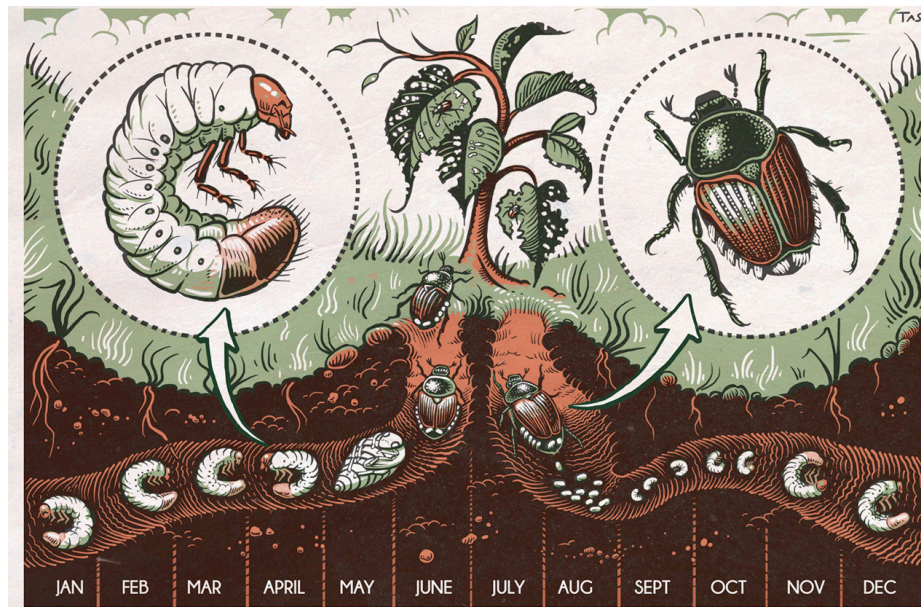


## Biology and life cycle

The Japanese beetle has four life stages: egg, larva (or grub), pupa, and adult. A female beetle lays 40 to 60 eggs during her lifetime. The eggs, creamy white in color, are buried 5-7.6 cm deep in the soil. The eggs develop for two weeks and hatch during July and August. The grubs look like many other grubs found in the soil, with C-shaped bodies that are creamy white with dark posteriors. The grubs grow quickly and by September are almost full-sized (about 2.5 cm long). Grubs feed on the roots of turf grasses and vegetable seedlings. During the winter months they migrate deeper into the soil to overwinter. The following spring the grubs migrate up to the root zone to feed for four to six weeks. Fully-grown grubs pupate in an earthen cell and remain as pupae for about two to three weeks. Adults emerge from late June to early August. The oval-shaped adult is bright metallic green with copper-colored wing covers and is about 0.9 cm long and 0.6 cm wide. There are two tufts of white hair just behind the wing covers, with five patches of white hair along each side of the abdomen. Adults mate soon after emergence and live about 30 to 45 days. After mating, female beetles lay eggs in the soil to start the life cycle for the next generation of beetles.

An illustration depicting the life stages of Japanese beetle throughout the year.



## What can I do to help?

1. Report insects that you suspect could be Japanese beetle to Oregon Department of Agriculture (ODA).
2. Report any extensive beetle damage to lawns, roses, grapes, fruits, or other trees and shrubs to ODA.
3. Cooperate with ODA survey staff when they request permission to place traps on your property during the summer.
4. Comply with quarantine regulations that prohibit the movement of plants and soil from infested eastern states, unless the material is certified by state agricultural officials to be free of Japanese beetle or has been properly treated to eliminate any beetle life stages.

## For more information

If you have questions, or would like to report a sighting of Japanese beetle, contact us:

### Oregon Department of Agriculture Insect Pest Prevention & Management Program

635 Capitol St. NE, Ste. 100  
Salem, OR 97301  
503-986-4636 or 1-800-525-0137  
[oda.direct/IPPM](http://oda.direct/IPPM)

For questions or health concerns about pesticides used by ODA to control Japanese beetle:

[oda.direct/JBhealth](http://oda.direct/JBhealth)

For information on the infestation in Portland:

[JapaneseBeetlePDX.info](http://JapaneseBeetlePDX.info)

Text by Kerri Schwarz and Chris Hedstrom. Images by the Oregon Department of Agriculture and OISC, JB on flower: Kevin D. Arvin. Bean Damage: Frank Watt. Linden damage: Mike Reding. Rose Damage: Melissa Schreiner

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# Japanese Beetle

A Major Pest of Specialty Crops  
& Ornamental Plants

## Japanese beetle: A major pest of plants

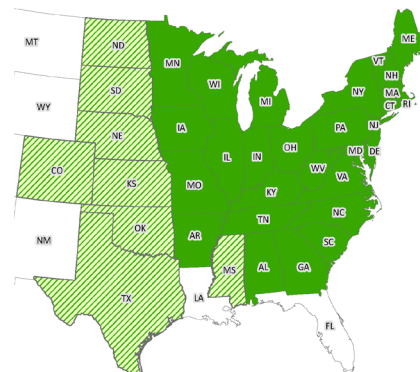
The Japanese beetle (*Popillia japonica*) is a serious invasive insect pest that threatens Oregon and the western U.S. Japanese beetle adults feed on flowers, fruits, and foliage of more than 300 species of ornamental and agricultural plants, including roses, blueberries, and grape vines. The larvae (or grubs) attack roots of turf grass and other plants. Both adults and grubs cause significant damage in the eastern United States. Oregon has a quarantine that regulates the import of plants from infested states. This quarantine helps to keep Japanese beetles from entering the state.



Adult Japanese beetle

## How did the beetle get to the US?

The Japanese beetle was first found in the U.S. in a southern New Jersey nursery in 1916. It was presumably introduced into the U.S. in soil associated with plants imported from Japan. It subsequently spread throughout the eastern U.S. and is now present in Minnesota, Iowa, Missouri, Arkansas, and all states east of the Mississippi River except

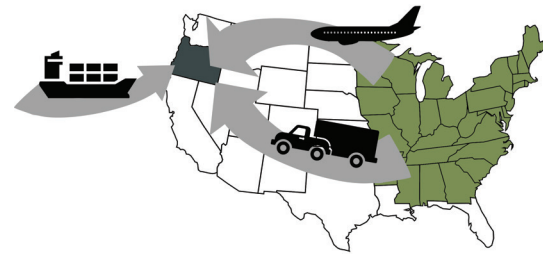


Florida and Louisiana. It is a serious plant pest and a threat to American agriculture.

Japanese beetle in 2018. (Photo: PPQ, USDA-APHIS)

## How did the Japanese beetle spread?

Japanese beetle adults are active flyers and frequently fly short distances between plants. The beetle is capable of flying up to five miles with the help of the wind. Natural spread by flying adults will gradually expand the beetle's distribution in the U.S. Long distance expansion and new introductions are usually aided by commercial activities. Grubs are easily transported long distances as hitchhikers on shipments of plant material usually associated with roots and soil. Adults may be carried in planes, trains, or automobiles to uninfested areas. The Oregon Department of Agriculture (ODA) routinely inspects cargo airplanes arriving from infested areas during the adult flight season. Isolated infestations of the Japanese beetle have been found in California, Colorado, Idaho, Montana, Oregon, and Utah.



Invasive insects have many pathways into Oregon.

## Is the Japanese beetle in Oregon?

Annually, ODA places thousands of Japanese beetle traps around the state. In past years, a few Japanese beetles have been found in Oregon. Through eradication efforts, ODA works to prevent the establishment of a permanent population. In Summer 2016, a large-scale and ongoing eradication project was initiated when a population was detected in Washington County.

## Why is the beetle a serious pest?

The Japanese beetle can cause serious damage to nurseries, seedbeds, orchards, field crops, landscape plants, and garden plants. The adults typically skeletonize leaves, consume flowers, and devour fruits. The upper canopy is often defoliated first. Trees with extensive feeding damage turn brown and become partially defoliated.

Japanese beetle grubs primarily feed on roots of turf and ornamentals, but will also feed on roots of garden and field crops such as corn, beans, tomatoes, and strawberries. Dense populations can kill large areas of turf grass and seriously injure or kill other plants.



Japanese beetle grub

The Japanese beetle is considered the single most important turfgrass pest in the U.S. Sites with large areas of turf such as parks, golf courses, cemeteries, and businesses are at risk. It can also be a problem in residential lawns, gardens, fruit trees, ornamental trees, and shrubs. Oregon has extensive habitat suitable for Japanese beetle survival and reproduction. The Oregon Department of Agriculture has successfully eradicated several isolated Japanese beetle infestations in western Oregon. Newly infested states are subject to strict quarantines on agricultural and horticultural products to prevent further spread of the pest.



Japanese beetle trap

## Common host plants of Japanese beetle

<b>Adults</b>	<ul style="list-style-type: none"> <li>• soybean (<i>Glycine max</i>)</li> <li>• oak (<i>Quercus</i>)</li> <li>• elm (<i>Ulmus</i>)</li> <li>• maple (<i>Acer</i>)</li> <li>• grape (<i>Vitis</i>)</li> <li>• peach, cherry, apricot, plum (<i>Prunus</i> spp.)</li> <li>• apple (<i>Malus</i>)</li> <li>• linden (<i>Tilia</i>)</li> <li>• rose (<i>Rosa</i>)</li> <li>• <i>Zinnia</i> spp.</li> <li>• <i>Dahlia</i> spp.</li> <li>• corn (<i>Zea mays</i>)</li> <li>• <i>Asparagus officinalis</i></li> </ul>
	<ul style="list-style-type: none"> <li>• tomato (<i>Solanum lycopersicum</i>)</li> <li>• hops (<i>Humulus lupulus</i>)</li> <li>• blueberries, blackberries, raspberries (<i>Rubus</i> spp.)</li> </ul>
	<b>Grubs</b>
	<ul style="list-style-type: none"> <li>• roots of turf grass</li> <li>• roots of ornamental plants</li> </ul>



Japanese beetle damage by adults feeding on foliage and by grubs feeding on turf (bottom right).