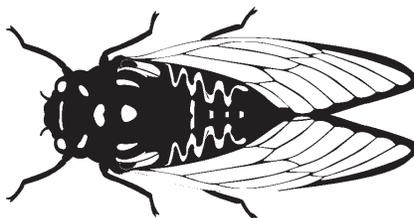


## Periodical Cicadas: "17 Year Locusts"

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Perhaps no other insects cause as much curiosity and wonder as do periodical cicadas. Their sudden appearance in late May or early June is dramatic and usually noisy as the males produce a seemingly endless whirring sound. Usually the "chorus" begins shortly after day-break and continues uninterrupted until evening. The insects mate within 1 week and females begin to deposit their eggs about 7 to 10 days after emergence.



The adult cicada is about 1 5/8 inches long. Most of the body is black. Its legs and eyes are reddish. Some of the wing veins in the nearly transparent wings are orange.

After 6 or 7 weeks, eggs deposited in twigs by female cicadas hatch and the tiny young (nymphs) drop to the ground, dig into the soil, and remain there for the next 17 years. Fortunately, cicadas are not especially destructive. They do not feed to any extent as adults. There is no stripping of foliage as with gypsy moth caterpillars. Injury to trees is caused by female cicadas as they insert their eggs in twigs. The twigs die from the egg-laying site to the branch tip (perhaps 1 foot or so). Thus leaves turn brown and the branch tip generally breaks off or "flags" at the egg-laying site. In most instances, this loss of branch tips amounts to "natural pruning". Small trees and shrubs may be protected by covering them with an open-weave cloth. The cloth should be put in place as cicadas appear and should remain for about 5 weeks.

Thus the stage is set. Following is a description (in somewhat more specific terms) of the life cycle, habits, and other interesting facts about the periodical cicada.

Using the blades of a curved, saw-like, egg-laying apparatus on the end of the abdomen, the female cicada punctures the bark of a twig and makes a pocket in the wood. In the pocket she lays 24 to 28 eggs in two rows. She then moves forward, cuts another pocket, and lays more eggs. This process continues until 5 to 20 pockets have been made in the twig. The pockets are placed close together in a straight row. Sometimes these rows form a continuous slit 2 or 3 inches long. Moving from one twig to another, a total of 400 to 600 eggs are deposited. Seventy to 80 species of trees, shrubs, and herbaceous plants are commonly used by cicadas for egg laying. Those which females prefer include oak, hickory, apple, peach, and grape.

After the nymphs enter the soil they burrow 18 to 24 inches into the ground in wooded or forest areas, while in apple orchards they feed 2 to 18 inches below the soil line. As many as 104 cicada nymphs have been found in 1 square foot of soil under apple trees. Severe decline of apple trees sometimes occurs in older orchards where high populations of cicadas exist.

The nymphs are fully grown after the 7th or 8th year, but continue to feed and develop until the spring of the 17th year. Several weeks before

\*deceased



emerging from the ground, the nymphs start to burrow upward. When they tunnel to about 1 inch beneath the surface, they stop and await the proper time to continue.

Under certain conditions, cicada nymphs construct small cones or “chimneys” of earth above the soil surface several weeks before emerging. The cones may protrude 2 or 3 inches above the ground and may be 1 or 2 inches in diameter. If the nymphs do not construct a cone, it is common to see the hole they make a few weeks before emergence. This hole is about 1/2-inch in diameter and extends well below the surface of the soil. In some areas, especially under trees, these holes may be numerous.

When the proper night arrives, the nymphs leave the ground in vast numbers and walk to upright objects. A tree is an ideal goal. If a tree is not within range, a bush, blade of grass, post, utility pole, or a similar object will do. The nymph secures a firm hold on the object, splits its nymphal skin along the middle of its back and works itself out. The transformation is completed in 1 hour or less. The newly emerged adult is soft and white. As the skin hardens it also darkens. In a few hours the cicada is fully mature and after mating the cycle is repeated.

For convenience of reference, emerging broods have been designated by Roman numerals. Numerals I through XVII are assigned to the 17-year broods and species. They are assigned as though a brood were to emerge each consecutive year. The system began with the 1893 brood (Brood I). The 1894 brood was Brood II, and so on. Thirteen-year species, found in the Southern States, are numbered XVIII through XXX. The habitats for all species overlap and there may be some gaps in both 17 and 13-year broods. For

example, 4 of the 17 possible 17-year broods are referred to as “doubtful,” “unimportant,” and “almost extinct.” Generally, brood survival depends on habitat survival. Forests, parks, estates, and areas undisturbed by construction (or soil and/or tree removal) usually retain their periodical cicada populations. However, cicada population density may vary from one emergence to another. Brood II and Brood X are the largest broods found in New Jersey. Affected areas may be determined by reviewing newspaper records in local libraries or by visiting with people who were living in these areas at the time.

Many interesting superstitions have evolved due to the usual spectacular emergence of periodical cicadas. American Indians thought the cicada’s periodical appearance had an evil significance. Early American colonists had never seen periodical cicadas so when cicadas appeared suddenly by the millions, they thought a “locust plague” had been visited upon them and thus the name “17-Year Locusts.”

Insecticide applications are usually not effective because new cicadas emerge every day and they can fly as far as 1/2 mile. In residential areas where cicadas have been previously abundant, postpone planting young shrubs and trees from spring until fall.

### EMERGENCE SCHEDULE

BROOD II	BROOD X
1996	2004
2013	2021
2030	2038