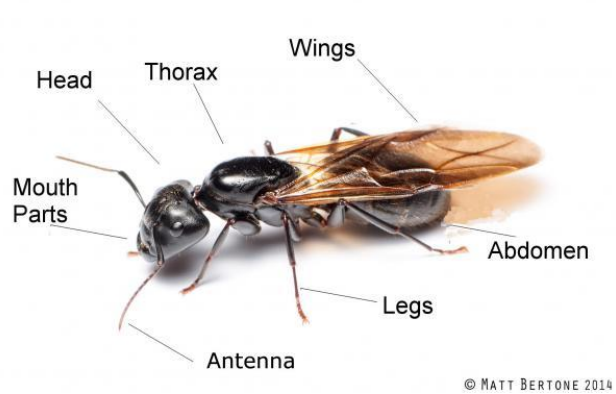
LAWN INSECTS

TITLE:	JAPANESE BEETLE
ORDER:	*Coleoptera*
FAMILY:	*Scarabaeidae*
LATIN NAME:	*Popillia japonica*
OVERALL DESCRIPTION (Lifecycle):	
Japanese Beetle grubs spend the winter underground. In spring, grubs move up to soil surface to finish feeding and pupate into adult beetles which emerge from the ground in late June/ early July. They feed on preferred plants for about 2 months. Beetle-damaged leaves emit feeding-induced odors that attract lots of beetles which results in more feeding and mating. After mating, females tunnel underground to lay eggs several times during this time period. As many as 60 eggs per female will hatch in about 2 weeks. The grubs feed mainly on grass roots. Grubs go through different growth stages (instars) during the next several months. As the soil cools, the nearly mature, full-sized (third instar) the grubs dig deeper where they spend the winter.	
ANTENNAE:	Antennae are clubbed at the end and may spread to a fan-like form.
WINGS:	Coppery-brown wing covers do not quite cover the tip of the abdomen.
LEGS (number):	Japanese beetles have 6 legs (like all beetles) that are from 1/8 - 1 inch long with sharp spined feet to ward off predators.
OTHER IDENTIFYING FEATURES	They have a metallic green-colored head and thorax with 5 white patches of hair on each side of abdomen and 2 patches on tip of abdomen. They tend to cluster on a plant.
TTPES OF DAMAGE	Damage can be extensive. Young or unhealthy plants may be severely affected or even killed. Turf can be affected with a heavy infestation of grubs.

Source: University of Wisconsin, Madison

Source: Kansas State University



TYPICAL INSECT STRUCTURE

KEY MESSAGE TO HOMEOWNER	Grubs feed on grass roots and beetles feed on leaves, flowers, and fruit of over 300 plant species. We have several suggestions for you on managing and minimizing the damage done by this invasive insect.
CULTURAL CONTROL:	Healthy, mature plants can tolerate even heavy feeding without significant, long-term injury. Remove beetles when first seen by shaking them from the plant into a bucket of soapy water. Do this in the morning or evening when they are less active. Highly valued plants can be protected by covering with fine netting before peak beetle activity. When replacing or adding to your landscape, select plants seldom damaged by Japanese beetles.
BIOLOGICAL CONTROL:	A select strain of the bacterium ***Bacillus thuringiensis*** which specifically affects larvae (grubs) is sold in numerous products in full service garden centers Grub control is best applied in midsummer and timing is important. Adult control which is derived from soil bacteria is sold as BeetleGone. It is moderately effective against adult beetles, giving about 2 weeks protection. This product presents a very low hazard to bees. Another biological control is milky spore ***(Paenibacillus popilliae),*** a bacterium that produces milky disease. It is intended to infect grubs reducing survival and reproduction
CHEMICAL CONTROL:	Insecticides such as Imidacloprid (Merit) can provide very good grub control over an extended period. Applications should be timed just before or while eggs are hatching (mid-June/early July). Some insecticides are labeled for adult Japanese beetles such as pyrethroid products, one of which is sold as Bayer Advanced Lawn and Garden Multi-Insect Killer. It can provide 1-2 weeks of plant foliage protection. Special care must be taken if flowering plants which would attract pollinators are in the vicinity of the site being treated.
SOURCES OF INFORMATION	**ENTOMOLOGY at the University of Kentucky, Japanese Beetles in the Urban Landscape** https://entomology.ca.uky.edu/ef451 **University of Minnesota Extension; Japanese Beetles in Yards and Gardens** https://extension.umn.edu/yard-and-garden-insects/japanese-beetles **University of Wisconsin, Madison; Wisconsin Horticulture; Division of Extension** https://hort.extension.wisc.edu/articles/japanese-beetle/ **Colorado State University Extension; Japanese Beetle – 5.601** https://extension.colostate.edu/?s=japanese+beetle&submit=
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