

## Japanese Beetle

### Identification, Biology and Management

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The Japanese beetle, *Popillia japonica* Newman, is an invasive leaf-feeding beetle with a voracious appetite. It was first found in the U.S. in 1916 in southern New Jersey. In North America, the beetle found a suitable climate and more than 300 plant host species as well as large areas of turf grass ideal for development of grubs, the immature stage of the insect. Favorable conditions and an absence of natural enemies allowed the beetle to become established in almost every state east of the Mississippi river, ranging north to Ontario, and as far west as Colorado and Arizona. The range continues to expand into areas with suitably warm temperatures and sufficient rainfall. This pest is now considered one of the most damaging of urban landscapes in the eastern U.S.

Adult Japanese beetle on a swamp white oak leaf showing lacey feeding damage.



### Description

The adult beetle is slightly less than 1/2 inch long and broadly oval. The body is a brilliant metallic green with coppery brown wing covers (elytra). A row of five lateral spots of short, white hairs apparent on either side of the abdomen are distinctive and a useful characteristic for identification. The larva of the beetle may be found in the soil feeding on roots of turf grass and are a creamy white 'C'- shaped grub.

Masses of adult beetles feed on the upper surface of leaves, chewing out the tissue between the veins and leaving a lacelike skeleton. The injured leaves eventually turn brown and may lead to premature defoliation.

### Damage

The adult Japanese beetle is a significant pest of shade trees, ornamental shrubs and vines, and many species of herbaceous garden plants.

Leaves completely skeletonized by beetle feeding.



Adult beetle feeding damage on witch hazel leaf.

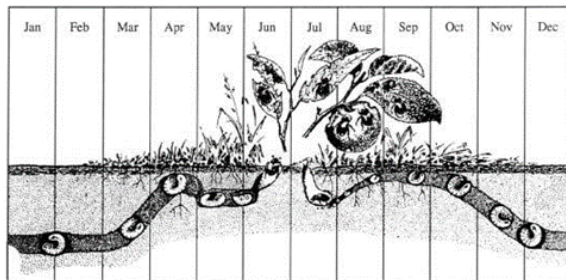
The most preferred tree hosts include lindens, elms, Japanese maple, Norway maple, horse chestnut, birches, black walnut, apples, cherries, plum, and mountain ash. The beetles prefer to feed on plants in the full sun, rarely attacking plants in dense shade.

Large areas of turf in lawns and pastures may be killed due to root feeding by the grubs.

### Lifecycle

Adult beetles begin to emerge from the soil in early summer, generally in late May in the southern part of their range, and late June in the northern regions. They soon reach a peak of abundance and are still numerous in September. After feeding and mating, the females burrow two to four inches into soil to deposit eggs in the vicinity of a host plant.

#### Japanese beetle lifecycle



### Control

There is currently no non-chemical method, which will totally protect individual shade trees and landscape plants from beetle feeding. However, the need for management of this pest can be minimized

through the use of pest-resistant plant material. Lists of documented Japanese beetle resistant plants have been created based on observations and controlled experiments. Such species include most evergreens and certain varieties of crabapples (*Malus*), lindens (*Tilia*), maples (*Acer*), birch (*Betula*) and crapemyrtles (*Lagerstroemia*). Chemical control of Japanese beetle adults may be achieved with full-cover foliar insecticide applications as well as soil applied or trunk injectable insecticides. In order to minimize impacts on pollinators and other beneficial organisms a foliar applied insecticide should only be made as a last resort under extreme beetle infestations. Soil treatments are made in late summer or early fall for beetle control the next year. Trunk-injected insecticides are made at the first sign of beetle feeding.



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