MISSOURI BOTANICAL GARDEN

William T. Kemper Center for Home Gardening

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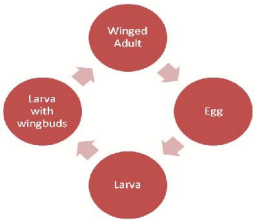
Insect Order ID: Hemiptera (Leafhoppers, Planthoppers, Cicadas, etc.)

Life Cycle–Gradual metamorphosis (sometimes called incomplete or simple). Winged adults lay eggs. Larvae (nymphs) look more and more like adults as they grow and molt. Wings begin as tiny wingbuds on larvae and gradually grow larger and larger until fully developed and functional on adults. Cicada metamorphosis can take up to seventeen years.



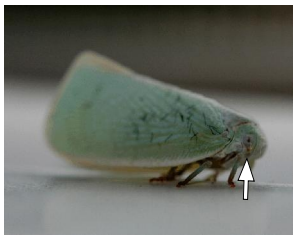
Adults–Wedge-shaped or teardrop-shaped from above. The wings are held like a tent over a narrow body, the peak of the tent running down the center of the back while the sides slant downward. The wings of planthoppers are more sharply peaked than other hoppers. Wings are membranous (e.g., cicadas) to leathery. In most the pronotum is unremarkable, but in treehoppers the pronotum (a protective plate between the head and wings) is enlarged and often pointed giving them the appearance of thorns. Leafhoppers are extremely agile and can move with equal ease either forwards, backwards, or sideways like a crab. This crabwise motion distinguishes leafhoppers from most other insects. All hoppers can jump to escape danger or to move to another plant, making them very difficult to control. The enlarged hindlegs are usually positioned out of sight beneath the body, poised for jumping. The short, threadlike antennae are usually invisible without extreme magnification. *(Click images to enlarge or orange text for more information.)*


Hoppers have large hindlegs for jumping


Some adults are tiny


Wedge-shaped


Wings held tentlike over body


Antennae under eye almost invisible


Treehopper with enlarged thorn-like pronotum


Membranous wing texture


Leathery wing texture

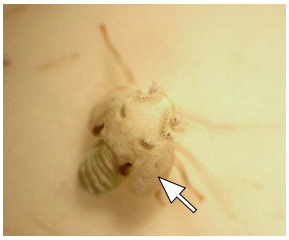
Eggs–Hoppers cut slits in plants with their ovipositor to lay their eggs. The slits made by most hoppers are so tiny that the damage is insignificant, but cicadas are large enough to damage twigs. *(Click images to enlarge or orange text for more information.)*

Slits for cicada eggs

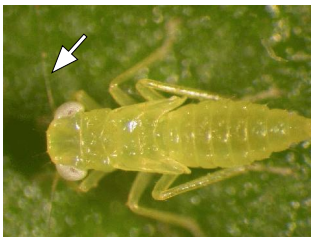
Eggs are laid
in slits in plants

Larvae (nymphs)–Look similar to adults. After each molt, the larvae look more adultlike and the wings are larger and more developed than the previous instar (the stages between molts). In cicadas, larval stages can last seventeen years. Front legs of cicadas are enlarged for digging, while hoppers have enlarged hindlegs for jumping. Eyes prominent. Like the adults, leafhopper nymphs can move in a telltale sideways, crabwise motion. Spittlebug nymphs are covered after their second molt in spittle, while planthopper nymphs are often covered in white cottony filaments. The short, threadlike antennae on all are usually invisible without extreme magnification. *(Click images to enlarge or orange text for more information.)*

Larvae are usually tiny



Wingbuds



Antennae hard to see,
even when magnified

Cicada nymph ready
to molt into an adult

Spittlebug nymph
in frothy spittle

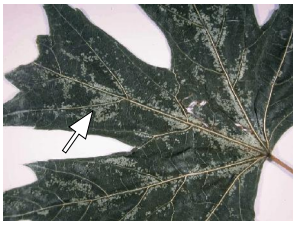
Larvae often hide
in white cottony filaments

Pupae–None. All go through gradual metamorphosis. Larvae (nymphs) look more and more adultlike with each molt. *(Click images to enlarge or orange text for more information.)*

Molted cicada skin

Beneficial/Benign Aspects–Feeding damage from most hoppers is insignificant. Cicadas can spend up to 17 years underground feeding on tree roots without damaging them.

Damage–Both adults and nymphs have piercing-sucking mouthparts. They do NOT make holes while feed. They pierce plant tissues and suck out juices, but this is usually insignificant. Damage on leaves may appear as white or yellow stippling, sometimes only along the midribs and larger veins on the upper leaf surface. Spittlebugs produce frothy spittle in which their larvae hide, but this can simply be washed off. Their primary damage comes from the transmission of diseases, such as, aster yellows, and from the toxic saliva of some species that can produce leaf distortion, discoloration, shriveling or leaf drop. A condition called hopper burn may also occur, in which the edges of leaves appear scorched. While cicada feeding damage is negligible, the damage caused by egg laying, in which they use their ovipositors to create slits in the underside of twigs, can weaken wood and cause twigs to break and die. Both cicadas and spittlebugs are xylem feeders, and therefore produce no honeydew. Most leafhoppers, treehoppers and planthoppers are phloem feeders and therefore produce honeydew upon which sooty mold may grow. However, some leafhoppers feed on cell contents, removing the chlorophyll and are responsible for the condition called hopper burn. *(Click images to enlarge or orange text for more information.)*



Stippling
along midrib

Hopper burn
resembles scorch

Stunted, distorted
growth from toxic saliva

Flagging caused by cicada
ovipositor damage

Typical feeding
damage

Spittlebugs feed &
hide beneath spittle

Vector for aster yellows

Comments–Leafhoppers, planthoppers, treehoppers, spittlebugs (froghoppers) and cicadas were formerly classified in the order Homoptera. They are now classified in the order Hemiptera, Suborder Auchenorrhyncha.

P.O. Box 299 • St. Louis, MO 63166-0299 • (314) 577-5100 • www.mobot.org