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Cooperative
**ECONOMIC INSECT
REPORT**

Issued by

PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

SURVEY AND DETECTION OPERATIONS

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 clearinghouse and does not assume responsibility for accuracy of the material.

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COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG moderate to heavy in areas of Oklahoma; some wheat killed. (p. 301). ALFALFA WEEVIL continues active in alfalfa in various areas; some damage. (p. 302). PEA APHID increased on alfalfa in northwest Arkansas; counts high in Oklahoma. (p. 304). YELLOW SCALE population on Florida citrus above average and highest on record for March; increase expected. (p. 306).

Predictions

First-generation EUROPEAN CORN BORER population may be heavy in Nebraska. (p. 301). ALFALFA WEEVIL expected to be as severe as in 1965 in many areas. (p. 302). CUT-WORM flights heavy in New Mexico; subsequent egg laying indicates possible heavy larval infestations later in season. (p. 305). FRUIT-TREE LEAF ROLLER expected to be abundant in Connecticut. (p. 306). Generally large numbers of EUROPEAN RED MITE eggs indicate high potential populations in southern Ohio apple orchards. (p. 306).

Detection

A TARSONEMID MITE (Steneotarsonemus ananas (Tyron)) collected from Aechmea fasciata (a bromeliad) in California constitutes a new record for North America. Species known from pineapple in Australia and Hawaii. (p. 308). For new State records from Delaware and Oklahoma, and new county records from Florida, see page 313.

SPECIAL REPORTS

Expected Appearances of Broods VI and XXVI of Periodical Cicadas (with map). (p. 316).

Estimates of Damage by the European Corn Borer to Grain Corn in the United States in 1965. (pp. 317-318). Dollar loss and bushel loss considerably lower than in several years.

Summary of Insect Conditions in the United States - 1965

- Stored-Product Insects (p. 319).
- Beneficial Insects (p. 321).
- Miscellaneous Insects. (p. 324).
- Household and Structural Insects. (p. 325).

Reports in this issue are for week ending April 8 unless otherwise indicated.

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WEATHER OF THE WEEK ENDING APRIL 11

HIGHLIGHTS: (1) Another dry week most areas, scattered droughts appearing. (2) Warm West, cold East for second week.

TEMPERATURE: The second week of persistent low pressure over the Great Lakes and high pressure in the West continues the pattern of warm, sunny weather in the West and cold air with variable cloudiness in the East. However, the eastern cold area was a bit larger and stronger while the area of western warmth shrank a bit. The Ohio River area was 12° below normal and winter-like weather persisted in the Northeast. Touches of frost invaded the Deep South where a cool, late spring continues. It was the third mild week along the Pacific coast and the fifth warm week over much of the Great Basin.

Weather continued on page 330.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - OKLAHOMA - Heavy in wheat in Alfalfa County. Up to 1,000 per linear foot in spots in Noble County fields; generally moderate in other fields in county and in Kay County; 30 per linear foot near Perkins, Payne County. Ranged 50-250 per linear foot in wheat in northern Tulsa, Washington, northern Nowata and northern Craig and 3-40 in Ottawa, Delaware, southern Craig, Mayes, Rogers and southern Tulsa Counties. Few greenbug "spots" seen in Tulsa and Craig Counties. Ranged 500-1,000 per linear foot in some fields in Washita County; some wheat killed. Averaged 50 per linear foot in scattered areas of Beckham County. Ranged 25-50 per linear foot in Caddo County; heavy in Grady County with thousands of acres sprayed. Moderate to heavy in Cleveland and moderate in Kingfisher Counties. Counts per linear foot averaged 6 near Coweta, Wagoner County, and 40 in Creek County. Moderate in Cotton County; 5-45 per linear foot in wheat in Jackson, Greer and Kiowa Counties; light to moderate in Bryan, Murray and Stephens Counties. (Okla. Coop. Sur.). MISSOURI - None found in areas checked. (Houser).

CORN LEAF APHID (Rhopalosiphum maidis) - NEW MEXICO - Very light; 2 per 25 sweeps in barley near Garfield, Dona Ana County. (Campbell).

ARMYWORM (Pseudaletia unipuncta) - SOUTH CAROLINA - Large adult numbers collected in more southern States. Growers of highly fertilized small grain should be alert to possibility of attack in several weeks. (Nettles et al., Apr. 5). MISSOURI - This and Agrotis ipsilon taken in first light trap catch at Portageville, Pemiscot County, March 28 and April 2. (Keaster, Harrendorf, Jones).

BEET LEAFHOPPER (Circulifer tenellus) - COLORADO - Some planting of sugar beets underway in Mesa County. Survey near Colorado-Utah border on Russian thistle and other weed hosts March 28 indicated no leafhoppers. Checks on weed hosts in Loma-Mack beet farmlands showed no leafhoppers present. Apparently no overwintering population. (Bulla).

SIX-SPOTTED LEAFHOPPER (Macrostelus fascifrons) - MISSISSIPPI - Averaged 30 adults and nymphs per square foot in Bahia grass in Oktibbeha County. (Dinkins et al.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ARKANSAS - Surveys negative in north-west; somewhat surprising considering extended dry weather. (Boyer). OKLAHOMA - Heavy in alfalfa in Beckham, moderate in Alfalfa, light in Noble and Bryan Counties; 0-10 per 10 sweeps in Washington, Nowata, Mayes, Rogers, Tulsa and Wagoner Counties. (Okla. Coop. Sur.).

INSECTS AFFECTING CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - NEBRASKA - Mortality of overwintering larvae very light. Strong possibility of heavy first generation population. (Rhine). MINNESOTA - Limited checks in central and south central districts showed overwintering mortality averaged 4 and 0 percents, respectively. Populations low; collection very difficult. Woodpeckers quite effective in reducing populations further in some fields. (Minn. Ins. Sur.).

BLACK CUTWORM (Agrotis ipsilon) - FLORIDA - Late instars averaged one per 10 linear feet; cutting off 6-inch high sweet corn in 20-acre field in Belle Glade area, Palm Beach County. Det. by R. H. Steinbruck. (Fla. Coop. Sur. Apr. 1).

SMALL GRAINS

GRAIN APHIDS - MISSOURI - Aphids ranged 1-7 per foot of row in small grains in southwest and west central districts. Macrosiphum avenae dominant species; comprised 70 percent alate forms. Occasional alate of Rhopalosiphum maidis observed. (Houser). OKLAHOMA - M. avenae present in most fields checked in northeast area,

and in Wagoner, Creek and Payne Counties; 1-40 per linear foot. Ranged 5-20 per linear foot in many fields in Jackson, Greer, Kiowa, Grady and Caddo Counties. (Okla. Coop. Sur.).

CHINCH BUG (Blissus leucopterus) - MISSISSIPPI - Light in wheat in Sunflower County; 10 adults per 100 sweeps. (Dinkins et al).

A LEAFHOPPER (Dikraneura carneola) - UTAH - Moderate in field margins of south Salt Lake County dryfarm wheat and on Levan Ridge, Juab County. (Knowlton).

GRASS SHEATH MINER (Cerodontha dorsalis) - DELAWARE - Fairly common in field of green barley. Heads prematurely white on stems infested with larvae. This species was taken in association with Chaetopsis debilis (an otitid), Notanisomorpha ainsliei (a eulophid) and Bracon meromyzae (a braconid). C. dorsalis is the suspected host of N. ainsliei and B. meromyzae. All of these species were collected June 18, 1965, at Magnolia, Kent County, by D. MacCreary. The following are new records from Delaware: Chaetopsis debilis, determined by G. C. Steyskal from reared adults; Notanisomorpha ainsliei, determined by B. D. Burks; and Bracon meromyzae determined by P. M. Marsh. (Burbutis).

CUTWORMS - COLORADO - Chorizagrotis auxiliaris and Agrotis orthogonia up to 3 per linear foot of row on wheat in Kit Carson County; causing damage. (Wissant).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Ranged 100-300 per linear foot in wheat and barley in Washita County; damaging in western half of county. Heavy in Alfalfa, Grady and Cotton Counties; light to moderate in Cimarron, Noble, Payne and Kingfisher Counties. (Okla. Coop. Sur.).

WINTER GRAIN MITE (Penthaleus major) - OKLAHOMA - Continues heavy in few areas; some damage to wheat in Noble County. (Okla. Coop. Sur.). MISSOURI - Very light in small grains in southwestern and west central districts; 0-20 per foot of row. (Houser).

TURF, PASTURES, RANGELAND

CLOVER MITE (Bryobia praetiosa) - CALIFORNIA - Locally heavy on turf in Lucerne Valley, San Bernardino County. (Cal. Coop. Rpt.).

MAY BEETLES (Phyllophaga sp.) - ALABAMA - Larvae extremely heavy and feeding on roots of St. Augustine grass lawn in Spring Hill, Mobile County. Pupation underway; numerous adults emerging. (Diller, Seibels).

For Grasshoppers, see Federal-State Plant Protection Programs page 312.

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - ARKANSAS - Negative in 3 Madison and 4 Benton County fields. (Boyer). Treatments applied in Crittenden County. (Roberts). Oviposition studies continue in Mississippi County. Alfalfa samples taken April 5 consisted of new growth. Eggs ranged 35-84 per square foot in 4 samples; this approximately 2.5 million per acre. (Miner, Dumas). MISSISSIPPI - Surveys in 3 delta counties show approximately same infestation level of 3 weeks ago. Larvae per square foot by counties as follows: Bolivar 29, Leflore 74, Washington 111. (Dinkins et al.). ALABAMA - Larvae heavy in 8 acres of alfalfa in Morgan County March 29. (Rutledge). GEORGIA - Larvae continue to damage alfalfa in Houston County. (Tippins). NORTH CAROLINA - Eggs present in green stems March 15 in Wake County; egg laying by overwintering adults not begun in Rowan County at that time. Tip damage occurred about April 1. Early larvae now second and third instars. (Campbell). VIRGINIA - Larvae present in all alfalfa checked in Patrick, Henry, Carroll, Floyd, Franklin, Roanoke and Montgomery Counties. Most larvae

second stage. Alfalfa 4-6 inches high. (Isakson). NEW JERSEY - Activity increased in southern counties; abundance will be similar to 1965. Growers advised to check for larvae in developing terminals. (Ins.-Dis. Newsltr.). OHIO - Eggs hatching; limited damage occurring in Scioto, Washington, Ross, Lawrence, Meigs, Gallia and Hocking Counties. Crop damage expected in all south central and south-eastern counties with warm weather. Inspection of fields urged. Heaviest populations observed in Gallia County; 6 larvae per stem; second and possibly third stages collected. Alfalfa 3-7 inches high. By April 16, large larval populations began appearing in southern third of State. (Blair et al.). KENTUCKY - Nearly all alfalfa will need controls. Fields sprayed earlier must be observed closely for signs of increased feeding on new growth. (Miller, Apr. 12). INDIANA - Damage ranged 4-25 percent on alfalfa in Spencer, Warrick, Vanderburgh, Posey, Gibson and Knox Counties; heaviest in Ohio River Valley area. First and second instars predominant. (Matthew, Huber). Summary of sampling in Ohio River area of Harrison County as follows: March 17 - Larvae averaged 72 per square foot; 37 percent first instars, 56 percent second and 7 percent third. No adults found as night temperatures in middle to high 20's. Spring laid eggs averaged 23 per square foot. March 31 - Adults averaged 198 per 100 sweeps at night in most heavily infested field in area. (Hintz, Wilson). ILLINOIS - Larvae ranged 6-230 (averaged 118) per 100 sweeps in 4-8 inch alfalfa in southeast; 20-80 percent (average 60) terminals infested by 1-4 (average 1.76) first to second instars per infested stem. Occasional larva, possibly third instar, observed. Adults 0-4 (average 1.25) per 100 daytime sweeps. Temperatures varied 30-55°F. with 10-20 mile-per-hour wind and some snow flurries. Damage by larvae expected to be severe as soon as weather warms. (White). MISSOURI - Below normal temperatures halted larval development and caused undetermined amount of mortality. (Houser).

NEW MEXICO - No adults found in alfalfa checked in Laplata and Farmington areas, San Juan County. (Heninger). COLORADO - Some alfalfa fields burned over with propane gas burners to stimulate growth and bring partial control of this pest in Mesa County. Few, if any, chemicals used for adults. (Bulla). No alfalfa insects observed to date. Conditions very windy and generally unfavorable in Arkansas Valley. (Schweissing). UTAH - Adults active in Davis, Millard, Utah, Sevier, Piute, Sanpete, Washington and Iron Counties; generally active in alfalfa along west slope of Wasatch Mountains, Box Elder through Juab Counties. Light to moderate in Plain City, Weber County, alfalfa. (Knowlton). NEVADA - Few first-stage larvae observed in alfalfa near Sparks, Washoe County. (Cooney). IDAHO - Egg laying underway April 4 in Camas Prairie area and Grangeville, Idaho County. (Parks). WYOMING - One active adult collected in 26 alfalfa fields of Platte, Goshen and Laramie Counties. First adults collected 3 weeks later than in 1965 in the same area. (Pfadt).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Continues heavy on second-growth alfalfa in Yuma County; 1,000 per 100 sweeps. (Ariz. Coop. Sur.).

CLOVER LEAF WEEVIL (Hypera punctata) - ILLINOIS - Larvae 3-35 per square foot in 1 alfalfa and 5 clover fields in southeast. Microscopic examination showed 30 percent of third to fourth instars parasitized by hymenopterous larvae probably Biolysia tristis (an ichneumon wasp). Only light damage expected in district. Along State Highway 1 in Edgar, Clark, Crawford and Lawrence Counties, larvae 0-15 per square foot in clover fields; 32 percent third to fourth instars parasitized. No damage expected in area. (White). MISSOURI - Larvae in alfalfa very low, 0-4 per square foot, in the southwestern and west central districts. Many small larvae killed by subfreezing temperatures. (Houser).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ILLINOIS - Few adults observed in clover and alfalfa in east-southeast and southeast districts. (White).

CLOVER HEAD WEEVIL (Hypera meles) - ALABAMA - Larvae damaging crimson clover in Bullock County. (Stone).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Adults flying; temperature 67°F. in Moscow area, Latah County, April 7. (Portman).

CLOVER ROOT CURCULIO (Sitona hispidula) - ILLINOIS - Few adults observed in clover and alfalfa in southeast district. (White).

SPOTTED CUCUMBER BEETLE (Diabrotica undecimpunctata howardi) - ARIZONA - Moderate in alfalfa throughout Graham and northern Cochise Counties. (Ariz. Coop. Sur.).

PEA APHID (Acyrtosiphon pisum) - NEW MEXICO - Very light in alfalfa near Lovington, Lea County, (Mathews), and in Laplata and Farmington areas, San Juan County, (Heninger). ARIZONA - Continues moderate in Yuma County alfalfa; some increases noted in newly planted fields. Light in Graham County and San Simon Valley of Cochise County. (Ariz. Coop. Sur.). ARKANSAS - Increased in alfalfa in northwest; 400-600 per 100 sweeps. (Boyer). OKLAHOMA - Ranged 10-130 per 10 sweeps in alfalfa checked in northeast counties; 200-1,000 per 10 sweeps in Greer, Comanche, Kiowa, Stephens and Logan Counties. Heavy in alfalfa in Murray, Bryan and Grady Counties; light to moderate in many northwest, west central, central and south central counties. (Okla. Coop. Sur.). MISSOURI - Very low in alfalfa in southwest and west central districts; 100-200 per 100 sweeps. (Houser). ILLINOIS - Adults and nymphs ranged 12-480 (average 213) per 100 sweeps in 4-8 inch alfalfa in southeast; 0-5 percent killed by parasites. (White). WISCONSIN - No nymphs found in 2 alfalfa fields checked in Madison area, but some hatch probably occurred. Alfalfa 1-2 inches high. (Wis. Ins. Sur.). VIRGINIA - Very light in alfalfa checked in Patrick, Henry, Carroll, Floyd, Franklin, Roanoke and Montgomery Counties; 30-350 per 100 sweeps (average 110). (Isakson).

THREE-CORNERED ALFALFA HOPPER (Spissistilus festinus) - ARKANSAS - Small numbers in alfalfa; no appreciable increase noted. (Boyer).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - UTAH - Numerous in alfalfa at Plain City, Weber County. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - ARKANSAS - Increasing in alfalfa in northwest; 15-20 adults per 100 sweeps. (Boyer). OKLAHOMA - Present in most alfalfa checked in northeast area; 0.5-2 per 10 sweeps. (Okla. Coop. Sur.). ILLINOIS - Few adults observed in clover and alfalfa in southeast district. (White).

LYGUS BUGS (Lygus spp.) - NEW MEXICO - Adults 2-4 per 25 sweeps in alfalfa near Salem, Dona Ana County, (Campbell); 0-2 per 25 sweeps in Lovington area, Lea County, (Mathews). ARIZONA - Nymphs low in alfalfa in Graham County and in San Simon Valley of Cochise County. (Ariz. Coop. Sur.). UTAH - L. elisus and Lygus sp. active in alfalfa fields examined in Box Elder, Weber, Salt Lake, Utah and Sevier Counties. Some L. hesperus in Sevier and Utah County fields. (Knowlton). WYOMING - Adults active in alfalfa in Platte, Goshen and Laramie Counties, 1-4 per square foot. (Pfadt).

MEADOW SPITTLEBUG (Philaenus spumarius) - ILLINOIS - Occasional first-instar nymph observed in White County. (White).

ALFALFA CATERPILLAR (Colias eurytheme) - ARIZONA - Larvae increasing in alfalfa in Gila Valley, Yuma County; 70 per 100 sweeps. (Ariz. Coop. Sur.). OKLAHOMA - First of season noted in Tulsa County alfalfa. (Okla. Coop. Sur.).

VARIEGATED CUTWORM (Peridroma saucia) - MISSOURI - No larvae found in alfalfa in southwestern and west central districts. (Houser). First light trap catch of season occurred at Portageville, Pemiscot County, April 6. (Kester, Harrendorf, Jones).

YELLOW-STRIPED ARMYWORM (Prodenia ornithogalli) - OKLAHOMA - Averaged 1.5 per 10 sweeps in alfalfa in Kiowa County. First report of season. (Okla. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - ARIZONA - Heavy numbers damaged field of alfalfa in San Simon Valley of Cochise County; light in other fields. (Ariz. Coop. Sur.).

BROWN WHEAT MITE (Petrobia latens) - NEW MEXICO - Light to moderate in alfalfa along river levee in vicinity of Hatch, Dona Ana County. (Campbell).

MISCELLANEOUS FIELD CROPS

CUTWORMS - NEVADA - Heavy flights and subsequent egg laying indicate possible heavy larval infestations later in season. Only early stage larvae of Peridroma saucia identified to date. (Zoller).

WHITE-LINED SPHINX (Celerio lineata) - ARIZONA - Small numbers of adults found in and around Safford, Graham County. (Ariz. Coop. Sur.).

EASTERN LUBBER GRASSHOPPER (Romalea microptera) - FLORIDA - Heavy on weeds in Winter Haven, Polk County; about 0.5 inch long and migrating. Chemical controls tested. (J. C. Denmark, Mar. 25).

VARIEGATED CUTWORM (Peridroma saucia) - ARKANSAS - Light but causing some damage to tomato plants in Drew County field. (Roberts).

TOMATO RUSSET MITE (Aculus lycopersici) - CALIFORNIA - Medium to heavy on black nightshade in San Marcos, San Diego County. Nightshade reservoir host. (Cal. Coop. Rpt.).

COLE CROPS

DIAMONDBACK MOTH (Plutella maculipennis) - ALABAMA - Larvae light and feeding on cabbage in St. Elmo area, Mobile County. Some pupation noted; few adults observed. (Seibels, Diller). UTAH - Adults and larvae moderate on Sophia sp. in St. George-Santa Clara area, Washington County. (Knowlton).

IMPORTED CABBAGEWORM (Pieris rapae) - ALABAMA - Small to medium sized larvae light on cabbage in St. Elmo area, Mobile County. Adults abundant throughout State. (Diller, Seibels et al.).

CUCURBITS

MELON APHID (Aphis gossypii) - ARIZONA - Appearing on new melon crop in Yuma County areas. (Ariz. Coop. Sur.).

SOME FIRST APPEARANCES OF THE SEASON

Armyworm and black cutworm adults in Missouri; large numbers of armyworm adults reported south of South Carolina. Lesser clover leaf weevil and clover leaf weevil adults in Illinois. Sweetclover weevil adults in Idaho. Meadow spittlebug nymphs in Illinois. Alfalfa caterpillar larvae in Arizona and Oklahoma. Variegated cutworm adults in Missouri. Yellow-striped armyworm in Oklahoma. Melon aphid in Arizona. Apple grain aphid in Ohio. A fruit-tree mite (Bryobia rubrioculus) and mourning-cloak butterfly adults in Utah. Mosquito adults in Colorado. Horn fly adults in Arkansas. Elm leaf beetle in Missouri. Face fly adults in South Dakota.

DECIDUOUS FRUITS AND NUTS

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OHIO - First egg hatch in Fairfield County noted March 17; now 12-50 per bud. Syrphid fly larvae present; eggs first found March 29; averaged 1 per 5 buds. (Holdsworth). Infesting nearly 100 percent of buds on apple trees examined in southeast area; syrphid fly eggs and larvae observed in aphid colonies. (Rose).

PEAR PSYLLA (Psylla pyricola) - CONNECTICUT - Low numbers of adults and eggs found at Storrs April 1; adults very abundant April 5, eggs scarce. (Savos).

LYGUS BUGS (Lygus spp.) - UTAH - Active and fairly numerous in alfalfa fields and orchards in Weber County from Plain City through North Ogden. (Knowlton).

FRUIT-TREE LEAF ROLLER (Archips argyrospilus) - CONNECTICUT - Large number of overwintering egg masses in New Haven; abundant in 1965; will probably be abundant in 1966. (Savos, Apr. 6).

EUROPEAN RED MITE (Panonychus ulmi) - OHIO - Overwintering eggs hatching in southern area apple orchards. Generally large numbers indicate high potential populations. (Rose).

A FRUIT-TREE MITE (Bryobia rubrioculus) - UTAH - Active in apple orchard at Santa Clara, Washington County. (Knowlton).

GREEN PEACH APHID (Myzus persicae) - COLORADO - Stem mothers attaining maturity. Approximately 50 percent of eggs hatched; 60 percent of unhatched eggs nonviable on peaches in Mesa County. Population moderate to heavy. Apricots in full bloom. (Bulla). UTAH - Causing moderate curling of peach foliage at Santa Clara and Veyo, Washington County. (Knowlton).

AN APHID (Anuraphis helichrysi) - UTAH - Numerous in St. George-Santa Clara area, Washington County; leaves on some plum trees severely curled. (Knowlton).

LESSER PEACH TREE BORER (Synanthedon pictipes) - ALABAMA - Adult emergence and flight occurring in central area from laurelcherry, peaches and ornamentals. (McQueen).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - CALIFORNIA - Adults medium in bait traps in peach trees at Mettler Station, Kern County. (Black, Ent. Serv.).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - OKLAHOMA - Light to moderate on fruit trees in Cleveland County; widespread but light on wild plum in north-east counties. (Okla. Coop. Sur.).

FIG SCALE (Lepidosaphes ficus) - CALIFORNIA - Light on fig trees at Clovis, Fresno County. Parasites quite effective in reducing infestations in past few years. (Cal. Coop. Rpt.).

HICKORY SHUCKWORM (Laspeyresia caryana) - OKLAHOMA - Pupation begun in shucks checked in Lincoln County. (Okla. Coop. Sur.).

CITRUS

Citrus Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocoptruta oleivora) infested 52 percent of groves (norm 58 percent); 33 percent economic (norm 36 percent). Population below normal and in moderate range but increasing. Increase expected in April will be offset by new growth and removal of mites by harvest. Highest districts south and west. CITRUS RED MITE (Panonychus citri) infested 36 percent of groves (norm 42 percent); 14 percent economic (norm 16 percent). Population low and below average; little change expected. Highest districts east and north. TEXAS CITRUS MITE (Eutetranychus

banksi) infested 31 percent of groves (norm 32 percent); 8 percent economic (norm 13 percent). Population below average and in low range; however increase in distribution and intensity expected. Highest districts north and west. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) infested 3 percent of groves (norm 11 percent); none economic. Will increase slightly but will be unimportant. GLOVER SCALE (Lepidosaphes gloverii) infested 78 percent of groves; 19 percent economic. Population above normal and approaching high range. Increase expected. Highest districts central, east and south. PURPLE SCALE (L. beckii) infested 74 percent of groves; 5 percent economic. Population below normal; slight increase expected. Highest district central. YELLOW SCALE (Aonidiella citrina) infested 75 percent of groves; 20 percent economic. Population above average and highest on record for March. Increase expected in most districts. Highest district central and lowest north. CHAFF SCALE (Parlatoria pergandii) infested 60 percent of groves; 12 percent economic. Population below normal and in moderate range; slight increase expected. Highest district central. BLACK SCALE (Saissetia oleae) infested 29 percent of groves; 13 percent economic. Population near average and at low level. Increase not expected until May. Highest district east. Populations of WHITEFLIES near normal. Larval forms will decrease and adults will increase during April. MEALYBUGS at low levels but light infestations more numerous than normal. APHIDS below normal for March. Light in 20 percent of groves; will reach peak during April in most groves. High infestations extending into May expected in groves defoliated by cold. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

Quarterly Insect and Mite Outlook in Florida - April through June - This outlook is based on the assumption that weather beyond the period of the current Environmental Data Service's 30-day outlook will be normal. Therefore, the forecast given below cannot be viewed with the same degree of confidence as those in the "Citrus Insect and Disease Summary" usually released twice each month.

Near normal populations of CITRUS RUST MITE will occur, with about 35 percent of groves developing moderate to heavy infestations. Increases expected in late April and in June. TEXAS CITRUS MITE will increase in scattered groves in April, becoming more general in May. Expected to be above average and in high range by June with more than 50 percent of groves moderate to heavy. CITRUS RED MITE will be about as abundant as in past 3 years. Scattered groves will have important infestations in April. General increase starting in May will result in moderate to heavy infestations in about 40 percent of groves. Summer population peak expected at the end of June. SIX-SPOTTED MITE infestations will occur in about 6 percent of groves through June but very few will be important. Rapid increase of BLACK SCALE starting in early May expected to result in an abnormally high population by the end of June. YELLOW SCALE will be above average; all districts expected to have more infestations with some of economic importance. GLOVER SCALE increase in April and May expected to give population peak in late June at above average level and in high range. AN ARMORED SCALE (Unaspis citri) will occur in more locations. CHAFF SCALE and PURPLE SCALE will increase but neither expected to develop statewide population exceeding normal, moderate level. Adult WHITEFLIES will be numerous in April and again in late June. Larvae expected to be near normal level. MEALYBUGS expected in above normal numbers in May through June. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS THRIPS (Scirtothrips citri) - ARIZONA - Continues buildup in citrus groves in Maricopa and Yuma Counties; treatments necessary for protection of new fruit. (Ariz. Coop. Sur.).

SMALL FRUITS

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) - IDAHO - Seriously damaged 30-acre commercial strawberry planting in Ada County. Grower plans to treat infested areas. (Hilfiker).

ORNAMENTALS

ARMORED SCALES - ALABAMA - Fiorinia theae crawlers active and abundant on previously affected camellia and Burford holly; moving to undersides of old and new leaves. (McQueen). VIRGINIA - Pseudaulacaspis pentagona medium on pyracantha in Lebanon, Russell County; found on wide variety of hosts and important because of 2-3 generations per year. (Amos). CALIFORNIA - Hemiberlesia rapax heavy on ceanothus nursery stock in Walnut Creek, Contra Costa County. Diaspis cocois heavy on coconut palms in Santa Maria, Santa Barbara County. (Cal. Coop. Rpt.).

SOFT SCALES - CALIFORNIA - Pulvinaria sp. medium on birch in nursery in Walnut Creek, Contra Costa County. Saissetia coffeae heavy on mother ferns in a nursery in Oroville, Butte County. (Cal. Coop. Rpt.).

GREENHOUSE ORTHEZIA (Orthezia insignis) - FLORIDA - Moderately infesting stems and leaves of 50 of 100 inspected Alternanthera bettzickiana plants in nursery at Fort Lauderdale, Broward County. (Clinton, Mar. 28).

A MEALYBUG (Pseudococcus obscurus) - CALIFORNIA - Locally heavy on Buxus sp. in Modesto, Stanislaus County. (Cal. Coop. Rpt.).

APHIDS - ALABAMA - Aphis spiraecola heavy on new growth of spirea throughout State. Macrosiphum rosae heavy on new growth of roses in central and southern areas. (McQueen). CALIFORNIA - Aphids, probably A. gossypii heavy on euphorbia nursery stock in Mountain View, Santa Clara County. Tamalia coweni heavy on manzanita nursery stock in Walnut Creek, Contra Costa County. Cinara curvipes very heavy locally on Atlas cedar in Alameda, Alameda County. (Cal. Coop. Rpt.).

A PSYLLID (Psylla uncatoides) - CALIFORNIA - Adults heavy on acacia shrubs in Lompoc, Santa Barbara County. (Cal. Coop. Rpt.).

A LACE BUG (Corythucha incurvata) - CALIFORNIA - Heavy on Photinia arbutifolia in La Grange, Stanislaus County. (Cal. Coop. Rpt.).

AZALEA LEAF MINER (Gracillaria azaleella) - CALIFORNIA - Medium and damaging azalea nursery stock in Oroville, Butte County. (Cal. Coop. Rpt.). FLORIDA - Larvae moderate on 140 of 200 inspected azalea plants at Brandon, Hillsborough County. (Simmons, Mar. 30).

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) - DELAWARE - Heavy in American holly in New Castle County; mostly pupae. (Burbutis).

VEGETABLE WEEVIL (Listroderes costirostris obliquus) - CALIFORNIA - Larvae medium on Malva parviflora in San Marcos, San Diego County. (Cal. Coop. Rpt.).

A WALSHIID MOTH (Periploca ceanothiella*) - CALIFORNIA - Heavy on ceanothus nursery stock in Walnut Creek, Contra Costa County. (Cal. Coop. Rpt.).

JUNIPER WEBWORM (Dichomeris marginella) - IDAHO - Small larvae, probably this species, webbing leaves of Meyer juniper in Boise, Ada County. (McCracken).

A TARSONEMID MITE (Steneotarsonemus ananas (Tyron)) - CALIFORNIA - Medium on a bromeliad (Aechmea fasciata) nursery stock in Brea, Orange County. Det. confirmed by E. W. Baker. Species known from pineapple in Australia and Hawaii. This is a new North American record. (Cal. Coop. Rpt.).

PRIVET MITE (Brevipalpus obovatus) - CALIFORNIA - Medium locally on rhododendrons in Menlo Park, San Mateo County. (Cal. Coop. Rpt.).

A FALSE SPIDER MITE (Pentamerismus erythreus) - IDAHO - General infestation, requiring treatment, observed on ornamental arborvitae in Caldwell. (Bechtolt).

* See also corrections page 313.

FOREST AND SHADE TREES

A CONIFER SAWFLY (Neodiprion taedae linearis) - ARKANSAS - First hatching noted March 15 in Calhoun County. By March 23, hatching well under way. Observations indicate light infestation in 1966. (Ark. For. Pest Rpt., April).

ENGRAVER BEETLES (Ips spp.) - ARKANSAS - Activity will increase as season progresses. Tree vigor and available moisture will influence level of infestations and resultant damage. Residual infestations from 1965 pine bark beetles evident in a few isolated areas. Salvage operations underway where feasible. (Ark. For. Pest Rpt., April).

SOUTHERN PINE BEETLE (Dendroctonus frontalis) - ARKANSAS - Remains absent or undetected in State. Foresters encouraged to remain alert. (Ark. For. Pest Rpt., April).

PINE TIP MOTHS - ARKANSAS - Emergence of adults first noted in Hempstead County March 15. Examination of test plots revealed adult activity well under way. Treatment for first generation control advised by April 10 in south, and by April 20 in north. This assumes that seasonal moderate weather prevails for the first week in April. Emergence noted at Fayetteville March 29. (Ark. For. Pest Rpt., April).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ARKANSAS - Second and third stage larvae noted on wild cherry in Washington County. (Boyer). MISSOURI - Larvae observed on black cherry as far north as Lamar, Barton County. (Houser). ILLINOIS - Small nests observed in east-southeast district. (White).

GREAT BASIN TENT CATERPILLAR (Malacosoma fragile) - UTAH - Severe on some poplar trees and shrubs along Virgin River drainage from Santa Clara to Rockville, Washington County; moderate on shrubs north of St. George. Conspicuous in some orchards at Rockville. (Knowlton).

A TENT CATERPILLAR (Malacosma incurvum discoloratum) - NEVADA - Larvae and damage heavy on elm and poplar trees in Overton, Clark County. (Nichols). Identification based upon comparison with larvae determined by F. H. Stehr. (Bechtel).

CALIFORNIA OAKWORM (Phryganidia californica) - CALIFORNIA - Larvae heavy and defoliating oak trees at Fort Ord, Monterey County. (Cal. Coop. Rpt.).

MOURNING-CLOAK BUTTERFLY (Nymphalis antiopa) - UTAH - Adults observed in Box Elder, Utah and Iron Counties week of March 31. Numerous adults observed in Ogden area, Weber County. (Knowlton).

ELM LEAF BEETLE (Pyrrhalta luteola) - MISSOURI - Adults beginning to leave overwintering sites in southwestern district. (Jaynes, C. Jones).

A PLANT BUG (Orthotylus translucens) - DELAWARE - All stages abundant on Moraine honeylocust and causing severe injury at Bridgeville, Sussex County, June 4, 1965. Collected by D. MacCreary. Det. by R. C. Froeschner. This is a new State record. (Burbutis).

ARMORED SCALES - FLORIDA - Neopinnaspis harperi and Melanaspis obscura infested oak, in Sebring, Highlands County. These are new county records. (Mosier, Mar. 28).

MAN AND ANIMALS

MOSQUITOES - UTAH - First and second-stage larvae of Aedes sp. very numerous in

Randolph area, Rich County. (Roberts). Mosquito adults observed in fields in St. George-Washington area, Washington County. Few overwintered Culex tarsalis adults noted in Weber County; Aedes dorsalis and A. increpitus larvae common in some areas. Several areas sprayed twice to reduce larval populations; granular insecticides also applied. Larvae sometimes numerous elsewhere in northern area. Aedes niphadopsis adults emerging in Grantsville area, Toole County. In Weber County, A. increpitus larvae most numerous as in past 4-5 years along Weber River and South Fork of river above Huntsville; no adults noted to April 8. A. dorsalis larvae dominant in lower pasture areas of lower valley; third and fourth stages 0-30 per dip. No large populations near lakeshore. Control needed only twice this spring. First to third stage A. sierrensis larvae common in tree holes from Uintah to Riverdale. A. campestris ranged 0-3 per dip in Pleasant View area north of Ogden. Culiseta inornata unusually low. Warm spring with little rain held population below normal in Weber County. (Fronk, Knowlton). COLORADO - Adults of Culex tarsalis and Culiseta inornata taken in Greeley, Platteville and Windsor areas; females presumably of overwintering populations. First larvae of Aedes dorsalis taken March 31 in Evans area. Intensive surveys in Colorado Springs area and other areas of El Paso County showed no breeding to March 31 (Harmston). MINNESOTA - Most mosquitoes in 174 larval collections made in Metropolitan Mosquito Control District second instar; few third instar Aedes excrucians, A. riparius, A. abserratus and A. stimulans found. (Minn. Ins. Rpt.). LOUISIANA - Larval collections in Jefferson Parish Department of Mosquito Control during week ending April 1 yielded Anopheles crucians, Culex pipiens quinquefasciatus, C. salinarius and Culiseta inornata; Culex salinarius predominates in light traps, Culiseta inornata decreased in light traps. (Stokes).

HORN FLY (Haematobia irritans) - MISSISSIPPI - Averaged 50 flies per animal on 33 head of cattle in Jefferson Davis County. Buildup very rapid; control measures urged in Jefferson Davis County. (Dinkins et al.). ARKANSAS - First outdoor specimens of season observed in northeast April 4. (Lancaster, Simco). OKLAHOMA - Averaged 300 per head on cows and 900 per head on bulls in Major County. Ranged 5-100 per head in Payne County and averaged 12 per head on cows in Mayes County. Moderate on cows and horses in Comanche County. (Okla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - NORTH DAKOTA - Ranged 0-41 (averaged 3.2) on 1,424 range cows and calves at Dickinson and Mandan livestock auctions March 15-24. Grubs averaged 9.4 per animal in 34 percent of cattle. Severe on 9 percent, moderate on 25 percent, light on 66 percent of infested animals. Less than 1 percent of grubs had dropped. (Brandvik). KANSAS - Survey of cattle throughout State made during February; cattle randomly selected and counts made at community sales. Populations appeared heaviest in southeast and south central districts. Market managers, buyers and farmers indicate populations higher than in recent years. Percent infestation by district as follows: Northeast, 10-68 in 2 counties; east central, 6-58 in 3 counties; southeast, 69-86 in 3 counties; north central, 2-53 in 4 counties; central, 35-48 in 3 counties; south central, 44-84 in 6 counties; northwest, 4-13 in 2 counties; west central, 18-36 in 2 counties; southwest, 18-78 in 4 counties. Of 1,375 animals inspected, 605 found infested. (Simpson). OKLAHOMA - H. lineatum moderate on cattle in Comanche and Cotton Counties. (Okla. Coop. Sur.).

HOUSE FLY (Musca domestica) - OKLAHOMA - Averaged 4 per Scudder grid in untreated barns in Payne County. (Okla. Coop. Sur.). ARKANSAS - First outdoor specimens of season observed in northeast April 4. (Lancaster, Simco).

CATTLE LICE - UTAH - Approximately 85 percent of cattle entering Sevier County feed lots treated with a pour-on systemic insecticide; 15,000-20,000 cattle to be treated this spring. Many ranchers treat beef herds both fall and spring. (Rick-
enback, Knowlton).

TICKS - OKLAHOMA Amblyomma americanum averaged 30 adults per head on steers in Atoka County; Ixodes scapularis averaged 18 and Dermacentor variabilis 2 per head on same steers. Unspecified ticks reported heavy on livestock in Latimer County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

ANGOUMOIS GRAIN MOTH (Sitotroga cerealella) - OKLAHOMA - Infesting food products in homes and stored grain in barns in Payne County. (Okla. Coop. Sur.).

DERMESTID BEETLES (Anthrenus spp.) - OKLAHOMA - Adults damaging woollens in several homes in Payne, Logan, and Pontotoc Counties. (Okla. Coop. Sur.).

WHITE-MARKED SPIDER BEETLE (Ptinus fur) - NORTH DAKOTA - Found in livestock feed storage area in Fargo, Cass County. (Post).

ELM LEAF BEETLE (Pyrrhalta luteola) - MISSOURI - Becoming nuisance in homes in southwestern district. (Jaynes, C. Jones).

FACE FLY (Musca autumnalis) - SOUTH DAKOTA - Nuisance in homes in Canton, Lincoln County. (Kantack).

MELON APHID (Aphis gossypii) - ARIZONA - Heavy adult populations migrating through city of Yuma; annoying in business establishments and to customers. (Ariz. Coop. Sur.).

CLOVER MITE (Bryobia praetiosa) - OHIO - Active in central area. (Spilker). MISSOURI - Reported in new homes in Carterville area, Jasper County, (Jaynes); and from home in Moniteau County, (Peters). OKLAHOMA - Entering homes and public buildings in Texas and Pottawatomie Counties. (Okla. Coop. Rpt.). NEBRASKA - Heavy numbers entering homes throughout eastern and central areas. (Stilwell, Rhine).

SUBTERRANEAN TERMITES (Reticulitermes spp.) - MARYLAND - R. flavipes swarmed inside and about several homes in suburban Prince Georges County. (U. Md., Ent. Dept.). OHIO - R. flavipes peak swarming activity occurred mid- to late February in southern half of State. Persisted for about 2 weeks. Swarming this early unusual. (Delaplane). UTAH - R. hesperus present in home in Salina, Sevier County. (Knowlton).

BENEFICIAL INSECTS

LADY BEETLES - UTAH - Larvae becoming numerous on some aphid-infested rose bushes and plum trees in Santa Clara-St. George area, Washington County. (Knowlton). NEW MEXICO - Ranged 2-6 adults per 25 sweeps in alfalfa in northern Dona Ana County (N. M. Coop. Rpt.). OKLAHOMA - Hippodamia convergens continues to increase in wheat and alfalfa in most areas; 1-2 per linear foot in many wheat fields in northeast. (Okla. Coop. Sur.).

LACEWINGS - NEW MEXICO - Ranged 2-4 per 25 sweeps in alfalfa in northern Dona Ana County. (N. M. Coop. Rpt.). MISSISSIPPI - Chrysopa spp. increasing; other beneficial species unchanged. (Dinkins et al.). ARKANSAS - Chrysopa spp. adults increasing in alfalfa in northwest; 15-20 per 100 sweeps. (Boyer). ILLINOIS - Few Chrysopa oculata adults observed in clover and alfalfa in southeast district. (White).

HONEY BEE (Apis mellifera) - OHIO - Honey production totaled 10,027,000 pounds in 1965; 36 percent below 1964 production and 7 percent below 1963. Total of 4,011,000 pounds available for sale December 15, 1965, or 38 percent less than previous year. Beeswax production totaled 150,000 pounds, 37 percent less than in 1964. Honey yield of 37 pounds per colony 20 pounds less than in 1964 and 4 pounds less than in 1963. Lack of moisture caused early summer flow to be well below normal. Conditions improved in August and September, but some areas affected by excess moisture and cool weather. Fall honey flow below that anticipated. Quality and flavor quite variable over State, due to irregular weather pattern. Price per pound of honey was 18.5 cents in 1965, compared with 19.0 cents in 1964 and 1963. Beeswax price down one cent from 1964; averaged 44 cents

per pound. Value of honey and beeswax produced during 1965 totaled 1,921,000 dollars compared with 3,107,000 dollars in 1964. (Clampet, Kendall). ALABAMA - First swarm of season reported in southeast. (Wallace).

A BRACONID (Lysiphlebus testaceipes) - OKLAHOMA - Active in northeast counties. Up to 5 percent of Schizaphis graminum (greenbug) parasitized in few fields. (Okla. Coop. Sur.)

AN ICHNEUMON WASP (Dolichomitus irritator) - DELAWARE - Reared from Elaphidionoides villosus (twig pruner) in maple. Collected November 20, 1965, at Laurel, Sussex County, by D. MacCreary. Det. by L. M. Walkley. This is a new State record. (Burbutis).

A PTEROMALID WASP (Zatropis albiclavis) - DELAWARE - Adults reared from locust leaves; Obolodiplosis robiniae (a cecidomyiid midge) suspected host. Collected August 5, 1965, by D. MacCreary at Newark, New Castle County. Det. by B. D. Burks. This is a new State record. (Burbutis).

FEDERAL-STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Egg surveys in rangeland areas of Greer, Jackson, Kiowa, Tillman, Carter, Johnston, Murray, Harper, Woodward, Blaine and Atoka Counties revealed 0.25-1.4 viable egg pods per square foot of soil. (Okla. Coop. Sur.).

STATUS OF THE SCREW-WORM (Cochliomyia hominivorax) IN THE SOUTHWEST

During the period April 3-, a total of 5 cases was reported in TEXAS by county as follows: One each in Live Oak, Hidalgo, Jim Wells, Webb and Cameron. The Republic of Mexico reported 51 cases as follows: Baja California Norte 1, Territorio sur de Baja California 1, Sonora 39, Chihuahua 1, Tamaulipas 7, Nuevo Leon 2. Sterile screw-worm flies released: Texas 11,306,250, Arizona 6,012,000, New Mexico 1,960,000, and Mexico 108,376,000.

Year	Positive Cases		Negative Cases		Ratio of Positive Cases to 100 Cases Negative	
	Current	Cumulative	Current	Cumulative	Current	Cumulative
Table 1. Comparison of specimens reported during corresponding week in 1964 and 1965 in Southwestern Eradication Area. (1966 area figures include cases reported from Arizona and/or California; 1965 figures reflect those from the 5-State area).						
1964	7	19	268	1199	2.61	1.58
1965	0	4	129	744	0.00	0.53
1966	5	33	108	472	4.62	6.99
Table 2. Comparison of specimens reported during corresponding week and in a corresponding area in 1965 in the United States-Mexico Barrier Zone.*						
1965	57	629	41	408	139.02	154.16
1966	54	580	57	364	94.73	159.34

Mexico Field Study - No report received for this period.

* Barrier Zone - Area in which screw-worm eradication operations are being carried out in an effort to prevent establishment of self-sustaining screw-worm populations in the United States. (Anim. Health Div.).

INSECT DETECTION

A TARSONEMID MITE (Steneotarsonemus ananas (Tyron)) - CALIFORNIA - Collected on Aechmea fasciata nursery stock in Brea, Orange County, by W. Amling March 18, 1966. Det. confirmed by E. W. Baker. Known from pineapple in Australia and Hawaii. This is a new North American record. (Cal. Coop. Rpt.).

AN OTITID FLY (Chaetopsis debilis) - DELAWARE - Larvae collected from stems of green barley at Magnolia, Kent County, by D. MacCreary June 18, 1965. Det. by G. C. Steyskal from reared adults. This is new State record. (Burbutis). (p. 302).

A EULOPHID WASP (Notanisomorpha ainsliei) - DELAWARE - Reared from barley stems in association with Chaetopsis debilis and Cerodontha dorsalis (suspected host); collected June 18, 1965, by D. MacCreary at Magnolia, Kent County. Det. by B. D. Burks. This is new State record. (Burbutis). (p. 302).

A BRACONID WASP (Bracon meromyzae) - DELAWARE - Collection data same as for N. ainsliei. Det. by P. M. Marsh. This is new State record. (Burbutis). (p. 302).

A PLANT BUG (Orthotylus translucens) - DELAWARE - Severely injured Moraine honeylocust at Bridgeville, Sussex County, June 4, 1965. Collected by D. MacCreary. Det. by R. C. Froeschner. This is new State record. (Burbutis). (p. 309).

A PTEROMALID WASP (Zatropis albiclavis) - DELAWARE - Adults reared from locust leaves; Obolodiplosis robiniae (a cecidomyiid midge) suspected host. Collected August 5, 1965, by D. MacCreary at Newark, New Castle County. Det. by B. D. Burks. This is new State record. (Burbutis). (p. 312).

AN ICHNEUMON WASP (Dolichomitus irritator) - DELAWARE - Reared from Elaphidionoides villosus (twig pruner) in maple by D. MacCreary. Collected November 20, 1965, at Laurel, Sussex County. Det. by L. M. Walkley. This is new State record. (Burbutis). (p. 312).

AN ANT (Leptothorax curvispinosus) - OKLAHOMA - Taken in hollow gall on dead weed in Nowata County, April 5, 1966. Det. by J. H. Young. This is new State record. (Okla. Coop. Sur.).

ARMORED SCALES - FLORIDA - Neopinnaspis harperi and Melanaspis obscura reported for first time in Highlands County. (Mosier, Mar. 28).

CORRECTIONS

CEIR 16(13):254 - Pest Control Accomplishments - Delete entry on pine tussock moth (Dasychira plagiata). Although a cooperative project to spray 12,000 acres of timber in Wisconsin for control of this pest had been approved, it was cancelled after evidence indicated that the population had declined sufficiently so that insecticide application was no longer warranted.

CEIR 16(13):258 - Paragraph 4 - A COSMOPTERIGID MOTH (Periploca nigra) should read a WALSHIID MOTH (Periploca nigra). Hodges, R. W. 1962. Entomologica Americana 42:113-114.

CEIR 16(13):261 - First paragraph, lines 1 and 2 - should read: A PSYLLID (Psylla uncatoides) was serious on acacia and albizzia statewide and A PSYLLID (Euphyllura arbuti) was heavy on madrone in north coastal areas. (Cal. Coop. Rpt.).

CEIR 16(14):278 - A CHRYSAUGID MOTH (Galasa nigrinoides) should read Galasa nigrinodis.

HAWAII INSECT REPORT

Special Insects of Regional Significance - SOUTHERN GREEN STINK BUG (*Nezara viridula smaragdula*) heavy on *Malva parviflora* (cheese weed) in Nanakuli, Oahu; mostly adults and fifth-instar nymphs. Nymphs and adults medium on green beans and *Plantago major* (broad-leaved plantain) in Naalehu and Honuapo, Hawaii Island. Nymphs light in 0.25 acre of eggplant in Kapaa, Kauai. (Suzukawa, Shirakawa, Fujimoto). A GRASSHOPPER (*Schistocerca vaga*) - Ten adults and 47 nymphs of various stages swept from *Desmanthus virgatus* (slender-mimosa), *Sida fallax* (ilima), and *Gossypium* sp. (cotton) in Nanakuli, Oahu. Rapid buildup occurring. (Haw. Ins. Rpt.). A STINK BUG (*Thyanta accerra*) - Fifteen adults swept from *Chloris inflata* (swollen finger grass) in Nanakuli, Oahu. Nymphs and adults light on *Phaseolus lathyroides* (wild bean) in Fort Kam-Hickam Air Force Base area, Oahu. (Suzukawa, Kajiwarra). One adult of a PLATASPID BUG (*Coptosoma xanthogramma*) intercepted at Honolulu International Airport, Oahu, April 2, on passenger's baggage destined for out of State. (Shiroma).

Beans and Peas - GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) continues heavy on snap beans in Waianae, Oahu; light on snap beans in Puunene, Maui. (Yamamoto, Miyahira).

Citrus -All stages of COTTONY-CUSHION SCALE (*Icerya purchasi*) heavy on citrus and *Pittosporum* spp. in Naalehu and light on citrus in Hilo, Hawaii Island. *Rodolia cardinalis* (vedalia) larvae feeding on scales in Hilo. (Shirakawa, Yoshioka).

General Vegetables - IMPORTED CABBAGEWORM (*Pieris rapae*) caused moderate damage on turnips in Hilo, Hawaii Island, and on broccoli and cabbage in Makawao and Puunene, Maui. Pupal cases of *Apanteles glomeratus* (a braconid) noted in moderate numbers amid dead *P. rapae* larvae in Puunene. (Yoshioka, Miyahira). THREE-LINED POTATO BEETLE (*Lema trilineata*) caused moderate damage to eggplant in Puunene, Maui; eggs, larvae, and adults numerous. (Miyahira).

Ornamentals - Larvae of a NOCTUID MOTH (*Achaea janata*) heavy on wild *Ricinus communis* (castor-bean) in Auwahi, Maui; light on rose and croton plants in Lanikai, Oahu. (Haw. Ins. Rpt.).

Forest and Shade trees - BARNACLE SCALE (*Ceroplastes cirripediformis*) heavy on *Citharexylum spinosum* (fiddlewood) in Kaneohe, Oahu. Nymphs and adults heavy on branches of fifteen 10-foot trees. Trees appeared weak and stunted. (Haw. Ins. Rpt.).

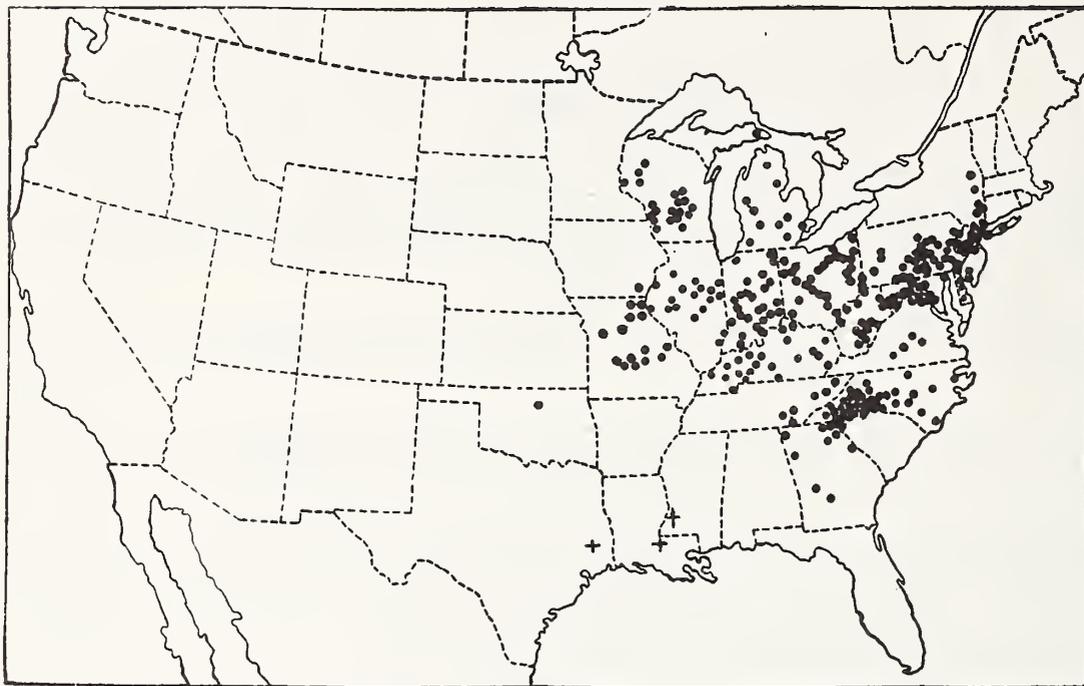
Man and Animals - BLACK WIDOW SPIDER (*Latrodectus mactans*) - Large numbers of eggs, immatures and adults noted under stones, boards and other objects in Kihei, Maui. (Krauss).

Beneficial Insects - One adult male of a predaceous MOSQUITO (*Toxorhynchites inornatus*) captured in Kaneohe, Oahu; first known recovery since 1929. Species purposely introduced from New Britain and New Guinea to aid in control of day-biting mosquitoes. (Hardy). Adults of a WEEVIL (*Apion ulicis*) medium on *Ulex europaeus* (gorse) in Olinda, Maui at 4,000 feet. This purposely introduced seed feeder established in State since 1957 but not observed during past several years. A CERAMBYCID BEETLE (*Archlagocheirus funestus*) apparently entering pupal stage in *Opuntia* sp. (prickly pear cactus) in Kawaihae-uka area, Hawaii Island; many larvae in prepupal stage. Species purposely introduced from Australia in 1951 to aid in control of wild cactus. (Yoshioka).

Miscellaneous Insects - A TENEBRIONID BEETLE (*Gonocephalum bilineatum*) - Light numbers of adults observed feeding on stems and leaves of *Emex* sp., a weed, in Mokuleia, Oahu; new host record. Species previously reported damaging shoots and stems of *Acacia melanoxydon* (Australian blackwood) at Waimea State Forest Nursery, Hawaii Island. (Haw. Ins. Rpt.).

PERIODICAL CICADAS (Magicicada spp.)

Expected appearance of Brood VI of the 17-year race and Brood XXVI of the 13-year race.



● = Brood VI of 17-year race

+ = Brood XXVI of 13-year race

Owing to the complex of species in this genus, Dr. R. C. Froeschner, Federal taxonomist in this group, is interested in obtaining specimens of cicadas from these areas for the National collection. These may be sent to the Division of Hemiptera, U.S. National Museum, Washington, D.C. 20560.

Estimates of Damage by the European Corn Borer
to Grain Corn in the United States in 1965

Compiled in Survey and Detection Operations, PPC, ARS

The loss to grain corn, attributed to the European corn borer (*Ostrinia nubilalis*) in 1965 is estimated to be approximately 51,379,100 bushels in 16 corn-producing States. In these States, the loss was 1.43 percent of the production. This loss is approximately 1.24 percent of the total national crop estimated at 4,171,100,000 bushels. ^{1/} The value of the loss, based on the season average prices received by farmers for corn ^{2/}, is \$55,366,160. These loss estimates are only for the States shown in Table 1, and are based on the counties or districts surveyed during the fall of 1965 within these States. ^{3/}

Table 1 is a composite of State and Federal estimates. These estimates were prepared by using production data ^{1/}, and prices received ^{2/}, released by the Statistical Reporting Service. The basis for the loss estimates was determined by the survey of European corn borer populations during the fall of 1965. ^{3/} The index of 3 percent loss per borer per plant was used to compute the loss in bushels.

Estimated loss to grain corn for the past 14 years in States where the fall abundance survey was conducted are as follows:

1965	51,379,100 Bushels	\$ 55,366,160
1964	87,116,000 "	97,478,000
1963	120,648,000 "	127,838,000
1962	88,245,000 "	93,695,000
1961	65,044,000 "	68,998,000
1960	102,991,000 "	96,085,000
1959	67,763,000 "	71,979,000
1958	100,699,000 "	98,434,000
1957	180,897,000 "	158,841,000
1956	97,971,000 "	119,535,000
1955	155,355,000 "	182,579,000
1954	191,614,000 "	261,415,000
1953	90,000,000 "	125,466,000
1952	53,270,000 "	77,205,000

^{1/} Crop Production, 1965 Annual Summary by States, Crop Reporting Board, Statistical Reporting Service, USDA, December 20, 1965.

^{2/} Crop Values, Season Average Prices Received by Farmers and Value of Production - 1964 and 1965 - By States, Crop Reporting Board, Statistical Reporting Service, USDA, December 20, 1965.

^{3/} Cooperative Economic Insect Report, 16(2):21-27.

Table 1. Estimates of Damage by the European Corn Borer to Corn Grown for Grain in the United States in 1965

State	Districts Included ^{1/}	Total State Production	Estimated Data			
			Value Per Bushel	Value of Production	Loss of Crop	
	Number	1,000 Bu.	Dollars	\$1,000	1,000 Bu.	\$1,000
Arkansas	4	3,811	1.27	4,840	34	44
Delaware	1	13,223	1.18	15,603	948	1,119
Illinois	7	891,664	1.07	954,080	1,061	1,135
Indiana	12	467,556	1.02	476,907	4,840	4,937
Iowa	12	811,964	1.07	868,801	33,874	36,245
Kansas	3	62,127	1.16	72,067	908	1,053
Maryland	3	37,074	1.19	44,118	127	151
Michigan	1	98,766	1.09	107,655	492	536
Minnesota	7	270,108	.92	248,499	163	150
Missouri	8	223,488	1.16	259,246	1,154	1,339
Nebraska	7	259,558	1.14	295,896	5,241	5,975
North Dakota	1	7,252	1.06	7,687	162	172
Ohio	5	219,825	1.06	233,015	519	550
South Dakota	6	92,040	1.05	96,642	1,604	1,684
Vermont	1	67	1.60	107	0.10	0.16
Wisconsin	9	124,412	1.10	136,853	251	276
Totals		3,582,935		3,822,016	51,379.10	55,366.16

^{1/} Cooperative Economic Insect Report. 16(2): 21-27.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1965
(continued from page 296)

STORED-PRODUCT INSECTS

CONFUSED FLOUR BEETLE (Tribolium confusum), RED FLOUR BEETLE (T. castaneum) and T. destructor were among the most frequently reported pantry and storage pests of CALIFORNIA. T. confusum larvae and adults were quite abundant in mills and other grain storage in NEW MEXICO and appeared to be more of a problem. This pest was also annoying in homes in Albuquerque area. T. confusum and T. castaneum were reported by many homeowners and occurred in large storage facilities on various products from several areas of TEXAS. T. castaneum was of little importance in KANSAS although quite commonly found; T. confusum was of minor importance also. T. confusum was one of the most common pests in grain elevators in northwestern OHIO. Scattered infestations of T. confusum occurred throughout RHODE ISLAND. This darkling beetle was a primary pest of stored-food products in NEW JERSEY. It was heavy in a large storage of barley near Ellicott City, MARYLAND. Both this species and T. castaneum were of economic importance to stored corn in ALABAMA.

YELLOW MEALWORM (Tenebrio molitor) was very common in feed storage areas in NEW MEXICO. Tenebrio spp. damaged cotton seed in several areas of TEXAS. T. molitor was a common pest in northwestern OHIO in grain elevators, and important on stored corn in ALABAMA. Other tenebrionids infested stored products. Cynaesus angustus was collected for the first time in DELAWARE from feed in a poultry house in New Castle County, and caused considerable damage to stored corn on a farm in Alexander County, NORTH CAROLINA, in late August. BROAD-HORNED FLOUR BEETLE (Gnathocerus cornutus) and G. maxillosus were economically important on stored corn in ALABAMA.

DERMESTID BEETLES (Trogoderma spp., Attagenus spp. and Anthrenus spp.) were present in many stored products in mills and warehouses in CALIFORNIA. T. parabile was present in lower than normal numbers but was one of the more frequently encountered pests in NEVADA. Trogoderma spp. were mostly light in NEW MEXICO but an occasional heavy infestation was found on commercial properties. BLACK CARPET BEETLE (Attagenus piceus) was present in trace numbers in NORTH DAKOTA; numerous reports of household infestations were received. T. glabrum, identified in June had caused injury to corn in several mid-MICHIGAN Agricultural Stabilization and Conservation Service storages before being discovered. Unspecified dermestids were commonly encountered in grain elevators in northwestern OHIO. A. piceus was an occasional pest in VIRGINIA. LARDER BEETLE (Dermestes lardarius) infested hams on several farms in Anne Arundel and Charles Counties, MARYLAND.

No KHAPRA BEETLE (Trogoderma granarium) infestations were found in the United States; 13,903 properties in 775 counties in 28 States were inspected in 1965.

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was present in lower than normal numbers but it was one of the more commonly encountered pests in NEVADA. This cucujid infested large storage facilities in one or more areas of TEXAS. FLAT GRAIN BEETLE (Cryptolestes pusillus) caused damage in several Texas areas also. A September survey in KANSAS indicated that O. surinamensis and RUSTY GRAIN BEETLE (C. ferrugineus) were again the major pests of farm-stored grains. Populations were light to moderate with an occasional high infestation encountered. In general, numbers were slightly higher than those in 1964 in Kansas; C. pusillus was found only occasionally in grain elevators in northwestern OHIO. Scattered infestations of O. surinamensis occurred throughout RHODE ISLAND. This beetle was a primary pest of stored products in NEW JERSEY, and infested a wide variety of stored products in MARYLAND, including farm-stored small grain in Howard County. This was also one of the most commonly reported pests of stored products in homes stores and barns in VIRGINIA. O. surinamensis and C. pusillus attacked stored corn in ALABAMA.

CIGARETTE BEETLE (*Lasioderma serricorne*) occurrences increased in NEW JERSEY. This was a common pest of various cereals and spices in all sections of MARYLAND and was one of the most commonly reported species in VIRGINIA. Occasional reports of DRUGSTORE BEETLE (*Stegobium paniceum*) were noted also in Virginia. Both of these anobiids were important on stored corn in ALABAMA. *L. serricorne* was reported by many homeowners in TEXAS as well as being found in large storage facilities in several areas. It was frequently reported as a pantry and storage pest in CALIFORNIA.

RICE WEEVIL (*Sitophilus oryzae*) was locally heavy on a wide variety of stored products in TEXAS and GRANARY WEEVIL (*S. granarius*) caused damage in one or more areas of the State. *S. oryzae* and *S. zeamais* were in most cases of minor importance in KANSAS. *S. granarius* was one of the common pests in grain elevators in northwestern OHIO. This weevil infested newly harvested corn at Street, Harford County, MARYLAND. *S. oryzae* was the major pest of stored corn in ALABAMA.

COWPEA WEEVIL (*Callosobruchus maculatus*) infested stored blackeye peas in CALIFORNIA. A heavy infestation in blackeye peas occurred in a market in Reno, NEVADA. BEAN WEEVIL (*Acanthoscelides obtectus*) infested stored products in several areas of TEXAS and was often reported damaging farm-stored peas and beans in ALABAMA.

Other coleopterous pests of stored products were reported. BROWN SPIDER BEETLE (*Ptinus clavipes*), a FALSE POWDER-POST BEETLE (*Prostephanus truncatus*) and CADELLE (*Tenebroides mauritanicus*) caused damage in several places in TEXAS. *T. mauritanicus* and SPIDER BEETLES were found in grain elevators in northwestern OHIO. RED-LEGGED HAM BEETLE (*Necrobia rufipes*) infested cured meat in Wayne County, NORTH CAROLINA, in April and a smokehouse in Gates County in June. A HAIRY FUNGUS BEETLE (*Typhaea stercorea*), CORN SAP BEETLE (*Carpophilus dimidiatus*) and LESSER GRAIN BORER (*Rhyzopertha dominica*) infested stored corn in ALABAMA.

INDIAN-MEAL MOTH (*Plodia interpunctella*) larvae and adults were quite abundant in NEW MEXICO and larvae caused damage in several areas of TEXAS. This pest was in most cases minor in KANSAS. Trace numbers were found in grain elevators in most areas of NORTH DAKOTA. This phycitid occurred throughout RHODE ISLAND. Increases in number of infestations were noted in NEW JERSEY. This is one of the most commonly reported pests infesting stored products in VIRGINIA in homes, stores and barns. This was a pest of stored corn in ALABAMA.

ALMOND MOTH (*Cadra cautella*) was the major pest of stored peanuts in ALABAMA although other pests were noted. Other phycitids in stored products were TOBACCO MOTH (*Ephestia elutella*) in NORTH CAROLINA where it heavily infested tobacco in several packinghouses in late August and NAVEL ORANGEWORM (*Paramyelois transitella*) in CALIFORNIA where it is probably the major pest of stored almonds and walnuts.

ANGOUMOIS GRAIN MOTH (*Sitotroga cerealella*) heavily infested farm-stored barley in Anne Arundel and St. Marys Counties, MARYLAND and stored corn on several farms in St. Marys, Howard and Harford Counties. This species was commonly reported in VIRGINIA, was a pest of stored corn in ALABAMA and caused damage in several areas of TEXAS. In most cases in KANSAS, this species was of minor importance and was not common in OHIO grain elevators.

Two indoor infestations of POTATO TUBERWORM (*Phthorimaea operculella*) were known in MICHIGAN, a processor's warehouse and a homeowner's basement. Controls were applied in both instances. For the first season during the past 3, no field infestations of this gelechiid occurred. This pest has been collected periodically in SOUTH DAKOTA. A heavy infestation occurred in a potato chip factory in Sioux Falls. Larvae infested stored potatoes on properties in Queen Annes, Talbot and Somerset Counties, MARYLAND.

Other pests of stored products reported included GRAIN MITE (*Acarus siro*) in DELAWARE and PENNSYLVANIA; very heavy infestations developed in grain in both States. GREEN PEACH APHID (*Myzus persicae*) was heavy on stored potatoes in

Pennsylvania also. SILVERFISH (Lepisma saccharina) was found in grain elevators in northwestern OHIO. Stored-product insects in WYOMING did not constitute a major problem. Owners are protecting their properties from insects infesting stored goods.

BENEFICIAL INSECTS

Beneficial insects were active in all sections of the Country during 1965. CALIFORNIA reported these insects were unusually effective in controlling pest species for the second consecutive year. Lady beetle larvae were very effective in suppressing outbreaks of Acyrtosiphon pisum (pea aphid) in many areas of NEVADA during June and early July. High populations also helped keep most cotton pests below economic levels in the State. CONVERGENT LADY BEETLE (Hippodamia convergens) adults were active on alfalfa in WASHINGTON by mid-May and showed good predation through the season. In NORTH DAKOTA, convergent lady beetle and TWO-SPOTTED LADY BEETLE (Adalia bipunctata) were abundant wherever their prey were abundant. Several species of lady beetles were common in nearly all crops throughout WYOMING. The largest populations again occurred during late July and early August. COLORADO had a high level of predation by lady beetles, especially H. convergens on pea aphid in alfalfa fields. In NEW MEXICO, lady beetles were very abundant in alfalfa infested with pea aphid and Therioaphis maculata (spotted alfalfa aphid) during spring. During summer and fall months, these predators were also common in the Pecos and Mesilla Valleys on cotton infested with Aphis gossypii (cotton aphid). Several species of lady beetles were observed on cotton over a large area of TEXAS. Convergent lady beetle was one of the most common beneficials in OKLAHOMA.

Populations of lady beetles were generally low in ARKANSAS although a brief buildup occurred in May. In MISSOURI, convergent lady beetle was plentiful in legumes and Coleomegilla maculata was plentiful on corn. Both species were also common on other crops. Lady beetles were numerous in corn fields in WISCONSIN and helped suppress colonies of Rhopalosiphum maidis (corn leaf aphid). In ILLINOIS, these predators increased rapidly during the spring, until May 17-20, when adults ranged 0-500 and larvae ranged 6-3,500 per 100 sweeps in fields infested with pea aphid.

Convergent lady beetle, Coleomegilla maculata fuscilabris and Coccinella novemnotata were of some importance in cotton in ALABAMA early in the 1965 season. Lady beetles were common on alfalfa and clover throughout VIRGINIA. Lady beetles, especially H. convergens, were common in MARYLAND and were helpful in reducing aphid populations on alfalfa, clover, corn and tobacco in all sections of the State. In RHODE ISLAND, these species were common wherever aphid populations built up.

In parts of SOUTH DAKOTA, particularly the south central area, grasshoppers were attacked by populations of ASH-GRAY BLISTER BEETLE (Epicauta fabricii), BLACK BLISTER BEETLE (E. pennsylvanica), and SPOTTED BLISTER BEETLE (E. maculata). Numbers of a MELYRID BEETLE (Collops hirtella) increased in field and forage crops in eastern WASHINGTON. GROUND BEETLES were common predators throughout MISSOURI, and were heavy in the south central and southwestern districts.

A PUNCTURE-VINE STEM WEEVIL (Microlarinus lypriformis) and a PUNCTURE-VINE SEED WEEVIL (M. lareynii) were numerous in Clark, Lincoln and southern Nye Counties, NEVADA. These two species overwintered successfully in Lincoln County in 1964, although they did not in 1963. M. lareynii was released in several areas of OKLAHOMA in late July for control of puncture-vine. Adults and larvae of THREE-LINED POTATO BEETLE (Lema trilineata) were destructive to Jimson-weed in many corn fields on the Eastern Shore of MARYLAND.

HYMENOPTEROUS PARASITES were active in ARKANSAS on warm days in March and parasitism of aphids was extensive in April. These parasites remained active until freezing weather in November. These parasites were also abundant on many crops in CALIFORNIA. The larvae of PARASITIC WASPS were very effective in suppressing outbreaks of Acyrtosiphon pisum (pea aphid) in many areas of NEVADA especially during June and early July.

An ICHNEUMON WASP (Biolytia tristis) parasitized 2-44 percent of Hypera punctata (clover leaf weevil) larvae collected from March 20 to April 15 in ILLINOIS. This was a new State record and new county records were established for many counties in the southern and central sections of the State, including Vermilion County. This parasite was also found for the first time in MISSOURI in 1965 and was collected in Boone, Reynolds, Shannon and Platte Counties. Bathyplectes curculionis an ichneumonid parasite of Hypera postica which was collected in ILLINOIS for the first time in 1964, was found in Vermilion and White Counties for the first time during 1965. This species was found for the first time in MISSOURI in 1965. Adults were collected in Reynolds County and diapausing and nondiapausing cocoons were collected in Shannon County. B. curculionis was important in keeping alfalfa weevil larvae under control in COLORADO. The Ostrinia nubilalis (European corn borer) winter mortality survey in SOUTH DAKOTA showed that two parasites, a EULOPHID WASP (Sympiesis viridula) and an ICHNEUMON WASP (Horogenes punctorius), contributed an average of 10 and 27 percent, respectively, to the overall mortality average of 54 percent. Heliothis spp. (budworms) were more common on tobacco in NORTH CAROLINA than in 1964 although an ICHNEUMON WASP (Campeletis perdistinctus) was very abundant and helped keep budworm populations in check.

Parasitism of Pieris rapae (imported cabbageworm) larvae by BRACONIDS was extremely high on the Eastern Shore of VIRGINIA in September. Of 100 larvae checked, 98 were parasitized. In MISSOURI, a specimen of Bracon caulicola was reared from Ostrinia nubilalis (European corn borer) larvae collected at Portageville, Pemiscot County. Another braconid, Praon simulans, helped suppress heavy populations of Acyrtosiphon pisum (pea aphid) in alfalfa fields in WISCONSIN during May and July. However, this parasite appeared to be of little direct value in pea fields. In Brazos County, TEXAS, considerable numbers of two braconids, Apanteles sp. and Lysiphlebus sp., were noted in small grains, vetch and alfalfa. Aphidius smithi, A. pulcher and Praon simulans built up in alfalfa fields in WASHINGTON by mid-May and A. smithi was recovered from the Columbia Basin area for the first time.

An ENCYRTID WASP (Ooencyrtus kuwanai) infested Porthetria dispar (gypsy moth) egg clusters in NEW HAMPSHIRE. A MINUTE EGG PARASITE (Trichogramma minutum) exerted considerable control on Heliothis zea (bollworm) and H. virescens (tobacco budworm) in cotton throughout ALABAMA. A CHALCID (Spilochalcis albifrons) was reared from Hypera postica (alfalfa weevil) pupae collected in Johnson and Hardin Counties, ILLINOIS. Several parasites were reared from caterpillars of Choristoneura houstonana (a leaf roller moth) in KANSAS. These included two chalcids, Brachymeria ovata and B. compsilurae, and three ichneumon wasps, Itoplectis conquisitor, Pimpla aequalis and Temelucha forbesi.

A FLOWER BUG (Orius insidiosus) was unusually prevalent in the silks of sweet corn in WISCONSIN and was probably responsible for the low numbers of Heliothis zea (corn earworm) larvae. In MISSOURI, this predator was common throughout the season, especially in alfalfa and clover, became active in late February and continued so until mid-December in OKLAHOMA. It was also observed on cotton over a large area of TEXAS. Adults became active in ARKANSAS in early April; however, numbers were low until late May and then increased to 300-400 per 100 sweeps in alfalfa by early June. Orius spp. were of some importance in cotton in ALABAMA early in the season. Populations of Orius spp. in WYOMING were slightly smaller than those found in 1964. The highest numbers were found in Goshen, Platte and Laramie Counties in late July and early August. Flower bugs were more numerous than usual on legumes in eastern WASHINGTON, probably because of the warm, dry season. High populations of MINUTE PIRATE BUGS were largely responsible for holding most cotton pests below economic levels in NEVADA. These bugs were

also abundant on many crops in CALIFORNIA.

DAMSEL BUGS (Nabis spp.) were common in MARYLAND and helped reduce aphid populations on alfalfa, clover, corn and tobacco in all sections. Damsel bugs were also common on alfalfa and clover throughout VIRGINIA and were of some importance on cotton in ALABAMA early in the season. Nabis spp. were common throughout the summer in ILLINOIS and active in OKLAHOMA from late February to mid-December. These species were observed on cotton over a large area of TEXAS. Record populations developed in NORTH DAKOTA and definitely helped control aphids. Large populations of Nabis spp. were found in alfalfa in all sections of WYOMING while the highest numbers in alfalfa, sugar beets and potatoes occurred in the southeastern area. High populations in NEVADA were important in holding most cotton pests below economic levels. Damsel bugs were abundant on many crops in CALIFORNIA. In eastern WASHINGTON, damsel bugs were more numerous than usual on legumes, probably because of the warm, dry season.

Large numbers of a BIG-EYED BUG (Geocoris sp.) were found in the Kingston and Newport areas of RHODE ISLAND. G. punctipes and ASSASSIN BUGS were of some importance in cotton in ALABAMA early in 1965. In ARKANSAS, the first adult big-eyed bugs of the season were found in early April. Numbers were disappointing in April and May but were up to normal during the remainder of the year. These bugs and damsel bugs were the most important predators in soybeans in Arkansas during July and August. Populations of Geocoris spp. were abundant on alfalfa throughout WYOMING. In NEVADA, high populations of these bugs were important in holding most cotton pests below economic levels. They were also abundant on many crops in CALIFORNIA.

FLOWER FLIES were common in RHODE ISLAND wherever aphid populations built up. The larvae were of some importance in controlling cotton pests in ALABAMA early in the season. Flower fly larvae were also common in alfalfa in MISSOURI, and were very effective in suppressing outbreaks of Acyrtosiphon pisum (pea aphid) in many areas of NEVADA. Flower flies were more numerous than usual on legumes in eastern WASHINGTON, probably due to the warm, dry weather. They were also the only effective predators of Myzus persicae (green peach aphid) on peaches in the Yakima Valley of Washington during the fall. A TACHINA FLY (Nemorilla pyste) was reared from caterpillars of Choristoneura houstonana (a leaf roller moth) in KANSAS. Tachina flies were common throughout the season in MISSOURI, especially around alfalfa and corn.

LACEWINGS were common wherever aphid populations built up in RHODE ISLAND. GOLDEN-EYE LACEWING (Chrysopa oculata) was of some importance on cotton in ALABAMA during the early part of the 1965 season. In ILLINOIS, adults and larvae of this species were plentiful in aphid infested clover and alfalfa by May 15. C. oculata was a common predator throughout the season in MISSOURI, especially in alfalfa. BROWN LACEWING adults were active as early as January in ARKANSAS. GREEN LACEWINGS (Chrysopa spp.) became active in OKLAHOMA in late February and continued until mid-December. Golden-eye lacewing was observed on cotton over a large area of TEXAS. Large populations of Chrysopa spp. were found in alfalfa in all areas of WYOMING but the largest populations were in the southwestern area where an average of 24 adults and 36 larvae per 100 sweeps were found in late July. In NEVADA, high populations of lacewings helped hold most cotton pests below economic levels. They were also abundant on many crops in CALIFORNIA, and were more numerous than usual on legumes in eastern WASHINGTON.

Record populations of DRAGONFLIES definitely helped control mosquitoes in NORTH DAKOTA. A PREDACEOUS PHYTOSEIID MITE (Typhlodromus occidentalis) was found to virtually eliminate populations of Tetranychus mcDanieli (a spider mite) in apple orchards in the Wenatchee area of Chelan County, WASHINGTON, provided predator populations are not reduced by chemicals.

Larvae of PAINTED LADY (Vanessa cardui) were reported to be feeding on Canada thistle in WYOMING. The most severe feeding was noted in Fremont County and varying degrees occurred in other areas. This species was not noted damaging other

plants or crops. In WASHINGTON, the larvae of a CINNABAR MOTH (Tyria jacobaeae) infested tansy ragwort in Clark County, following the 1964 release of this species.

The first HONEY BEE (Apis mellifera) swarm in RHODE ISLAND was reported May 13 in Hope, Providence County. In general, swarms were few and late. In 1965, KANSAS had one of the best honey crops in a long time. Production increased 34 percent over 1964 with 49,000 colonies producing an average of 58 pounds each for a total of 2,842,000 pounds. Wax production was also greater than in 1964 with a total of 50,000 pounds. Of the 1,586 colonies inspected, 50 were infested with American foulbrood and 19 with European foulbrood. Both diseases were slightly more prevalent than in 1964. In WASHINGTON, honey production varied according to local forage conditions. Tree fruit pollination was again critical because of the shortage of pollinizer bloom not injured by freezes and the lack of strong bee colonies in some localities.

ALKALI BEE (Nomia melanderi) populations were at high levels in NEVADA, especially in southern Nye County. In WASHINGTON, this species began emerging May 31 in Walla Walla County; however, adult populations were seriously injured when heavy rains flooded nests. The bees nested late and will be substantially reduced in 1966. A BEE FLY (Heterostylum robustum) actively parasitized N. melanderi in Walla Walla County during early June. Populations of a LEAFCUTTING BEE (Megachile rotundata) were about normal in alfalfa seed-producing areas of NEVADA. There was some loss of the overwintering forms of these bees in Humboldt County due to heavy infestations of a dermestid beetle and other factors. In WASHINGTON, emergence of M. rotundata started May 26 in Walla Walla County and pollinating activity was good during the season; however, parasitism by Monodontomerus montivagus (a Torymid) was heavy. A DERMESTID BEETLE (Trogoderma glabrum) has emerged as the most serious threat to production of leafcutting bees in the Pacific Northwest.

MISCELLANEOUS INSECTS

The greatest amount of spread of JAPANESE BEETLE (Popillia japonica) in the South occurred in the northern part of GEORGIA where nearly 260 thousand acres in 13 counties were added to the infested status. Although traps were placed in all noninfested counties of SOUTH CAROLINA, specimens were taken only in McCormick County where light populations were found in a small infestation of one square mile. There are only 4 counties in NORTH CAROLINA (Montgomery, Lincoln, Chatham and Anson) that have not been recorded as supporting Japanese beetle; the entire State is under Federal and State regulation. Trapping was conducted throughout the South. The situation in TENNESSEE is very encouraging, generally. Populations are scarce and held in check on treated areas. The only buildups in Tennessee occurred where situations prevented complete coverage. Colonies of Tiphia vernalis (a tiphiid wasp) were introduced into northern Georgia and areas of North Carolina. Trapping programs were carried out in the Great Plains with the exception of the DAKOTAS. The greatest concentrations of traps were in the St. Louis, MISSOURI area, and in ILLINOIS. Heavy concentrations of traps were also used in KENTUCKY, OHIO and MICHIGAN. Trapping and control programs in the Corn Belt have been a factor in preventing the spread of this introduced scarab into the West. Three colonies of T. vernalis were released at Toledo, Ohio, and one colony at Sheldon, Illinois.

An extensive trapping program for Japanese beetle in the nonregulated areas of MAINE failed to reveal new infestations in that State. All other Eastern States south through GEORGIA are regulated in whole or in part by Federal and State regulations.

The last live Japanese beetle associated with an infestation in CALIFORNIA was taken June 18, 1962; during the following 3 years intensive surveys, utilizing over 33 thousand traps, plus visual surveys failed to reveal this pest in the

State. Nearly all other Western States also used traps for survey.

EUROPEAN CHAFER (Amphimallon majalis) surveys were made in New England, NEW YORK, PENNSYLVANIA, NEW JERSEY, MARYLAND, OHIO and the DISTRICT OF COLUMBIA. Chemical and blacklight traps were used extensively; visual observations were made primarily in delimiting operations in CONNECTICUT, New York, Pennsylvania, New Jersey and Ohio, the only States known to be infested.

WHITE-FRINGED BEETLES (Graphognathus spp.) were found in additional areas of ALABAMA, MISSISSIPPI and west TENNESSEE. Only a few counties in these areas remain free of the pest, and a population buildup was noted in older infested areas; GEORGIA and north FLORIDA are approaching a similar status. In LOUISIANA, SOUTH CAROLINA and NORTH CAROLINA these beetles were collected in additional areas. Attempts are being made to treat all infested areas in ARKANSAS and SOUTH CAROLINA as well as outlying ones in other States. G. leucoloma striatus was found for the first time in MARYLAND in Prince Georges County. This is nearly 200 miles north of the nearest known infestation at Norfolk, VIRGINIA.

A CUBAN MAY BEETLE (Phyllophaga bruneri) continued to spread in Greater Miami, FLORIDA. The infested area consists of at least 200 square miles and possibly 400 square miles. Population peaks early in May were as great as any recorded for this species. Over 49 thousand adults were collected in a single blacklight trap during one night. Some trees of West Indies mahogany and lychee were completely defoliated. Damage to Florida trema and royal poinciana was heavy in many areas; leaves and flowers of citrus and peach were damaged. Many other plant species suffered some injury. This scarab is considered a potential threat to agriculture. Research on biology and control of this pest is conducted cooperatively by the University of Florida, Florida Department of Agriculture and U.S. Department of Agriculture. For more details about this pest, see CEIR 15(47): 1282.

NORTHERN MASKED CHAFER (Cyclocephala borealis) adults appeared in heavy numbers during late June and early July at light traps in MARYLAND.

Adults of a WEEVIL (Brachyrhinus rugosostriatus) were found for the first time in ARIZONA. Numerous clusters were found on the side of a house at Cornville, Yavapai County. This weevil is a pest of many plants including vegetable, fruit and ornamental.

Surveys failed to reveal IMPORTED FIRE ANT (Solenopsis saevissima richteri) in 20 MISSISSIPPI and 8 ALABAMA counties. Every county in TENNESSEE and 32 counties in OKLAHOMA were inspected with negative results. Infestations were found for the first time in some counties of ARKANSAS, FLORIDA, GEORGIA, MISSISSIPPI, SOUTH CAROLINA, TEXAS and several parishes in LOUISIANA. Extensions were located in 6 previously infested NORTH CAROLINA counties.

EUROPEAN EARWIG (Forficula auricularia) was numerous in a few instances in Augusta, MAINE, in late July. Light numbers were reported from the Portland area in early August. Appreciable decrease in number of reports from those of 1963 and 1964 may indicate a stabilization of populations in Maine. Extremely heavy populations caused considerable concern statewide in RHODE ISLAND. European earwig is apparently established in the northeast section of Milwaukee, WISCONSIN.

HOUSEHOLD AND STRUCTURAL INSECTS

Highlights:

TERMITES were the most important structural insects and COCKROACHES were the most troublesome household pests over much of the Nation. BOXELDER BUG and CLOVER MITE were the most widespread household invaders. Large numbers of EUROPEAN EARWIG invaded houses in the Northeastern States. This pest appeared to be spreading in the Santa Fe area of New Mexico.

TERMITE activity in MASSACHUSETTS caused more requests for control information than usual from all areas of the State. Swarms of EASTERN SUBTERRANEAN TERMITE (Reticulitermes flavipes) were common in RHODE ISLAND from mid-March to late May. Swarms of Reticulitermes spp. were very prevalent throughout NEW JERSEY and numbers were substantially higher than in 1964. In DELAWARE, the first eastern subterranean termite swarms of the season were noted the first week of March and continued until mid-April; however, reports of new infestations were not as numerous as in previous years. Reticulitermes spp. were the most important structural pests throughout MARYLAND. Similar conditions occurred in VIRGINIA and ALABAMA. Eastern subterranean termite swarmed in NORTH CAROLINA from late March through May. This species began swarming in early April in southwestern OHIO and continued through mid-May in the central section of the State. R. flavipes was the most serious pest of structures in MISSOURI again in 1965. Eastern subterranean termite was found in Tomah, Monroe County, WISCONSIN, for a new county record.

In WYOMING a single report of damage by WESTERN SUBTERRANEAN TERMITE (Reticulitermes hesperus) was received during 1965, compared with 7 reports in 1964. Infestations of buildings by SUBTERRANEAN TERMITES (Reticulitermes spp.) increased in Douglas, Ormsby and Washoe Counties, NEVADA. This was especially true in the Reno-Sparks and Lake Tahoe areas. Incisitermes sp. was found established in a building in Omaha, Douglas County, NEBRASKA. This is the first record of this genus in the county or infesting a building in the State. A DAMPWOOD TERMITE (Paraneotermes simplicicornis) severely damaged the floor of a home in Las Vegas, Clark County, Nevada. Reticulitermes hesperus was as active as usual in CALIFORNIA. PACIFIC DAMPWOOD TERMITE (Zootermopsis angusticollis) and western subterranean termite caused considerable damage in OREGON. WESTERN DRYWOOD TERMITE (Incisitermes minor) was found in Portland, Multnomah County, in a piece of furniture brought to Oregon from out of State.

LEAD-CABLE BORER (Scobicia declivis) occurred more frequently in CALIFORNIA than in the past few years, and NEW-HOUSE BORER (Arhopalus productus) often invaded residences. OLD-HOUSE BORER (Hylotrupes bajulus) was of some concern in ALABAMA during 1965. Several larvae of this species were received for determination in VIRGINIA and several infestations were reported in NEW JERSEY. However, old-house borer infestations in New Jersey did not increase much above 1964 levels. In early April, an EUCNEMID BEETLE (Melasis rufipennis) emerged from the walls of new homes in one area of Edgecombe County, NORTH CAROLINA.

POWDER-POST BEETLES caused a routine volume of complaints in RHODE ISLAND. Most of these probably involved old damage; however, one problem involved a wooden screen from Japan. Powder-post beetles, particularly Lyctus sp., damaged flooring and hardwood furniture in OREGON. SOUTHERN LYCTUS BEETLE (Lyctus planicollis) and T. prostomoides occurred in normal numbers in CALIFORNIA. Heavy infestations and Trogoxylon prostomoides occurred in normal numbers in CALIFORNIA. Heavy infestations of WHARF BORER (Nacerdes melanura) were found in NEW HAMPSHIRE at Manchester, Hillsboro County, and at Berlin, Coos County.

CARPENTER BEE (Xylocopa virginica) was heavy in areas of RHODE ISLAND, and was unusually numerous in south central PENNSYLVANIA; and of concern in OHIO.

CARPENTER ANTS continued troublesome in NEW HAMPSHIRE, RHODE ISLAND and MASSACHUSETTS; common in NEW JERSEY, VIRGINIA and NORTH CAROLINA. Populations were somewhat higher than usual in MINNESOTA. Camponotus quercicola was found for the first time in Contra Costa County, CALIFORNIA.

Populations of DERMESTID BEETLES (Dermestes spp.) were more cyclic than usual in CALIFORNIA. LARDER BEETLE (Dermestes lardarius) infestations were common in the insulation of homes in MICHIGAN and reported in homes and camps in NEW HAMPSHIRE. Dermestes spp. and BLACK CARPET BEETLE (Attagenus piceus) were common in homes in all sections of MARYLAND. In RHODE ISLAND, black carpet beetle caused a normal volume of inquiries during 1965. In PENNSYLVANIA, black carpet beetle, Dermestes spp. and VARIED CARPET BEETLE (Anthrenus verbasci) were found in homes. In

OREGON, varied carpet beetle caused serious damage in homes.

DRUGSTORE BEETLE (Stegobium paniceum) occurred more frequently in CALIFORNIA than in the past few years and caused serious damage to food products in homes in OREGON. CIGARETTE BEETLE (Lasioderma serricorne) was frequently reported infesting pantry materials in NORTH CAROLINA. In Lincoln, Lancaster County, NEBRASKA, an ANOBIID BEETLE (Tricorynus herbarium) was found damaging books imported from Hawaii.

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) was a problem in homes in MISSOURI and many heavy infestations were reported in homes in New Castle County, DELAWARE. Saw-toothed grain beetle and RICE WEEVIL (Sitophilus oryzae) were found many times in PENNSYLVANIA, especially in kitchens. Saw-toothed grain beetle and RED FLOUR BEETLE (Tribolium castaneum) caused serious damage to food in homes in OREGON.

Bamboo window shades were found to be infested with POWDER-POST BEETLES in several parts of the country. Typical reports involved Trogoxylon prostomoides and BAMBOO POWDER-POST BEETLE (Dinoderus minutus) in PENNSYLVANIA and Lyctus sp. in NORTH DAKOTA.

BROWN HOUSE MOTH (Hofmannophila pseudospretella) and a BROWN-DOTTED CLOTHES MOTH (Acedes fuscipunctella) were more numerous than usual in homes in CALIFORNIA during 1965. INDIAN-MEAL MOTH (Plodia interpunctella) infestations were numerous in home kitchens in PENNSYLVANIA and MARYLAND.

Several species of COCKROACHES were troublesome in different sections of the Country. GERMAN COCKROACH (Blattella germanica) was reported in dwellings and office buildings in Farmington, Franklin County, MAINE. Residents believed this was the first time the species has been found in the area. In RHODE ISLAND, a normal number of reports of ORIENTAL COCKROACH (Blatta orientalis), German cockroach, WOOD COCKROACHES (Parcoblatta spp.), and BROWN-BANDED COCKROACH (Supella supellectilium) were received from all sections of the State. German cockroach continued to be the most troublesome household pest in NEW JERSEY, but reports of brown-banded cockroach, AMERICAN COCKROACH (Periplaneta americana) and oriental cockroach increased during 1965. Cockroaches, especially brown-banded cockroach and German cockroach, infested many apartments and homes in MARYLAND. These infestations were especially common in the metropolitan areas of the State. Brown-banded cockroach and German cockroach were also reported infesting homes in VIRGINIA. Five species of cockroaches formed the most important household insect complex in ALABAMA. These species were German cockroach, American cockroach, oriental cockroach, brown-banded cockroach and SMOKY-BROWN COCKROACH (Periplaneta fulginosa), listed in order of importance.

Cockroaches, primarily German cockroach, were of concern in households in OHIO during 1965. In INDIANA, this same species continued to be the chief pest in eating and food processing establishments. Reports of resistance to chlorinated hydrocarbon insecticides also continued during the year. Cockroaches continued to be the most troublesome household pests in MISSOURI. Activity also appeared to be normal in KANSAS. In MINNESOTA, wood cockroaches were unusually abundant in suburban homes early in 1965. German cockroach and brown-banded cockroach were numerous in various parts of WYOMING. Cockroaches were common in CALIFORNIA, with oriental cockroach, brown-banded cockroach and German cockroach the most troublesome species.

BOXELDER BUG (Leptocoris trivittatus) was a common household nuisance in many States during 1965. This species caused numerous complaints in NEW HAMPSHIRE, particularly in Manchester, Hillsboro County, and Concord, Merrimack County. Boxelder bug was apparently not as prevalent in NEW JERSEY as in 1964 although it was a nuisance in several counties. Many homes were invaded in DELAWARE, especially in New Castle County, and in all parts of MARYLAND. In VIRGINIA, this species entered homes for hibernation in November and December; however, in PENNSYLVANIA, boxelder bug was very prevalent in the spring as well as fall. This

species was also of concern in OHIO during 1965. In INDIANA, populations appeared to be heavier than in 1964 since reports of adults entering homes increased during the fall of 1965. WISCONSIN also reported more migration into dwellings than normal. Boxelder bug was a problem in and around homes in MISSOURI and OKLAHOMA; however, this pest was unusually light in KANSAS during the fall. Adults and nymphs were troublesome in and around homes in southern NORTH DAKOTA. Large populations entered homes in Laramie, Goshen, Platte and Sheridan Counties, WYOMING and caused much concern to homeowners during the late summer. In OREGON, boxelder bug invaded homes in search of winter shelter and were somewhat of a problem to homeowners in northern NEW MEXICO early in 1965.

A COREID BUG (Arhyssus scutatus) was a seasonal nuisance in CALIFORNIA and large numbers of a FALSE CHINCH BUG (Nysius sp.) entered homes in several counties of NEVADA.

CLOVER MITE (Bryobia praetiosa) was also a household nuisance in many States. This species was generally troublesome throughout NEW HAMPSHIRE and NEW JERSEY, being usually troublesome in housing developments in latter State. B. praetiosa continues to be a serious household pest in DELAWARE, especially in New Castle County, and was very annoying to many homeowners in suburban communities in MARYLAND. In VIRGINIA, clover mite entered homes in November and December and was prevalent in spring as well as in fall in PENNSYLVANIA. WINTER GRAIN MITE (Penthaleus major) entered homes in several areas of the State. Clover mite was a problem in and around buildings in MISSOURI, was more common than usual in many areas of KANSAS than during the winter of 1964, large numbers appeared around homes in some areas of southern NORTH DAKOTA and were reported from homes in MINNESOTA. Only a few migrations into homes were reported in WYOMING during the fall. This pest was a problem to homeowners in northern NEW MEXICO and in many areas of ARIZONA in the spring. Large numbers entered homes in NEVADA. Clover mite was a nuisance in CALIFORNIA.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus) was unusually abundant in MASSACHUSETTS and entered many buildings in RHODE ISLAND. In NEW JERSEY, strawberry root weevil and BLACK VINE WEEVIL (B. sulcatus) caused some concern during June by entering homes. Strawberry root weevil migrations into homes were unusually prevalent in PENNSYLVANIA during August. In OHIO, B. ovatus and B. sulcatus migrated into homes during late summer and strawberry root weevil entered homes in southern INDIANA in June and continued throughout the summer, spreading northward as the season progressed. Numbers were heavier than the high populations of 1964. This pest was particularly troublesome in households in WISCONSIN during the summer. Adults were bothersome in several areas of eastern NORTH DAKOTA and were widespread in households in MONTANA.

A JAPANESE WEEVIL (Calomycterus setarius) was common in houses in RHODE ISLAND and WISCONSIN during mid-summer. ASIATIC OAK WEEVIL (Cyrtepidomus castaneus) migrations into homes in extreme southern INDIANA began in mid-June and continued all summer. In VIRGINIA, this species was very abundant during late summer and fall and created a nuisance in homes and motels. ALFALFA WEEVIL (Hypera postica) became a nuisance in CALIFORNIA.

ELM LEAF BEETLE (Pyrrhalta luteola) adults were pestiferous in several homes in MARYLAND during spring and fall and entered homes in VIRGINIA during September and October. Elm leaf beetle was a problem in and around homes in MISSOURI, KANSAS and OKLAHOMA in the fall. TWO-SPOTTED LADY BEETLE (Adalia bipunctata) frequently entered homes in PENNSYLVANIA. BROWN SPIDER BEETLE (Ptinus clavipes) and a LONG-HORNED BEETLE (Xylotrechus nauticus) frequently entered residences in CALIFORNIA. A BARK BEETLE (Pseudopityophthorus pubipennis) created a nuisance in homes in CALIFORNIA by emerging from firewood.

Several species of CRICKETS entered homes in NEW JERSEY during early fall. There appeared to be an increase in the incidence of infestation. CAMEL CRICKETS were

occasionally reported infesting home basements in VIRGINIA; reports were numerous in MINNESOTA and in home basements in southeastern NORTH DAKOTA. FIELD CRICKETS (Gryllus spp.) were less numerous in OKLAHOMA than in 1964, but caused some concern during August and September. In NEVADA, cricket nymphs invaded yards and homes in Reno, Washoe County, in September, with some clothing damage reported.

RHODE ISLAND had the usual volume of complaints about LARGER YELLOW ANT (Ananthomyops interjectus) and PAVEMENT ANT (Tetramorium caespitum). These same species were very common in NEW JERSEY and continued troublesome throughout 1965. The number of occurrences of THIEF ANT (Solenopsis molesta) increased in NEW JERSEY during the year. Winged forms of pavement ant and Acanthomyops sp. were common in many homes in VIRGINIA in July and again in October and November. Larger yellow ant was a common problem around homes in NORTH CAROLINA. Swarms were reported during March, April and May. Various species of ants were a problem in and around homes in PENNSYLVANIA, MISSOURI and OKLAHOMA. Lasius sp. and other species of ants were frequently reported in OREGON. Ants were more prevalent as household pests in CALIFORNIA during 1965 than in past years, with Pheidole sp. a pest in several locations, ARGENTINE ANT (Iridomyrmex humilis) active statewide and thief ant a kitchen pest.

EUROPEAN EARWIG (Forficula auricularia) continued troublesome in NEW HAMPSHIRE, particularly in the southern two-thirds of the State. More reports of this pest were received than in 1964, but no damage was indicated. This species was also very abundant in MASSACHUSETTS and inquiries on controls were received from all over the State. A substantial increase in earwig invasion of houses was noted in central and northern NEW JERSEY. Homeowners in southern WYOMING were concerned by European earwig migrations into living quarters. This pest appeared to be spreading in the Santa Fe area of Santa Fe County, NEW MEXICO; however, the heaviest populations are still in the area of the city where this species was first found in 1962. In ARIZONA, severe invasions of Labidura riparia in homes were a real nuisance during spring and summer and continuous controls were necessary.

CLUSTER FLY (Pollenia rudis) was troublesome in and around homes in NEW HAMPSHIRE and MISSOURI. MOTH FLIES were unusually abundant in PENNSYLVANIA, and a MOTH FLY (Telmatoscopus albipunctatus) was occasionally reported infesting home basements in VIRGINIA. For notes about HOUSE FLY (Musca domestica) see Insects Affecting Man and Animals (CEIR 16(14):291).

Very heavy numbers of MILLIPEDES invaded residential buildings in RHODE ISLAND in September and October. Most infestations occurred in the shore areas of Washington County. However, in NEW JERSEY, movement into homes apparently declined generally. Millipeds entered homes in VIRGINIA in August and there were also numerous reports from the northern and central sections in November and December. A MILLIPEDE (Oxidus gracilis) was abundant around many homes in the Piedmont and Coastal Plain sections of NORTH CAROLINA during June and July. Millipeds were also heavy in and around homes in several areas of GEORGIA, and were of concern to homeowners in OHIO and KANSAS.

Drought conditions in NEW JERSEY were probably responsible for the marked increase in SPRINGTAILS entering homes and buildings in the central section of the State. A SPRINGTAIL (Entomobrya kanaba) was numerous in homes on the Eastern Shore of VIRGINIA during spring and early summer. BOOK LICE were a problem in and around homes and buildings in MISSOURI.

Weather continued from page 300.

PRECIPITATION: No precipitation occurred over the West until the weekend when moderate rains hit coastal areas and light rains moved inland to the Rockies. Scattered light sprinkles or snow flurries persisted from the northern Rockies to New England but amounts were generally of little importance. Wide areas across the South from California to Arkansas received no rain. Two-inch rains came to parts of Florida and 1-inch rains to central Georgia and northeastern Missouri. Scattered light showers fell elsewhere from the northern gulf coast to New England. Parts of northwestern Texas have received no rain for 5 weeks. It was the 8th dry week in the Oklahoma Panhandle and nearby areas. Sunny skies, brisk winds, and low humidity increased the forest fire hazard over the Southeast. Soil moisture was short or becoming short from the Southwestern Deserts to the Carolinas. Dry areas have appeared in parts of the Corn Belt, in central Tennessee, and in Arkansas to name a few areas.

TORNADOES: The unusual tornadoes in central Florida on April 4 were mentioned last week. Damage of many millions of dollars was heaviest in the Tampa and Lakeland areas but extended eastward to Cocoa. The preliminary total of fatalities stands at 9. Records since 1916 show only one other tornado situation of this magnitude in Florida south of the Jacksonville area. On April 5, 1936, a tornado in the Miami area killed 7 persons. (Summary supplied by Environmental Data Service, ESSA).

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