

# Predators battle bugs, become pests themselves

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(AP) -- Imported insects have been deployed as foot soldiers in the fight against invasive bugs and plants that cause billions of dollars in damage each year. But some of those imports are proving to be pests themselves that upset the balance of nature and threaten native species.

A weevil released to attack a weed has veered off target and is gobbling up a native plant in Nebraska. A fly that was supposed to kill invasive moths is wiping out native moths in New England. And an insect introduced to combat a pesky weed led to a spike in the population of mice carrying a potentially [deadly virus](#) in Montana.

Despite such scattered scientific mishaps, the Associated Press found the federal agency that has approved the importation and release of hundreds of insects over the past three decades seldom tracks their effects on other species and the environment and does not even know whether most of the introduced bugs have died off or thrived unchecked.

It largely leaves the monitoring of bug releases to states and researchers who critics say have little funding or inclination to track impacts that might not show up for decades.

Too many insects have been let loose without understanding their effectiveness and the long-term consequences, critics say. Although only a relative handful of biological controls are known to have gone wild, they say there is potential for unpredictable harm from others.

"If you find you've got a problem with a chemical, you can stop spraying it," said Daniel Simberloff, an [environmental science](#) professor at the University of Tennessee, Knoxville. "If you find you made a mistake with a biocontrol agent, you can't call it back."

In one of the most infamous disasters, farmers introduced the mongoose to Hawaii in the late 1800s to control rats that were feeding on sugar cane. Rather than control rats, the mongoose have preyed on the nests of endangered and threatened [native birds](#).

In the past decade, researchers found that a parasitic fly, released as late as 1986 to combat gypsy and brown tail moths, is devastating the native silk moth population in New England.

But supporters view biological controls as an alternative to widespread pesticide and herbicide use, and say the science has come a long way.

Scientists now spend years vetting critters to make sure they do not feed on what they are not supposed to, said Mark Hoddle, an entomologist with the University of California, Riverside.

Despite some recent lapses, advocates of biocontrol point to successes.

The vidalia beetle from Australia in the late 19th century helped save California's citrus industry, which was ravaged by a scale insect, Hoddle said. In the 1940s, Klamathweed beetle helped control St. John's wort, a weed that is toxic to livestock and crowds out native plant species.

"The alternatives are do nothing, let (the invasive species) do what it does, and suffer the consequences," Hoddle said. "Or spray insecticide or herbicide like crazy. That's expensive, pollutes the air and contaminates our groundwater."

The U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) has approved hundreds of biocontrol agents since the early 1970s, said technical adviser Robert Flanders, the former head of the permitting unit.

But officials say they do not have a more precise number because biocontrol permits over the decades have been intermingled with thousands of files for other permits.

The agency does not know what happened to most of the biocontrol agents it approved for use, Flanders said, because it does not have congressional authority to require monitoring after insects are released or to collect such data.

However, he noted that the potential effects are assessed prior to every release, with input from federal environmental agencies.

"When you approve a permit, it is an irretrievable event," Flanders said. "The signing of a permit ... is not received lightly by the people who do it."

But in Hawaii, where invasive species have long been a concern, the standard is more stringent. The state requires monitoring for effects on non-targeted plants and insects, said Neil Reimer, Hawaii's plant pest control chief.

When biocontrol agents approved by federal authorities have gone awry, the effects have not been discovered for years.

Researchers recently found that a chain reaction followed the release of gall flies in Montana in the 1970s to combat spotted knapweed, which takes over grasslands.

The fly larvae became food for deer mice that proliferated and ate the seeds of the very native plants the fly was supposed to protect, said Dean Pearson, a research ecologist at the U.S. Forest Service's Rocky Mountain Research Station.

The deer mice also were carrying hantavirus - a disease that can be deadly in humans.

A Montana health department spokesman said it is unknown whether any of the 23 hantavirus illnesses and six deaths since 1993 were associated with the gall fly release.

APHIS spokesman David Sacks said the agency would continue to issue permits for the gall fly until it sees additional evidence of the problem.

Introduced insects can also travel great distances and start eating what they should not, said Svata Louda, a professor of biology at the University of Nebraska-Lincoln. "There are very few exotic species introductions you can name that have long-term positive effects," she said.

Louda found that a weevil introduced from Europe in 1969 to combat musk thistle had moved by the 1990s nearly 30 miles from the nearest musk thistle population to the Nebraska Sandhills. It began feeding on a native thistle that Louda says could now go extinct.

Given the difficulty in predicting future impacts of biocontrols, critics say they should be used more sparingly.

"In biocontrol today, we sort of take a shotgun approach," Pearson said. "We need to become more surgically precise."

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