

Here They Come!

By Paulette Trotsky, Found My Voice, Inc.

2024 is a very special year for the PERIODIC (occasional) type of insect that will be making its debut soon in the BILLIONS. A CICADA brood is a group of periodical cicadas that emerge in a given year and there can be multiple species in each brood. There are 12 different BROODS of cicadas with a 17 year life cycle and 3 different broods with a 13 year life cycle. Each brood is assigned a ROMAN numeral for identification purposes. In addition to these long cycled cicadas, Illinois also has ANNUAL (yearly) cicadas called DOG-DAY cicadas that are slightly different.

This year, in Illinois, Brood XIII (13) is a group of periodical cicadas that emerge every 17 years in the Northern half of the state. The last three times we saw this brood was 2007, 1990 and 1973. Brood XIII will be emerging in 2024. In addition, we will be seeing Brood XIX (19) at the same time in 2024 as well. Brood XIX emerges every 13 years in the Southern half of Illinois so the last time we saw this group was 2011. The SIMULTANEOUS emergence of these 2 Broods is the first time since 1803 and it will not happen again until 2245.

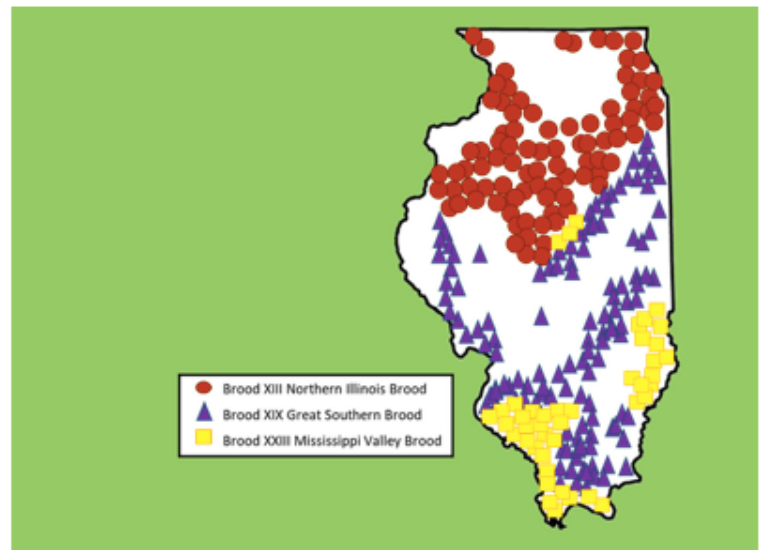


Fig. 2. The map shows the three broods that are relevant for 2024 emergence. Photo: Modified from Simon et al. 2022

SPELL: PERIODIC ANNUAL EMERGE

What type of insect are we talking about today? CICADAS

What are the 2 different types of cicadas? PERIODIC, ANNUAL

What is the nickname for annual cicadas? DOG-DAY

A group of cicadas is called a _____. BROOD

Cicadas are classified by what type of numbering system? ROMAN NUMERALS or ROMAN NUMBERS

17 year cicadas are found in what part of Illinois? NORTHERN

When was the last time we saw the 17 year cicada? 2007

Southern Illinois sees what periodic group of cicadas? 13 YEAR

When was the last time we saw the 13 year cicada? 2011

The last time that both the 17 year broods and 13 year broods came out at the same time was what year? 1803

This rare phenomenon will not happen again after 2024 until what year? 2245

How many years will it be until this combination of broods happens again? $2245 - 2024 = 221$ YEARS

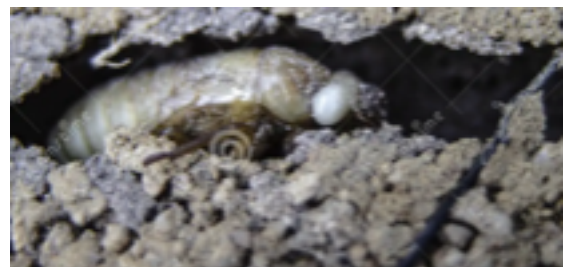
How many years has it been since both broods appeared in the past? $2024 - 1803 = 221$ YEARS

Based on when you were born, how many times have you seen a PERIODIC BROOD emerge? 0, 1, 2, 3 or 4 (correct for most clients)

Both species of cicadas are large-bodied, have COMPOUND red eyes and are sometimes mistaken for LOCUSTS.



Locusts are a type of GRASSHOPPER and cicadas are related to CRICKETS! Periodical cicadas are among the longest living insects on the planet. Only Queen Termites and Splendour beetles outlive cicadas by decades. Cicadas spend most of their lives living underground feeding on tree roots and sap.



When it is their year to emerge, they wait for the soil to warm up to be around 64 degrees Fahrenheit, 8 inches below the surface. This usually happens in late May or early June. The NYMPHS (an immature insect that does not change much as it grows) typically emerge in the evening hours and climb up trees or other objects and MOLT (shed to make way for new growth) leaving behind their EXOSKELETON (rigid external body covering).

SPELL: LOCUST GRASSHOPPER OBJECT

Cicadas are in the same family as what other insect? CRICKETS

Cicadas are among the longest living _____ on the planet?
INSECTS

There are only a few insects that have longer life span than the cicada.
Name one. QUEEN TERMITE, SPLENDOR BEETLE

What do cicadas eat? TREE ROOTS, SAP

An immature insect that does not change much as it grows is called a what? NYMPH

What time of day do cicadas start to emerge from underground? EVENING

What months are you most likely going to see nymphs emerge in Illinois?
MAY or JUNE

What temperature does the soil need to be 8" below the surface for cicadas to emerge? 64 DEGREES FAHRENHEIT

After emerging from the ground, what do the nymphs do next? CRAWL UP A TREE OR AN OBJECT

What is an exoskeleton? RIGID EXTERNAL BODY COVERING

What is it called to lose your exoskeleton? MOLT

Name one way that you can describe a cicada. LARGE BODIED, COMPOUND EYES, LONG LIFE CYCLE, LIVE UNDERGROUND, EXOSKELETON, etc.

When the adult cicada emerge, they are white with a soft-bodied texture. They darken and HARDEN overnight. Periodical cicadas are around $\frac{3}{4}$ to $1\frac{1}{2}$ inches long. The Illinois cicadas tend to be dark brown and black on top with lighter reddish-brown patterns at the wing bases. Compound eyes are red with orange major veins on the MEMBRANOUS (thin, pliable and somewhat transparent) wings. Adult periodical cicadas feed on woody plants (trees, shrubs and vines) however, most of their time is spent on the ground reproducing.



SPELL: ADULT DARKEN WINGS

When the adult emerges, what color is their body? WHITE

How would you describe the texture of newly molted adult cicada? SOFT, SOFT-BODIED

What 2 things happens to the cicada body overnight? DARKEN, HARDEN

What does membranous mean? THIN, PLIABLE, SOMEWHAT TRANSPARENT

What body part of an adult cicada is membranous? WINGS

What colors do the Illinois cicadas tend to be? DARK BROWN AND BLACK ON TOP WITH LIGHTER REDDISH-BROWN PATTERS

What color are the compound eyes of the cicada? RED

What do the adult cicadas eat? WOODY PLANTS

Touch the photo of the newly emerged cicada.



Have no fear, cicadas do not pose any type of threat to humans or pets. Cicadas do not bite or sting and they are not poisonous. Cicadas are also not known to carry any diseases. However, they may scare you or your pets when you see or hear them. Cicadas are very noisy with decibel levels to be known to be as loud as a lawn mower, motorcycle or farm equipment. According to the

National Institutes on Health, the buzzing sound of male periodical cicadas can reach over 90 decibels and some scientists say that they are the loudest insects in the world! Each species of cicada has a distinctive song that they produce. If the sound bothers you, you may want to wear headphones or ear plugs while they are above ground. The inconvenience will only last about a month.

Local veterinarians say that if your dog eats a cicada, do not instantly panic. The insect itself will not harm you or your pet. However, if your dog eats too many exoskeletons off the ground, they may have gastrointestinal distress (upset stomach) or blockages that can be serious depending on the size of your pet. If at all possible keep your pets away from the cicadas. If you see your pet in distress, call your veterinarian.

Spell: POSE DISEASE MOTORCYCLE

Cicadas do not pose any type of _____ to you or your pets.
THREAT

Name one thing that cicadas do not do _____. BITE, STING,
CARRY DISEASE

Cicadas are very _____. NOISY

The buzzing sound of a cicada can be over how many decibels? 90
DECIBELS

Each species of cicada has a specific and distinctive _____ to attract females in their brood. SONG

How long will you see and hear the cicadas? ABOUT A MONTH, 1 MONTH, MONTH, 30 days

What is something that you can do if the cicada noise bothers you? STAY INSIDE YOUR HOUSE, WEAR HEADPHONES, WEAR EAR PLUGS, etc

If your pet eats one cicada they will not be harmed, but they may get _____. GASTROINTESTINAL DISTRESS, UPSET STOMACH

Eating too many exoskeletons can cause _____ for some animals that may or not be serious. BLOCKAGES

If you see your pet in distress from eating too many cicadas, call who? VETERINARIAN

Male cicadas start singing 4 or 5 days after they emerge from the ground. The males gather in trees and start singing together to ATTRACT females to mate with to restart the life cycle. Male cicadas use drum-like structures on their abdomen called TYMBALS (organ that vibrates to make sound) to create the loud, high-pitched buzz which attracts female companions. Female cicadas respond with a quick FLICK of their wings together, but they lack the tymbals, so they do not make a buzzing sound like their male counterparts.



Tymbals are on each side of the male cicadas body

Spell: GROUND TOGETHER QUICK

What type of cicada starting singing 4 or 5 days after they emerge from the ground? MALE

Why do they sing? ATTRACT A FEMALE FOR MATING

What do male cicadas use to sing? TYMBAL

What is a tymbal? ORGAN THAT VIBRATES TO MAKE SOUND

How do the females reply to the song? QUICK FLICK OF THEIR WINGS

Why don't the female cicadas sing? THEY DON'T HAVE THE TYMBAL ORGAN

Once the females have eggs to lay, they find branches on the tree that are about as thick as a pencil. They then cut open the branches with their special body part called an OVIPOSITOR and start laying eggs. Each cut will contain 10-20 eggs before she moves onto a new location on the branch and/or tree. In total she will lay 500-600 eggs in all. The cutting of the branch with the ovipositor does SCAR the tree in those areas where she lays the eggs and this is called FLAGGING. Flagging will not kill healthy mature trees, but immature trees and newly planted trees are subject to being killed by the entire process.

Spell: LOCATIOn MOVES HEALTHY

How many eggs can a single female cicada lay in a season? 500-600 EGGS

What is the name of the cicada egg laying organ? OVIPOSITOR

The ovipositor will _____ the branch and _____ 10-20 eggs at one time. CUT, LAY

If a female moves positions on the branch after laying 10-20 eggs and she lays a total of 500-600 eggs, how many cuts of the tree will she approximately make in a season? BETWEEN 20 to 60 CUTS, CAN VARY
 $500 / 10 = 50$ CUTS, $500 / 20 = 25$ CUTS, $600 / 10 = 60$ CUTS, $600 / 20 = 30$ CUTS

The cutting of the branch makes a _____ on the branch. SCAR

This entire process is called _____. FLAGGING

Flagging will not kill _____ trees. MATURE

Immature trees or newly planted trees could be in _____.
DANGER, JEOPARDY, KILLED

Annual or dog-day cicadas appear every summer, usually July through September in Illinois. It typically takes 2 to 5 years to complete their life cycle and they have overlapping generations each year. Annual cicadas are not SYNCHRONIZED like the periodical cicadas.

There are many species of annual cicadas. Dog-day cicadas emerge from the soil during the high heat of the summer which many call the “dog days of summer”. They are also known as HARVEST FLIES, and that name came about because various crops were being harvested at the same time as they are emerging.

Dog-day cicadas look different in appearance. Annual cicadas are bigger compared to the periodic cicadas at 1½ to 2½ inches long and have a green and brown pattern to green and black pattern with a primarily white underside.



Spell: ANNUAL CROPS HEAT

Annual cicadas come out during the heat of what months in Illinois? JULY TO SEPTEMBER

Why do they have the name Dog Day cicadas? THEY COME OUT IN THE HIGH SUMMER HEAT MONTHS ALSO KNOWN AS “DOG DAYS OF SUMMER”



What is another nickname that annual cicadas have besides Dog-Days? HARVEST FLIES

Why are they called harvest flies? BECAUSE THEY EMERGE WHILE CROPS ARE BEING HARVESTED

The life cycle of annual cicadas can be anywhere from _____ to _____ years. 2 TO 5 YEARS

Annual cicadas are not _____ to emerge like periodic cicadas. SYNCHRONIZED

Annual cicadas are _____ than periodic cicadas. BIGGER

Annual cicadas are usually _____ and _____ with a _____ underbelly. GREEN, BROWN, WHITE

Not only are cicadas not dangerous or poisonous to humans and animals, but some individuals eat cicadas. You can even find COOKBOOKS online to learn how to cook this insect CUISINE (food cooked in a certain style or way). However, if you are ALLERGIC to shellfish, it is recommended that you do not eat cicadas because they are related to shrimp and lobster. In some parts of the world, cicadas are considered to be a good protein source and a DELICACY (something pleasing to eat that is considered rare or luxurious) for Native American tribes, Australians, New Guinea and Japan residents.

Spell: DANGEROUS POISONOUS ONLINE

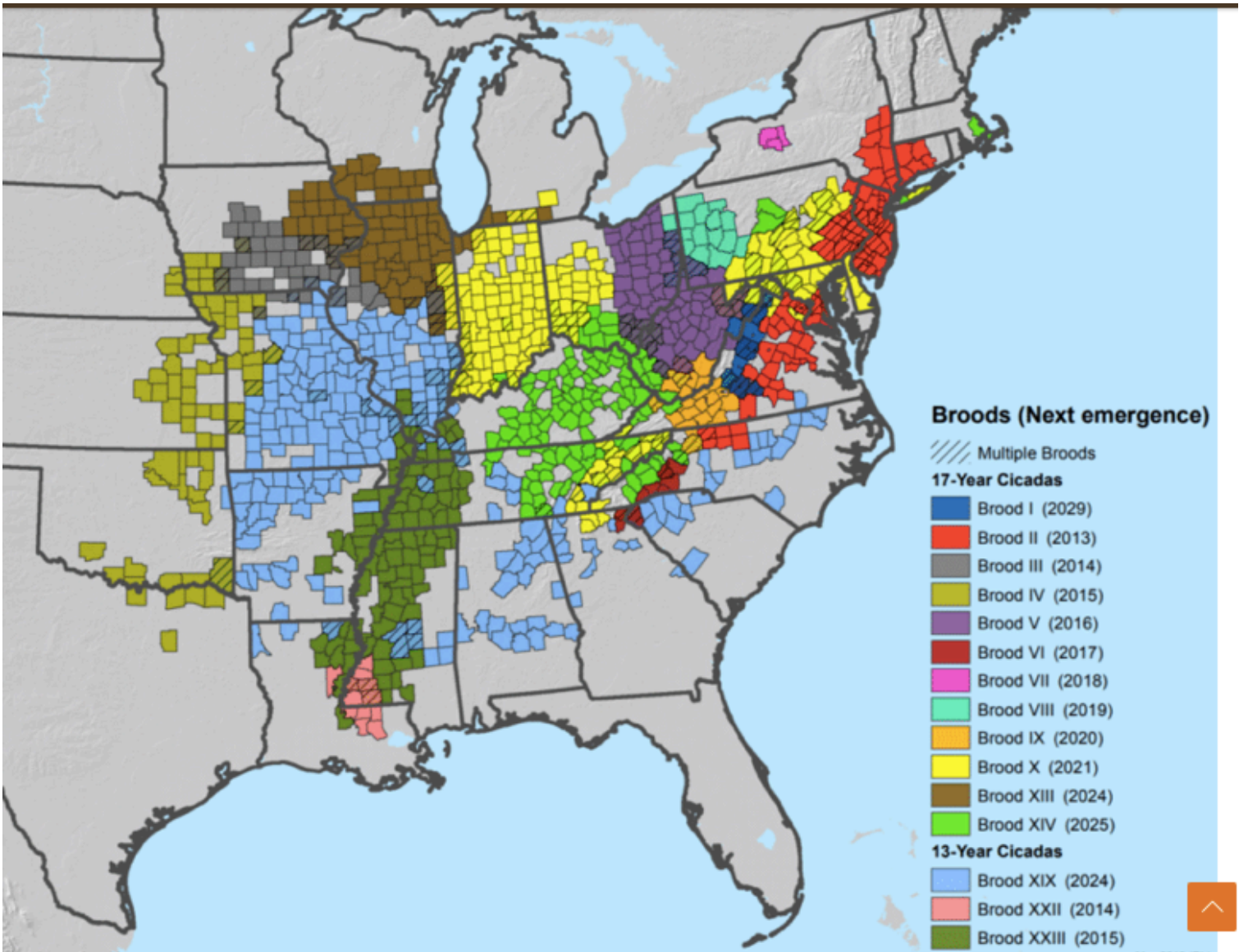
Who should NOT eat cicadas? THOSE ALLERGIC TO SHELLFISH

Something pleasing to eat that is considered rare or luxurious is called a _____. DELICACY

How do you feel about eating insects in general and why?

Would you cook and eat cicadas?

How do you feel about the Billions of Cicadas about to embark on our area in the very near future?





Mating Calls

Male adult cicadas sing mating songs and females respond flicking their wings



Mate

A male and female cicada mate



Lay eggs

The female lays eggs in a groove she has etched in the bark of a tree limb

Nymphs hatch

Cicada nymphs hatch from the eggs, briefly feed on sap then drop from the tree to the ground and dig down

Cicada Lifecycle



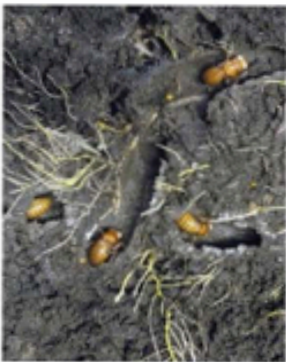
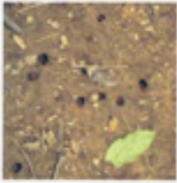
Molt Nymph Exoskeleton

On the nearest vertical surface, nymphs molt into the winged adult form



Nymphs Emerge

Using internal clocks and thermometers, nymphs emerge from the ground



Nymphs tunnel & feed

Nymphs tunnel underground looking for and feeding on plant roots; they spend 2-17 years doing this depending on species

Resources:

- <https://extension.illinois.edu/insects/cicadas>
- <https://www.reconnectwithnature.org/news-events/the-buzz/whats-the-difference-cicada-vs-locust/>
- www.merriam-webster.com
- <https://en.m.wikipedia.org>
- [google.com/cicadas as food](https://www.google.com/search?q=cicadas+as+food)
- <https://naturalhistory.si.edu/sites/default/files/media/file/cicada-life-cycle-infographic-handout.pdf>
- Cooley, John. 2017. "General Periodical Cicada Information I Cicadas." Cicadas.uconn.edu. 16 February 2017. <https://cicadas.uconn.edu>.
- Hughson, S. (2024). "Periodical cicadas of brood XIII and brood XIX emerge at same time!" Pesticide News. Illinois Extension. 9 February 2024. <https://extension.illinois.edu/blogs/pesticide-news/2024-02-09-periodical-cicadas-brood-xiii-and-brood-xix-emerge-same-time>
- Kritsky, Gene. 2024. *A Tale of Two Broods: The 2024 Emergence of Periodical Cicada Broods XIII and XIX*. Columbus, OH: Ohio Biological Survey.
- Kirtsky, Gene. 2004. *Periodical Cicadas the Plague and the Puzzle*. Indiana Academy of Science.
- Simon, C., J. R. Cooley, R. Karban, and T. Sota. (2022). Advances in the Evolution and Ecology of 13- and 17-Year Periodical Cicadas. *Annual Review of Entomology*, 67(1), 457-482. <https://doi.org/10.1146/annurev-ento-072121-061108>
- Wahle, E. (2024). "Considering eating a periodical cicada?" Commercial Fruity and Vegetable Growers. Illinois Extension. 20 February 2024. <https://extension.illinois.edu/blogs/commercial-fruit-and-vegetable-growers/2024-02-20-considering-eating-periodical-cicada>
- Yoshimura, Jin. 1997. "The Evolutionary Origins of Periodical Cicadas during Ice Ages." *The American Naturalist* 149 (1): 112–24. <https://doi.org/10.1086/285981>.
- Additional resource sites: [Cicada Mania](#), [Cicada Safari](#)