

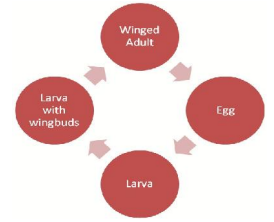
# MISSOURI BOTANICAL GARDEN

## William T. Kemper Center for Home Gardening

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### *Insect Order ID: Orthoptera (Grasshoppers, Katydids, Crickets, etc.)*

**Life Cycle**—Gradual metamorphosis (sometimes called incomplete or simple). Larvae (nymphs) look more and more like adults. Wings begin as tiny wingbuds on larvae and gradually grow larger and larger until fully developed on adults.



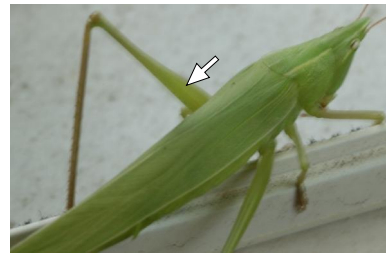
**Adults**—Wings narrow over a narrow body, Forewings narrow and leathery, membranous hindwings completely concealed by forewings. Colors range from green to brown. All are distinguished by their large, chewing jaws, medium to extremely long antennae and the large flattened femurs on their hindlegs. *(Click images to enlarge or orange text for more information.)*



Long, narrow wings



Some adults are wingless

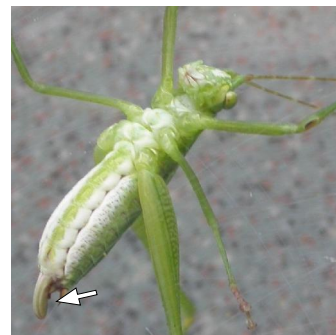


Enlarged flattened femur



Enlarged, flattened femur

**Eggs**—Grasshopper and cricket eggs are shaped like plump grains of rice. Katydid eggs are flattened ovals, resembling fingernails, often laid in overlapping rows along a twig. Grasshopper eggs and mole cricket eggs are laid in masses in the soil. Tree cricket eggs are deposited by their ovipositors into slits cut in twigs, creating damage similar to cicadas. *(Click images to enlarge or orange text for more information.)*



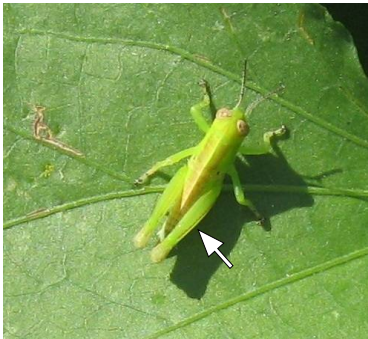
Blade-like ovipositor



Katydid eggs

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**Larvae (nymphs)**–Look similar to adults. After each molt, the larva looks more adultlike and the wings are larger and more developed than the previous instar (the stages between molts). Hindlegs have enlarged, flattened femurs for jumping. *(Click images to enlarge or orange text for more information.)*



Enlarged hindlegs  
for jumping



Wingbuds



The ears of katydids & crickets  
are on their forelegs

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**Pupae**–None. Grasshoppers, crickets and katydids go through gradual metamorphosis. Each larva (nymph) looking more and more adultlike.

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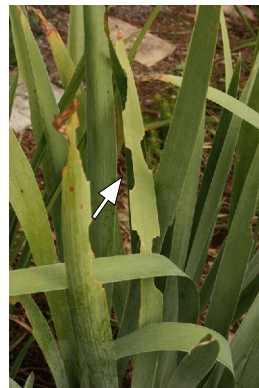
**Beneficial/Benign Aspects**–Feeding damage from most katydids and crickets is insignificant. Tree crickets are beneficial predators, feeding on aphids and other small insects.

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**Damage**–Both adults and nymphs have chewing mouthparts. They bite and remove tissue. The dreaded swarms of locusts in historic disasters were kinds of grasshoppers. There hasn't been a major swarm in North America for well over a century. Most crickets and katydids are omnivorous. Tree crickets can cause ovipositor damage to twigs similar to cicadas when laying their eggs. *(Click images to enlarge or orange text for more information.)*



Tree cricket ovipositors  
cut slits in twigs



Typical grasshopper  
feeding damage



Foliage eaten by  
grasshoppers

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**Comments**–Katydids are sometimes called "Long-Horned Grasshoppers."