

THE EMERGENCE OF THE PERIODICAL CICADA (BROOD XXIII)
IN ILLINOIS IN 1976 (HOMOPTERA: CICADIDAE)

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ABSTRACT

The distribution of the 1976 emergence of Marlatt's brood XXIII in Illinois is presented. The history of this brood is examined and explanations of its present distribution are discussed.

In 1976 Illinois witnessed the emergence of the lower Mississippi Valley Brood of the periodical cicada or Marlatt's XXIII. The emergence occurred in three discrete areas of the state as seen in figure 1. Records were obtained from May 21 in Williamson Co. to June 19 in Dewitt Co. County records include one to several collections from Pulaski Co., Alexander Co., Union Co., Johnson Co., Williamson Co., Jackson Co., Randolph Co., Washington Co., Wabash Co., Lawrence Co., Crawford Co., Champaign Co., Piatt Co., and Dewitt Co. Stray cicadas were reported from Pope Co., and Harden Co.

Brood XXIII was first recorded in Illinois in 1859 by Cyrus Thomas (1865), and a major effort to map its distribution was made by Stephen A. Forbes, Director of the State Laboratory of Natural History, in 1898. In that year Forbes confirmed the cicadas' occurrence in 22 counties and added five new county records (Marlatt 1907). The distribution of brood XXIII in 1898 is shown in figure 2. This brood was not mapped again until 1963 by Dr. Lewis Stannard, but its distribution was questionable due to the simultaneous emergence of brood III (Stannard 1975).

If one assumes that Forbes' map is correct, then one sees that the disjunct distribution between the two southern areas of emergence is a result of the disappearance of brood XXIII from part of the state. Such declines in the cicadas' distribution have been discussed by Young (1958).

The origin of the Dewitt-Piatt and Champaign Co. emergence zone is unknown. It is possible that Forbes did not obtain records from these counties, but one must note that Forbes lived 12 miles from the emergence zone and probably would have known about the area. Perhaps another brood that occurred in the area shifted its cycle and now emerges with brood XXIII. But evidence for such shifts is questionable (Young 1958).

Another explanation is that the cicadas invaded the area. Cicadas are very adaptable and they have invaded suburban gardens, hedges, and even new trees in spoil heaps in strip mines (Dybas and Lloyd 1974). But the distance to the nearest population of brood XXIII is over 90 km, making invasions difficult.

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LITERATURE CITED

- Dybas, H. S., and M. Lloyd. 1974. The habits of 17 year periodical cicadas (Homoptera: Cicadidae: Magicicada spp.) Ecological Monographs 44(3):444-459.
- Marlatt, C. L. 1907. The periodical cicada. U. S. Department of Agriculture, Bureau of Entomology Bulletin 71. 181 p.
- Stannard, L. J. 1975. The distribution of periodical cicadas in Illinois. Ill. Nat. Hist. Survey Biological Notes No. 91. 12 p.
- Thomas, C. 1865. Insects injurious to vegetation in Illinois. Pages 401-468 in Ill. St. Ag. Soc. Trans. 5. Springfield.
- Young, F. N. 1958. Some facts and theories about the broods and periodicity of the periodical Cicada. Proc. Indiana Academy of Science 68:164-170.

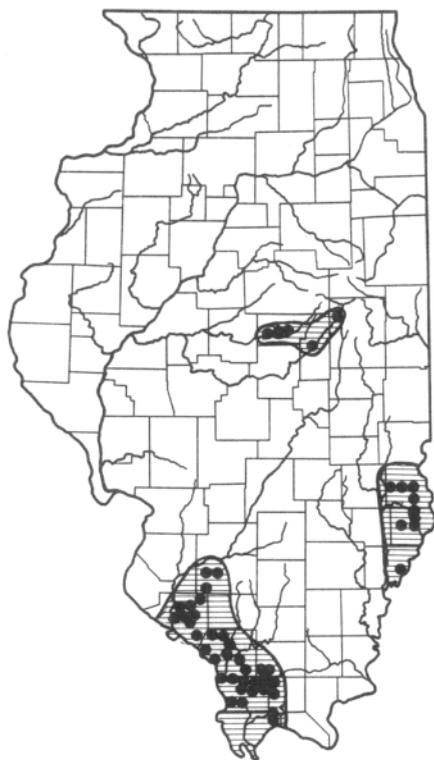


Figure 1 - 1976 distribution of brood XXIII

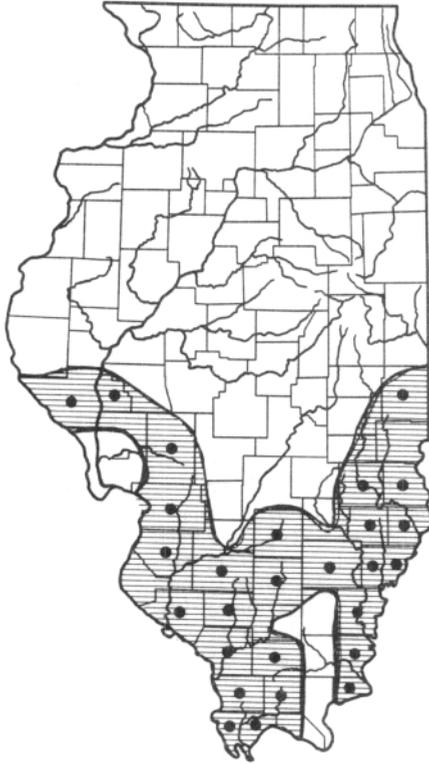


Figure 2 - 1898 distribution of brood XXIII