

# Invasive Plant Threatens Midway Atoll Seabirds

Over 2,000,000 birds are densely packed into Midway Atoll's 1600 acres. The atoll is home to the endangered short-tailed albatross, the endangered Laysan duck, and the largest populations of Laysan albatross, black noddy, white tern, and red-tailed tropicbird in the world.

Among the 225 non-native plants on Midway Atoll, golden crownbeard is the most invasive, its spread reducing nesting habitat for all ground-nesting birds.

## Golden Crownbeard

- ☀ scientific name: *Verbesina encelioides*  
Family: Asteraceae
- ☀ an annual flowering shrub
- ☀ native range is debated, but believed to be tropical America and North America
- ☀ in its native habitat, grows from 1 to 5 ft in height at elevations from 0 to 9000 ft
- ☀ is drought-tolerant, requiring only monthly waterings once established
- ☀ its flowers produce up to 350 seeds by both cross- and self-pollination
- ☀ seeds exhibit their highest rate of germination in open, disturbed areas with sandy soils
- ☀ seeds fall from the plant where they reseed existing stands and are also dispersed by wind



Golden crownbeard affects the success of nesting seabirds in several ways:

- Birds do not build nests in existing stands of golden crownbeard; so, existing stands decrease habitat available to nesting birds.
- The growth of new stands of golden crownbeard in areas where birds have already nested enclose and entrap chicks, preventing their parents from locating them for feeding and/or preventing them from finding their way to the ocean when it is time to fledge. These chicks die of starvation.
- Golden crownbeard serves as a home to aphids and scale insects and the ants that tend them. These ants may prey on the eggs and chicks of ground-nesting seabirds and waterfowl. (The scale insects and/or the ants are also suspected in the transmission of a harmful virus from golden crownbeard to native vegetation.)

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**With the exception of five species, all of Midway Atoll's seabirds nest on or in the ground.**

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Nine species nest directly on the ground, usually within a shallow, loose bowl of twigs or rocks:

Laysan albatross →  
black-footed albatross  
short-tailed albatross  
red-tailed tropicbird  
white-tailed tropicbird  
Christmas shearwater  
masked booby  
gray-backed tern  
sooty tern

Two species nest in burrows in the sand:  
wedge-tailed shearwater  
Bonin petrel



Photo Credit: Christy Finlayson

### Golden crownbeard on Midway Atoll

- a widespread, aggressive weed
- grows in monotypic stands of up to 8-feet in height
- in 2000, golden crownbeard covered 38% of Eastern Island and 13% of Sand Island (the two largest of Midway Atoll's three islands)
- grows quickly in soils, sand, and amongst asphalt
- inhibits the growth of native vegetation by shading, competition for nutrients and water, and allelopathic effects (allelopathic chemicals are produced by plants and are toxic to other plants, allowing the chemical-producing plant a defensive advantage)



Midway Atoll is comprised of three low coral and sand islands with a circumference of approximately 15 miles. It is located approximately 1250 miles northwest of Honolulu, Hawaii. The island is part of the Hawaiian archipelago but is not a part of the State of Hawaii. It is an unincorporated United States territory.

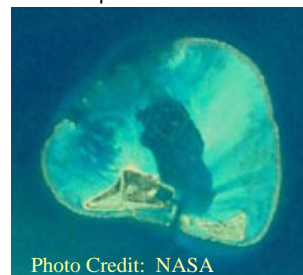
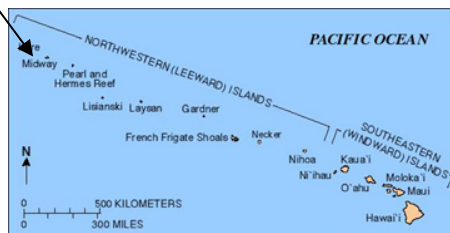


Photo Credit: NASA

### What must be done to control golden crownbeard?

- A. prevent flowering
- B. remove plants, roots, and seeds
- C. replant disturbed areas with native plants
- D. monitor managed areas for new golden crownbeard growth
- E. monitor managed areas for many years
- F. all of the above

**ANSWER: F**

Initiated in the late 1990s, the US Fish and Wildlife Service's current golden crownbeard management program on Midway Atoll was intensified in 2003. The program has included control by hand-pulling, mowing, and herbicide application. In areas where it has been eradicated, native plants are propagated to restore a natural ecosystem and prevent recolonization by golden crownbeard.

### How did golden crownbeard get to Midway Atoll?

Likely arriving as seeds, golden crownbeard may have been brought to Midway with the over 9000 tons of soil that were imported to improve the quality of life for its human inhabitants when it was a military base - as the atoll was predominately sand, the soil was needed to grow shade trees, ornamental plants, and food. It may have also been transported on equipment or intentionally introduced as an ornamental plant.

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Written by Christy Finlayson and Todd Finlayson

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