



Hungry Pests in USDA's Crosshairs

The invasive species on the Hungry Pests “watch list” vary in terms of their size, origin, current location, and the damage they cause. Following are descriptions of each.

Asian Citrus Psyllid: *Diaphorina citri* Kuwayama or ACP

- This gnat-sized insect has been detected in Alabama, Arizona, California, Florida, Georgia, Hawaii, Louisiana, Mississippi, South Carolina and Texas.
- Psyllids cause serious damage to citrus plants and citrus plant relatives. Burned tips and twisted leaves result from an infestation on new growth.
- Psyllids act as carriers of the bacterium that causes citrus greening disease, also known as Huanglongbing disease, spreading the disease to healthy citrus plants as they feed.
- Plants and plant material can spread the infection even if no psyllids are visible. Once a tree is infected, there is no cure.
- Plants at risk of damage from psyllids include: Chinese box-orange, curry leaf, finger-lime, grapefruit, key lime, kumquat, lemon, lime, limeberry, mandarin orange, mock orange, orange, orange jasmine, pomelo, sour orange, sweet orange, tangerine and trifoliolate orange.

Asian Longhorned Beetle: *Anoplophora glabripennis* or ALB

- First found in Brooklyn, New York, in 1996 and now exists in parts of Massachusetts, New York and Ohio.
- Considered a serious pest to the U.S. with no known natural predator.
- Threatens hardwood trees, urban and suburban shade trees and forest resources valued at billions of dollars.
- With no known cure for the damage it causes, early identification and eradication are critical to its control.
- The ALB has the potential to cause more damage than Dutch elm disease, chestnut blight and gypsy moths combined.
- Likely arrived in the U.S. in solid, wood-packing materials from Asia.
- The ALB has been eradicated in Illinois, New Jersey, and Islip, New York.
- Trees at risk include: maples, including boxelder, red, silver and sugar maple, birch, willow, Ohio buckeye, elm, horse chestnut, ash and poplar.

Citrus Greening Disease: *Candidatus Liberibacter asiaticus* (Also known as Huanglongbing disease.)

- First reported in 2005 in Florida. Also been found in Georgia, portions of California, Louisiana, South Carolina and Texas.
- Citrus greening is one of the most damaging citrus plant diseases in the world and is a serious threat to the U.S. citrus industry, causing damage to millions of acres of crops both in the U.S. and abroad.
- This disease causes bitter, misshapen fruit, making it unsuitable for sale as fresh fruit or juice.
- There is no cure once a tree is infected and most die within a few years of becoming infected.
- Primarily spread by Asian citrus psyllids, the disease can also spread by humans moving infected plant material or by plant tissue grafting.

- Plants at risk of damage from psyllids include: Chinese box-orange, curry leaf, finger-lime, grapefruit, key lime, kumquat, lemon, lime, limeberry, mandarin orange, mock orange, orange, orange jasmine, pomelo, sour orange, sweet orange, tangerine and trifoliate orange.

Coconut Rhinoceros Beetle: *Oryctes rhinoceros*

- Native to Southeast Asia and first detected in Hawaii in December 2013. Threatens coconut, date and oil palms, and other commercially important crops in Hawaii, Guam and American Samoa.
- Attacks coconut palms by boring into the crowns or tops of the tree, where it damages growing tissue and feeds on tree sap. Signs of damage include V-shaped cuts in palm fronds and large holes on the stems. Can significantly reduce coconut production and kill the tree.
- Beetles lay eggs in dead, standing palms and decaying organic material, such as compost and sawdust piles. Larvae feed on rotting material until emerging as adults.
- Also known to feed on agave, banana, sugarcane, papaya, mango, sisal, pineapple and taro.
- Sources of the threat include infested compost, mulch and green waste. Beetles can also hitchhike in international cargo and when people bring infested plants into the U.S. in passenger baggage.

Emerald Ash Borer: *Agrilus planipennis* (Fairmaire) or EAB

- First detected in southeastern Michigan in 2002.
- Targets green, white, blue and black ash trees.
- Treatments can protect individual trees from the EAB, but they are not a cure and must be reapplied periodically. Pesticide regulations differ by state, so ash tree owners should contact their state department of agriculture for guidance.
- Responsible for the death or decline of tens of millions of ash trees in Colorado, Connecticut, Georgia, Illinois, Indiana, Iowa, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Tennessee, Virginia, West Virginia and Wisconsin.
- Native to Asia, the EAB likely arrived in wood-packing materials.

European Grapevine Moth: *Lobesia botrana* or EGVM

- First detected in the U.S. in California in September 2009.
- Feeds on the flower or fruit of host plants, most often grapes.
- All varieties of wine and table grapes are at risk.
- If the moth attacks mature grape clusters, berries can become further damaged through infection of a fungus called botrytis, also known as bunch rot, leading to a decay and possible death of plant tissue.
- Extensive efforts by USDA and its partners reduced EGVM populations in 2011 by 99.9 percent, allowing them to reduce the quarantine area by 50 percent.

European Gypsy Moth: *Lymantria dispar* or EGM

- Native to Europe, the European gypsy moth was first introduced in Massachusetts in 1869.
- The EGM is currently found in Connecticut, Delaware, Illinois, Indiana, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Vermont, Virginia, West Virginia and Wisconsin.
- Kentucky is currently considered a high-risk state.
- The gypsy moth caterpillars prefer approximately 150 primary hosts, but feeds on more than 300 species of trees and shrubs. Some of those include: aspen, birch, cedar, cottonwood, fruit trees, larch, oak, poplar and willow.
- The caterpillars defoliate trees, which leaves them vulnerable to diseases and other pests that can eventually kill the tree.

- Because the females are flightless, the moth's natural spread is slow. Unfortunately, they get a free ride when people transport their egg masses—which can be laid on just about any outdoor surface like outdoor furniture and campers—over long distances.

False Codling Moth: *Thaumatotibia leucotreta* or FCM

- A single male moth was detected in Ventura County, California, in 2008.
- Although FCM is not currently found in the United States, it's estimated that approximately 20 percent of the continental United States may be suitable habitat.
- Feeds on more than 100 host plants and is a pest of fruit trees, field crops and other plants, putting the U.S. agricultural industry at risk.
- FCM has been frequently intercepted at U.S. ports of entry in both cargo and passenger luggage.

Giant African Snail: *Lissachatina fulica* (Bowdich)

- First found in southern Florida in the 1960s. It took 10 years and \$1 million to eradicate it. Then, it was reintroduced in 2011 and a major eradication effort is currently underway. It's also in Hawaii.
- One of the most damaging snails in the world.
- Consumes at least 500 different types of plants, including: peanuts, beans, peas, cucumbers and melons.
- If fruits and vegetables are not available, the snail will eat a wide variety of ornamental plants, tree bark, and even stucco and paint on houses.
- They reproduce quickly. In a single year, every mated adult produces about 1,200 eggs.
- This snail can carry a parasitic nematode that can lead to meningitis in humans.

Imported Fire Ant: *Solenopsis invicta* Buren, *S. richteri* Forel

- Two species were unintentionally introduced into the port of Mobile, Alabama, from South America almost 100 years ago: the black imported fire ant (1918) and the red fire ant (late 1930s). Both probably came in soil used as ballast in cargo ships.
- Commonly moves to new, non-infested areas either naturally by spreading colonies or by hitchhiking on agricultural commodities, including baled hay.
- Feeds on the buds and fruits of numerous crop plants, especially corn, soybean, okra and citrus. Can also girdle young trees. Hard, mound-shaped nests can get quite large, posing risks to workers and farm equipment, inhibiting field work.
- Responds rapidly and aggressively to disturbances. Clamps onto victims with powerful jaws and stings repeatedly while injecting painful venom. The stings cause a burning sensation and itching blisters that can become infected. Although very uncommon, in severe cases, the stings can produce shock or cause death. Young and newborn animals are especially susceptible.
- Can damage the environment by displacing native ant species and reducing food sources for wildlife.
- Threatens crops in Alabama, Arkansas, California, Florida, Georgia, Louisiana, Mississippi, New Mexico, North Carolina, Oklahoma, South Carolina, Tennessee, Texas and Virginia.

Khapra Beetle: *Trogoderma granarium*

- One of the world's most destructive pests. A threat to America's stored agricultural products, including grains, spices, packaged and dried foods, and animal products.
- Plants at risk include: wheat, barley, oats, rye, maize, rice, flour, malt and noodles.
- Known for its "dirty eating" behavior, this tiny beetle only feeds a little on each grain and thus can damage a surprising amount of stored product. Its feeding damage often spoils 30 percent of the product; up to 70 percent damage has been reported.
- Previous U.S. detections of this beetle have required massive, long-term and costly control and eradication efforts. The beetle is difficult to eradicate because it can survive without food for

long periods, with little moisture, hiding in tiny spaces. It is able to survive almost anywhere in storage facilities that are protected from cold environments.

- Native to India, it has become established in the Mediterranean, Middle East, Asia and Africa. In 1953, an extensive infestation was found in California. Subsequent infestations have been found and eradicated in Arizona, Maryland, Michigan, New Jersey, New Mexico, New York, Pennsylvania and Texas.
- Because of its preference for warm climates, it has the most potential for establishment in Arizona, California, Kansas, New Mexico, Oklahoma and Texas.
- This beetle is detected periodically in commercial cargo and passenger baggage at U.S. ports of entry. Fortunately, the pest has not yet been able to become established in the U.S.

Light Brown Apple Moth: *Epiphyas postvittana* (Walker) or LBAM

- Native to Australia. The first U.S. mainland detection was in California in 2007. It is also in Hawaii.
- LBAM poses a threat to plants in backyard gardens, and is known to damage more than 2,000 species of plants and trees and 250 agricultural crops. It could expand its preferences as it is exposed to new plants and crops.
- Some of the plants it affects are roses, chrysanthemums, jasmine and clover, as well as eucalyptus and poplar trees.
- Some of the agricultural products it affects are alfalfa, avocado, beans, grapes and certain berries.

Mediterranean Fruit Fly: *Ceratitis capitata* (Wiedemann) or Medfly

- Considered one of the most important agricultural pests in the world.
- The Mediterranean fruit fly is currently found in Hawaii and California.
- Infests a wide range of commercial and garden fruits, nuts and vegetables, including apple, avocado, citrus, melon, peach, plum and tomato.

Mexican Fruit Fly: *Anastrepha ludens*

- Threatens various fruits, particularly citrus and mango, and targets a large number of commercially grown crops.
- The Mexican fruit fly was first found in Central Mexico in 1863, and by the early 1950s, flies were found along the California-Mexico border. The pest has since been detected in Arizona, California and Texas.
- More than 50 host plants are at risk. These plants, which include avocado, grapefruit, orange, peach and pear, would be threatened if the Mexican fruit fly became established.

Old World Bollworm: *Helicoverpa armigera*

- Recently detected in Puerto Rico in 2014.
- A significant threat to U.S. agriculture. Known to attack more than 180 plant species.
- Can cause serious losses to high-value crops, including corn, cotton, small grains, soybeans, peppers, tomatoes and more.
- Larvae bore into flowers and fruit, and feed within a plant. May also feed on the leaves of host plants.
- Moth can be carried long distances by the wind. If it were to spread into the continental U.S., it could seriously harm agricultural production, the environment and economy.

Oriental Fruit Fly: *Bactrocera dorsalis* (Hendel)

- A tropical species that is widespread throughout much of the mainland in Southern Asia and neighboring islands. Hawaii is under a federal quarantine for this pest.
- The Oriental fruit fly was first found in Hawaii in the mid-1940s. It was found on the U.S. mainland in Florida in 2002.

- It is known to attack more than 230 fruits and vegetables, including apricots, cherries, citrus, figs, peaches, pears, plums and tomatoes.
- Male annihilation technique is the standard eradication tactic for the Oriental fruit fly. It combines a pheromone, pesticide and sticking agent in a mixture that is applied in small splotches on utility poles and trees.

Spotted Lanternfly: *Lycorma delicatula*

- Native to China and first detected in Pennsylvania in September 2014. Most states are considered at risk for this pest.
- Adults are colorful and have spotted, brown front wings, with bright red, black and white splotches on the lower ones. Nymphs are black with white spots in early stages of development, but turn red just before becoming adults.
- This plant hopper feeds on a wide range of plants and trees. It is a serious threat to grape, apple, oak, walnut, poplar and stone fruit. The Tree of Heaven is a preferred host.
- Signs of damage include plants that ooze or weep and have a fermented odor, sooty mold, and buildup of sticky fluid (honeydew) on plants and ground.
- Can spread long distances by people who move infested material or items containing egg masses. If allowed to spread in the U.S., it could seriously impact the grape, orchard and logging industries.

Sudden Oak Death: *Phytophthora ramorum* (*P. ramorum*) or SOD

- Caused by the *P. ramorum* water mold pathogen.
- First detected in the San Francisco Bay Area in 1993, it has spread thus far to only 14 coastal counties in California where environmental conditions are ideal for the disease. It has not expanded since then due to efforts by USDA, its state partners and the nursery industry.
- In Oregon, a small portion of a forest in only one southwest county was affected in 2001.
- This water mold organism prefers cool and wet weather and causes SOD, Ramorum leaf blight, Ramorum dieback and *Phytophthora* canker diseases.
- More than 75 plant species can either be infected by *P. ramorum* or facilitate its spread. These include hardwoods, softwoods and certain landscape ornamental plants. Research is underway to find a cure and manage the pathogen.
- The pathogen also infects, but does not kill, a number of other plants.
- The mold spreads through wind-blown rain and infected plants. Certain ornamental plant species, soil or potting mix may also spread the pathogen.

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