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SHORTER CONTRIBUTIONS

OBSERVATIONS OF THE CICADA EMERGENCE IN 2024

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During the spring and early summer 2024, periodical cicadas, which included Brood XIX, the 13-year cicada, emerged in portions of Eastern United States, according to the USDA Forest Service map (Fig. 1). The emergence of Brood XIX was predicted to occur in eastern Virginia in the counties of Caroline, Gloucester, Halifax, James City, King & Queen, King William, Middlesex, New Kent, and York according to Cicada Mania (2024). However, their stated locations were incorrect. Thousands of *Magicicada neotredecim* Marshall & Cooley, 2000 of Brood XIX emerged in Eastern Hanover County and were located as far west as the eastern edge of U.S. Route 301.

The emergence in Hanover County began on April 9, 2024, at 37.667N -77.299W. The emergence continued for four weeks at this location, with new adults appearing daily. The daily temperature was consistent each day, rainfall quantity in April was 3.3 inches. No reason that might have delayed some individuals from emerging could be determined, as lingering cicadas might be described as “stragglers.” This continuous emergence versus one mass emergence within one week did not occur, thus as extended emergences occurred.

It was observed that pockets of emergences occurred. For example, in one patch of the landscape the cicada adults would appear, but in an adjacent patch in close proximity, no adults emerged. This did seem unlikely especially when speciation of trees in the areas devoid of cicada adults had the same trees as other sites where the cicadas appeared. No sound reason for this could be determined.

The effect of tree specialization for cicadas has been studied. Perkovich & Ward (2023) considered the use of tree species in the Appalachian Forest. This study stated that emergence in an oak forest was the most common, indicating a preference for *Quercus* Linnaeus, 1707 by the larvae for feeding and eventually ovipositing by the adult females. This study mentioned that beech trees, *Fagus grandiflora* Ehrhart, 1742 were sometimes correlated with cicada emergence. The Perkovich & Ward (2023) study found that there was a negative correlation between tree size and

cicada abundance. However, in this Hanover study area, over two hundred emergence holes appeared under the two fully grown beech trees (Fig. 2), with 15 cicada tunnels opening in a one-meter square location. The size of the tree did not seem to have a negative impact on abundance of cicadas.

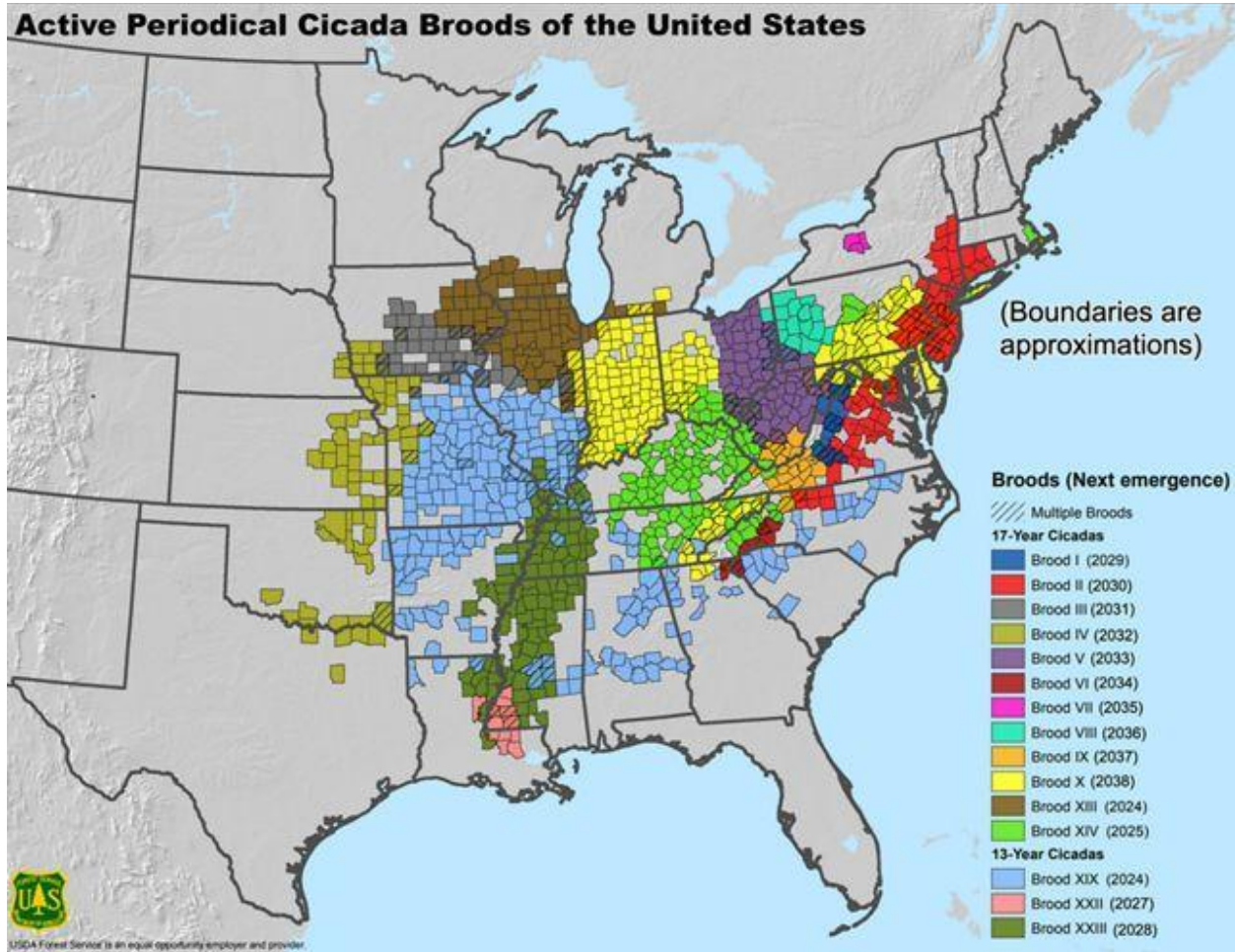


Figure 1. USDA Forest Service map of cicada emergence and broods (Liebhold et al., 2013).

Clay et al. (2009) in a study in Southern Indiana stated that no cicadas were found in the vicinity of beech trees for Brood XXIII. This study in Hanover County Virginia, in 2024, did find an abundance of cicada associated with *F. grandiflora*.

One other observation might be included. The abundance of cicadas as food for omnivorous local birds was considered. It was noted that such local songbirds did not feed on available bird seed mix provided at this study location during this period. An assumption might be made that the massive emergence of cicadas provided an abundance of insects for those birds to consume, and the feeding of available bird seed mix diminished during April 2024. Numerous local photographers captured evidence of owls and other bird species with cicadas in their mouths. A nesting eastern bluebird, *Sialia sialis* (Linnaeus, 1758) pair was observed in the study area, a first for this species at this study location. No correlation with the cicada's emergence can be made, but it might be plausible that the cicada would provide a high protein source for these birds.



Figure 2. Cicada nymphs emergence tunnels in Eastern Hanover County, April 2024.

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