How to Spot a Potential Plant Pest

Oceanic islands are particularly vulnerable to invasion by "alien" (nonnative) plants, animals, insects, and diseases.

Island species evolved in isolation, away from the pressures commonly found on continents. Grazing mammals, predatory ants, many types of diseases, and frequent fires were not part of the natural ecosystem of ancient Hawai'i, so native Hawaiian species did not develop mechanisms to defend themselves from these dangers.

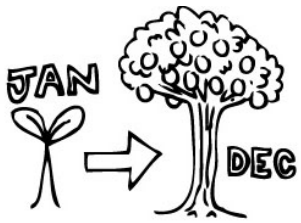
When humans brought these and other plagues to Hawaiian shores, the native species were biologically unprepared. Consequently, many Hawaiian forests have vanished while introduced plant species—especially invasive ones—have taken their place.

The Hawaiian Islands are currently home to thousands of introduced plant species. Scientists consider at least 100 of these nonnative species to be major threats to native Hawaiian ecosystems. Why are some species problematic while others are not? The answer is that some nonnative plants are more invasive than others.

What Makes a Plant Invasive?

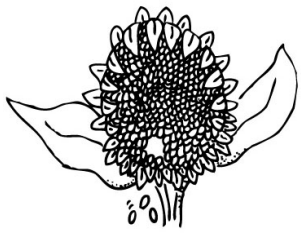
Just as the Hawaiian biota evolved in a unique ecosystem, so did the species that were brought here. Some introduced species evolved in extremely competitive environments, where they had to develop hardy characteristics to survive. When these rough and tough species reach the Hawaiian Islands, they find nothing to limit their reproduction and spread. They grow quickly and reproduce rapidly. They earn the title of "weeds." Invasive species interfere with crop production on agricultural lands and change the composition, structure, and function of native forests.

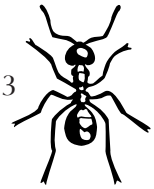
Invasive plant species outcompete other plants for light, water, and nutrients. They possess characteristics that permit them to aggressively invade new areas. A plant might be a weed if it:



Matures within one year: Plants that mature in one year or less are able to produce seeds and add to their overall numbers faster than slower-growing plants.

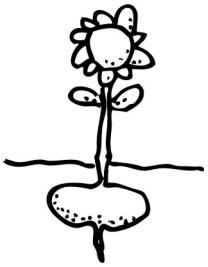
Profuse production of seeds: When plants produce large numbers of seeds, they increase their ability to take over the surrounding area and invade new areas.

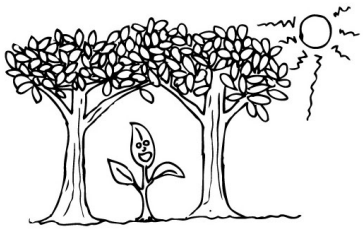




Produces spines, thorns, or burrs: These structures cause physical injury and repel animals, which will then move on to feed on native plants.

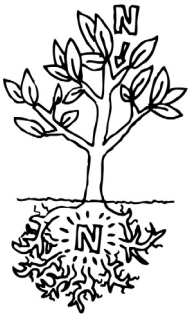
Forms underground storage organs, such as corms or tubers. Plants store energy in these structures, allowing them to resprout or grow back even after repeated cutting, browsing by animals, fires, or droughts.





Shade tolerant: Plants that tolerate low light levels are often able to invade the understory of intact, native forests and may eventually outcompete native vegetation.

Nitrogen-fixing species capture nitrogen from the atmosphere and store this natural fertilizer in their roots.



These are just a few weedy characteristics; there are many more. The Hawai‘i-Pacific Weed Risk Assessment is a series of forty-nine questions relating to a species' biology, geographic origin, and behavior. Local biologists use it to predict which plants might become invasive in the Islands. They consult published scientific records to answer yes or no questions, which results in a score for each species.

A high score means the plant poses a high risk of becoming an invasive pest in Hawai‘i and other Pacific Islands. A score of zero or below indicates that the plant is not likely to have major ecological or economic impacts, based on the screening process. Plants that score 1-6 fall in a gray area; more information is needed to determine their status.

A weed risk assessment allows consumers, nursery owners, and resource managers to make informed decisions about what nonnative plants can be safely imported and planted. By sorting out potentially problematic plants, we can preserve our unique and valuable native Hawaiian ecosystems.