N O T E

Emergence of 13-Year Cicadas (Hemiptera: Cicadidae) in Georgia During Spring 2011[1]

Nancy C. Hinkle[2], Cecil L. Smith[3], and Chip Bates[4]

Department of Entomology, University of Georgia, Athens GA 30602-2603 USA

J. Entomol. Sci. 47(4): 366-368 (October 2012)

Key Words periodical cicada, *Magicicada*, distribution, map

In spring 2011, Brood XIX of *Magicicada tredecim* (Walsh and Riley) emerged throughout the Southeast and Midwest U.S. This is the only 13-year cicada that occurs in Georgia, but no systematic surveys have been conducted to determine where populations of *M. tredecim* occur in Georgia. Hunter and Lund (1960, J. Econ. Entomol. 53: 961 - 963) reported "The Great Southern Brood" emerging in 14 Georgia counties in the 1959 emergence, and the Georgia Museum of Natural History collection included Brood XIX specimens from 17 Georgia counties (from 1907 to 1998).

University of Georgia (UGA) Cooperative Extension entomologists surveyed the state to determine where 13-year cicada populations are found in Georgia starting in early April 2011. Because this event covers only a 6-wk period, obtaining widespread assistance was crucial. Using both traditional (radio, television, newspapers, Extension newsletters, etc.) and social media (e.g. Facebook, Twitter, Picasa, Flickr, etc.), UGA Extension Specialists recruited citizen-scientists from all over Georgia to report locations and photograph cicadas.

In March 2011 UGA's College of Agricultural and Environmental Sciences Office of Communications and Technology Services prepared a press release in anticipation of the cicada emergence. In early April an article was sent to all county Extension offices through the Extension list-server, and the Georgia Center for Urban Agriculture distributed an article through their website. Press releases were carried by more than 350 state and local newspapers. Requests for cicada sightings also were publicized in 3 television interviews and several radio programs. Anyone spotting a periodical cicada was asked to e-mail a photo to a designated e-mail address, and the first accounts were received that week. The "Georgia Gardener" website added a "Hey, I found a cicada" hot button, which allowed people to directly e-mail their cicada photos to us.

[1] Received 27 February 2012; accepted for publication 09 April 2012.

[2] Corresponding author (e-mail NHinkle@uga.edu).

[3] Georgia Museum of Natural History, University of Georgia, Athens, GA 30602-1882.

[4] Georgia Forestry Commission, 151 Langston Chapel Rd., Statesboro, GA 30461.

In total, over 1397 cicada reports were received, of which 553 included photographs. Recognizing that anyone sufficiently motivated to send an e-mail might also be willing to collect and contribute cicada specimens to the Georgia Museum of Natural History, we replied to each with a request and instructions for cicada submissions.

The first 13-year cicada was spotted in mid-April but not reported until the *Augusta Chronicle* newspaper article appeared a few days later. By the third week of April, dozens of reports were received each day. At its peak, over 50 reports (with accompanying photos) were received daily.

A map of Georgia counties (Fig. 1) was marked by date of first cicada sighting, with the earliest reported from Troup Co. on 19 April and the last county, Ben Hill, reported on 27 May. In the majority of the state, most of the cicadas had died by the end of May. Based on sound, we estimate that the population peaked just after mid-May, with the

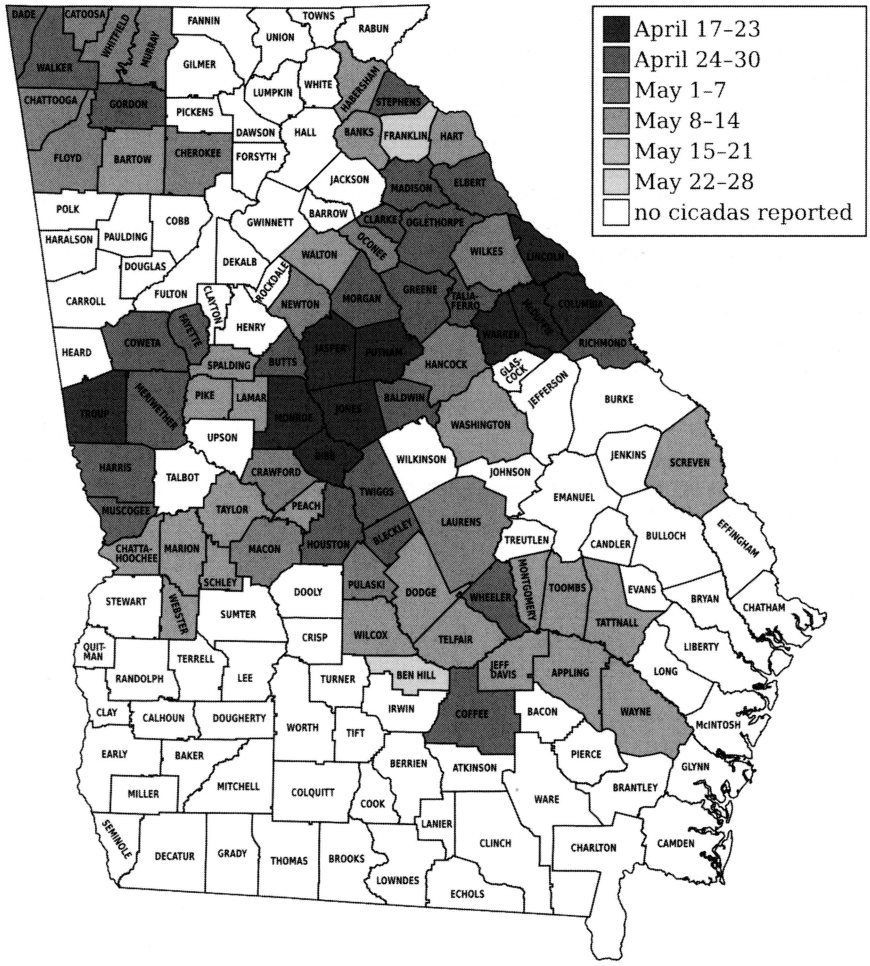

Fig. 1. Periodical cicada emergence in Georgia counties, 2011.

majority of complaints about noise being received after 9 May (20 complaints were received on 23 May). Periodical cicadas have been demonstrated to emerge when burrow temperatures reach about 18°C (Heath 1968, Amer. Midl. Nat. 80: 440 - 448). We had theorized that emergence would come earliest in southern counties and move northward as the soil warmed, but instead there were almost simultaneous emergences in the most southern area (Coffee Co.), the middle of the state (extending from Troup Co. to Lincoln Co.), and the extreme northwest county, Dade, within 10 days of the first emergence.

Areas with the densest periodical cicada populations included Augusta, Columbus, Rome, Macon, Milledgeville, Monticello, Lake Sinclair, and West Point Lake. In south Georgia, periodical cicadas were found in riparian areas along the Altamaha River, but were not reported in upland portions of those counties. No cicadas were reported from coastal counties, southern tier coastal plain counties, nor from montane counties in northeast Georgia, but numbers in the northwestern plateau, ridge, and valley were some of the highest reported. Densest populations were found in the lower piedmont and northern upper coastal plain counties.

Fifteen counties yielded mixed populations of *Magicicada tredecim* and *M. tredecassini* (Alexander and Moore), whereas Coffee Co. alone had populations of only *M. tredecassini.* Jasper Co. had populations of *M. tredecula* (Alexander and Moore) in addition to *M. tredecim* and *M. tredecassini.*

This project more than quadrupled (from 17 to 75) the number of Georgia counties known to have 13-year cicada populations. It was determined that in Georgia 13-year cicadas started emerging by mid-April and were generally not present by the end of May. As a result of this study, over 600 periodical cicada specimens (from 25 counties) were donated to the Georgia Natural History Museum. Researchers can build upon this knowledge and use these baseline data for future cicada monitoring.

Acknowledgments

Appreciation is expressed to Georgia's county Cooperative Extension offices, the Georgia Forestry Commission, the Orianne Society, and all Georgians who contributed to this survey. J. Hinkle assisted with graphics.