



## Periodical Cicadas Creating a Buzz In Mississippi Forests

Periodical cicadas, sometimes mistakenly called locusts, are making a long awaited emergence right now in the Magnolia State and surrounding region. Cicadas are members of the insect Order Hemiptera. They have piercing-sucking mouthparts that they use to feed on tree roots. They have relatively robust black and orange bodies, with 4 large clear wings and bright red eyes (Fig. 1).

Periodical cicadas are a wonderfully unique occurrence in nature, mostly because of their extended immature stage (nymphs) and synchronous emergence. The vast majority of their long lives is spent as nearly immobile nymphs living in solitude underground, attached to the hardwood roots on which they feed. In the South, they emerge 13 years later, crawl up the sides of trees and structures and shed their skins before flying off to mate. Further north in the midwest States, emergences are usually on 17-year cycles, likely because of lower temperatures and shorter growing seasons.

Although all 13- and 17-year periodical cicadas emerge on

either 13- or 17- year cycles, not all local populations emerge during the same year. These localized populations are called broods, and are distinguished by roman numerals. Three broods of 13- year cicadas occur in Mississippi. The brood currently emerging in Mississippi is brood XIX, and is arguably the largest brood emergence geographically, historically occurring in AL, AR, GA, IN, IL, KY, LA, MD, MO, MS, NC, OK, SC, TN, TX, VA. Two other broods have historically occurred in Mississippi. Brood XXII, a relatively localized brood occurring in extreme southwest MS and east central LA, is scheduled to emerge in Mississippi in 2014. Brood XXIII has historically occurred over a large portion of the Mississippi River corridor (AR, IL, IN, KY, LA, MO, MS, TN) and is scheduled to emerge in 2015. The next emergence after 2015 will be brood XIX in the year 2024. See [http://insects.ummz.lsa.umich.edu/fauna/michigan\\_cicadas/periodical/index.html](http://insects.ummz.lsa.umich.edu/fauna/michigan_cicadas/periodical/index.html) for more information and maps of all broods and their distributions. The actual current distribution of most broods is probably much

smaller than historical reports and some broods are completely extinct, due to decline in hardwood acreage and other stressors like logging and pesticides.

The exact mechanisms that allows millions of periodical cicadas to emerge at the same time over large areas are still somewhat unknown, although soil temperature seems to be an important factor. When larvae emerge, they leave many small round exit holes in the soil underneath the hardwood trees on which they developed. Huge populations of over a million cicadas per acre are sometimes reached, although typically numbers are much lower than that. Their high population densities and synchronous emergence are believed to be a strategy to protect themselves from predation. They have few other defenses...they are not poisonous, do not bite or sting, and are less likely to fly to avoid predators than their non periodical cousins. Many animals, both vertebrates and invertebrates, feed on the cicadas after they emerge, but the sheer numbers of cicadas satiate

predators before they can make any real impact on cicada populations.

The adults spend about 4 weeks enjoying their brief stint in the sunshine. Males make loud buzzing noises to attract mates. After mating, females use their ovipositors to make egg-laying slits in hardwood twigs where they lay up to 600 eggs each. After the eggs hatch, larvae drop to the ground where they burrow into the soil to find a root and begin their long wait to develop.

Periodical cicadas can sometimes cause physical damage to young trees or shrubs if too many lay eggs in their twigs. The most common type of damage is called "flagging", which is the browning and death of individual twigs and small branches. This is caused by the egg-laying galleries created by the female cicadas. Usually, this damage is only unsightly and does not kill the trees, however it can sometimes cause growth deformities or reduce growth. Some people recommend that orchard and nursery operations should avoid planting in the years preceding an emergence of periodical cicadas. Mature trees and shrubs usually survive dense emergences of cicadas without long-term detriment. The damage can appear significant

immediately after it occurs, but will usually be short-term on mature, healthy trees. Periodical cicadas are often too numerous to make application of pesticides practical. Except for damage to nursery and orchard seedlings which is usually minor (and perhaps occasional annoyance for some people due to their loud courtship songs), periodical cicadas are generally not considered to be pests.

For more information, contact your Mississippi Forestry Commission Local Office or Dr. John J. Riggins ([johnjriggins@gmail.com](mailto:johnjriggins@gmail.com)).



Figure 1: "An adult periodical cicada emerging from its shed larval skin. Photo by Bob Rabaglia, Maryland Department of Agriculture, Bugwood.org"