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INSECT ALERT

How to prepare for the 17 Year Emergence of the Periodical Cicada - Brood X

March, 2021

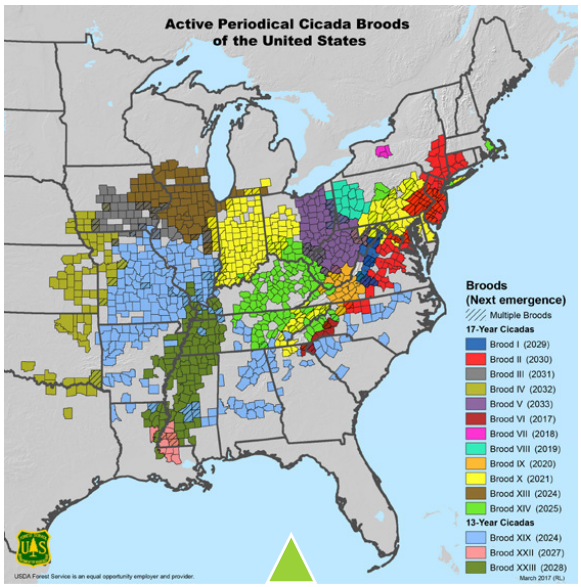
Periodical Cicadas

Periodical cicadas are grouped into broods based on the year of adult emergence. Most broods appear every 17 years, others appear every 13 years, and some overlap in the same year. Since each brood appears during a different year, adults emerge somewhere almost every year. Periodical cicadas are sometimes called 17-year locusts. However, "locust" is a misnomer because true locusts are grasshoppers, not cicadas.

Brood X

Brood X will emerge in 15 states and Washington D.C. in 2021, including most of Indiana. Numbers of cicadas will be highest along the Ohio River and in south central Indiana up to Martinsville. Northern Indiana will experience scattered emergence.

Brood X periodical cicadas last emerged in spring 2004 over large portions of Indiana. This brood is the largest that occurs in the state. Brood X consists of three separate species of periodical cicadas: Magicicada septendecim (L.), M. cassini (Fisher), and M. septendecula (Alexander and Moore).



(Forest Service map by A. M. Liebhold, M. J. Bohne, R. L. Lilja)

An adult periodical cicada rests on a utility pole during the Brood V emergence in West Virginia, 2016. (USFS photo by Sandra Clark)

The female may make a continuous slit up to 3 inches long while laying eggs. (USFS photo by Karen Felton)

A female lays 24 to 28 eggs in slits she makes in a twig. (USFS photo by Rick Turcotte)

After feeding underground for 17 years, nymphs crawl out, shed their skins and emerge as adults. (USFS photo by Heather Smith)

Appearance and Life Cycle

Adult periodical cicadas usually have red eyes (occasionally white, or rarely blue or marbled white and orange). Their dark bodies measure just over 1½ inches long. They are not capable of biting or stinging. Periodical cicadas should not be confused with annual (dog day) cicadas, which are larger, usually green with black eyes, and appear every summer in much smaller numbers.

Adults live for about 4 to 6 weeks during which their sole purpose is to mate and lay eggs. Males are responsible for the familiar droning, which is how they call for mates. Cicada "songs" are heard from early morning to late evening as long as adults are present.

The branch damage, or "flagging," associated with periodical cicadas results from females laying eggs in small twigs. A female cuts two parallel slits in a twig where she lays 24 to 28 eggs. Each female can lay over 600 eggs on multiple branches. Sometimes a continuous slit 2 to 3 inches long is formed as she slowly makes her way up a twig. The slits can cause breakage, or flagging, of the tips of the branches.

The eggs hatch in 6 weeks, and young cicadas, or nymphs, fall to the ground where they burrow into the soil and spend the next 17 years feeding on small roots, without causing significant damage. At the end of this time, usually in May and early June, nymphs crawl out of the soil and climb up tree trunks or other vertical objects where they shed their skins and emerge as adults.

Host Plants

Many deciduous trees (such as oak, apple, hickory, and dogwood) are preferred hosts; however, other woody plants (such as grapevines, junipers, and alders) have also been damaged during emergence of periodical cicadas.

Ecological Benefits

- Periodical cicadas are a native species and emergence is timed to evade and overwhelm predators.
- The cicadas provide increased food resources underground the year before a hatch and the year of emergence for many other wildlife species.
- Cicadas will be eaten by fish, turkeys, squirrels, birds, reptiles, amphibians, insects and arachnids.
- The trees in our forests and young seedlings have survived many generations with cicadas and healthy trees can easily survive the damage from egg laying and the nymphs feeding on the roots for 17 years.
- Although the immense number of cicadas can be a bit overwhelming, they are not hazardous to people or pets and they do not bite or sting.

Flagging damage in hemlock and American hornbeam. (Courtesy photo by William Oldland)

Flagging damage in oaks. (Courtesy photo by Chris Lawrence)

Managing and Reducing Damage

Knowing where and when periodical cicadas will emerge helps in reducing and managing the damage they may cause. The Forest Service has mapped the county location and year of emergence for 15 broods of active periodical cicadas in the United States (see map on page 1).

To manage damage on hardwood tree plantings:

- Avoid planting during the year of Brood X emergence, if possible and economical; however, damage in new plantations may be no worse than deer browse.
- If you plant bare root seedlings, establish them as early in the spring as site conditions allow so they can establish a good root system before cicada emergence.
- Although delaying planting until late June is sometimes recommended, the risk of tree mortality from drought is not worth the risk. It is better to establish seedling early and have some cicada damage than complete mortality from drought.
- Female cicadas prefer twigs about the size of a pencil (3/16 to 7/16 inch in diameter). If damage to a newly planted seedling occurs it should sprout back from the root collar.
- Cicada damage to tree plantings less than five years old may result in multiple leaders. Prune seedling for one dominant leader within two years of the cicada damage.
- If planting more expensive grafted seedlings, tree tubes with netting over the top may help protect your investment in grafted seedlings.

To manage damage on ornamental and yard trees:

- Healthy trees can withstand the egg laying damage caused by cicadas. The flagging that results from egg laying damage will fall off over time or can be pruned away.
- Prune ornamentals and trees lightly or not at all the winter before periodical cicadas emerge. Damaged twigs may be pruned the following winter.
- In heavily infested areas, if possible and economical, delay new plantings of woody ornamentals and trees until fall or spring after emergence to avoid damage.
- Protect small shade and ornamental trees by covering them with cheesecloth, finely woven netting, or tobacco shade cloth with mesh less than ½ inch. This covering physically prevents females from laying eggs in the twigs.
- Insecticide treatments for cicadas are often not effective and difficult to apply. If you are considering insecticide treatments refer to Purdue's Landscape and Ornamental publication E-47-W at https://extension.entm.purdue.edu/publications/E-47.pdf.

Complicating Factors

- A very wet spring that delays planting can result in more mortality from cicadas if tree roots are not well established.
- Spring or summer drought can amplify the impact of cicada damage.
- Large seedlings like black walnut, oaks, hickory and yellow poplar may experience more cicada damage.
- Young plantings next to mature woods may see more damage from cicadas moving out from the woods to the young trees.

This factsheet is adapted from a Pest Alert issued in May 2017 by the USDA Forest Service, NE Area State and Private Forestry. Publication number NA-PR-02-99.