

Biocontrol in Hawai‘i

*Working with Nature
to Find a Sustainable Solution*

What is Biocontrol?

Biocontrol uses a natural predator as a tool to manage widespread pests that damage our agriculture & environment



Forest & Kim Starr

Why do we need biocontrol?

In 2002, the Hawai‘i State Legislature identified invasive species as “the single greatest threat” to our economy, natural environment, and the health of our communities. Many of the most destructive invasive species in Hawai‘i have spread beyond manual or chemical control. Biocontrol is a cost-effective, sustainable method that has been successfully used in Hawai‘i and across the globe for long-term management of the world’s worst pests. We need biocontrol to help protect our natural and cultural resources from the continuing unchecked damage caused by invasive species.

A Hawai‘i pasture invaded with fireweed. *This yellow pest is toxic to livestock. In Australia, fireweed costs the cattle industry and government \$2 million every year. The Hawai‘i State biocontrol program is awaiting approval on a natural predator that is a cost-effective option to slow the spread of this noxious weed.*

How does biocontrol work in Hawai‘i?

The Hawai‘i Department of Agriculture’s Plant Pest Control Branch houses the expertise and equipment needed to conduct an effective biocontrol program. This local capacity has been built up over many decades, making enormous strides in biocontrol methods and technology. The program goes through a rigorous, step-by-step process and follows stringent regulations, permitting, and assessments to ensure that the selected natural predator will benefit Hawai‘i’s environment without harm.



Biocontrol Protects Our Food and Forests

“Hawai‘i’s rangelands and forests have greatly benefitted from the use of biological controls through the years. Beginning with controls for lantana as far back as 1902 and subsequently helping to reduce the infestation of panini, pamakani, klamath weed, emex, and gorse, Hawai‘i’s ranchers have highly valued the work that has been done. The cattle industry continues to appreciate this service to help battle the more recent spread of species such as fireweed and strawberry guava.”

— Chris English, Ponoholo Ranch, Ltd President, Hawai‘i Cattlemen’s Association

Meet the good bugs!



The Eurytoma wasp comes to the rescue for this galled wiliwili tree.



These little critters help to keep the stinging nettle caterpillar in check.



Invasive panini cactus being eaten by the Cactoblastus caterpillar.



This moth helps to prevent ivy gourd from taking over our forests.



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Wiliwili seeds have been traditionally used to make beautiful lei. The first surfboards were made with wiliwili wood.

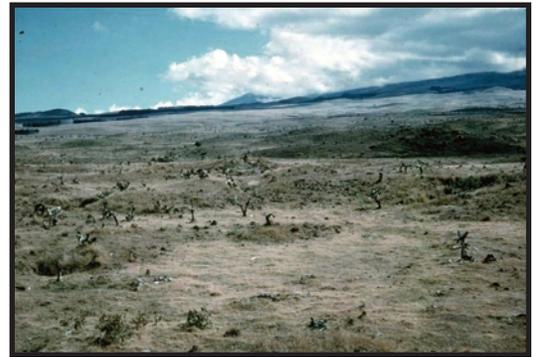
A Story of Success...Saving the Wiliwili

In 2005, Hawai'i was struck by one of the most devastating examples of an invasive species. The Erythrina gall wasp hitchhiked into Hawai'i on cargo and within months was killing wiliwili trees across the state. Highways and farms lost their windbreaks. Businesses lost their ornamental landscape. And Hawai'i's own unique native wiliwili was threatened with extinction. The pesticide options were expensive and not very effective. Many dead trees were removed, while an emergency seed collection began in attempt to save the species. All eyes turned to the state biocontrol program for a solution. The Department of Agriculture sent an entomologist to Africa in search of the gall wasp's natural predator. Many insects were found, but the most promising was a tiny parasitic wasp, which was brought back into an approved containment facility. After years of meticulous testing to ensure that the natural predator would do the job and be safe to other plants and animals, it was released in November 2008 and is already showing signs of controlling the Erythrina gall wasp. Our native wiliwili is making a comeback!

Biocontrol Restores Balance to our Environment

Before and After

Photos taken of a panini cactus infestation on Parker Ranch in Waimea. The photo on the right shows how successful biocontrol reclaimed the ranchland for agricultural use in just 10 years. The cactus is still present, but in smaller numbers.



Natural predators help us to manage widespread pests in Hawai'i like these.



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Fountain grass is a pasture invader and fuel for wildfires. Foreign explorations have begun to look for natural predators in its native range.

Miconia is known as the green cancer of the Pacific. It impacts our watersheds and native species. HDOA and the USDA Forest Service are collaborating to find natural predators that could help to slow the spread of this pest that already covers thousands of acres.

The **nettle caterpillar** packs a serious sting. It also feeds on ornamental and agriculture plants. Without biocontrol, it could have a major impact on our local horticultural industry and quality of life. A natural predator has been found to help keep it in check.

Banana bunchy top virus makes our banana plants sick and spreads by an insect. A natural predator is being tested in quarantine.

For more information about biocontrol in Hawai'i

<http://hawaii.gov/hdoa/pi/ppc>

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Department
of Agriculture

STATE OF HAWAII