

## Brood X

They waited underground for years. Deep in the dirt, they went through five stages of development. Then, in the seventeenth spring, when the ground temperature reached 64 degrees, they emerged.

Billions of cicadas enveloped the Washington, DC area in 2021. They covered the trees and bushes. Their sounds took over the air. They were Brood X, the largest group of periodical cicadas in the country.

Periodical cicadas come out in huge numbers at certain yearly intervals. Brood X emerges every seventeen years. Other broods emerge every thirteen years. Periodical cicadas are black with orange legs. They have two large red eyes with three small, dark eyes in between. This coloring is different from annual cicadas, which are green. Annual cicadas come out every year in much smaller numbers.

Brood X cicadas emerge in large quantities for a reason. They are relying on a survival strategy called prey satiation. There are so many of them that the predators that eat cicadas can get their fill, and there will still be enough cicadas left over to breed.

Common predators for Brood X include birds, raccoons, foxes, mice, frogs, turtles, and fish. Sometimes pet dogs will eat them as well. The huge quantity of cicadas provides a feast for predators. Some predators may even

prepare for their arrival. For example, research shows that local birds will lay more eggs the year that the cicadas are coming.

When Brood X emerged in 2021, they were almost adults. As soon as they came out of the soil, they looked for a place to molt and finish their transformation to their adult bodies. The freshly molted cicadas hid in trees and other vegetation for several days while their new exoskeletons hardened. They left their old exoskeletons behind – bug shaped shells to be found by curious children and animals.

Brood X rose from the ground in waves for about a month. After they molted, they mated and died. Just before their death, the females each laid about five hundred eggs in the trees. About six weeks later, the eggs hatched and tiny nymphs dropped to the ground. They burrowed deep into the soil to begin the cycle again.

It was hard not to notice Brood X when they emerged. Not only were they seen everywhere, they were heard. To sing, cicadas use an organ called the tympanic membrane, located near the base of their wings. The vibrations of this membrane make the sound, which is the loudest in the insect world. Only the males sing in this way. They call to attract females, and the females reply by clicking their wings.

Other than being noisy, and perhaps being a nuisance, Brood X did not cause a problem in 2021. They did not bite or sting, and they were not toxic.



They were a miracle of nature that lasted a relatively short time. And they'll be back...in 2038.



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NAME: \_\_\_\_\_ DATE: \_\_\_\_\_

1. What color are periodical cicadas?
  - a. Green
  - b. Red
  - c. Orange
  - d. Black
  
2. Which type of cicadas sing?
  - a. Periodical
  - b. Annual
  - c. Male
  - d. Female
  
3. Which animal is NOT mentioned as a predator for Brood X?
  - a. Fish
  - b. Bird
  - c. Toad
  - d. Dog
  
4. Why do you think birds lay more eggs during the years that cicadas emerge?
  - a. Because they know they will have a larger food supply
  - b. Because of prey satiation
  - c. Because cicadas are not toxic
  - d. Because cicadas molt

Instructions for teachers:

These questions can be used to assess understanding of the reading passage.

The item in bold is the correct answer for each question.

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