

Hawaii's Invasive Plant Species:

An interactive tool for plant identification, management and public outreach

hbs.bishopmuseum.org/invasives/keys/botany/HIInvasivePlants.html

- Invasive alien species of plants and animals within the Hawaiian Islands have a deleterious effect on human health and well-being, agriculture, commerce, and the environment.
- More than 1,300 non-native vascular plant species have been documented in the Hawaiian Islands.
- An average of 27 new naturalized species are recorded in the Hawaiian Islands per year, and 100 new island records were published in the last year.
- Rapid identification of invasive plant species in the field, and the participation of the general public in recognizing and reporting of invasive non-natives, is critical to the eradication of non-native species.
- Bishop Museum's Hawaii Biological Survey (HBS) is developing an identification tool containing more than 300 species currently listed as a noxious weeds by the State of Hawaii, of greatest invasive potential as determined by the *Oahu Early Detection Team* (oed@bishopmuseum.org), or have a high Weed Assessment Risk (www.hear.org/wra/) value.

- *Hawaii's Invasive Plant Species* is a web-based, interactive identification key to Hawaii's most noxious or potentially noxious weedy plant species.
- Developed using Lucid3, the key runs on any browser, can be readily updated, and has the potential for incorporating all species currently recognized as invasive in the Hawaiian Islands and those species that have the potential to become serious pests in the future.
- The key includes links to photographic images and illustrations, taxonomic information, and collections housed at the Bishop Museum's *Herbarium Pacificum*. The key will also ultimately be linked to information currently being accumulated in an invasive species database being developed by HBS.
- The key has been designed with field workers and land managers in mind, but it is also an educational tool for teachers, students, and the general public interested in Hawaii's ecosystems.

Best is an algorithm that finds the next best feature to describe.

Prune redundants removes those character states that do not apply to the entities (taxa) remaining.

Shortcuts provides a quicker route to identification but providing features that, if selected, will provide an immediate shortcut to an identification.

Clicking on the + next to a feature reveals subcategories and states available for selection

This panel shows the taxa that fit the chosen features of the unknown specimen.

Feature (character) states are illustrated with diagrams to assist the user.

The **Images** tab allows you to see a representative image of taxa present in the key.

Clicking on the web-page icon opens a window which displays images, taxonomic information, and collections housed within the Bishop Museum's *Herbarium Pacificum*. This online searchable taxonomic database (nsdb.bishopmuseum.org) continues to be populated with images of the species and digitized herbarium specimens.

Found a species that you can't identify using the key?
Ask A Bishop Museum Scientist
ask.bishopmuseum.org

- Bishop Museum's online interactive forum *Ask a Bishop Museum Scientist* allows dialogue between HBS staff and field workers, land managers, scientists, to assist in the rapid identification, and eradication, of unknown, potentially invasive plant taxa.
- Users can submit up to two images of an unknown specimen, provide locality information, and diagnostic characteristics.
- Approximately 80% of queries from users are regarding non-native species, many of which are included in this key.

Call for volunteers!

- Please help us by testing out this key and providing feedback through ask.bishopmuseum.org.
- Do you have images that show identifying characteristics of any of the invasive species in the key? Would you be willing for us to include them?
- Suggest invasive plant species that should be added to future versions of the key to help improve public awareness about the species, assist with preventing its spread, or helping to eradicate it from natural areas.

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Hawaii
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hbs.bishopmuseum.org



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