

# INVASIVE PEST news & notes

Extension  
UtahStateUniversity.



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Utah IPM Program and Plant Health

Fall 2025

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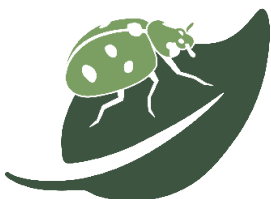
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## Exotic Praying Mantids

Praying mantids—also called praying mantises—are among the most recognized insects worldwide, with distinctive features that include stick-like bodies, alien-like heads with bulging eyes, and long raptorial forearms. Of the roughly 20 mantid species found in North America, two of the most common in Utah are non-native: European mantid (*Mantis religiosa*) and Chinese mantid (*Tenodera sinensis*). These two species are naturalized throughout North America, and within Utah, European mantid is the state's most commonly observed mantid species. A third non-native, Mediterranean mantid (*Iris oratoria*), has also been reported in Utah.

Utah's native mantids are not nearly as common and are suppressed through competition and predation by the non-native mantids. These include Carolina mantid (*Stagmomantis carolina*), California mantid (*Stagmomantis californica*), and bordered (Arizona) mantid (*Stagmomantis limbata*) as well as a small number of inch-long ground mantid species (*Litaneutria* spp.).

### History and Identification

European mantid was unintentionally introduced to the U.S. in 1899 on imported nursery stock. Soon after, it was released to control grasshoppers in British Columbia and spongy moth (formerly gypsy moth) in the eastern U.S. European mantids are varying shades of tan or green, and adults are up to three inches long. The inside forelegs have a black dot, sometimes with a white center, that can be used for identification. Interestingly, in part of its native European range (namely Germany) this mantid is endangered.

Chinese mantid was unintentionally introduced to the U.S. in 1896, also on imported nursery stock, and was soon thereafter sold commercially as a biocontrol agent for controlling pest species. Chinese mantid is North America's largest mantid, with adults reaching five inches long. Color



Chinese mantid (*Tenodera sinensis*) consuming a monarch butterfly. Kevin Fryberger, Brandywine Conservancy

### When in Doubt, Say Mantid

The terms 'mantis' and 'mantid' are commonly used interchangeably. Technically, however, 'mantis' refers only to insects in the genus *Mantis* within the order Mantodea. 'Mantid' is the more general term that references all insects in the order Mantodea.

The Cooperative Agricultural Pest Survey (CAPS) program supports the U.S. Department of Agriculture's Animal and Plant Health Inspection Service's (USDA APHIS) mission to safeguard the nation's agricultural and environmental resources from harmful plant pests and diseases. The Utah CAPS Committee is comprised of experts from multiple state and federal agencies as listed below. Members meet once a year to discuss and plan ongoing and future priorities and strategies.

Utah Department of Agriculture and Food (Lead)

U.S. Department of Agriculture, Animal and Plant Health Inspection Service

Utah State University Extension

Utah Weed Supervisors Association

U.S. Forest Service

U.S. Homeland Security Customs and Border Protection

Utah Division of Forestry, Fire & State Lands

[invasives.usu.edu](http://invasives.usu.edu)

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European mantid (*Mantis religiosa*) consuming a grasshopper. Note the black dot on the front 'armpit' region. Whitney Cranshaw, Colorado State University, Bugwood.org

is either predominantly beige or green, with a square, vertically striped "forehead" sometimes present. Chinese mantid is not known to survive cold, dry winters.

Mediterranean mantid is an invasive species that was unintentionally introduced to the U.S. around 1930 and can now be found in parts of California, Texas, Arizona, Nevada, New Mexico, and southern Utah. Adults are usually green rather than brown, about two inches long, and have two protruding dots (tubercles) on the forehead region. A red-orange dot may be visible on the underside near the rear of the abdomen, while a large violet-brown spot on the hind wings is the main identifying feature.

### Biology

Mantids have one generation per year. In fall, females deposit a mass of eggs in a hardened foam case (ootheca) from which nymphs hatch in spring. After many growth stages, nymphs mature to winged adults by mid-summer and survive to mid-fall. Many mantid species change colors when molting (growth from one stage to the next) to better match their surroundings, and in some species, only males are capable of flight.

Mantid mating behavior is beguiling and complex, as some females will kill and eat their mate in an act of 'sexual cannibalism,' providing protein and nutrients that lead to more robust egg-laying and offspring survival rates. Cannibalism varies among species, and poor female fitness, male approach behaviors, and lower male-encounter rates can increase occurrences in cannibalistic species. In nature, these rates vary from 13 to 31 percent, and rates in captivity are often greater.

In New Zealand, the only native mantid (*Orthodera novaezealandiae*) is fatally attracted to a highly cannibalistic mantid invader, the springbok mantid (*Miomantis caffra*), which is widely



Egg cases of native (far left image) and non-native mantids. From left to right: A Carolina mantid ootheca (note the narrower form and contrasting colors), Chinese mantid ootheca, and European mantid ootheca. University of Illinois Urbana-Champaign Extension

considered to be displacing the native mantid. The springbok mantid is capable of overwintering in New Zealand's alpine regions and is a new invasive pest to North America, currently reported from parts of California.

### Diet

Mantids have a broad diet consisting of living, mobile invertebrates that include pest species as well as native pollinators, predators, and other beneficial species. Both European and Chinese mantids are opportunistic hunters and will also prey upon small reptiles, amphibians, bird nestlings, and hummingbirds, although these occurrences are less common. Utah's non-native mantids also consume our native Carolina, California, and bordered mantids.

### Environmental Impacts

Mantids are unjustifiably touted as good pest control agents for the home and garden, yet both adults and egg cases (ootheca) of many species—both native and non-native—are sold commercially specifically for this purpose. Because of mantids' broad diet that includes pollinators and other beneficial species, as well as their inability to sufficiently augment populations when a pest outbreak occurs, they are of no real benefit for use in biological pest control.

Mantids are a popular insect pet, and illegal releases of exotic mantids is a significant pathway for dispersal. Although mantid lifespans are typically one year, the overwintering egg cases of some non-native species can survive Utah winters and can result in ill-considered introductions and spread.

### What is Utah Doing?

Utah requires an exotic animal permit for owning an exotic mantid. Since European and Chinese mantids are now considered naturalized, their movements are unregulated. Egg cases (ootheca) of Utah's exotic mantids can be identified by their puffed form and uniform color. Interested persons can destroy non-native cases in order to promote native species.

### Mantids Sold Online

Domestically, captive-bred mantids are sold from local garden stores and online retailers in all life stages. Species include the native Carolina mantid and dizzying numbers of glamorous exotics with alluring names such as the 'wandering violin mantis,' 'ghost mantis,' giant 'Asian mantis,' 'spiny flower mantis,' 'dragon mantis,' and 'orchid mantis,' among many others. Exotic mantid breeders in the U.S. must operate under a permit, and Utah requires a permit to import or transport non-native species that are not already naturalized. If you are considering buying an exotic mantid, purchase only from legitimate breeders operating under the proper permits.

Ann Mull, IPM Associate  
Marion Murray, IPM Specialist

# European Cherry Fruit Fly Threatens U.S. Cherry Production

The European cherry fruit fly (ECFF, *Rhagoletis cerasi*) is an invasive pest of sweet and tart cherry that poses a threat to North American cherry production. Native to Europe and parts of western Asia, ECFF was first detected in North America in 2016 in Ontario, Canada and was detected in the U.S. one year later in New York, and has not spread further. While ECFF is not known to occur in Utah, awareness is critical to prevent its introduction.

Adults are small, measuring about 5mm in length with a shiny black body and yellow spot on the back of the thorax between the wings. Their wings are transparent with four dark-colored bands—three large bands with a smaller one between the outermost two—distinguishing them from similar native “picture-wing flies” found in Utah. Western cherry fruit fly (*Rhagoletis indifferens*) is the most similar but its wing pattern has only three dark colored bands with the outermost band being forked at the tip of the wing. It is widespread throughout the western U.S. and is the primary insect pest of cherries in Utah. The apple maggot (*Rhagoletis pomonella*) also has a similar wing pattern but is very uncommon in Utah.

In late spring to early summer, ECFF adults begin emergence from the soil. Females typically begin laying eggs in softening cherries about a week after emergence, depositing one egg per fruit. Over her 50-day lifespan, a single female can lay up to 200 eggs. Each tiny, white, oval egg is laid just beneath the fruit skin, where the larvae will begin to develop inside the fruit and feed on the pulp for two to three weeks before dropping to the soil where they will overwinter as pupa.

Early damage appears as small puncture marks or depressions on the fruit surface. Infested cherries will darken, become soft, and drop prematurely. Because infestation rates for this pest are so high, economic losses can be severe. When unmanaged, losses due to fruit damage from ECFF can be as high as 100%. Where ECFF is present, growers manage it through combined IPM strategies including pest monitoring, orchard sanitation by removing dropped fruit from the orchard floor, weed fabric or mulching, and targeted insecticide applications timed to adult emergence.

Although ECFF has not been found in Utah, the USDA Animal and Plant Health Inspection Service lists Utah among the western states at risk of invasion. Early detection is essential. If you suspect the presence of the European cherry fruit fly in Utah, please contact the Utah Plant Pest Diagnostic Lab at [upddl@usu.edu](mailto:upddl@usu.edu).



European cherry fruit fly (top) and its look-a-likes, western cherry fruit fly (middle) and apple maggot (bottom).  
Alison Morris, Bugwood.org (top), Joseph Berger, Bugwood.org (bottom)

Meg Kast, IPM Associate

## Recent News Highlights

### Spotted Lanternflies Fare Poorly on Grape-Only Diet

Spotted lanternfly, first detected in Pennsylvania in 2014, has spread throughout the eastern U.S., feeding on multiple crops. It is known to be a severe pest on grapevines. A study by Pennsylvania State University scientists published in *Environmental Entomology* investigated this pest's diet and found that development and reproduction of lanternflies that fed only on four types of grapes were severely limited, but when combined with food from the tree-of-heaven, development was normal. The findings suggest that eliminating spotted lanternflies' preferred host, tree-of-heaven, near vineyards, could be a key tactic to minimize their impact.

### Detection Dogs Excel at Their Job

Dogs trained by everyday pet owners are proving to be powerful allies in the fight against the invasive spotted lanternfly. In a ground-breaking study by scientists at Virginia Tech, trained citizen scientists taught their dogs to sniff out the pests' egg masses with impressive accuracy. The initiative, published in *PeerJ*, not only taps into the huge community of recreational scent-detection dog enthusiasts, but also opens a promising new front in protecting agriculture. These canine



Invasive species detection dogs. New York New Jersey Trail Conference

teams are also working on detecting powdery mildew in vineyards (*Journal of Veterinary Behavior*), hinting at a whole new future for detection dogs.

### Swift Resistance to Ash Disease

The canker-causing disease, Chalara ash dieback, caused by the fungus, *Hymenoscyphus fraxineus*, is a severe invasive pest in parts of Europe. It has killed millions of ash trees in the U.K. and is expected to wipe out up to 85% of older, non-resistant ash trees, incurring costs in the millions. Previous studies found apparent resistance in some ash saplings but a new genetic study published in *Science* by Queen Mary University of London and others could help breeding programs to support the natural recovery of ash trees. The scientists used genomic prediction models for an ancient woodland, and found a difference in the genome of adult trees established before the epidemic started and juvenile trees established since. They estimate that natural selection has eliminated 31% of susceptible juveniles, suggesting adaptive change over a single generation in the wild.



Chalara ash dieback lesion. Food and Environment Research Agency, OGL v1.0OGL v1.0, via Wikimedia Commons

### Using Buzz to Detect Hornet Nests

Northern giant hornet (*Vespa velutina*), which was found in Washington and is now eradicated there, has spread rapidly in the U.K. Scientists at the University of Southampton have determined the loudness of nests—51 decibels—and frequency—125 hertz—which are comparable to a normal conversation. This discovery means that detection of hornet nests can be distinguished from hives and nests of other wasps and bees, making removal faster and easier.



Northern giant hornet. Karla Salp, Washington State Department of Agriculture, Bugwood.org

### Global Review of Invasive Species' Impacts

The negative impacts of biological invasions vary across ecosystems. Scientists in Switzerland conducted a global analysis of 775 studies in terrestrial systems. Their study, published in *Science*, showed for the first time that biological invasions don't change ecosystems in a single, uniform way. Some impacts, most notably losses of native plant diversity caused by invasive plant species, are persistent and intensify with time, while others, such as shifts in soil carbon and nutrients, often fade as invasions age. These results help clarify when environmental managers should act fast to prevent damage and where patient monitoring is wiser.

## Recent U.S. Customs and Border Protection (CBP) Interceptions

**April 2025** – Agriculture inspection specialists from U.S. Customs and Border Protection (CBP) discovered a live wood-boring Asian longhorned beetle and its larvae inside a cargo shipment arriving at a railyard in Port Huron, Michigan. The shipment originated from Romania and included wooden pallets that appeared to have undergone heat-treatment, but evidence suggests the treatment was inadequate. Longhorned beetles are considered a serious invasive threat, capable of damaging hardwood trees in forests and urban settings if established.

**July 2025** – At Detroit Metropolitan Airport in Michigan, officials with U.S. CBP intercepted a five-pound bag of fresh cherries arriving from Romania that were heavily infested with the larvae and pupae of European cherry

fruit fly (ECFF). Because the traveler's next stop was a major tart cherry producing area in Wisconsin, ECFF may have had serious economic impacts for the area. CBP and the United States Department of Agriculture (USDA) urges travelers to declare all fresh plant and food items to help prevent the spread of invasive species.

**October 2025** – At the Port of San Luis on the U.S.-Mexico border, agriculture specialists from U.S. CBP intercepted a shipment of radicchio from Mexico that carried a leafhopper species identified as *Osbornellus salsus*. This interception marks the first time this insect has been detected in the United States. Because leafhoppers feed by sucking plant sap and some species can transmit plant diseases, officials say the discovery represents a potential threat to U.S. agriculture. The

affected shipment was seized and returned to Mexico, and the specimen was forwarded to the USDA National Identification Service, which confirmed the "first-in-the-nation" status of the interception.

*Note that shipments that are found to contain pests are refused entry to the U.S., and prohibited food items that are deemed high risk for spreading invasive pests and diseases are seized and destroyed.*



Asian longhorned beetle.  
Michael Bohne, USDA Forest Service, Bugwood.org



European cherry fruit fly. Dick Belgers at Waarneming.nl, CC BY 3.0, via Wikimedia Commons



*Osbornellus salsus* leafhopper.  
U.S. Customs and Border Protection

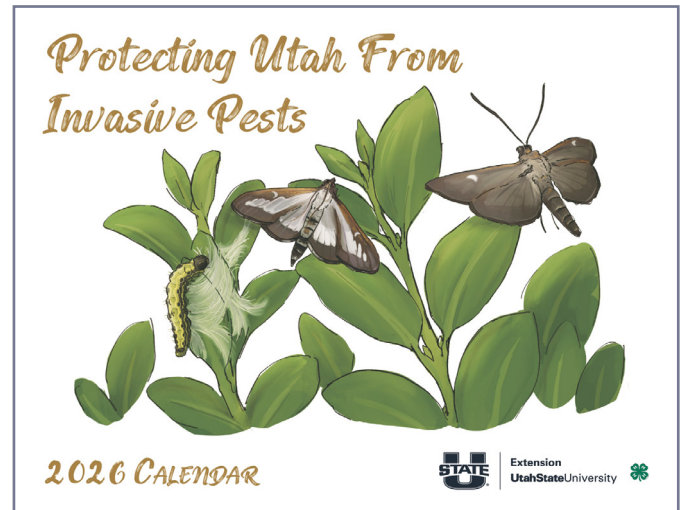
## New Invasive Pest Publications

Several new publications from the Utah IPM Program and Plant Health team are available that support awareness and early detection of invasive pests in Utah.

Three new invasive pest factsheets were published this year. They cover a range of topics, including the Dotted Paropsine Beetle, a eucalyptus pest not yet found in Utah, with tips for identification, recognizing damage, and preventing its spread. How Invasive Species Affect Ecosystems explains how invasive insects, diseases, and plants disrupt natural and agricultural systems, affecting biodiversity, soil and water processes, and the economy. The third, The Link Between Environmental Change and Invasive Species, explores how climate change can help invasive pests spread and provides guidance for monitoring, early detection, and improving ecosystem resilience. These factsheets are designed to support outreach, education, and community awareness efforts. These factsheets can be found at [extension.usu.edu/planthealth/research/categories/invasive-species](https://extension.usu.edu/planthealth/research/categories/invasive-species).

We are also producing a 2026 calendar, Protecting Utah from Invasive Pests, that features hand-drawn artwork from a

former Utah State University student. The calendar highlights invasive pests that threaten crops across the U.S., and includes information about each pest, its current status in Utah, and photographs for easy identification. To request a copy, please contact Meg at [megan.kast@usu.edu](mailto:megan.kast@usu.edu).



2026 Protecting Utah from Invasive Species calendar cover.

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