Imminent emergence of 17-year cicada creates buzz at Yale Peabody Museum

Yale UniversityYale University

This spring will mark the return of the 17-year cicada, as nymphs of this common species emerge in late May — for the first time since 1996 — from colonies in forested regions in south-central Connecticut. The adult insects can be seen and heard throughout most of June.

In conjunction with this phenomenon, the Yale Peabody Museum of Natural History will present an exhibition offering an in-depth look at this unusual creature, including information on the biology, life cycle, and range of the noisy insect. “Return of the 17-Year Cicadas!” will feature live cicadas in a terrarium and video of the cicada emergence. Visitors will discover the differences between periodical cicadas and annual cicadas, and learn about the environmental effects of periodical cicadas.

“The Peabody hopes to continue to introduce new generations of budding entomologists to one of nature's most wondrous displays,” says Leonard Munstermann, head curator of entomology at the museum. Munstermann curated the exhibit, which will be on view from May 1 through Sept. 3. Lending expertise to the project is Chris T. Maier, Peabody curatorial affiliate in the Department of Entomology and an entomologist with the Connecticut Agricultural Experiment Station.

The Peabody invites the public to help study 17-year cicadas by submitting their 2013 observations to www.magicicada.org [1], which runs several citizen-science projects to map the locations of different colonies and help to preserve them. This website is affiliated with a worldwide cicada research program, centered at the University of Connecticut and headed by UConn professor Chris Simon.

Biology and life cycle

Periodical cicadas exist exclusively in the eastern United States. The 17-year cicadas are members of the genus *Magicicada.* The species of periodical cicada that will emerge in Connecticut — *Magicicada septendecim* — spends 17 years developing underground as a nymph, feeding on sap from tree roots. For a brief period in the late spring of the 17th year, the nymphs of the entire brood emerge around sunset, climb up tree trunks, and transform into winged adults that have black bodies with orange trim, ruby-like eyes, and stiff glossy wings.

Within a week, males begin to sing a high-pitched song to attract females. After mating, the females carve tiny slits in small tree branches and lay their eggs. The adult cicadas of this species live no longer than a few weeks, dying soon after mating and laying eggs. When the eggs hatch later in summer, the tiny nymphs drop and burrow into the soil to resume another 17-year cycle.

By emerging in enormous numbers at the same time, *Magicicada* populations greatly reduce both the odds of an individual succumbing to a predator, and the possibility of predators consuming all the available prey, Munstermann explains. A decline in numbers, which has been occurring in Connecticut, makes them more vulnerable to predators, he adds.

The 17-year cicadas are harmless to humans and animals, notes the Yale scientist. They neither sting nor bite. However, adult females can cause noticeable injury to young trees and shrubs. Fruit trees are particularly vulnerable but can be protected with fine netting or cheesecloth tied securely at the base to prevent the females from slitting the bark and laying eggs. Spraying is not recommended, as it is not effective in controlling periodical cicadas.

Laying eggs in mature trees can be beneficial, however, serving as a natural pruning mechanism. Their emergence from the ground turns over large amounts of soil; and after they die their decaying bodies contribute nitrogen and other nutrients to the soil. In addition they are a delicacy, adds Munstermann, and enjoyed in the cuisines of many cultures worldwide.

Peabody Cicada Collection and historical involvement

Yale University has a long history of involvement in 17-year cicada emergences. Adult cicadas and nymphs were collected and preserved in New Haven in 1843, and again in 1860. The 1843 specimens at Yale are thought to be the oldest specimens of *Magicicada septendencim* in any museum.

The late Charles L. Remington, appointed in 1948 as the Peabody's first curator of entomology, conducted extensive research on the species and closely monitored the 17-year cicada emergences around New Haven. In 1996 in collaboration with the South Central Connecticut Regional Water Authority, Remington helped establish the world's first periodical cicada preserve, which is located in Hamden, Connecticut. A prolific field biologist, Remington built the Peabody's entomology collection to its current size of more than 1 million specimens.

Events being presented in conjunction with the exhibit include "Bug Music: A Celebration of the Return of the 17-Year Cicadas" on May 1. This two-part program begins at 4 p.m. with "Marvelous *Magicicada*: The World of Our Most Enigmatic Insect," a lecture by John Cooley, University of Connecticut scientist and periodical cicada expert. David Rothenberg from the New Jersey Institute of Technology will present a "Bug Music" concert in the museum's Great Hall at 5:15 p.m. Rothenberg is known for his innovative use of animal song and sound in his music. The program will be followed by a reception.

For information about hours and admission, visit the Yale Peabody Museum website.

Links:
[1] http://www.magicicada.org