

Japanese beetle
Popillia japonica



HOSTS

- **As adults:** Hundreds of different species of foliar plants. Some preferences are rose, basil, grape, ornamental fruit trees, many others.
- **As larvae:** A serious threat to many turfgrass species.



*Actual size: Adults nearly ½ inch long;
mature larvae nearly 1 inch long.*

INJURY

- Adults feed voraciously on the foliage of many host species. Most feeding injury appears a skeletonization (“window-paning effect”) of the foliage, oftentimes leading to complete defoliation.
- Larvae (grubs) feed on the roots of many turfgrasses and cause total destruction of the host. Turfgrasses may suddenly wilt, not respond to repeated watering, and turf can be lifted like a carpet due to the loss of the root system.

LIFE CYCLE

- Overwinters as a third instar larvae in the soil, approximately 12 to 18 inches down in the soil.
- As soils warm in the spring, larvae migrate to the top 1 to 2 inches and resume feeding on grass rootlets.
- Larvae begin pupation by mid-June.
- Adults emerge over a two month period starting approximately July 1, with the peak number emerging per day around August 1, and then tapering off to the last emerging adult by September 1.
- Eggs are laid in grassy areas, larvae hatch, begin feeding, and finally molt into the third instar by October.
- Larvae migrate downward in the soil to overwinter before the soil freezes.

MONITORING

- Visual checks can be done frequently for the adults on favored plants. The adults are sun-loving and are usually more concentrated on the plant tops or sunnier sides. Favored hosts in sunny locations are more likely to be attacked. Also, adults are more active and prevalent during the hotter / sunnier part of the day.
- Monitoring for larvae involves multiple random sampling of one square foot areas. Carefully cut a square, with one foot sides, on 3 of the four sides. Lift the turf, record the number of grubs per square foot, and then replace the turf. Slight tamping and watering should leave the sampling virtually unnoticeable. Repeat process in several areas and calculate the average number of grubs per square foot. Many different grubs look like this pest. Proper identification of species is essential and relatively easy by examining the rastrel pattern at the tip of the abdomen.

- Pheromone traps for capturing adults do nothing to lower the infestation. In fact, recent research has shown that trap placement can actually increase the level of injury to the surrounding plants. If utilized, place traps far away from favored host plants.

MANAGEMENT

- Consult a turf recommendation guide for managing grubs in turf. Chemical pesticides are labeled. **Entomopathogenic nematodes** may work but the soil needs to stay fairly wet for several days after application to obtain desired results.
- Adults are strong fliers, live for several weeks, and emerge over a two month period, thus making management a challenge. Usually multiple applications of chemical pesticides are warranted to protect favored host plants.
- GDD for adult emergence: 1029 – 2154

Insect illustration courtesy of Dr. John A. Davidson, Entomology Department, University of Maryland.

*Robert D. Childs
UMass Extension Educator
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