

In the nearby Delata section of Mississippi the damage caused by weevils was much below normal. Damage was also light in southeastern Texas, but a long period of rainy weather during June and July was favorable for rapid multiplication and unusually heavy damage was caused in the blackland area of eastern and central Texas. At Waco, Tex., the yield was more than doubled in many of the experimental plots where weevils were controlled. In the lightly infested areas an abundance of food late in the season allowed weevils to continue increasing until frost and to enter hibernation in excellent conditions; hence, in most sections the number of weevils entering hibernation in the fall of 1940 was above average. (U. C. Loftin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

COTTON LEAF WORM

The cotton leaf worm situation in 1940 was characterized by the extremely slow and erratic spread of the insect and the small amount of damage it caused. The first leaf worms of the season were found in Cameron County, Tex., near Brownsville, on May 27, 1940, or about the normal time. It was reported from Calhoun County, in southeastern Texas, on July 31; from Marana, Pima County, Ariz., on August 5; from Burleson and McLennan Counties, in central Texas, on August 6; and from Presidio County, in western Texas, on August 10. A separate invasion of moths occurred in Florida as half-grown worms were found near Trenton, Gilchrist County, in the north-central part of the State on June 18, the earliest date recorded in many years. It is also of interest that the first appearance of leaf worms in Florida has been reported from the vicinity of Trenton over a period of years. Spread from this area was also slow. Infestations were reported from Valdosta, Lowndes County, southern Georgia, on July 31 from George County, in the Gulf coast region of Mississippi, on August 1; from Tallulah, Madison Parish, northeastern Louisiana, on August 15; from Washington County, in the Mississippi Delta, on September 28; and from Florence County, S. C., late in October. The leaf worm did not become sufficiently abundant to cause noticeable damage in any section, and for the first time in many years practically no control measures were necessary in 1940. (U. C. Loftin, Bureau of Entomology and Plant Quarantine, U. S. D. A.)

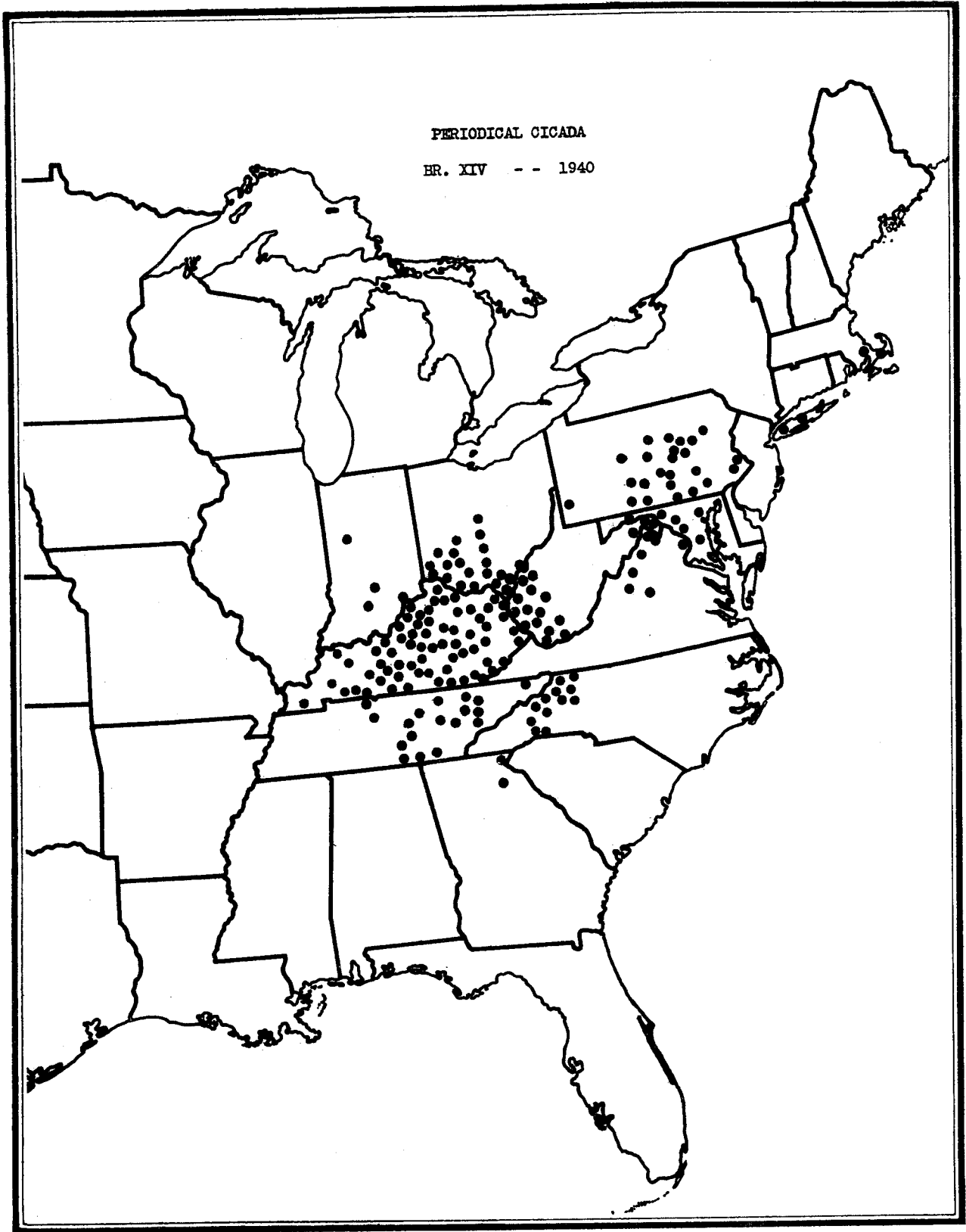
PERIODICAL CICADA

Brood XIV of the periodical cicada occurred over much of the territory from which it has been previously recorded. The old records from Illinois and New Jersey were not confirmed. Neither were several others, particularly those around the edge of the area of great abundance. The records for 1940 are as follows, the counties being underscored:

- Alabama: Etowah, Attalla (5 mi. north); Jackson, Woodville.
- Indiana: (Southern half of State as far north as La Fayette); Brown; Jefferson Madison; Lawrence; Tippecanoe, La Fayette.
- Kentucky: Adair (entire county), Columbia, Glens Fork; Allen (entire county), Holland, Scottsville; Anderson (entire county), Alton, Glensboro, Lawrencebur Barren, Cave City, Glasgow; Bell (entire county), Frakes, Jenson, Middlesboro Pineville; Boyd (entire county), Ashland, Catlettsburg; Boyle, Danville;

PERIODICAL CICADA

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Bracken (entire county), Brooksville; Breathitt (entire county), Curt, Jackson; Brockenridge, Cloverport, Blendon, McDaniels, Mystic; Bullitt, Shepherdsville; Butler, Morgantown; Caldwell, Princeton; Campbell, Newport; Carter (entire county), Grayson, Hitchins; Christian, Hopkinsville; Clark, Wades Mill, Winchester; Edmonson, Brownsville, Chalybeate; Elliott (entire county), Sandy Hook; Estill (entire county), Irvine, Ravenna; Fayette; Franklin, Frankfort; Garrard (eastern and southern); Grant (southern half); Graves, Mayfield, (5 miles east); Grayson (entire county), Big Clifty, Clarkson, Caneyville; Green (entire county), Exie, Greensburg, Gresham, Newt, Summersville; Greenup (entire county), Greenup; Hardin (entire county), Summit, Upton; Harlan (entire county), Cumberland; Hart, Cash, Linwood; Henderson, Anthoston, Niagara; Henry (western half), Campbellsburg, Franklinton, New Castle; Jackson (entire county), Foxtown; Jefferson (eastern and southern), Cedar Grove near Buechel, Louisville, Okolona; Johnson, Paintsville; Kenton, Erlanger, Independence; Knox (entire county), Barbourville; Larue (entire county), Hodgenville; Lawrence, Louisa; Leslie (entire county), Hoskinson, Hyden, Stinnett; Letcher (entire county), Roxana, Sargent, Whitesburg; Logan, Lewisburg, Russellville; McCreary, Cumberland Falls, Pine Knot, Revelo; McLean, Livernore; Madison (entire county), Richmond; Marion (entire county), Lebanon, Loretto; Martin (entire county), Beauty, Inez, Stidhan, Warfield; Mason (entire county), Maysville; Meade, Brandenburg; Mercer, McAfee; Metcalfe, Edmonton, Summer Shade; Monroe (entire county), Fountain Run; Morgan, Ezel, Mize; Nelson, Bardstown, Boston; Nicholas (northwestern); Oldham, Ballardsville; Owen (southern half); Owsley (entire county), Booneville; Pendleton (southern half); Perry (entire county), Hazard; Pike (entire county), Carmen, Meta, Virgie, Zebulon; Powell (entire county), Stanton; Pulaski (entire county), Somerset; Robertson (entire county), Mount Olivet; Rockcastle (entire county), Broadhead, Wildie; Rowan (entire county), Farners; Russell (entire county), Creelsboro, Jamestown; Shelby, Peytonia, Shelbyville; Simpson, Franklin; Spencer, Taylorsville, Rivals; Taylor (entire county), Campbellsville; Todd, Allegre, Trenton; Trinble, Bedford, Milton; Warren, Bowling Green; Washington, Springfield; Wayne (entire county), Frazer, Mill Springs; Whitley (entire county), Walden, Williamsburg, Youngs Creek.

Maryland: (On boundary line between Allegany and Washington Counties); Allegany (Sideling Hill, Tonoloway Hill), Cumberland; Baltimore; Baltimore City, Baltimore; Frederick, (Catoctin Mountains), Frederick, Lewistown (3 miles west); Montgomery, Ashton, Silver Spring (Avenal, 4 miles east, and Woodside, 1 mile north); Prince Georges, Beltsville, Berwyn, College Park, Laurel; Washington.

Massachusetts: Barnstable (both sides of Cape Cod Canal at the end of Cape Cod Bourne, Bournedale, Cataumet, Centerville, Cotuit, East Falmouth, Falmouth, Hyannis, Mashpee, Osterville; Plymouth, Manomet, Plymouth.

New York: Nassau, Bethpage, Farmingdale, Hicksville; Suffolk, Cold Spring Harbor, Commack, Deer Park, Eastport, Huntington, Manorville, Northport, Saint James, Wyandanch.

North Carolina: On the Madison-Yancey County line. Alexander; Alleghany; Avery, Altamont; Buncombe, Asheville; Burke (northwestern, in vicinity of Ashford, McDowell County); Caldwell; Watauga; Wilkes.

Ohio: Adams; Brown, Ripley; Butler; Clermont; Clarke; Clinton; Delaware; Franklin, Columbus (10 miles north); Gallia; Greene, Clifton; Hamilton; Highland; Jackson, Oak Hill; Lawrence, Burlington, Chesapeake, Coal Grove, Hanging Rock, Ironton, North Kenova, Proctorville, South Point, Sybene; Meigs; Montgomery; Pickaway; Pike, Piketon, Sargents, Wakefield; Ross, Chillicothe; Scioto, Franklin Furnace, Haverhill, Lucasville, New Boston, Portsmouth (15 miles northwest in Shawnee forest), Wheelersburg; Warren.

Pennsylvania: Adams, Arendtsville, Bendersville, Biglerville, Flora Dale, Gettysburg, Idaville, Orrtanna, townships of Berwick, Butler, Huntington, Latimore, Menallen, Tyrone; Bedford, Alum Bank, Bedford (also 10 miles north east), Breezewood, Buffalo Mills; Blair, Altoona, Bellwood, Canoe Creek, Martinsburg, Tyrone, Williamsburg, townships of Alleghany, Antis, Catherine, Frankstown, Juniata, Logan, Snyder, Tyrone, Woodbury; Berks, Bernville, Mount Penn, Reading, townships of Brecknock, Caernarvon, Robeson, Union; Bucks, Pleasant Valley, Quakertown, Sellersville; Cambria (northeastern); Centre (entire county), Bellefonte, Centre Hall, Fleming, Mill Hall, Milroy, Philipsburg, Port Matilda, Snow Shoe, State College, Unionville; Chester, Compass, townships of East Brandywine, Highland, Uwchlan, Upper Uwchlan, West Brandywine, West Caln, West Nantmeal, West Sadsbury; Clearfield, Bridgeport, Clearfield, Curwensville, Frenchville, Hawk Run, Karthaus, Lanse, Lumber, Munson, Woodland, townships of Bradford, Cooper, Covington, Girard, Goshen, Karthaus, Lawrence, Morris, Pike; Clinton, Beech Creek, Lock Haven, Loganton, Renovo, townships of Allison, Bald Eagle, Beech Creek, Castanea, Chapman, Colebrook, Crawford, Dunnstable, Gallaher, Grogan, Green, West Keating, East Keating, Lamar, Leidy, Logan, Noyes, Pinecreek, Porter, Woodward, Wayne; Columbia (entire county), Bloomsburg, Buckhorn, Mill Grove, townships of Benton, Bloom, Beaver, Briar Creek, Catawissa, Center, Cleveland, Conyngham, Fishing Creek, Franklin, Greenwood, Hemlock, Jackson, Locust, Madison, Maine, Mifflin, Montour, Mount Pleasant, Orange, Pine, Roaring Creek, Scott, Sugarloaf; Cumberland, Carlisle, Mount Holly Springs, Newburg, townships of Dickinson, Goodyear, Penn; Dauphin, Inglenook, townships of Reed, Halifax, Middle Paxton, Upper Paxton, Susquehanna; Franklin, Blackgap, Caledonia, Pen Mar, townships of Antrim, Greene, Guilford, Quincy, Washington; Fulton, Amaranth, Needmore, Warfordsburg; Huntingdon (along William Penn highway), Alexandria, Centre Union, Huntingdon, McAlevys Fort, Petersburg, Todd, Union Church, Union Furnace, townships of Barree, Brady, Carbon, Dublin, Franklin, Henderson, Jackson, Juniata, Logan, Miller, Morris Oneida, Porter, Shirley, Smithfield, Spruce Creek, Todd, Union, Walker, Warriors Mark, West; Juniata, Cocolamus, Mifflintown, townships of Fayette, Fermanagh, Greenwood, Monroe; Lancaster, Brickerville (along highway 322 to Lebanon County line), Gap (at Chester-Lancaster County line); Lackawanna, Jermyn, township of Scott; Lebanon, Millbach, Newmanstown, townships of Cornwall, Heidelberg, Londonderry, Mill Creek, South Annville, West Cornwall; Lehigh, Slatington, Zionsville; Luzerne, Hazleton, Kyttle, Laflin, Laurel Run, Wilkes-Barre, townships of Bear Creek, Dennison, Fairmount, Hanover, Plains; Lycoming (entire county), Marsh Hill, Williamsport, townships of Anthony, Armstrong, Brady, Brown, Cascade, Clinton, Cogan House, Cummings, Eldrod, Fairfield, Franklin, Gamble, Hepburn, Jackson, Jordan, Lewis, Limestone, Loyalsock, Lycoming, McHenry, McIntyre, McNett, Mifflin, Mill Creek, Moreland, Muncy, Muncy Creek, Nippenose, Old Lycoming, Penn, Piatt, Pine, Plunketts Creek, Porter, Shrewsbury, Susquehanna, Upper Fair-

field, Watson, Washington, Wolf, Woodward; Mifflin, Allensville, Belleville, Lewistown, Milroy, Newton, Hamilton, Yeagertown, townships of Armagh, Bratton, Brown, Decatur, Derry, Granville, Menno, Oliver, Union, Wayne; Montour (entire county), Danville, Washingtonville, townships of Anthony, Cooper, Derry, Limestone, Liberty, Valley, West Hemlock, Mahoning, Mayberry; Northumberland (entire county), Milton, Mount Carmel, Northumberland, Paxinos, Potts Grove, Shamokin, Sunbury, townships of Coal, Delaware, East Cameron, East Chillisquaque, Gearhart, Jackson, Jordan, Lewis, Little Mahanoy, Lower Augusta, Lower Mahanoy, Mount Carmel, Point, Ralpho, Rockefeller, Rush, Shamokin, Turbot, Uper Augusta, Upper Mahanoy, Washington, West Cameron, West Chillisquaque, Zerbe; Ferry (on Blue Mountain from Marysville at the Susquehanna River to Starrets Gap), Duncannon, Elliottsburg, Liverpool, Marysville, New Bloomfield, Newport, Shermans Dale, townships of Buffalo, Carroll, Center, Greenwood, Howe, Liverpool, Miller, Oliver, Penn, Rye Spring; Schuylkill, Shempton, townships of Barry, Butler, Branch, Cass, Hegin, Hubley, Union; Snyder, Beavertown, Freeburg, Middleburg, Port Trevorton, Rolling Green Park, Selinsgrove, Shamokin Dam, Troxelville, townships of Adams, Beaver, Center, Chapman, Franklin, Jackson, Middlecreek, Monroe, Penn, Perry Spring, Union, Washington, West Beaver, West Perry; Union, Allenwood, Buffalo Valley, Hartleton, Lewisburg, Mifflinburg, Millmont, New Berlin, New Columbi Winfield, townships of Buffalo, East Buffalo, Gregg, Hartley, Kelly, Lewis, Limestone, Union, West Buffalo, White Deer; York, Dillsburg, Dover, Hanover, Hellam, Mount Wolf, Woodbine, York (10 mi. west), townships of Conewago, East Manchester (Conewago Hills), Hellam, Paradise.

Tennessee: Anderson; Blount (Chilhowee Mountain); Campbell; Coffee; Cumberland; Davidson; De Kalb; Fentress; Franklin; Hamilton (along U. S. Highway 27, from Sale Creek to the Rhea County line); Knox (in area between Knoxville and Norris Dam); Marion, Martin Springs; Montgomery, Clarksville; Futnam, Cookeville; Roane; Robertson, Springfield; Sullivan, Bristol; Union, Maynardville; Warren.

Virginia: Albemarle, Crozet; Augusta, Churchville, Staunton, Stuarts Draft, Waynesboro; Clarke; Fairfax, El-Nido, Vienna; Frederick, Gore; Rockingham, Timberville; Shenandoah.

West Virginia: Berkeley, Gerrardstown, Glengary; Boone; Cabell; Jackson; Kanawha, Charleston; Lincoln; Logan; McDowell; Mason; Mercer; Mingo; Futnam; Wayne; Wyoming.

EASTERN HEMLOCK BORER

Examination of the root systems of 30 hemlock trees in stands on the Menominee Indian Reservation, washed out in 1939 and 1940, has conclusively shown that the eastern hemlock borer (Melanophila fulvoguttata Harr.) can successfully attack eastern hemlock only when the trees are definitely dying from other causes. Therefore this borer should be considered as a secondary insect. The succession of consecutive drought years in this region from 1930 to 1937 was the primary cause of the heavy hemlock mortality in these stands. There was a noticeable reduction in the abundance of the beetles in 1940 for the first time since the study was started in 1937. This is apparently be-