

Protecting Washington from Invasive Pests



Washington
State Department of
Agriculture

Pest Program
Entomology Branch

Washington’s environment faces a constant threat – the accidental introduction of invasive pests that could ruin ecological systems, parks, gardens, farms, and even our economy. But through early detection and a quick response, we can protect our natural resources from destructive invasive pests for years to come.

Contents

More about invasive insects..... 1

Benefits of controlling invasive species.....2

You can help protect our environment.....3

Priority pests of concern.....4

- Apple Maggot (*Rhagoletis pomonella*)4
- Asian Longhorned Beetle (*Anoplophora glabripennis*)5
- Citrus Longhorned Beetle (*Anoplophora chinensis*)6
- Emerald Ash Borer (*Agrilus planipennis*)7
- European Cherry Fruit Fly (*Rhagoletis cerasi*)8
- European Grapevine Moth (*Lobesia botrana*)9
- Introduced Stink Bugs and Relatives.....10
- Invasive Hornets (*Vespa* spp.)11
- Japanese Beetle (*Popillia japonica*)12
- Lily Leaf Beetle (*Lilioceris lili*)13
- Sirex Woodwasp (*Sirex noctilio*)14
- Spongey Moth (*Lymantria dispar*)15
- Spotted Lanternfly (*Lycorma delicatula*)16
- Vineyard Snail (*Cernuella virgata*)17

More about invasive insects

What are invasive insects?

Invasive insects are non-native insects that cause ecological or economic harm when introduced into a new habitat. For example, the Japanese beetle is considered invasive because it is not from Washington and it damages hundreds of plants. Not all non-native insects are invasive. Some may fail to thrive or at least coexist in balance with native insects and do not become invasive.

Why is WSDA concerned about invasive insects?

Invasive insects threaten the natural environment as well as agricultural production. For example, spongy moth caterpillar feeding can devastate entire forests. Apple maggot has the potential to devastate the Washington apple industry. A Washington Invasive Species Council study estimated that if just 23 invasive insect species became established in Washington, the costs to the state would exceed \$1.3 billion *each year*.

How do invasive insects get to Washington?

People are the primary movers of invasive insects. Pests can hitch rides on container ships, wood pallets, stone, logs, nursery stock and other items that people bring from other states or countries to sell locally. People who relocate or visit Washington from infested areas can also unintentionally carry invasive insects on their vehicles, furnishings, or other items they move.

How does WSDA stop invasive insects from establishing here?

Early detection. WSDA in cooperation with the U.S. Department of Agriculture (USDA) conducts annual statewide trapping to detect whether certain invasive pests are present in the state. WSDA trappers place about 35,000 traps or more throughout the state each year. The traps monitor for the presence of invasive pests and provide vital information for state entomologists and trade partners.

Rapid response. When WSDA learns an invasive pest has been discovered in our state through trapping, public reports, or other means, the Pest Program takes action quickly. This may include increased trapping, taking steps to eradicate a pest, conducting public outreach to increase reporting, or establishing quarantines to prevent the spread of a pest.

Benefits of controlling invasive species

Washington residents as well as tourists, other states, and even international customers benefit from WSDA Pest Program efforts to protect our state from invasive insects.

- **Residents** – Insects like spongy moth and the Japanese beetle are a nuisance that can destroy yards, gardens, and parks.
- **Recreation** – Protecting our local, state, and national parks from invasive insects keeps them beautiful and enjoyable for recreation.
- **Farmers** – Protecting crops from invasive species reduces pesticide costs and keeps markets open for Washington-grown products.
- **Environment** – Invasive insects can damage, devour, or kill native plants and insects, reducing food and habitat for wildlife and increasing the risk of wildfire.
- **Economy** – Controlling invasive species protects valuable timber and agricultural products as well as the thousands of jobs that depend on these industries.
- **National and international customers** – Washington products are well-known throughout the world. Controlling invasive species means both local people and those around the world can continue to enjoy top-quality, Washington-grown products.
- **Other states** – Washington can be a gateway for some invasive species into the U.S. By controlling those pests here, Washington plays a significant role in protecting other states from these pests.



You can help protect our environment

While WSDA entomologists are actively looking for potential invasive insect pests, you can help by keeping your eyes open for unusual insects or insect damage you do not recognize. The more people searching for invasive species, the more likely we are to find and eradicate them.

What if you find a strange looking insect?

If you find an unusual insect, try to capture it in a clear container and take photos of it.

Send insect photos to hornets@agr.wa.gov for identification. You can also report through the Washington Invasive Species Council's WA Invasives app.

Keep the specimen in the container until you are contacted with further instructions.



*Hornet photo submitted
by a community member*

If unable to capture the specimen, quality images are still helpful.

- Get as close as you can to the insect while still obtaining a clear image. Insects can be tricky to photograph, so start from a distance and take photos as you gradually get closer. With a little luck, you'll be able to get a clear, close-up photo before it scurries off.
- Hold the camera steady both before and after taking the picture to reduce blurry images.
- Try to take photos from multiple angles that show different parts of the insect (face/head, back, side, wings, etc.).

Without a photograph or specimen, entomologists cannot identify insects.

Community key to hornet detection, response

From the initial report to setting traps and looking for hornets, Washington residents have been critical to finding and eradicating **northern giant hornets**. Half of confirmed detections were from public reports. Your reports make a difference!

Priority pests of concern

Apple maggot (*Rhagoletis pomonella*)

Potential damage/risk

- Tunnels through fruit such as apples, crabapples, cherry, pears, plums, and apricots. The damage turns the fruit brown and mushy.
- If found in commercially grown fruit, it could devastate the Washington apple industry – Washington's top crop.

Identification highlights

- Adults – unique banding pattern on wings, can only be identified with microscopic examination.
- Larvae – legless white maggot

Most likely to be found

- Adults – Spring/summer
- Larvae – Summer/fall (in fruit, soil)

Quick facts

- Apple maggot flies don't fly well. People unintentionally help them spread when they take infested homegrown or foraged fruit into a pest-free area.
- About half of Washington is quarantined for apple maggot, primarily in Western Washington.
- If you live in an apple maggot quarantine area, you cannot take homegrown fruit or green waste into the pest-free area.
- Learn more about apple maggot at agr.wa.gov/applemaggot

Images

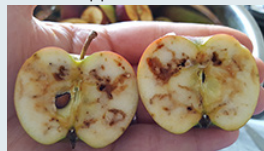
Adult



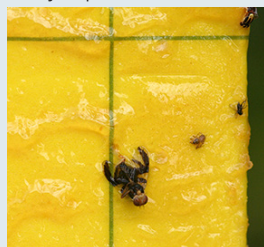
Larva



Infested apple



Sticky trap



Whitney Cranshaw, Colorado State University, Bugwood.org

Asian longhorned beetle (*Anoplophora glabripennis*)

Potential damage/risk

- Larvae bore deep into trees. This can destroy the tree's vascular system and eventually kill the tree.
- Tourism, nursery, and lumber industries as well as urban forests would be severely impacted. Quarantines would be a multi-million dollar blow to Washington's economy.

Identification highlights

- Large black beetle with white (sometimes yellow) spots. Distinctive long striped antenna are usually considerably longer than the beetle's body.
- Look for perfectly round exit holes in hardwood trees and large amounts of sawdust at the base of trees.

Most likely to be found

- Adults found May-October, most common in August

Quick facts

- Moving firewood, pallets, and nursery stock can spread Asian longhorned beetle. They can be transported as larvae for long distances before emerging as adults.

Images

Adult



Joe Boggs, Ohio State University, Bugwood.org

Adult



Gillian Allard, FAO of United Nations, Bugwood.org

Exit hole



Dennis Haugen, USDA Forest Service, Bugwood.org

Damaged tree



Dennis Haugen, USDA Forest Service, Bugwood.org

Citrus longhorned beetle (*Anoplophora chinensis*)

Potential damage/risk

- Attacks and kills more than 100 species of plants including several species in the citrus and prune families, apple, willow, poplar, maple, alder, elm, and birch.

Identification highlights

- Large black beetle with 10-12 white spots on each wing cover. Long antennae have alternating black and white (sometimes blue) bands.
- Round or oval shaped exit holes on bark, large amounts of sawdust at the base of hardwood trees.

Most likely to be found

- Adults found May-October, most common in August

Quick facts

- This beetle can be introduced in wood packing material and live plant material.
- Native to China, Korea, and Japan, this pest has been found and successfully eradicated in Washington State as well as Georgia, Maine, and Wisconsin.

Eradication success!

Thanks to a community member report, WSDA was able to eradicate citrus longhorned beetle in Tukwila in 2006.

Images

Adult



Steven Valley, Oregon Department of Agriculture, Bugwood.org

Adult



Art Wagner, USDA-APHIS, Bugwood.org

Exit hole on bonsai in Lacey, WA



Exit hole on tree



National Plant Protection Org., the Netherlands, Bugwood.org

Emerald ash borer (*Agrilus planipennis*)

Potential damage/risk

- Kills stressed and healthy trees and is so aggressive that trees may die in only two or three years. Infestations have killed millions of ash trees in areas where it is established.
- There is no known effective method to eradicate emerald ash borer. Prevention is the best way to protect Washington's trees, especially not moving firewood.

Identification highlights

- 3/8 - 1/2-inch long insect with a narrow body and green metallic wing covers.

Most likely to be found

- Adults from May-September, peak flight in mid-June

Quick facts

- Emerald ash borer was discovered in 2002 in Detroit. Within five years, most infested trees had died.
- Moving untreated firewood can rapidly increase the spread of this pest.
- **As of 2024, this pest has been found in Oregon and British Columbia.**

**DON'T MOVE
FIREWOOD.org**

Images

Adult



Howard Russell, Michigan State University, Bugwood.org

Larva in wood



David Cappaert, Bugwood.org

Larval damage under bark



Michigan Department of Agriculture, Bugwood.org

WSDA traps annually



European cherry fruit fly (*Rhagoletis cerasi*)

Potential damage/risk

- Larvae infest cherries and feed on the tissue between the fruit skin and the pit, causing soft, brown spots in the fruit.
- European cherry fruit fly is the most serious pests of cherries in Europe.

Identification highlights

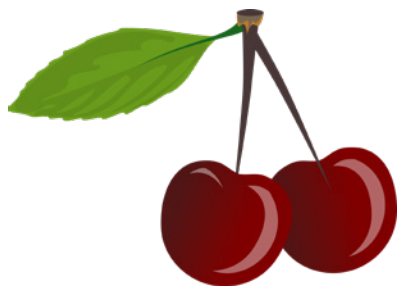
- Adults – unique banding pattern on wings, can only be identified with microscopic examination.
- Larvae – legless white maggot

Most likely to be found

- Summer

Quick facts

- Washington is the top producer of sweet cherries in the country, so this pest poses a particularly dangerous threat to our state.



**Washington is #1 in US
cherry production!**

Images

Adult



Alison Morris, Bugwood.org

Larvae



C. Daniel and J. Grunder NIH

Pupae



Alison Morris, Bugwood.org

100 traps annually



Whitney Cranshaw, Colorado State University, Bugwood.org

European grapevine moth (*Lobesia botrana*)

Potential damage/risk

- Larvae damage grapes as they feed on grape flowers and on developing and ripe grapes. Feeding on ripe grapes exposes the grapes to further damage with fungal infections.
- May also infest blackberries, currants, gooseberries, kiwi fruit, stone fruit, barberry, carnation, St. John's wort, rosemary, red clover, and many other crops.

Identification highlights

- Adults: about 1/3- inch long with bell-shaped wings with patterns. Microscopic examination by a trained entomologist required for a positive identification.

Most likely to be found

- Spring, summer, fall

Quick facts

- First discovered in the U.S. in 2009 in California and fully eradicated in 2016.
- Can have 2-4 generations per year.

Images

Adult



Todd M. Gilligan and Marc E. Epstein, TortAI: Tortricids of Agricultural Importance, USDA APHIS PPQ, Bugwood.org

Adult



Todd Gilligan, Screening Aids, USDA APHIS PPQ, Bugwood.org

Larva



Todd M. Gilligan and Marc E. Epstein, TortAI: Tortricids of Agricultural Importance, USDA APHIS PPQ, Bugwood.org

300 traps annually



Introduced stink bugs and relatives

Potential damage/risk

- Larvae and adults use needle-like mouthparts, called a proboscis, to suck juices from plants, including fruit and vegetables.
- Heavy feeding reduces crop yield and damaged fruit can develop spot rot spots.
- Large outbreaks become a nuisance for homeowners and producers, and the stink bugs' unpleasant smell can taint agricultural and garden crops.

Identification highlights

- Shield-shaped adults.
- Immature stages of many species have distinctive patterns of contrasting spots.

Most likely to be found

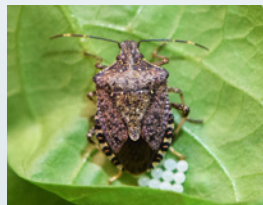
- Adults and nymphs are found from April-October.
- Overwintering adults of many species are common in houses during cold months.

Quick facts

- Warmer winter temperatures have helped some species recently establish in Washington State. Yellow-spotted stink bug and Sunn pest are two species often intercepted in international cargo and are at risk for becoming pests in the state.
- Washington State University is distributing the samurai wasp, a small egg parasitoid that hunts brown marmorated stink bug.
- iNaturalist is a good first spot to check if the stinkbug you find is native or invasive.

Images

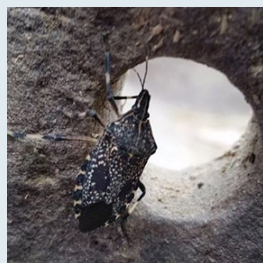
Brown Marmorated Stink Bug
(*Halyomorpha halys*)



Southern Green Stink Bug
(*Nezara viridula*)



Adult Yellow spotted stink bug
(*Erthesina fullo*)



Pennsylvania Department of
Agriculture

Sunn pest
(*Eurygaster integriceps*)



Boris Loboda

Invasive hornets (*Vespa* spp.)

Potential damage/risk

- Hornet species attack honey bees, native bees, and other pollinators. Hornets also eat soft fruit. Hornets can pose serious human health threats.

Identification highlights

- Hornets are often larger than native wasps and yellowjackets - 1-2 inches in length. Several species have large heads for their size.
- Hornets can be dangerous in large numbers or if you are allergic to their sting!

Most likely to be found

- July to November

Report!

- Report sightings of any **true** hornet (bald faced "hornets" are actually yellowjackets).
- Take photographs and collect a specimen if you can safely do so.
- Report suspected sightings at:
 - agr.wa.gov/hornets
 - hornets@agr.wa.gov

Quick facts

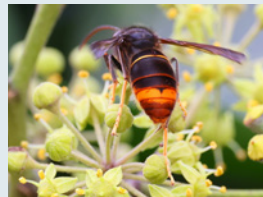
- In December 2019, WSDA received and verified two reports of a northern giant hornet near Blaine. From 2020-2021, WSDA found and eradicated four hornet nests.
- There are no true hornets (*Vespa*) native to Washington. Report every hornet.
- Learn more about invasive hornets at agr.wa.gov/hornets

Images

Northern giant hornet



Yellow-legged hornet



European hornet



Hornet-eaten pears



Pennsylvania Department of
Agriculture

Japanese beetle (*Popillia japonica*)

Potential damage/risk

- Feeds on about 300 species of plants, devouring leaves, flowers, and overripe fruit, but roses seem to be their favorite.
- Larvae feed on the roots of turfgrass, often causing noticeable brown patches on lawns.

Identification highlights

- Adults - 3/8 - 1/2-inch long with metallic green and copper wing cover. It has a row of five white tufts of hair along each side and two on the end of the abdomen.
- Larvae - C-shaped grubs that develop in the soil. These grubs look similar to other beetle grubs and can be confused with natives.

Most likely to be found

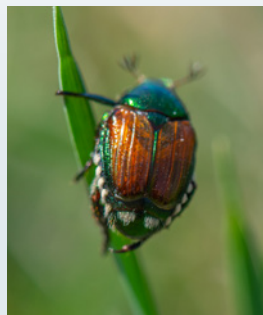
- Larvae – During the spring, often in lawns
- Adults - Summer

Quick facts

- Japanese beetles are most frequently introduced through air travel. WSDA focuses its trapping near airports.
- WSDA has trapped for Japanese beetles for over 30 years.
- As of 2024, the beetle has been found in Grandview, Sunnyside, Mabton, Outlook, Wapato, Pasco, and Kennewick. Substantial public assistance (signing up for treatment, reporting, abiding by quarantines, etc.) is needed to eradicate this pest.
- Learn more about Japanese beetle at agr.wa.gov/beetles

Images

Adult

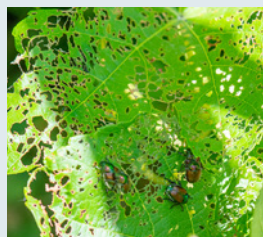


Larva

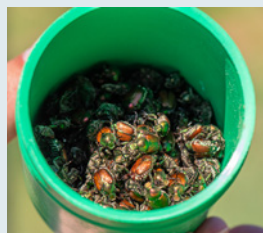


David Cappaert, Bugwood.org

Adults feeding on leaf



Trap cup full of beetles



Lily leaf beetle (*Lilioceris lili*)

Potential damage/risk

- Attacks the leaves, stems, buds, and flowers of lilies, fritillaries, and giant lilies.
- Feeding causes immediate loss of aesthetic value. Repeated feeding can kill plants.

Identification highlights

- Adults – Bright red bodies (without spots) and black legs.
- Eggs – Orange, about the size of a grain of rice clustered on the undersides of leaves.
- Larvae – Often appear brown/black because they cover themselves with excrement. Look like clumps of wet slug or bird droppings.

Most likely to be found

- Adults – March to October
- Larvae – April to August

Quick facts

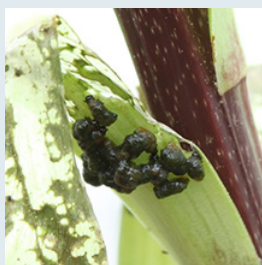
- While it prefers cultivated lilies, research indicates that the beetle will also feed on wild native lilies and other plants in the lily family.
- WSDA has successfully released two species of specialized parasitoid wasps to help control this beetle. Extensive research indicates that the wasps will not feed on native beetle species in North America.
- Learn more at bit.ly/WSDAexoticpests

Images

Adult



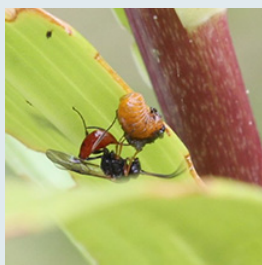
Larvae



Adult laying eggs



Parasitic wasp attacking larva



Sirex woodwasp (*Sirex noctilio*)

Potential damage/risk

- Attack both healthy and unhealthy trees. Populations of Washington's native pines and other conifers could suffer severe damage from an infestation.

Identification highlights

- Adults - Cylindrical body, spear-shaped plate at the end of the abdomen, black antennae.
- Females: metallic blue head and body, orange legs.
- Males: metallic blue head and thorax, orange and black abdomen.

Most likely to be found

- Adults found May - October, most common in July

Quick facts

- These wasps are one of the most commonly detected invasive species at U.S. ports.
- Has cause damage to pine plantations in Australia, South Africa, and Argentina.
- Washington has many similar-looking native species that don't cause extensive harm.

Images

Adult



Steven Valley, Oregon Department of Agriculture, Bugwood.org

Adult female



David R. Lance, USDA APHIS PPQ, Bugwood.org

Larva



Vicky Klasmer, Instituto Nacional de Tecnología Agropecuaria, Bugwood.org

Sap beads from wasp wounds



Dennis Haugen, Bugwood.org

Spongy moth (*Lymantria dispar*)

Potential damage/risk

- Depending on the subspecies, spongy moths feed on up to 500 types of trees and shrubs and can defoliate entire forests.
- Defoliation can kill trees and have cascading ecological effects, including loss of habitat for wildlife such as salmon and steelhead, disruption of the food web, and increased risk of wildfire.

Identification highlights

- Adult males are tan with large, feathery antennae.
- Adult females are off-white with chevron wing patterns.
- Egg masses are tan and fuzzy, laid on any outdoor surface, often at the base of trees.
- Larvae have five pairs of blue dots and six pairs of red dots on their backs.

Most likely to be found

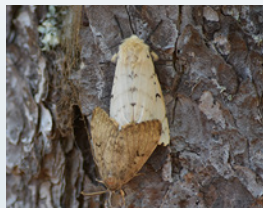
- Larvae – Late spring/early summer
- Adults – Summer
- Egg masses – Fall to spring

Quick facts

- Many people are allergic to spongy moth caterpillars, and may get a rash if they come in contact with them.
- In 2016, extensive spongy moth damage in New England could be seen from space.
- WSDA has successfully prevented spongy moth from establishing in Washington for over 50 years.
- Learn more about spongy moth at agr.wa.gov/moths

Images

Adults



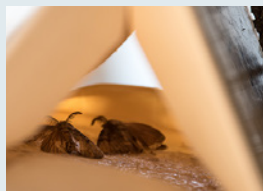
Larva



Egg masses



20,000 to 30,000 traps annually



Spotted lanternfly (*Lycorma delicatula*)

Potential damage/risk

- Major pest of grapes, hops, nursery stock, fruit trees, herbs, and hardwood trees.
- Ejects large quantities of honeydew which coats cars, decks, plants, and animals. The honeydew promotes mold, killing plants and ruining fruit.

Identification highlights

- Adults - light grey spotted forewings and red hind wings (hindwings not usually visible when it is at rest).
- Nymphs - black with white spots and develop red patches as they age.
- Eggs - laid in rows and covered by a waxy substance that looks like a splash of mud.

Most likely to be found

- Nymphs – May to July
- Adults – August to October, frequently on tree-of-heaven
- Eggs - September to May, on tree bark or outdoor items

Quick facts

- Although it feeds on many species of plants, it strongly prefers tree-of-heaven (*Ailanthus altissima*).
- As of 2024, spotted lanternfly has been found in Mid-Atlantic states and expanding into New England and elsewhere. It is costing millions in crop damage and control efforts.
- Learn more at agr.wa.gov/lanternfly.

Images

Adult



Pennsylvania Department of Agriculture

Nymphs



Pennsylvania Department of Agriculture

Swarming grapes



Pennsylvania State University

Egg laying on garden tool



Kenneth R. Law, USDA APHIS PPQ, Bugwood.org

Vineyard snail (*Cernuella virgata*)

Potential damage/risk

- They consume cereal and legume crops, pasture vegetation, and some native plants. They go into a dormant stage in the summer, often on top of crops, which can clog harvest machinery as well as contaminate crops.
- They can carry plant, animal, and human diseases.

Identification highlights

- The shell has 5-7 convex whorls, which are white or tan in color and usually have dark brown spiral bands.
- The shell's mouth is round with an internal rib, which may be white or brown.

Most likely to be found

- September and October after rains

Quick facts

- Invasive snails enter the United States through international container movement.
- Vineyard snails were first detected in Washington in 2005.
- WSDA has been working for many years with the Port of Tacoma to eradicate this snail and has reduced the infested area to one small field.

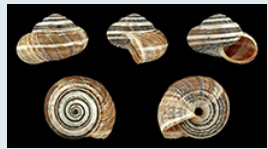


Conducting snail eradication steam treatments

Images



Udo Schmidt



H. Zell



Arthur Chapman

WSDA INFORMATION

Office address:

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Pest Program/Entomology Branch
7321 Linderson Way SW, Suite 102
Tumwater, WA 98501

WSDA website: agr.wa.gov

REPORTING QUICK INFO

Hornets: agr.wa.gov/hornets

Japanese beetle: agr.wa.gov/beetles

Spotted lanternfly: agr.wa.gov/lanternfly

All others: Washington Invasive Species Council website or WA Invasives app

Cover photos:

¹ Spotted Lantern Fly -

Lawrence Barringer, Pennsylvania Department of Agriculture, Bugwood.org

² Emerald Ash Borer -

Jared Spokowsky, Indiana Department of Natural Resources, Bugwood.org

³ Brown Marmorated Stink Bug Nymphs -

Gary Bernon, USDA APHIS, Bugwood.org



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