the user to sort plants by Hawaiian, Scientific, or Vernacular name, and also provides a search function. Each plant has a profile that includes a photo, and describes its natural habitat, as well as whether it is endemic, indigenous, or Polynesian introduced.

Available at: <http://data.bishopmuseum.org/ethnobotanydb/ethnobotany.php?b=list&o=1>.

4. Native Plants Hawai'i, Listing of Native Hawaiian Plants (also included in Hawaiian Plant resources list). This website lists plants alphabetically by scientific name, and each plant has a profile which describes whether it is endemic, indigenous, or Polynesian-introduced, as well as its life span, its landscape uses and information, growth requirements, and natural environmental ranges.

Available at: <http://nativeplants.hawaii.edu/plant/>.

5. Kona's Native Hawaiian Plants. Natural Resources Conservation Service of the U.S. Department of Agriculture resource on plants, soil, and water existing within Kona's conservation districts.

Available at: <http://kswcd.org/PDF/konasnativehawaiianplants.pdf>

Invasive Plants Resources

1. Hawai'i Pacific Weed Risk Assessment (HPWRA). This website contains a list of over 1,700 plants that have been screened to predict whether the plant will likely become invasive in Hawai'i. Plants are categorized as "high risk," "low risk," and "evaluate further." This list is updated with newly assessed plants weekly. This website also includes contact information for the submission of unlisted plant species for assessment.

Available at: <https://sites.google.com/site/weedriskassessment/home>

2. Plant Pono. This website houses the Hawai'i-Pacific Weed Risk Assessment (HPWRA) results for more than 1,700 plant species that have been screened to predict whether the plant will likely become invasive in Hawai'i. Plants are categorized as "high risk," "low risk," and "evaluate further." The website includes contact information to submit a plant for screening, which is a free service. Plant Pono also contains information and photographs of high risk plants, and planting information for some low risk alternatives. The website includes both search function for the HPWRA and browse functions for plants by type, including grasses and groundcovers; shrubs, vines, and others; and trees.

Available at: <http://www.plantpono.org/>

Invasive Animal Resources

1. Little Fire Ant Information. The UH Mānoa, College of Tropical Agriculture and Human Resources (CTAHR), and Department of Land and Natural Resources websites contain valuable information on identifying, avoiding transmission of, and managing Little Fire Ant populations which are transported in potted plants, mulch, wood, and soil.

Available at: <https://www.ctahr.hawaii.edu/UHMG/EASTHI/little-fire-ant.asp>

Available at: <https://dlnr.hawaii.gov/hisc/info/invasive-species-profiles/little-fire-ant/>

2. Coqui Frog Information. After being accidentally introduced in the late 80s, Coqui populations have exploded in the last 15 years. Aside from being an extreme noise nuisance, they pose a threat to Hawai'i's unique insects and spiders, as well as the birds and other native fauna that rely on them. The UH Mānoa, College of Tropical Agriculture and Human Resources (CTAHR), and Department of Land and Natural Resources websites also contain valuable information on identifying, avoiding transportation of, and managing Coqui populations which can be easily transported in plants.

Available at: <https://www.ctahr.hawaii.edu/coqui/background.asp>

Available at: <https://dlnr.hawaii.gov/hisc/info/invasive-species-profiles/coqui/>

Contact Information

For any questions on the Native Plants requirements and application of exclusions, or for training on the selection, installation, and maintenance of Native Plants, please contact the Office of Hawaiian Affairs (OHA) at 594-1756 or e-mail publicpolicy@oha.org.

If your staff has questions on the procedures for requesting an exclusion, they may contact Stacey Kauleinamoku at 586-0571 or e-mail stacey.l.kauleinamoku@hawaii.gov or you may call 587-4700.

For information on invasive species, the Hawaii-Pacific Weed Risk Assessment and Plant Pono, contact the Coordinating Group on Alien Pest Species (CGAPS): www.cgaps.org; (808) 722-0095.