

# Residents asked to watch for Japanese beetles

The Japanese beetle is a highly destructive, non-native pest that originates from Japan.

The first confirmed adult Japanese beetle, *Popillia japonica*, in the state was found in Sheridan's Kendrick Park August 17, 2020. Whether or not Japanese beetles have established a population in Sheridan is unknown. The city is continuing to monitor the situation and is taking steps to prevent establishment; however, with persistent populations in Montana, Nebraska, Colorado, Kansas, and South Dakota, keeping watch is important.

Many initial detections have come from members of the public around their homes. If Japanese beetles are found, please contact the Wyoming State Forestry Division (WSFD) or the U.S. Department of Agriculture (USDA) APHIS Plant Protection and Quarantine Agency (PPQ).

The earlier we can find Japanese beetles, the more likely we are to be

successful in controlling the insect and damage.

## Identification and life cycle

Adult Japanese beetles are highly conspicuous due to their size, bright coloring, and distinctive markings. Adults are  $\frac{1}{3}$ - to  $\frac{1}{2}$ -inch long with metallic green heads and thoraxes. The rear wing coverings have a brown-copper coloring. Five white patches of hair resembling stripes are on each side of the back half of the beetle. Two patches of white hair are on the rear-most tip.

Look for groups of beetles between 25 and 200 crawling on each other, forming a golf ball-sized shape either on the turf or on plants. White grubs are approximately  $\frac{1}{8}$ - to 1-inch long with dark tan heads, and commonly found in a C-shape underneath dead turf; however, grubs resemble many other species, making identification difficult.

The Japanese beetle grubs overwinter in the soil in a mostly dormant state under grassy areas, including lawns and pastures. They are mostly dormant during this time. As the weather warms, they will begin feeding and pupate before emerging as adults in late June and early July. July through August is when the highest amount of damage will be observed from feeding adults. Females will lay eggs in the soil throughout this period. Eggs take two weeks to hatch, at which point the grubs will begin to feed on the fine roots of grasses before winter dormancy.

## Damage

Damage caused by adult Japanese beetles on leaves is called skeletonizing. They feed on the softer tissue, leaving the major veins. The result is often described as resembling lace. Fruits and flowers

## Beetle beginnings

The Japanese beetle was first detected in North America in 1916 and is now well-established in states east of the Mississippi River and partially established in some states to the west.

The insect is a generalist pest with adults damaging over 300 ornamental and agricultural crop plants by feeding on foliage, flowers, and fruits. The larval stages, also known as white grubs, feed on the roots of grasses and can be highly destructive to lawns, golf courses, and pastures. Over \$460 million yearly is spent controlling Japanese beetles in the United States. Control costs and replacement for turf damage by the larval stage are estimated at \$234 million each year.



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will develop holes as a result of feeding. Healthy plants can withstand significant amounts of damage but will have reduced overall vigor. Younger and unhealthy plants are more susceptible to stunted growth, injury, or mortality. Adult Japanese beetles often start from the top of a plant and progress downward. A list of common highly susceptible plants in Wyoming are in the table below.

The white grubs feeding on the fine tips of turf roots impairs the turf’s ability to take up water. Brown patches form where high numbers of white grubs are present. Turf damaged by grub feeding will often pull up easily and roll similarly to carpet. A side effect of white grubs in turf is damage caused by animals and birds. They will often dig up turf, looking for sources of food.

## Management

Early detection and action are important steps in Japanese beetle management. Look for adult beetles on plants beginning in June. As adults feed, the volatiles released by plants combined with the sex pheromone of females attracts additional beetles. This will have a compounding effect over time, increasing the amount of damage and making control more difficult.

Physically removing adult beetles from plants is a viable form of control when populations are low. Beetles are less active during the cool periods of the morning/evening and

will be easier to pick. Adult beetles can be drowned by removing them from the plant and dropped into a bucket of soapy water. Barriers such as netting can protect plants but will also block beneficial pollinators if the plant is blooming. Trapping, while effective for detection, is not effective for control and population reduction. Traps will end up attracting more beetles to the area, increasing overall damage.

Increasing plant vigor will help prevent long-term damage caused by feeding. Activities that minimize stress, including watering, mulching, pruning, and weeding, will help ensure plant survival.

Turf management can minimize damage from white grubs but will likely not reduce localized populations unless coordinated efforts are done over large areas. Japanese beetles can fly up to 5 miles, and once feeding sites are located, will attract high numbers of adults.

While the adults are moving between the plants and the ground, the eggs laid in the soil are very susceptible to drying out. If possible, not watering between July and early August will significantly reduce survival of Japanese beetle eggs and small grubs. If grub damage is already present, watering in late August into September may reduce the damage. Other methods of improving turf health such as higher mowing, core aeration, and fertilization, can minimize Japanese beetle impact.

Both residual and systemic insecticides are effective against Japanese beetles as adults or white grubs. Chemical type, insect life stage, and damage type will determine timing and application.

Contact insecticides will require several applications when populations are high. Chemical pesticides applied to turf will be most effective when the white grubs are small (August–September). Insecticides become less effective as grubs develop. As a result, spring applications are not recommended. Insecticide use can be detrimental to beneficial insects and pollinators. Consult a licensed professional and read the label for further information on insecticide use.

As the city of Sheridan and WSFD continue to monitor Japanese beetles, we ask for your help to keep an eye out for the pest.

Early intervention in its establishment is our best chance for keeping our gardens, parks, and trees healthy while keeping costs and labor down.

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 Japanese beetles beware. **Harrison Brookes** is the forest health program manager with the Wyoming State Forestry Division. He can be reached at (307) 777-5495 or [harrison.brookes@wyo.gov](mailto:harrison.brookes@wyo.gov).

**Highly susceptible tree and plant species commonly found in Wyoming**

- Alfalfa
- American arborvitae
- American elm
- American mountain ash
- American planetree
- Asparagus
- Beans
- Birch
- Black cherry
- Black walnut
- Buckeye
- Butterfly-bush
- Chokecherry
- Common St. Johnswort
- Crabapple
- European larch
- Hollyhocks
- Horsechestnut
- Japanese barberry
- Linden
- London planetree
- Norway maple
- Oriental arborvitae
- Poplar
- Raspberry
- Rhubarb
- Roses
- Spirea
- Sunflowers
- Viburnum
- Weigela
- Willow