

Eastern US to be overrun by billions of cicadas (Update)

May 6 2013, by Seth Borenstein



This photo provided by the University of Connecticut, shows a cicada in Pipestem State Park in West Virginia on May 27, 2003. Any day now, cicadas with bulging red eyes will creep out of the ground after 17 years and overrun the East Coast with the awesome power of numbers. Big numbers. Billions. Maybe even a trillion. For a few buggy weeks, residents from North Carolina to Connecticut will be outnumbered by 600 to 1. Maybe more. And the invaders

will be loud. A chorus of buzzing male cicadas can rival a jet engine.(AP Photo/University of Connecticut, Chirs Simon)

Any day now, billions of cicadas with bulging red eyes will crawl out of the earth after 17 years underground and overrun the East Coast. The insects will arrive in such numbers that people in the southern state of North Carolina to Connecticut in the northeast will be outnumbered roughly 600-to-1. Maybe more.

Scientists even have a horror-movie name for the infestation: Brood II. But as ominous as that sounds, the insects are harmless. They won't hurt you or other animals. At worst, they might damage a few saplings or young shrubs. Mostly they will blanket certain pockets of the region, though lots of people won't ever see them.

"It's not like these hordes of cicadas suck blood or zombify people," says May Berenbaum, a University of Illinois entomologist.

They're looking for just one thing: sex. And they've been waiting quite a long time.

Since 1996, this group of 1-inch (25-millimeter) bugs, in wingless nymph form, has been a few feet (a meter) underground, sucking on tree roots and biding their time. They will emerge only when the ground temperature reaches precisely 64 degrees (almost 18 Celsius). After a few weeks up in the trees, they will die and their offspring will go underground, not to return until 2030.

"It's just an amazing accomplishment," Berenbaum says. "How can anyone not be impressed?"

And they will make a big racket, too. The noise all the male cicadas make when they sing for sex can drown out your own thoughts, and maybe even rival a rock concert. In 2004, Gene Kritsky, an entomologist at the College of Mount St. Joseph in Cincinnati, measured cicadas at 94 decibels, saying it was so loud "you don't hear planes flying overhead."



A box of preserved cicadas, including emerging insects and molted exoskeletons, in storage at the Smithsonian Institution's Museum Support Center in Camp Springs, Md. on Tuesday, April 23, 2013. A brood of cicadas are expected to emerge this spring in the Washington area. (AP Photo/Jacquelyn Martin)

There are ordinary cicadas that come out every year around the world, but these are different. They're called magicicadas—as in magic—and are red-eyed. And these magicicadas are seen only in the eastern half of the United States, nowhere else in the world.

There are 15 U.S. broods that emerge every 13 or 17 years, so that nearly every year, some place is overrun. Last year it was a small area, mostly around the Blue Ridge Mountains of Virginia, West Virginia and Tennessee. Next year, two places get hit: Iowa into Illinois and Missouri; and Louisiana and Mississippi. And it's possible to live in these locations and actually never see them.

This year's invasion, Brood II, is one of the bigger ones. Several experts say that they really don't have a handle on how many cicadas are lurking underground but that 30 billion seems like a good estimate. At the Smithsonian Institution, researcher Gary Hevel thinks it may be more like 1 trillion.

Even if it's merely 30 billion, if they were lined up head to tail, they would reach the moon and back.



Gary Hevel, a research collaborator with the Dept. of Entomology at the National Museum of Natural History, holds up a preserved cicadas, a brood of

which are expected to emerge this spring in the Washington area, at the Smithsonian Institution's Museum Support Center in Camp Springs, Md. on Tuesday, April 23, 2013. (AP Photo/Jacquelyn Martin)

"There will be some places where it's wall-to-wall cicadas," says University of Maryland entomologist Mike Raupp.

Strength in numbers is the key to cicada survival: There are so many of them that the birds can't possibly eat them all, and those that are left over are free to multiply, Raupp says.

But why only every 13 or 17 years? Some scientists think they come out in these odd cycles so that predators can't match the timing and be waiting for them in huge numbers. Another theory is that the unusual cycles ensure that different broods don't compete with each other much.

And there's the mystery of just how these bugs know it's been 17 years and time to come out, not 15 or 16 years.

"These guys have evolved several mathematically clever tricks," Raupp says. "These guys are geniuses with little tiny brains."

Past cicada invasions have seen as many as 1.5 million bugs per acre. Of course, most places along the East Coast won't be so swamped, and some places, especially in cities, may see zero, says Chris Simon of the University of Connecticut. For example, Staten Island gets this brood of cicadas, but the rest of New York City and Long Island don't, she says. The cicadas also live beneath the metro areas of Philadelphia, Baltimore and Washington.



Gary Hevel, a research collaborator with the Dept. of Entomology at the National Museum of Natural History, opens a case of preserved cicadas, a brood of which are expected to emerge this spring in the Washington area, from storage at the Smithsonian Institution's Museum Support Center in Camp Springs, Md. on Tuesday, April 23, 2013. (AP Photo/Jacquelyn Martin)

While they stay underground, the bugs aren't asleep. As some of the world's longest-lived insects, they go through different growth stages and molt four times before ever getting to the surface. They feed on a tree fluid called xylem. Then they go aboveground, where they molt, leaving behind a crusty brown shell, and grow a half-inch bigger.

The timing of when they first come out depends purely on ground temperature. That means early May for southern areas and late May or even June for northern areas.

The males come out first—think of it as getting to the singles bar early,

Raupp says. They come out first as nymphs, which are essentially wingless and silent juveniles, climb on to tree branches and molt one last time, becoming adult winged cicadas. They perch on tree branches and sing, individually or in a chorus. Then when a female comes close, the males change their song, they do a dance and mate, he explained.

The males keep mating ("That's what puts the 'cad' in 'cicada,'" Raupp jokes) and eventually the female lays 600 or so eggs on the tip of a branch. The offspring then dive-bomb out of the trees, bounce off the ground and eventually burrow into the earth, he says.

"It's a treacherous, precarious life," Raupp says. "But somehow they make it work."

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