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Cooperative
**ECONOMIC INSECT
REPORT**

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PLANT PROTECTION DIVISION

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PLANT PROTECTION DIVISION

ECONOMIC INSECT SURVEY AND DETECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT**HIGHLIGHTS**Current Conditions

GREENBUG required controls in small grain in north Texas. (p. 43).

SPOTTED ALFALFA APHID heavy on alfalfa in portion of Oklahoma. (p. 43).

RANGE CRANE FLY damage increasing in Tulare County, California. (p. 43).

Detection

For new county, parish, and island records see page 46.

Special Report

EUROPEAN CORN BORER increased in 6 of 11 North Central States reporting in 1970. Decreases were recorded in Illinois, Kansas, Missouri, North Dakota, and Ohio. The population in North Dakota is the lowest in that State since 1956, and those in northeast and east-central Kansas the lowest since 1967. The population in Delaware continued to decrease from the record high of 1968. (pp. 47-54).

Reports in this issue are for week ending January 22 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING JANUARY 25

HIGHLIGHTS: The West averaged warmer than normal, the East colder than normal. Heavy snow fell in the Cascades and generous rains fell in the Great Smokies.

PRECIPITATION: Fair weather prevailed over most of the Nation early last week. Precipitation was mostly light and scattered. Rain and strong winds occurred along the Washington and Oregon coast early in week, moving inland to Montana by mid-week. Snow flurries were seen from the northern Great Plains to the Appalachians. Gary, Indiana, found on Tuesday morning that 7 to 8 inches of snow had fallen during the night. Elsewhere from the Great Lakes to New York light snow had also fallen. A frontal system moving into the Pacific Northwest caused rain along the coast with snow in the Cascades. Seventy-five inches of snow fell at Stampede Pass, Washington, in 3 days, Friday to Sunday. This heavy snow set a new record for a 3-day storm at that station. Thunderstorms in the Deep South late Friday and early Saturday left totals of around one inch, and snow squalls dumped several inches of snow in spots in New York, 12 inches at Boonville in 12 hours accompanied by winds gusting to 50 m.p.h. The weather map Sunday at midnight showed rain and freezing rain along the Washington and Oregon coast, scattered snow from the northern Great Plains to New England, light rain in Georgia and South Carolina, and widespread fog from the Great Lakes to the northern portions of the Gulf States. Mostly fair weather prevailed elsewhere. Wide areas from California to Texas and northeastward to Lake Michigan received no precipitation or only light sprinkles or snow flurries during the week. Heaviest rains fell in the vicinity of the Great Smokey Mountains in southeastern Tennessee and western North Carolina, where some totals exceeded 3.00 inches and in the coastal areas of Washington and Oregon where totals ranged from 5.00 to 8.00 inches.

TEMPERATURE: Unseasonal warmth occurred over southern California and Arizona early in week. The temperature at Los Angeles, California, climbed to 95° Monday afternoon. This is 5° warmer than the previous January record for Los Angeles and only 3° less than the January record for any spot in the United States. On Tuesday, the temperature at Phoenix and Yuma, Arizona, reached 88° setting new January high-temperature records for those localities. At the other extreme, cold arctic air plunged southward over central and eastern portions of the country. Bemidji, Minnesota, registered 31° below zero and Houlton, Maine, 35° below zero Tuesday morning. Parts of the Northeast remained below zero all day Tuesday, when the midday reading at Caribou, Maine, was minus 5°. Subzero temperatures pushed as far southward as northern Missouri where Kirksville registered minus 6° Tuesday. Bitter cold pushed far southward over the eastern part of the Nation with subfreezing temperatures occurring in the Florida Everglades Wednesday and Weather of the week continued on page 46.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Larvae up to 10 per linear foot of wheat in Kiowa County. Many early instars still present. (Okla. Coop. Sur.).

BEEF LEAFHOPPER (Circulifer tenellus) - CALIFORNIA - Winter treatment slowed by adverse weather. Currently 6,227 acres treated in western Fresno County. Several acres required treatment in canyons that have not supported populations for few years. Heaviest populations on southern slopes. (Cal. Coop. Rpt.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Light on barley at Hobbs and Lovington, Lea County. (Mathews, Jan. 15). TEXAS - Ranged up to 100 per row foot of wheat in 19 panhandle counties during surveys December 16, 1970, to January 16, 1971. Heaviest counts in Denton, Motley, and Randall Counties. (Daniels). Currently light to heavy in Rolling Plains and north area, some controls applied in Denton County. (Turney). OKLAHOMA - Range per linear foot of wheat: 40-100 in Kiowa and Washita Counties, up to 10 in Noble and Payne Counties. Average per linear foot of barley: 18 in Woodward County and 2 in Texas County. (Okla. Coop. Sur.). ARKANSAS - Survey negative on wheat in Washington County. (Boyer).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Remains very heavy, up to 1,000 per square foot, on some Kiowa County alfalfa. Light in Garvin County. (Okla. Coop. Sur.).

SMALL GRAINS

ENGLISH GRAIN APHID (Macrosiphum avenae) - ARKANSAS - Ranged 5-10 per 100 sweeps of wheat in Washington County. (Boyer).

TURF, PASTURES, RANGELAND

RANGE CRANE FLY (Tipula simplex) - CALIFORNIA - Damage increasing and extends into flatlands of Tulare County. Many hillsides have "slicks" which cover large areas. Estimated that 1,000+ acres of rangeland severely damaged and should be treated. Test application of insecticide brought 250+ male larvae per square foot to surface. No female larvae observed. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - KENTUCKY - Eggs averaged 13 per square foot in several alfalfa fields in Fayette County; first instars noted in these fields week ending January 15. Currently eggs averaged 192 per square foot in 3 fields. (Barnett). TEXAS - Larvae very light on legumes in Denton County. (Turney).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Very light on alfalfa at Hobbs and Lovington, Lea County. (Mathews, Jan. 15). ARKANSAS - Survey negative in alfalfa and vetch in Washington County and in crimson clover in Pope County. (Boyer).

SUGAR BEETS

BEEF ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae 1 per stem on scattered sugar beets at Calexico, Imperial County. (Cal. Coop. Rpt.).

POTATOES, TOMATOES, PEPPERS

TOMATO PINWORM (Keiferia lycopersicella) - ARIZONA - Up to 10 larvae and 5 pupae per tomato leaf in one greenhouse at Phoenix, Maricopa County. Controls applied. (Ariz. Coop. Sur.). FLORIDA - Larvae severe on stems, blooms, and fruit of 0.25 acre of hydroponic tomatoes in Escambia County. Controls unsatisfactory. (Albritton, Jan. 13).

GENERAL VEGETABLES

BEEF ARMYWORM (Spodoptera exigua) - CALIFORNIA - Larvae 1 per stalk on scattered onion plants at Holtville, Imperial County. Reports persistent throughout State for several months. (Cal. Coop. Rpt.).

DECIDUOUS FRUITS AND NUTS

WOOLLY APPLE APHID (Eriosoma lanigerum) - ARKANSAS - Up to 20 per square inch on apple rootstock in Washington County. (Boyer).

PECAN WEEVIL (Curculio caryae) - NEW MEXICO - Collected 3 adults and 2 larvae from sifted soil in infested area at Tularosa, Otero County. (Riddle, Campbell, Jan. 15).

CITRUS

Quarterly Citrus Insect and Mite Outlook in Florida - January through March - This Outlook is based on the assumption that weather beyond the period of the current National Weather Service 30-day Outlook will be normal. Therefore, the forecasts given below cannot be viewed with the same degree of confidence as those in the "Insect and Disease Summary" usually released twice each month.

CITRUS RUST MITE (Phyllocoptruta oleivora) population expected to decrease until mid-February then increase through March. It will remain in high range and above normal much of time. CITRUS RED MITE (Panonychus citri) and TEXAS CITRUS MITE (Eutetranychus banksi) expected to remain near current low levels normal for January and February. Slight increase expected in March with 5 to 10 percent of groves developing heavy infestations. Light infestations of SIXSPOTTED MITE (Eotetranychus sexmaculatus) will occur in February and March in about 3 percent of groves. GLOVER SCALE (Lepidosaphes gloverii), PURPLE SCALE (L. beckii), and CHAFF SCALE (Parlatoria pergandii) will be present in majority of groves but mostly as light infestations. Little change from normal low to moderate level expected until March. YELLOW SCALE (Aonidiella citrina) will increase from low to moderate level January through March in scattered groves. An ARMORED SCALE (Unaspis citri) will gradually spread and intensify. March population expected to be higher than in any prior month with infestations in 26 percent of groves. Larvae and pupae of WHITEFLIES will increase in February to normal moderate level. Adults will be more abundant than average in March. APHIDS will appear in February. Expected to increase rapidly to above normal level by end of March, especially in cold-damaged groves. (W.A. Simanton (Citrus Expt. Sta., Lake Alfred)).

FOREST AND SHADE TREES

WESTERN PINE BEETLE (Dendroctonus brevicomis) - CALIFORNIA - Singles and groups of ponderosa and sugar pine trees infested in Bear Meadows, Oak Flat, and Dinkey Creek areas of Sierra National Forest. Estimated 60 trees killed on 640-acre stand. Some tree loss due to water and silt. Damage increasing. (Zwartz, USFS).

ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) - MISSOURI - Adults collected from oak in Dallas County by J. Reese, September 14, 1970. This is a new county record. (Munson).

MAN AND ANIMALS

SCREWORM (Cochliomyia hominivorax) - No cases reported in U.S. January 17-23. Total of 74 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico as follows: Sonora 36, Chihuahua 10, Coahuila 2, Nuevo Leon 2, Tamaulipas 24. Total of 21 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screwworm flies released: Texas 2,898,000; Mexico 109,990,000. (Anim. Health Div.).

CATTLE GRUBS (Hypoderma spp.) - OKLAHOMA - H. lineatum (common cattle grub) ranged 0-14 per head (average 8) on cattle in Payne County and 5-10 per head in Garvin County. Moderate to heavy on calves in Pottawatomie County and moderate in Mayes County. (Okla. Coop. Sur.). KENTUCKY - Hypoderma spp. ranged 0-15 (averaged 1.7) per animal on backs of Holsteins in Fayette County. (Barnett).

HOG LOUSE (Haematopinus suis) - MISSISSIPPI - Averaged 2 behind each ear on 40 head of hogs at State College, Oktibbeha County. (Sartor).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSISSIPPI - Light on caged hens at State College, Oktibbeha County. (Sartor).

HOUSEHOLDS AND STRUCTURES

PACIFIC DAMPWOOD TERMITE (Zootermopsis angusticollis) - OREGON - Infested sills and joints of Marion County house week of January 15. Colonies well established. (Larson).

STORED PRODUCTS

INDIAN MEAL MOTH (Plodia interpunctella) - NEW MEXICO - Infestations light to heavy and spotted in feed in mills and stores at Clovis, Curry County. (Mathews).

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - KENTUCKY - Adults averaged 64 per pound of shelled corn on January 14 at one location in Fayette County. (Barnett).

RICE WEEVIL (Sitophilus oryzae) - KENTUCKY - Adults averaged 108 per pound of sacked oats on January 14 at one location in Fayette County. (Barnett).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - ARIZONA - Inspected 32 apiaries with 1,656 colonies. Found 672 colonies dead; burned 5 due to American foulbrood disease during December 1970. (Ariz. Coop. Sur.).

CONVERGENT LADY BEETLE (Hippodamia convergens) - OKLAHOMA - Adults common and active in aphid infested alfalfa in Kiowa County. (Okla. Coop. Sur.).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - TEXAS - Specimens collected along Interstate Highway 10 in Fayette County by B.D. Smith, January 12, 1971. Determined by V.H. Owens, confirmed by D.R. Smith. This is a new county record. (PPD).

ORIENTAL FRUIT FLY (Dacus dorsalis) - CALIFORNIA - Eradication program in Orange and Los Angeles Counties terminated. Trapping to continue in one portion of Orange County throughout winter. All results of detection negative since September 1970. No established infestation recorded in relation to trapping of adult flies in this or adjacent area. (Cal. Coop. Rpt.).

SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) - LOUISIANA - Adults collected in home sweetpotato bed at Jonesboro, Jackson Parish, by G.W. Jiles January 12, 1971. Determined by V.H. Owens, confirmed by R.E. Warner. This is a new parish record. (PPD).

A WHITEFRINGED BEETLE (Graphognathus leucoloma striatus) - SOUTH CAROLINA - Adults collected along roadside at North Augusta, Aiken County, by J.L. King December 16, 1970. Determined by V.H. Owens, confirmed by R.E. Warner. This is a new county record. (PPD).

WOOLLY WHITEFLY (Aleurothrixus floccosus) - CALIFORNIA - Surveys continue in secondary zone at San Diego, San Diego County; 15 percent of inspected properties found infested. Knock-down treatments of heavier infestations made immediately to reduce possibility of spread. (Cal. Coop. Rpt.).

HAWAII INSECT REPORT

Sugarcane - SUGARCANE LEAFHOPPER (Perkinsiella saccharicida) adults averaged 2 per stalk in sugarcane fields at Ewa, Oahu; predators nil. None found in small backyard plantings of sugarcane at Waimanalo and Waiahole. (Au).

Turf and Pasture - Larvae of GRASS WEBWORM (Herpetogramma licarsisalis) generally light in 5 acres of Kikuyu grass pasture at Haiku, Maui; heaviest larval density 4 per square foot in about 20 percent of total area. Larvae trace at Mililani Memorial Park, Oahu; adults 1 per 3 sweeps in border mixed stand of grass. Adults of a BILLBUG (Sphenophorus venatus vestitus) trace, one per linear yard of zoysia grass along road curbing at Mililani Memorial Park. (Ah Sam, Kawamura).

Forest and Shade Trees - ARMORED SCALES (Carulaspis giffardi and Octaspidiotus araucariae) observed on Norfolk Island pine (Araucaria excelsa) at Kawela, Molokai. These are new island records. Previously reported only from Oahu. (Fujimoto). A PLATASPID BUG (Coptosoma xanthogramma) infestation generally light on 20+ Erythrina spp. (coralbean) trees at Mililani Memorial Park, Oahu; average one nymph and/or adult per 5 racemes. Trace at Ala Moana (50+ trees) and Keehi Lagoon Beach Parks (100+ trees), and at Makiki (33 trees). Heavy on Erythrina spp. (6 trees) at Kaneohe; as many as 20 nymphs and/or adults per raceme. Adults of Trissolcus sp. (a scelionid wasp) also present; 75 percent of egg clusters observed were parasitized. (Au, Kawamura).

Beneficial Insects - All stages of a HELIODINID MOTH (Schreckensteinia festal-ella) light in 100+ acres of blackberry (Rubus sp.) at Waikamoi, Maui; 33-50 percent of leaves affected. Larvae of a TORTRICID MOTH (Apotoforma sp.) moderate; 75 percent of terminal leaves infested. (Ah Sam, Miyahira).

Miscellaneous Pests - Reports of loud stridulations of a LONGHORN GRASSHOPPER (Euconocephalus nasutus) continue from Puunene, Maui, and Puu O Hoku, Molokai; no recoveries from these islands to date. (Miyahira, Tamura).

DETECTION

New County, Parish, and Island Records - ARMORED SCALES (Carulaspis giffardi and Octaspidiotus araucariae) HAWAII - Molokai (p. 46). ASIATIC OAK WEEVIL (Cyrtopistomus castaneus) MISSOURI - Dallas (p. 44). IMPORTED FIRE ANT (Solenopsis saevissima richteri) TEXAS - Fayette (p. 45). SWEETPOTATO WEEVIL (Cylas formicarius elegantulus) LOUISIANA - Jackson (p. 45). A WHITEFRINGED BEETLE (Graphognathus leucoloma striatus) SOUTH CAROLINA - Aiken (p. 45).

Weather of the week continued from page 42

Thursday mornings. Southerly winds warmed the Great Plains at midweek, while cold continued in the East especially the Southeast. Orlando, Florida, registered 47° Wednesday afternoon the same as the maximum at Rapid City, South Dakota, and Valentine, Nebraska. On Thursday morning, Fort Myers, Florida, and Norfolk, Nebraska, had the same minimum temperature, 32° and Tallahassee, Florida, with 11° was 1° colder than Fargo, North Dakota. Pueblo, Colorado, set a new January maximum reading with a 78° temperature on Thursday afternoon. A high pressure area centered over northern Florida Thursday morning moved eastward and temperatures over the eastern part of the Nation warmed rapidly. Southern Texas warmed rapidly. Southern Texas warmed to the 80's Friday and Sunday afternoons. On Sunday afternoon the warmest spots in the Nation included McAllen, Texas, and Orlando, Florida, both of these localities registering 86°. However, a cold front was pushing southward across the northern Great Plains bringing colder temperatures to the middle portion of the country. Subzero temperatures were common Sunday morning from northeastern North Dakota to northern Wisconsin. In general, temperatures averaged warmer than normal over the western half of the Nation and colder than normal over the eastern half. The Great Basin and the Rocky Mountains averaged 10° to 14° warmer than normal, the central Appalachians 9° to 11° colder than normal. (Summary supplied by Environmental Data Service, ESSA.)

Status of the European Corn Borer in 1970^{1/}

Introduction: Surveys to determine the abundance of European corn borer (*Ostrinia nubilalis* (Hübner)) in the fall of 1970 were conducted by cooperating agencies in 15 States. All survey data, summaries, or records of field observations were processed by the Economic Insect Survey and Detection Staff in Hyattsville, Maryland. Personnel of Entomology Research Division, Agricultural Research Service, kindly reviewed the material after completion.

The 1970 European corn borer survey was conducted during late summer and early fall. The survey is designed to measure the fall populations of European corn borer larvae and is conducted during a favorable time to include a high percentage of late instars, wherever possible. Except for some minor differences in compiling data, the accepted survey methods were followed in all cases. The survey was continued on a district basis whenever possible in 1970. A district is usually a group of counties within a State, in most cases based on Crop Reporting Districts.

New Distribution: European corn borer was reported for the first time from five counties during 1970; however, the counties were in States already known to be infested. This was three counties more than were reported the previous year. One county each was reported from Alabama and Tennessee in 1969. European corn borer was reported for the first time in 1968 from 10 counties in Alabama, Georgia, and South Carolina; 2 counties were reported in 1967 from North Dakota; 18 in 1966 from North Dakota and South Carolina; 11 in 1965 from South Carolina; 5 from 3 States in 1964; and 25 new counties in 1963 from 4 States.

The new distribution in 1970 was Barbour, Escambia, and Monroe Counties, Alabama, Beaufort County, South Carolina, and Haywood County, Tennessee.

Abundance: Fall populations of European corn borer increased in 6 of the 11 North Central States included in the survey. Decreases were recorded in Illinois, Kansas, Missouri, North Dakota, and Ohio. The average number of borers per plant increased over Indiana except in the south-southwest, south-southcentral, northwest, and north-central districts. The decrease in the southernmost districts was undoubtedly due to southern corn leaf blight which rendered corn leaves unsuitable for oviposition by the second generation of moths, and probably reduced the third generation of borers which normally occurs in the southern area to negligible numbers. The large increase in populations in the southwest, south-central, and southeast districts was due to the very low populations of 1969, rather than large numbers in 1970. The heavy population of 162 borers per 100 corn plants in the north-northcentral district of Indiana was due to the high overall infestations, rather than a few heavily infested fields. Populations increased in all districts in Iowa except in the southwest (District VII) which showed a decrease from 607 borers per 100 plants in 1969 to 528 in 1970. Counts were again heaviest in western and southern parts of the State. The overwintering populations in Minnesota and South Dakota were slightly less than twice those of 1969, but populations in Michigan, Nebraska, and Wisconsin were more than double the 1969 levels.

The European corn borer population in Illinois showed a decrease of about 50 percent compared with 1969. In Kansas, substantial decreases were found in the northeast and east-central districts where populations were the lowest since 1967. The number of borers per 100 plants was less than in 1969 in all districts of

^{1/} Survey data provided by State agricultural agencies. Data compiled and summarized by Economic Insect Survey and Detection Staff, Plant Protection Division, Agricultural Research Service, United States Department of Agriculture.

Missouri, with the State average about half that of the same year. The overwintering population of 57 borers per 100 plants in North Dakota is the lowest in that State since 1956. The population in Ohio was again lower than the previous year.

The State average in Delaware continued to decrease from the record high of 444 borers per 100 plants in 1968. Densities in 1970 were similar to those of 1969 in the northern two-thirds of the State, but there was a major decrease in the extreme southern area. The overwintering population in southern Maryland increased slightly, but decreases in other sections of that State brought the overall population below the 1969 level. The number of borers per 100 plants in Arkansas was half that of 1969.

Table 1. Summary by States of European Corn Borer Abundance in Corn, Fall of 1970, Compared with Data for 1969

States	1969		1970		Comparable Districts or Counties	
	:No. of Districts : Surveyed	:Average No. : of Borer Per 100 Plants	:No. of Districts : Surveyed	:Average No. : of Borer Per 100 Plants	:No. of Counties : Surveyed	:No. of Borer Per 100 Plants
<u>Eastern</u>						
Delaware	1	357	1	283	3	1
Maryland	3	154	3	134	16	3
Total	4		19			
Average <u>l/</u>						252
<u>North Central</u>						
Illinois	7	142	7	76	39	7
Indiana	12	38	12	47	92	12
Iowa	12	163	12	241	99	12
Kansas	3	265	3	96	30	3
Minnesota	7	69	7	130	34	7
Missouri	7	245	7	130	38	7
Nebraska	5	147	5	396	25	5
North Dakota	1	177	1	57	5	1
Ohio	5	111	5	108	33	5
South Dakota	6	137	6	214	35	6
Wisconsin	9	46	9	102	52	9
Total	74		473			
Average <u>l/</u>						141
<u>Southern</u>						
Arkansas	3	48	3	24	11	3
<u>Other</u>						
Michigan	1	62	1	148	14	1
Total						62
Average <u>l/</u>						148
Total						209
Average <u>l/</u>						145
Total						24
Average <u>l/</u>						148

l/ Weighted average based on districts surveyed.

Table 2 - European Corn Borer Abundance in Corn,
Fall of 1970, Compared with Data for 1969

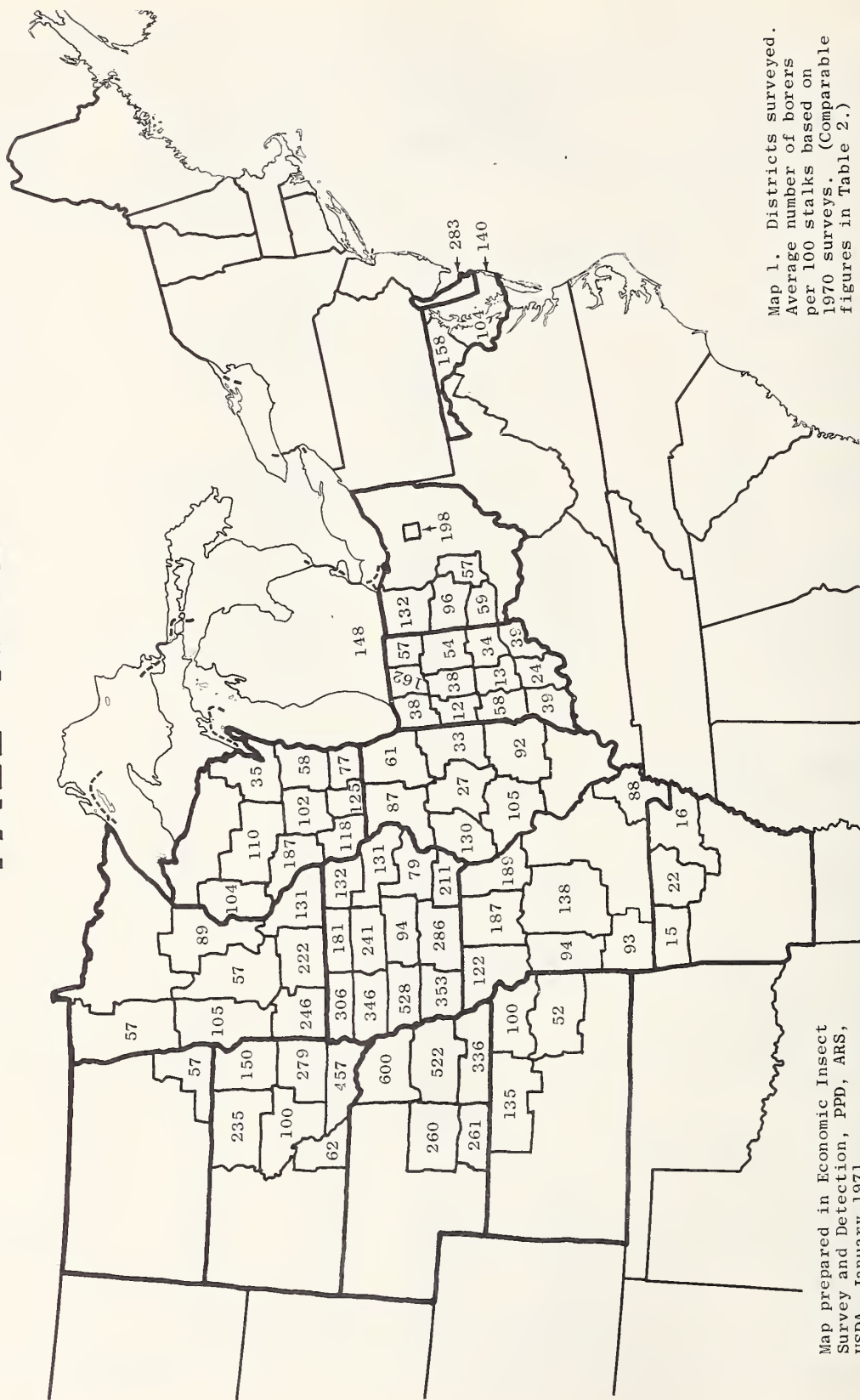
State (Districts or Counties)	Average Number: of Borers Per 100 Plants 1969	Average Number: of Borers Per 100 Plants 1970	State (Districts or Counties)	Average Number of Borers Per 100 Plants 1969	Average Number of Borers Per 100 Plants 1970
<u>Arkansas</u> (Ark. Ins. Sur.)			<u>Iowa</u> (State Dept. Agr.; Ext. Ser.; Ent. Dept., Iowa State Univ.; ENT, ARS, USDA)		
Northwest	14	15	District I	180	306
North Central	13	22	District II	36	181
Northeast	<u>69</u>	<u>16</u>	District III	25	132
Average	48 <u>1/</u>	24 <u>1/</u>	District IV	290	346
<u>Delaware</u> (Agr. Expt. Sta.)			District V	100	241
New Castle	276	255	District VI	32	131
Kent	329	347	District VII	607	528
Sussex	<u>467</u>	<u>248</u>	District VIII	48	94
Average	357	283	District IX	63	79
<u>Illinois</u> (Natural History Survey, Ext. Ser.)			District X	290	353
Northwest	139	87	District XI	114	286
Northeast	75	61	District XII	<u>176</u>	<u>211</u>
West	235	130	Average	163	241
Central	84	27	<u>Kansas</u> (Ins. Sur.)		
East	76	33	Northeast	323	100
West-southwest	230	105	North Central	143	135
East-southeast	<u>153</u>	<u>92</u>	East Central	<u>329</u>	<u>52</u>
Average	142 (143) <u>2/</u>	76 (76) <u>2/</u>	Average	265	96
<u>Indiana</u> (Ext. Ser., Expt. Sta.)			<u>Maryland</u> (Agr. Ext. Ser.; Ins. Sur.)		
North-northwest	33	38	Eastern Shore	183	140
North-northcentral	44	162	Southern area	99	104
North-northeast	35	57	Western and Central areas	<u>180</u>	<u>158</u>
Northwest	49	12	Average	154 (166) <u>3/</u>	134 (141) <u>3/</u>
North Central	59	38	<u>Michigan</u> (Ins. Sur.)		
Northeast	39	54	Surveyed counties	62 <u>1/</u>	148 <u>1/</u>
Southwest	5	58	<u>2/</u> Average based on 39 comparable counties surveyed in 1969 and 1970, rather than districts.		
South Central	5	13	<u>3/</u> Average based on averages for 16 counties surveyed in 1969 and 1970, rather than district averages.		
Southeast	5	34			
South-southwest	74	39			
South-southcentral	88	24			
South-southeast	<u>24</u>	<u>39</u>			
Average	38 (40) <u>1/</u>	47 (47) <u>1/</u>			
<u>1/</u> Averages based on field averages rather than district averages.					

Table 2 - (Continued)

State (Districts or Counties)	Average Number: of Borers Per 100 Plants :		State (Districts or Counties)	:Average Number :of Borers Per : 100 Plants	
	1969	1970:		:1969	1970
<u>Minnesota</u> (State Dept. Agr.)			<u>South Dakota</u> (Agr. Expt. Sta., Ext. Ser.)		
Southwest	111	246	North Central	145	235
South Central	40	222	Northeast	207	150
Southeast	62	131	Central	58	100
West Central	94	105	East Central	206	279
Central	32	57	Southeast	176	457
East Central	25	89	South Central	<u>30</u>	<u>62</u>
Northwest	<u>119</u>	<u>57</u>	Average	137	214
Average	69	130	<u>Wisconsin</u> (State Dept. Agr.)		
<u>Missouri</u> (Ext. Ser., Ins. Sur.)			Northwest	50	104
District I	314	122	North Central	19	110
District II	258	187	West Central	97	187
District III	237	189	Central	40	102
District IV	270	94	Southwest	87	118
District V	223	138	South Central	65	125
District VII	202	93	Southeast	39	77
District IX	<u>211</u>	<u>88</u>	East Central	19	58
Average	245	130	Northeast	<u>0</u>	<u>35</u>
<u>Nebraska</u> (Agr. Expt. Sta.; Ext. Ser., Ins. Sur.)			Average	46	102
Northeast	188	600			
East	169	522			
Southeast	182	336			
Central	94	260			
South	<u>100</u>	<u>261</u>			
Average	147	396			
<u>North Dakota</u> (State Dept. Agr.)					
Southeast	177	57			
<u>Ohio</u> (Ext. Ser.; ARS, USDA)					
Northwest	132	132			
West Central	94	96			
Central	98	57			
Southwest	94	59			
Northeast	<u>169</u>	<u>198</u>			
Average	117	108			
	(111) <u>4/</u>	(99) <u>4/</u>			

4/ Averages calculated from county averages, not district averages.

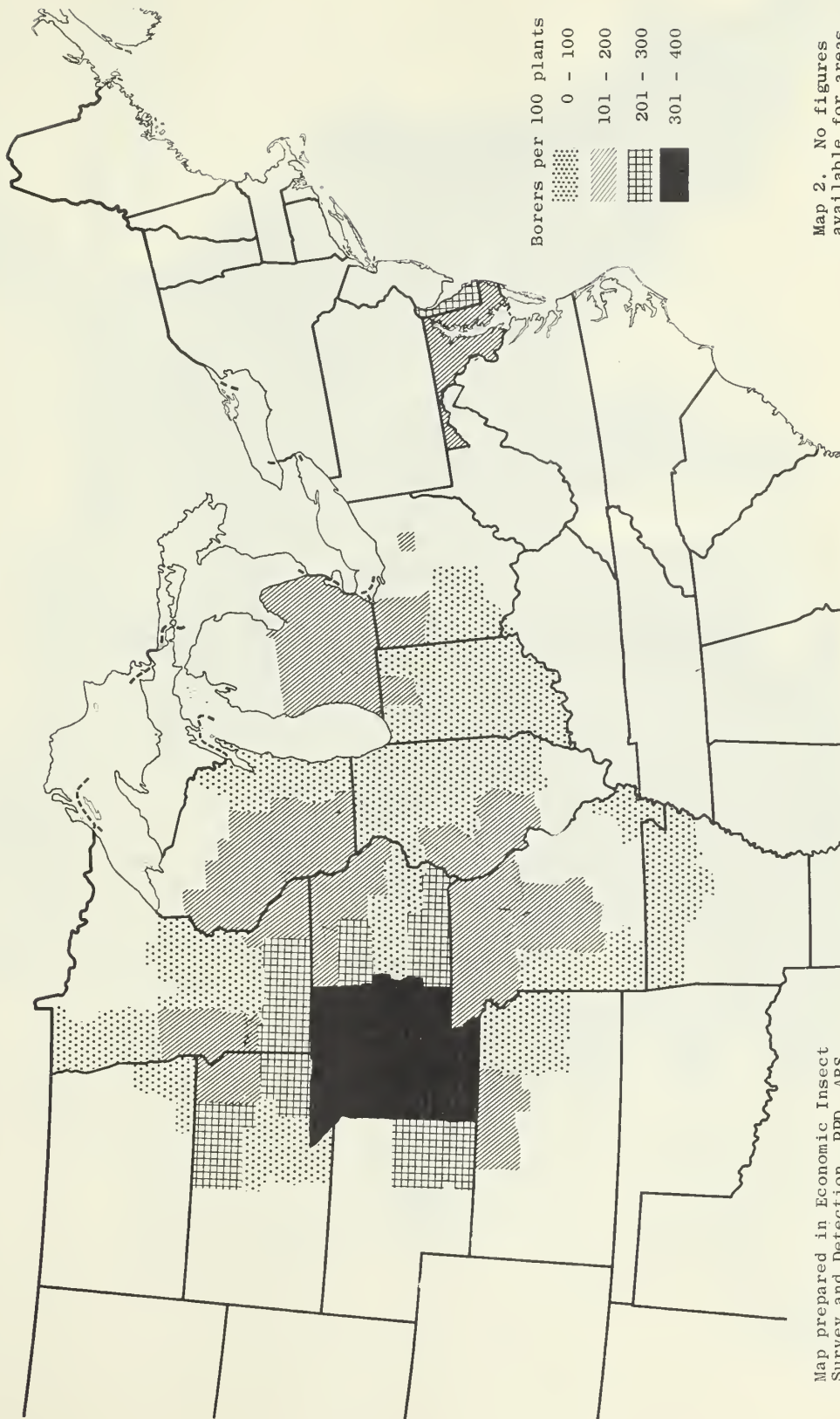
EUROPEAN CORN BORER ABUNDANCE FALL 1970



Map 1. Districts surveyed. Average number of borers per 100 stalks based on 1970 surveys. (Comparable figures in Table 2.)

Map prepared in Economic Insect Survey and Detection, PPD, ARS, USDA, January 1971

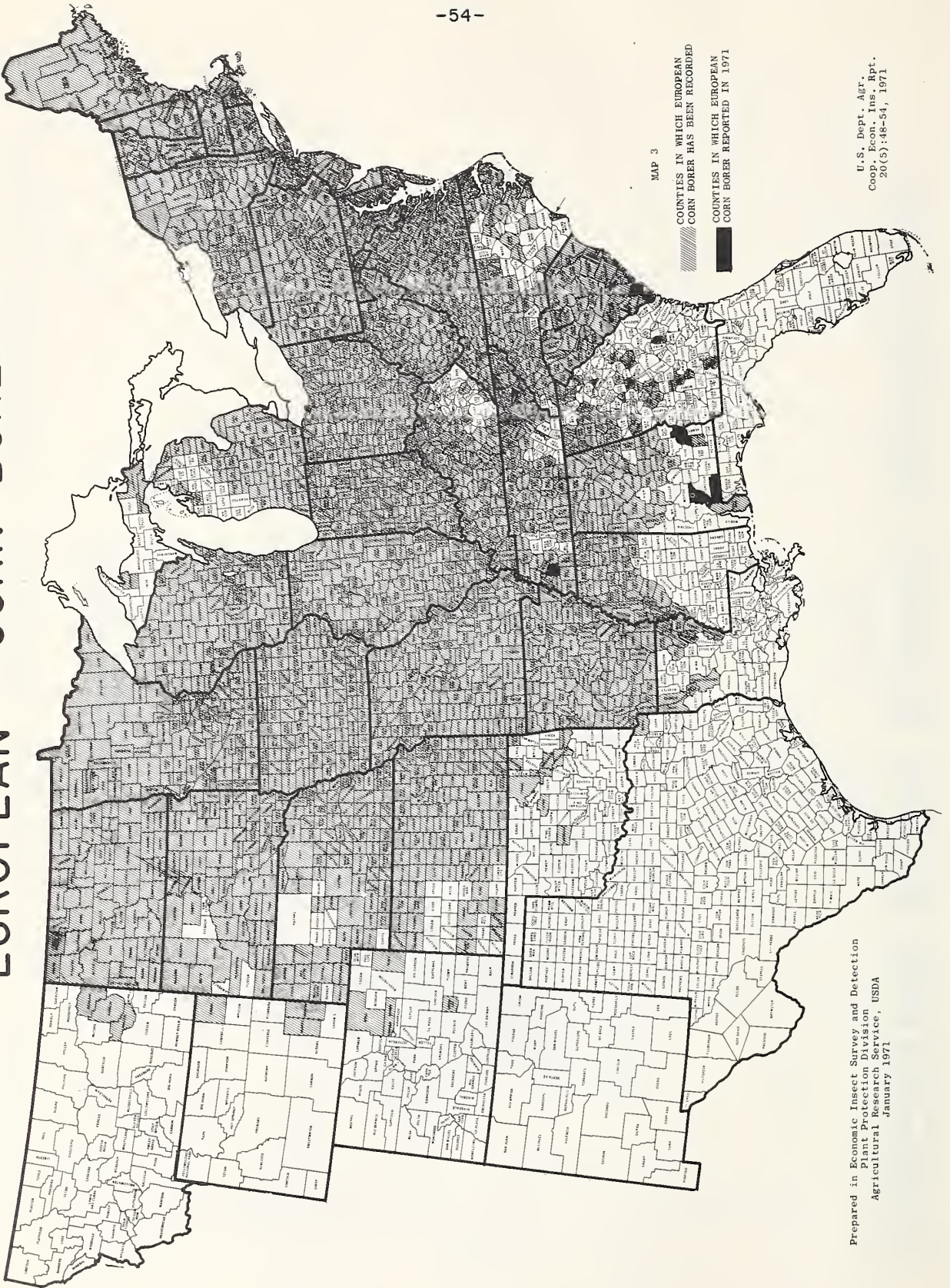
EUROPEAN CORN BORER ABUNDANCE FALL 1970



Map 2. No figures available for areas not shaded.

Map prepared in Economic Insect Survey and Detection, PPD, ARS, USDA, January 1971

EUROPEAN CORN BORER



MAP 3

COUNTIES IN WHICH EUROPEAN
CORN BORER HAS BEEN RECORDED
COUNTIES IN WHICH EUROPEAN
CORN BORER REPORTED IN 1971

Prepared in Economic Insect Survey and Detection
Plant Protection Division
Agricultural Research Service, USDA
January 1971

U.S. Dept. Agr.
Coop. Econ. Ins. Rpt.
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