



TREES & SHRUBS

Cicadas

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Quick Facts...

Cicadas are large insects that develop on the roots of trees and shrubs. Most are long-lived and may take two to five years to become full grown.

Male cicadas “sing” to attract females. Many produce loud, shrill buzzing noises.

Cicadas do little if any injury while feeding on plants. Adults sometimes cause injury when they insert eggs into twigs, producing splintering wounds.

Cicadas are the largest Colorado insects in the order Homoptera, which includes other sap-sucking groups such as leafhoppers, aphids and spittlebugs. Twenty-six species occur in the state. The largest, the “dog-day cicadas,” are stout-bodied insects over 2 inches long.

Although abundant, cicadas are far more often heard than seen. Males make a variety of sounds to attract females.

Most commonly heard are loud, often shrill, buzzing, sometimes with several individual insects synchronizing their songs. Other cicadas make clicking noises.

Despite their large size, cicadas cause little injury. The immature stages (nymphs) develop slowly underground. They feed on roots but cause no detectable harm to the plants. The greatest injury occurs when large numbers of certain cicadas, such as the Putnam’s cicada, insert eggs into stems of trees and shrubs. This egg laying injury can cause some twig dieback.

Cicadas are sometimes mistakenly called locusts, a term properly used to describe certain migratory grasshoppers. This error originated when early European settlers encountered large instances of periodical cicadas in the Northeast. As they had not previously seen cicada outbreaks, they likened them to the locusts described in the Bible.

Life History and Habits

Cicada nymphs develop underground, feeding on root sap of various trees and shrubs. The nymphs are generally pale brown, rather hunch-backed, and have stout forelegs they use to dig through soil. The life history of species found in Colorado is poorly understood. Development likely takes between two to five years to complete.

Periodical cicadas, *Magicicada* species, such as the 17-year and 13-year “locusts,” are the longest-lived cicadas. They emerge during synchronized periods, often in spectacular numbers, every 17th or 13th year, respectively. Periodical cicadas are largely restricted to areas east of the Mississippi River and do not occur in Colorado.

When full-grown, nymphs emerge from the soil. They crawl up a nearby plant or wall, and the nymphal skin splits along the back. The adults pull themselves from the old skin and hang from the plant for several hours, pumping blood to extend the wings. The new exoskeleton hardens and darkens rapidly and



Figure 1: Dog-day cicada.



Figure 2: Putnam's cicada.



Figure 3: Cicada killer wasp.

the insects then fly away, leaving behind their cast nymphal skins.

Male cicadas attract females by their characteristic songs. Most cicadas have a pair of tymbals or domed, drum-like organs on the sides of the abdomen. They alternately contract and release muscles to make the tymbals resonate. A large air sac in the abdomen with a thin exterior eardrum acts as an echo chamber that greatly amplifies the sound.

One group of common Colorado cicadas lack tymbals. Instead, they produce sounds by clicking together their wings, somewhat like certain grasshoppers and crickets.

Adults are present for about four to six weeks following emergence. After mating, the adult females begin to lay eggs in slits in the twigs of various hosts. Upon hatching, nymphs drop to the ground, burrow beneath the soil surface, and spend the next two to five years feeding on plant roots.

Natural Enemies of Cicadas

Cicadas have several natural enemies, many with unusual habits. Perhaps most spectacular are the cicada killer wasps (*Sphecius speciosus*) that look like huge yellowjackets and attack the large dog-day cicadas. Other hunting wasps attack smaller cicadas, using paralyzed cicadas to provision nests dug in soil.

Another insect enemy found in eastern Colorado is the large (approximately 1 inch) cedar beetle, *Sandalus niger*. These develop as parasites of cicada nymphs. Adults emerge in summer. Also, the Mississippi kite, a large predatory bird normally found along the Gulf Coast, has expanded its summer range into the Arkansas Valley, where it subsists almost entirely on cicadas.

Control

No effective controls for Colorado cicadas have been developed nor are any likely necessary. Insecticide control of other cicadas has been ineffective because adults are highly mobile and are present for several weeks. High value plants, particularly younger trees that are still getting established, may be protected by covering them with netting to exclude the adults.

Table 1: Some common cicadas of Colorado.

Common and scientific names	Comments
"Dog-day" cicadas <i>Tibicen dorsatus</i> , <i>T. dealbatus</i>	The largest species in Colorado, primarily found in the southeastern areas of the state. <i>T. dealbatus</i> , a native of forested areas along rivers, has adapted well to landscape plantings and has become common in many towns and cities, particularly along the Arkansas Valley. Cottonwood and maples are common hosts for the nymphs. The adult males produce a loud, shrill call during the midsummer "dog-days."
Putnam's cicada <i>Platypedia putnami</i>	The most common species statewide, it is particularly abundant in shrublands of Gambel oak or mountain mahogany or in pinyon/juniper habitat. However, it is also now found in irrigated landscapes. Some egg laying wounding can occur on plants such as maple, crabapple and honeylocust. Males make a soft clicking call, similar to that produced by striking together two coins.
Cactus dodger <i>Cacama valvata</i>	A large gray/black species associated with cholla cactus. Males produce a shrill, piercing song.
Mountain cicada <i>Okanagana bella</i>	A black and red species often common in montane areas of aspen intermixed with conifers. Males make a long, shrill song that often lasts one to two minutes.

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