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Cooperative
**ECONOMIC INSECT
REPORT**



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PLANT PEST CONTROL DIVISION

AGRICULTURAL RESEARCH SERVICE

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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 clearing house and does not assume responsibility for accuracy of the material.

Reports and inquiries pertaining to this release should be mailed to:

Survey and Detection Operations
Plant Pest Control Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20781

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Early instars of ALFALFA WEEVIL appearing in Delaware and Maryland; larvae continue to damage alfalfa in several sections of Virginia. Adults active in Davis and Salt Lake Counties, Utah. Some moderate to severe damage by CLOVER LEAF WEEVIL expected in western side of Illinois. CLOVER HEAD WEEVIL destroyed 10-33 percent of leaf surface of crimson clover locally in Montgomery County, Alabama. (p. 329). Larvae of another weevil, Hypera brunneipennis, averaged 50 per 100 sweeps in alfalfa in area of Yuma County and 30-40 per 100 sweeps in Maricopa County, Arizona. SPOTTED ALFALFA APHID and PEA APHID counts generally low on alfalfa in States where species are active. However, rapid buildup of spotted alfalfa aphid recorded in areas of New Mexico and California. (p. 330). GREEN-BUG infestations becoming general throughout north central and northwest Oklahoma with considerable control being initiated in small grains. Pest scarce in central and western districts of Kansas. (p. 331). BROWN WHEAT MITE continues moderate to heavy in scattered locations in Oklahoma, killing some barley. Heavy, widespread populations on wheat in Runnels County, Texas, and moderate locally on wheat and barley in Motley County, same State. Brown wheat mite ranged zero to moderate in central and western Kansas, with some damage apparent. (p. 332).

Fourth infestation of KHAPRA BEETLE found in Yuma County, Arizona. (p. 340).

SOME FIRST APPEARANCE RECORDS OF THE SEASON

ALFALFA LOOPER adults in Marion County, Oregon, on March 30; CORN EARWORM moth on April 2 in southwest Arkansas; APPLE GRAIN APHID hatching in Ohio; PEAR PSYLLA adults in Massachusetts and Connecticut; PINK BOLLWORM moths in experimental cages on March 30 at Safford, Arizona; PINE BARK APHID eggs in southwest Ohio; a pine sawfly (Neodiprion pratti pratti) hatching March 18 in Vance and Granville Counties, North Carolina; WESTERN TENT CATERPILLAR hatching week of March 23 in Washington County, Oregon; LINDEN LOOPER adults in Connecticut; and SALT-MARSH MOSQUITO (Aedes sollicitans) larvae in Kent County, Delaware.

DETECTION

A DRYWOOD TERMITE (Cryptotermes sp.) - Genus recorded in Delaware for the first time. (p. 340). A COLYDIID BEETLE (Murmidius ovalis) recorded in Nebraska for the first time. (p. 340).

SPECIAL REPORTS

Beet Leafhopper Survey, Texas and New Mexico. (p. 334). Counts per 100 square feet were 11 in Texas and 32 in New Mexico. (p. 334).

Status of the Screw-worm in the Southwest. (p. 338). Seven screw-worm cases reported from Texas; last year during this period, 83 cases reported in Texas and New Mexico.

Summary of Insect Conditions in the United States - 1963

Shade Tree Insects (p. 343).
Ornamental Insects (p. 353).

Reports in this issue are for week ending April 10 unless otherwise indicated.

WEATHER OF THE WEEK ENDING APRIL 13

Rain and drizzle fell over much of the Nation east of the Mississippi River on Monday, April 6. Snow fell over the northern Great Plains and the northern and central Rocky Mountains. Eight inches of snow blanketed the ground at Minneapolis, Minnesota, as winds reached 50 m.p.h. Arctic air poured into the northern Great Plains. Heavy rains fell in the South. Meridian, Mississippi, received more than 6 inches in 24 hours. Hail as large as golf balls fell at Columbus, Mississippi. Twisters hit Alabama and Georgia and heavy thunderstorms swept the Carolinas and middle Atlantic coast. By midweek, the storm had pushed its way into the Atlantic and fair weather prevailed over most of the Nation. As the weekend approached, a high pressure area was centered over Arkansas, Louisiana, and Mississippi. Fair weather prevailed over the Far Southwest and from the Rocky Mountains to the Atlantic Ocean. A cold front was pushing into the Far Northwest followed by cloudiness and generally light precipitation.

By early Sunday morning, a storm which had developed along the eastern slopes of the central Rocky Mountains, intensified. Strong winds swept the Great Plains. Cold temperatures pushed southward on the western side of the storm. Warm, moist air flowed northward ahead of the storm. By Sunday noon, clouds covered most of the Mississippi River Valley. Numerous tornadoes and hailstorms occurred in the afternoon. One tornado cut a swath 1/4 mile wide through Leavenworth, Kansas, causing extensive property damage. At Yorktown, Iowa, a tornado killed 1 person, injured 6, and destroyed half of the buildings in the town. A tornado 4.5 miles south of Garnet, Kansas, killed 3 persons, injured 10, and destroyed a farm home. One person was killed and 4 were injured by a tornado at Pleasant Hill, Missouri. Other tornadoes struck Weston, Lamonte, Warrensburg, and Maryville, Missouri. Although tornado activity diminished Sunday night, the deep Low moved toward the Great Lakes on Monday. Strong winds with speeds of 30 to 50 m.p.h. and gusts from 70 to 80 m.p.h. continued from the Dakotas and Nebraska to the Great Lakes. Blowing snow reduced the visibility over the northern Great Plains. The strong winds caused extensive damage to trees and buildings. High winds caused dust-storms over the Texas Panhandle and the western half of Oklahoma. Besides causing soil erosion, they caused extensive damage to powerlines and other property.

Temperatures averaged slightly above normal over the interior valleys of California, northeastern Washington, the Dakotas and eastward to western New York and western Pennsylvania and below normal over most of the rest of the Nation. Temperature departures ranged from -7° at Winslow, Arizona, and Grand Junction, Colorado, to +5° near Lakes Huron, Erie, and Ontario. Over much of the Central and East, mild weather prevailed at the beginning and end of the week, with cooler temperatures at midweek.

Rainfall totals were generally less than 0.50 inch over most of the Nation from the Pacific Ocean eastward to the Great Lakes and Ohio River in the North and to the Mississippi River in the South, also over most of Florida, except the northern counties. Totals exceeding 2 inches were common from Mississippi to the Carolinas. Some stations in that area received more than 5 inches and a few locations in Georgia received more than 8 inches. (Summary supplied by U. S. Weather Bureau).

CEREAL AND FORAGE INSECTS

ALFALFA WEEVIL (*Hypera postica*) - MASSACHUSETTS - Examination of alfalfa stems in Berkshire, Hampden and Hampshire Counties revealed 0-11 percent viable eggs; most eggs apparently hatched last fall. (Shaw, Mar. 24-Apr. 2). DELAWARE - Early instars present in eastern Sussex County alfalfa. (Burbutis). MARYLAND - First larvae of season noted on alfalfa April 6 at Snow Hill, Worcester County. Eggs about to hatch noted on alfalfa in Caroline and Montgomery Counties. (U. Md., Ent. Dept.). VIRGINIA - Larvae present in all parts of Franklin County; as many as 5 per bud. (Tucker, Mar. 28). Some larvae noted in field of alfalfa in Roanoke County not treated in fall of 1963. (Allen, Apr. 3). Larvae averaged 16 per square-foot pan count in field in Amherst County. (Pienkowski). Larvae found in every alfalfa plant checked in several counties, except one field in Albemarle County. Good number of dead larvae encountered; apparently killed by cold weather, as no evidence of control. All larval stages present in most fields checked; occasional cocoon encountered. Larvae averaged 70 per 10 tips in Appomattox County, alfalfa 3-4 inches high; averaged 96 per 10 tips in Buckingham County, alfalfa 4-5 inches high; averaged 82 per 10 tips in Cumberland County, alfalfa 4-5 inches high; averaged 34 per 10 tips in Goochland County and 34 per 10 tips in Albemarle County. In a Powhatan County field with alfalfa 6-7 inches high, larvae averaged 168 per 10 tips, with egg masses in 10 of 25 tips checked; eggs ranged 6-15 per mass. Larvae averaged 134 per 10 tips in another Powhatan County field, alfalfa same height; eggs present in 2 of 25 tips checked, and 7 others showed oviposition scars, indicating eggs already hatched. Larvae averaged 123 per 10 tips in an Amelia County field, alfalfa 6-9 inches high, eggs present in 5 of 25 tips checked; larvae averaged 176 per 10 tips in another field in same county, eggs in 2 of 10 tips checked. In general, eggs not found at any particular plant height, being distributed from near ground level to near tips. About 50 percent of eggs encountered yellow in color, indicating recent deposition; others much darker and presumably older. (Tarpley). ALABAMA - Few adults taken in vetch in Montgomery and Macon Counties. Light larval population appearing in 1-acre field in Cleburne County treated with recommended chemicals in fall of 1963. (McQueen). COLORADO - Surveys to April 9 failed to reveal overwintering adults in Weld and Larimer Counties. (Ext. Serv.; Jenkins, Hantsbarger). WYOMING - No activity noted in alfalfa surveyed in Washakie County; approximately 0.25 to 0.50 inch green growth present. (Lowry, Patch, Marks). UTAH - Adults active in alfalfa in Davis and Salt Lake Counties. (Knowlton).

CLOVER LEAF WEEVIL (*Hypera punctata*) - ILLINOIS - Larvae vary from first to third instars in southern half of State. Populations in clover and alfalfa in east, east-southeast and southeast districts ranged 3-16 per square foot, with district averages as follows: East 4, east-southeast 7.8 and southeast 9.5. These populations indicate noneconomic to light damage this year; however, populations much heavier on western side of State, indicating some moderate to severe damage could be expected. Populations per square foot, by district, as follows: West 8-48 (average 30), west-southwest 8-56 (average 35.6) and southwest 3-32 (average 16.2). (Ill. Ins. Rpt.). MISSOURI - Ranged 2-3 per plant in southwest; approximately two-thirds showed signs of fungal infection. (Houser, Thomas, Wood). CALIFORNIA - Light on alfalfa in Bakersfield, Kern County. (Cal. Coop. Rpt.).

LESSER CLOVER LEAF WEEVIL (*Hypera nigrirostris*) - ALABAMA - Larvae and adults very light on crimson and white clovers in Montgomery and Macon Counties. (McQueen). ILLINOIS - Adults noted in alfalfa in extreme southern area of State. (Ill. Ins. Rpt.).

CLOVER HEAD WEEVIL (*Hypera meles*) - ALABAMA - Larvae extremely heavy and damaging crimson clover on large farm in Montgomery County; 10-25 first, second and third-stage larvae and 0-3 adults per sweep. Destroying 10-33 percent of leaf surface prior to bloom; may be due to climatic conditions which resulted in early egg laying and late growth and blooming of clover. Controls being applied to 100-acre field on this farm for seed production. (Dismukes et al.).

A WEEVIL (Hypera brunneipennis) - ARIZONA - Larvae averaged 50 per 100 sweeps in alfalfa in Roll-Wellton-Dome area of Yuma County. Averaged 30-35 per 100 sweeps in Maricopa County. (Ariz. Coop. Sur.).

ALFALFA CATERPILLAR (Colias eurytheme) - TEXAS - Light counts noted in Kaufman County alfalfa fields. (Turney). ILLINOIS - Larvae noted on alfalfa in extreme southern areas. (Ill. Ins. Rpt.).

ALFALFA LOOPER (Autographa californica) - OREGON - Small numbers began appearing in blacklight trap at Aumsville, Marion County, on March 30. (Larson). CALIFORNIA - Light in alfalfa plantings in Rosendale, Kern County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - WISCONSIN - Eggs brought into laboratory from alfalfa stems collected April 2 at Brodhead, Green County, hatched by April 6; temperature constant at 75°F. If temperature trends continue, some hatching expected in field within next 2 weeks. No hatching observed in field April 8. (Wis. Ins. Sur.). ILLINOIS - None found in extreme southern area, including Hardin County, which was heavily populated late last fall. (Ill. Ins. Rpt.). KANSAS - Counts in alfalfa in south central and southwestern areas ranged 0-10 per 100 sweeps; averaged less than 1 per sweep. (Peters). ARKANSAS - Surveys negative in Miller and Conway Counties. (Ark. Ins. Sur.). OKLAHOMA - Continues low throughout most areas, with heavy infestations reported in Sequoyah County. (Okla. Coop. Sur.). COLORADO - None found to April 9 in Otero County alfalfa. (Schweissing). NEW MEXICO - Warmer weather appears to be an important factor in rapid buildup in number of alfalfa fields in Chaves and Eddy Counties. Few fields treated. (N.M. Coop. Rpt.). ARIZONA - Light to medium on most alfalfa in Graham, Pinal, Maricopa and Yuma Counties. Some increases noted in Somerton area, Yuma County. (Ariz. Coop. Sur.). NEVADA - Generally light in several alfalfa hay fields in Moapa Valley, Clark County; counts up to 5 per sweep. (Bechtel). Populations very light in Virgin Valley. (Hilbig). CALIFORNIA - Some infestations occurred on Sonora and Moapa varieties of alfalfa. These varieties have about equal resistance levels to this aphid and there are several types and levels of resistance within both varieties. Climatic conditions have been excellent for build up in large numbers; however, conditions have been unfavorable for natural enemies. Beneficial insect species and fungus organisms absent or at too low levels to hold aphids in check. There has been an increase in acreage of nonresistant alfalfa varieties in Imperial Valley in past few years. Aphid populations build up to tremendous numbers on these varieties and move to susceptible plants of resistant varieties. Some fields of Sonora and Moapa varieties may require controls this season. This is an unusual situation, one which may not occur again for many years, if ever. (Cal. Coop. Rpt., Dowling).

PEA APHID (Acyrtosiphon pisum) - DELAWARE - Averaged 2 per 10 sweeps on alfalfa in eastern Sussex County. (Burbutis). MARYLAND - Light on alfalfa at Snow Hill, Worcester County, April 6. (U. Md., Ent. Dept.). WISCONSIN - Newly emerged nymphs (not over 24 hours old) observed as fairly common between folded leaflets of new growth alfalfa just emerging from soil in Brodhead area, Green County. (Wis. Ins. Sur.). ILLINOIS - Ranged 0-40 (averaged 21.5) per 100 sweeps in 5 to 6-inch alfalfa in extreme southern area. None found farther north where alfalfa and clover ranged 1-3 inches in height. (Ill. Ins. Rpt.). MISSOURI - Surveys negative in southwest area. (Houser, Thomas, Wood). KANSAS - Ranged from 100 to over 1,400 per 100 sweeps in alfalfa in south central and southwestern areas. (Peters). OKLAHOMA - Counts continue at low levels in alfalfa throughout state. (Okla. Coop. Sur.). ARKANSAS - Becoming heavy on alfalfa in southwest; ranged 30-40 per sweep on this host in Miller County. Economic numbers noted on alfalfa in Lafayette County. Surveys negative on Conway County alfalfa (central). (Ark. Ins. Sur.). TEXAS - Heavy, localized populations noted on singletary peas in Washington County. (Mitchell). Very light populations noted on vetch in Kaufman County. (Turney). COLORADO - None found in alfalfa in Otero County to April 9. (Schweissing). ARIZONA - Light to medium on alfalfa in Graham, Pinal, Maricopa and Yuma Counties. (Ariz. Coop. Sur.). NEVADA - Extremely light in Moapa Valley, Clark County. (Bechtel).

COWPEA APHID (Aphis craccivora) - FLORIDA - Counts 300+ per plant on southern peas at Bradenton, Manatee County. (Kelsheimer, Apr. 1).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Single specimen observed in Gallatin County; none observed elsewhere in southern half of State. (Ill. Ins. Rpt.).

APHIDS - ALABAMA - Heavy on crimson clover in Montgomery and Macon Counties; 25-100 per sweep. (McQueen).

CLOVER LEAFHOPPER (Aceratagallia sanguinolenta) - WISCONSIN - Late-stage nymphs and adults noted in alfalfa in Rock and Green Counties. (Wis. Ins. Sur.). UTAH - This species and Dikraneura carneola active on roadsides and in alfalfa fields in Salt Lake and Utah Counties. (Knowlton).

TARNISHED PLANT BUG (Lygus lineolaris) - WISCONSIN - Adults present in wheat and rye fields in southern area. (Wis. Ins. Sur.). ILLINOIS - Adults noted in alfalfa in extreme southern area. (Ill. Ins. Rpt.).

LYGUS BUGS (Lygus spp.) - ARIZONA - No noticeable change in populations noted in alfalfa. Counts as high as 280 per 100 sweeps noted in an experimental check plot of alfalfa in Yuma County. Slight increases noted in safflower in Maricopa County. (Ariz. Coop. Sur.). UTAH - Lygus spp., 85 percent L. elisus, present in alfalfa fields and grass areas in Utah and Salt Lake Counties. (Knowlton).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Remains at noneconomic levels on small grain fields in eastern counties. Heaviest, spotted infestations averaged 10-20 per linear foot. (N.M. Coop. Rpt.). TEXAS - Populations ranged 100-300 per foot in few isolated wheat fields in Potter, Armstrong, Randall, Deaf Smith and Collingsworth Counties; however, with size of wheat, there is doubt much damage will occur. Averaged less than 15 per foot in Sherman and Moore Counties. (Daniels, Mar. 31). Light locally on wheat in Motley County; average less than 100 per linear foot. (Pallmeyer). OKLAHOMA - Infestations becoming general throughout north central and northwest areas with considerable control being initiated. Reproduction continues, with large number of small aphids on plants. Remains noneconomic to light in west central, southwest and northeast areas. (Okla. Coop. Sur.). KANSAS - Scarce in wheat fields in central and western districts. (Peters).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Populations continue light in northeast, west central and southwest areas. Moderate counts reported in Blaine County. (Okla. Coop. Sur.). KANSAS - Ranged 0-160 per 100 sweeps in 6 to 8-inch high wheat in south central area. (Peters). FLORIDA - Infesting rye at 2 locations at Reddick, Marion County. (Adkins, Apr. 3).

A LEAFHOPPER (Draeculacephala portola portola) - FLORIDA - Adults infesting 7 percent of 500 untreated corn plants at Belle Glade, Palm Beach County. (Harris).

EUROPEAN CORN BORER (Ostrinia nubilalis) - DELAWARE - Pupation of overwintering borers first noted April 9 in central Kent County. Estimated percent reduction of overwintered borers, by county, as follows: New Castle 52, Kent 26 and Sussex 54. State average of 45 borers per 100 stalks this spring not as low as 31 per 100 stalks in spring of 1963. (Burbutis). MINNESOTA - Percent overwintering mortality, by district, averaged as follows: Central 14, west central 27, southwest 13, south central 9 and southeast 16. State average was 16 percent; slightly less than 1963 average of 17 percent. (Minn. Ins. Rpt.).

SOUTHWESTERN CORN BORER (Zeadiatraea grandiosella) - MISSOURI - Overwintering survival of larvae in southwest approximately 5 percent. (Houser, Thomas, Wood).

ARMY CUTWORM (Chorizagrotis auxiliaris) - COLORADO - Trace numbers noted in irrigated wheat in Otero County. (Schweissing). KANSAS - Occasional larvae observed in wheat in central and western areas; high counts less than 2 per foot of row. Only occasional damaged leaf observed. (Peters).

CORN EARWORM (Heliothis zea) - ARKANSAS - Single moth collected April 2 in light trap at Hope, Hempstead County (southwest), is first record of season; 7 adults taken in this trap April 2-8. Single moth collected in sweep net from crimson clover April 3 in Bradley County (south central). (Ark. Ins. Sur.; Whitcomb).

THRIPS - NEW MEXICO - Unspecified species appear to be building up in most alfalfa fields in Chaves and Eddy Counties. (N.M. Coop. Rpt.). NEVADA - Frankliniella sp. very heavy on alfalfa in Moapa Valley, Clark County. (Bechtel).

HESSIAN FLY (Phytophaga destructor) - KANSAS - "Flaxseed" examination indicates emergence will not begin for several more days in Riley County, northeast. (Somsen, Burkhardt).

SEED-CORN MAGGOT (Hylemya platura) - DELAWARE - Adults abundant in cover crops throughout Sussex County. (Burbutis).

BROWN WHEAT MITE (Petrobia latens) - OKLAHOMA - Continues moderate to heavy in scattered locations in Kiowa, Greer and Harmon Counties, killing some barley. Large numbers of summer eggs present in these areas and populations expected to decline. Moderate counts reported in Washita and Blaine Counties (west central). (Okla. Coop. Sur.). TEXAS - Populations about 2,000 per foot (Henderson fork measure) in wheat fields in localized area of Potter County; little damage apparent. (Daniels, March 31). Heavy, widespread populations reported on wheat in Runnels County. (Texas Coop. Rpt.). Moderate, local infestations reported on wheat and barley in Motley County. (Pallmeyer). COLORADO - None noted in surveys of wheat and barley in Otero County. (Schweissing). KANSAS - Ranged zero to moderate in central and western counties. Several fields, particularly in Comanche (south central) and Clark (southwest) Counties, had heavier populations with wheat plants showing damage. Low soil moisture aggravating plant appearance; improved growing conditions should reduce problem. (DePew, Peters).

WHEAT CURL MITE (Aceria tulipae) - KANSAS - Examination of 10 wheat samples collected April 1-2 in southeast showed one sample heavily infested. (Somsen, Peters).

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Light to moderate on small grains in Runnels and Coleman Counties. (Hamman).

CAROLINA GRASSHOPPER (Dissostertia carolina) - COLORADO - Second-stage nymphs active in lawns at Ft. Collins, Larimer County. Det. by T. O. Thatcher. (Colo. Ins. Det. Comm.).

A CHINCH BUG (Blissus sp.) - TEXAS - Light, widespread infestations noted on St. Augustine lawns in Jefferson County. (Crocker).

FRUIT INSECTS

EASTERN TENT CATERPILLAR (Malacosoma americanum) - TEXAS - Infesting peach, plum and other fruit trees over wide portion of State. (Texas Coop. Rpt.).

A PSYCHID MOTH (Apterona crenulella) - UTAH - Numerous on cherry twigs in orchard east of Spanish Fork, Utah County. (Knowlton).

A CERAMBYCID BEETLE (Prionus sp.) - OKLAHOMA - Damaging apple roots in Sequoyah County. (Okla. Coop. Sur.).

APPLE APHID (Aphis pomi) - MASSACHUSETTS - Probably this species, beginning to hatch in Hampshire County orchards on warmer sites. Young nymphs on buds, most of which still dormant. (Wave). MARYLAND - Nymphs on apple buds in orchards at Hancock, Washington County. (U. Md., Ent. Dept.).

ROSY APPLE APHID (Anuraphis rosea) - DELAWARE - Nymphs on apple buds in Sussex County. (Kelsey).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - OHIO - Light nymphal populations hatching from overwintering eggs at Wooster, Wayne County, on April 6. (Forsythe). Nymphs noted on green leaf tissue of apple trees in Springdale, Hamilton County, April 8. (Lyon). Aphids, believed this species, noted on apple trees in late March in Lawrence County, south central area, March 25. (Holdsworth).

WOOLLY APPLE APHID (Eriosoma lanigerum) - COLORADO - Caused heavy injury to 500 crab apple trees in nursery stock in Larimer County. (Simpson).

SAN JOSE SCALE (Aspidiotus perniciosus) - CALIFORNIA - Heavy on cherry and plum nursery stock in Woodland, Yolo County. (Cal. Coop. Rpt.). UTAH - Common in apple and cherry orchards in Utah County at Alpine, Santaquin, Provo and Payson and serious in some small orchards in Orem area. (Knowlton).

PEAR PSYLLA (Psylla pyricola) - MASSACHUSETTS - Adults present on pear twigs in Hampshire County; no egg laying noted. (Wave). CONNECTICUT - Adults noted on pears. (Savos).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Adults heavy (up to 50-60 per leaf) on young foliage of Japanese persimmon at Gainesville, Alachua County. (Mead, Apr. 4). Eggs moderate on leaves of Citrus sp. at Floral City, Citrus County. (Williams, Apr. 3).

PECAN NUT CASEBEARER (Acrobasis caryae) - ALABAMA - Overwintered larvae very heavy and destroying new, developing buds on seedling pecan in Lee County; controls never applied to this tree. (McQueen). TEXAS - Emerged from overwintering hibernaculae and feeding on buds or new growth of pecan trees in Tarrant County. (Turney).

BLACK PECAN APHID (Melanocallis caryaefoliae) - ALABAMA - Eggs heavy on pecans during winter; now hatching on untreated seedling pecans in localized area of Lee County. Nymphs range 25-200 per early opening bud and feeding. (McQueen).

Citrus Insect Situation in Florida - End of March - CITRUS RUST MITE (Phyllocop-truta oleivora) infested 50 percent of groves (norm 60 percent); 33 percent economic (norm 34 percent). Populations slightly below average and in moderately low range. Although increasing on spring growth, little change in total population will be evident until late April. Highest districts north, west and south. TEXAS CITRUS MITE (Eutetranychus banksi) infested 40 percent of groves (norm 22 percent); 20 percent economic (norm 9 percent). Population higher than in March of prior years. Rapid infestation of new growth expected in late April. Highest districts east and central. CITRUS RED MITE (Panonychus citri) infested 56 percent of groves (norm 66 percent); 27 percent economic (norm 40 percent). Although below average, this mite is important in about 7 percent of groves. Little increase expected before May. Highest districts north, central and west. SIX-SPOTTED MITE (Eotetranychus sexmaculatus) at very low levels and will not be a problem. PURPLE SCALE (Lepidosaphes beckii) infested 83 percent of groves (norm 80 percent); 14 percent economic (norm 16 percent). Highest districts south and east; increase expected. GLOVER SCALE (L. gloverii) infested 69 percent of groves (norm 27 percent); 19 percent economic (norm 1 percent). Highest districts east and south; increase expected. CHAFF SCALE (Parlatoria pergandii) infested 83 percent of groves (norm 42 percent); 23 percent economic (norm 1 percent). Highest districts east and central; little change expected. YELLOW SCALE (Aonidiella citrina) infested 44 percent of groves (norm 9 percent); 13 percent economic (norm 1 percent). Highest districts central and south; increase expected. BLACK SCALE (Saissetia oleae) infested 15 percent of groves (norm 15 percent); 7 percent economic (norm 4 percent). Highest district south; slight increase expected. Adult WHITEFLIES present in majority of groves and will continue to increase. Immature population declined, but still above normal. The expected sharp increase in March brought APHID populations to slightly above normal level. Aphids will continue to be abundant through April. (W. A. Simanton (Citrus Expt. Sta., Lake Alfred)).

CITRUS RED MITE (Panonychus citri) - CALIFORNIA - Adults heavy on citrus trees in Courtland, Sacramento County. (Cal. Coop. Rpt.).

GRAPE FLEA BEETLE (Altica chalybea) - ALABAMA - Adults continue to feed on new, developing flower buds on scuppernongs and other grapes in Lee County. (McQueen).
FLORIDA - Larvae and adults moderate on grapevines at Springhead, Hillsborough County. Larvae skeletonizing leaves throughout vineyard. (Custead, Apr. 2).
ARIZONA - Causing some damage to grapes in Maricopa County. (Ariz. Coop. Sur.).

GRAPE LEAF SKELETONIZER (Harrisina americana) - FLORIDA - Females laying eggs on leaves of Lake Emerald grape (a hybrid) at Gainesville, Alachua County. (Mead).

GRAPEVINE APHID (Aphis illinoisensis) - FLORIDA - Moderately damaging grapevines at Springhead, Hillsborough County. (Custead, Apr. 2).

LEAFHOPPERS (Erythroneura spp.) - ARIZONA - Prevalent in grapes in Maricopa County; generally distributed over entire area. (Ariz. Coop. Sur.).

TRUCK CROP INSECTS

FLEA BEETLES (Epitrix spp.) - ARIZONA - Some damage reported on corn, tomatoes and peppers in Stanfield area, Pinal County; controls not completely effective. (Ariz. Coop. Sur.).

NOCTUID MOTHS - FLORIDA - Larvae of unspecified species infesting 53 percent of 200 cabbage plants at Sanford, Seminole County; damaged ranged light to heavy. (Desin).

CABBAGE APHID (Brevicoryne brassicae) - FLORIDA - Infested 43 percent of 200 cabbage plants at Sanford, Seminole County; damage light to moderate. (Desin).

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Continues a problem in Yuma and Maricopa Counties. Only limited controls being applied presently. (Ariz. Coop. Sur.).

MELON APHID (Aphis gossypii) - ARIZONA - Appears well distributed in Yuma Valley, Yuma County; leaf curling evident in some cantaloups. (Ariz. Coop. Sur.).

Beet Leafhopper Survey, Texas and New Mexico - The beet leafhopper (Circulifer tenellus) survey was begun February 25 and completed March 10, 1964. A total of 2,624 miles was traveled in Texas and 565 miles in New Mexico. A total of 45 counties was surveyed in Texas and 7 counties in New Mexico, with 92 stops being made in Texas and 25 stops in New Mexico. Host plants were encountered at 66 percent of the stops in Texas and at 40 percent of the stops in New Mexico. The number of beet leafhoppers per 100 square feet was 11 in Texas and 32 in New Mexico, compared with 8.6 in Texas and 6.7 in New Mexico for 1963. Beet leafhopper populations were heavier in Texas but host plants sparser; leafhoppers were probably more concentrated. Populations were much heavier in flixweed in the sugar beet-growing area around Hereford. Populations in New Mexico were higher, with the scarcity of hosts probably causing a concentration of beet leafhoppers. (PPC and cooperating agencies).

POTATO PSYLLID (Paratrioza cockerelli) - NEVADA - Adults generally light but numerous eggs present on wild Lycium sp. where plants have foliage in south-eastern Clark County. Many plants in this area lack foliage and potential population low. (Bechtel, Zoller).

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) - OHIO - Moderate on greenhouse tomato plants near Cincinnati, Hamilton County. (Lyon).

THRIPS - NEW MEXICO - Counts in onion fields in Dona Ana County increased from 1-2 per plant to 4-6 per plant during past 10 days. (N.M. Coop. Rpt.).

A LEAF MINER FLY (Liriomyza sp.) - FLORIDA - Infested 4 percent of 200 cabbage plants at Sanford, Seminole County; damage light. (Desin).

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella) - ARIZONA - First known emergence of season occurred in experimental cages at Safford on March 30, when 3 moths emerged; 3 additional moths emerged April 2. (Ariz. Coop. Sur.).

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BLACK HILLS BEETLE (Dendroctonus ponderosae) - WYOMING - Surveys conducted by U.S. Forest Service indicate approximately 39,160 trees in Black Hills National Forest will need treatment. (Marks).

A FALSE POWDER-POST BEETLE (Amphicerus cornutus) - CALIFORNIA - Medium on Tamarix sp. in Cabazon, Riverside County. (Cal. Coop. Rpt.).

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) - OREGON - Surveys in Portland area, Multnomah County, began April 6, with 10 inspectors engaged in yard-to-yard search. Pines in all nurseries in State being checked. Surveys to be completed by June 1. There is no known infestation in State at present time. (Larson).

AN OLETHREUTID MOTH (Rhyacionia zozana) - CALIFORNIA - Light on hybrid pine trees in California Division of Forestry Demonstration Forest in Paradise, Butte County, and El Dorado County. This is a native western moth. (Cal. Coop. Rpt.).

PINE BARK APHID (Pineus strobi) - MARYLAND - Moderate to heavy on ornamental white pines in several sections of Prince Georges County. (U. Md., Ent. Dept.). OHIO - Light infestations noted on Scotch pine near Bethel, Clermont County, southwest. First eggs of season observed under overwintering females. (Lyon).

SPRUCE APHID (Aphis abietina) - CALIFORNIA - Adults heavy on Colorado spruce in Redwood City, San Mateo County. (Cal. Coop. Rpt.).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - WISCONSIN - High populations observed on Mugho pines in southeastern counties. Needles of some trees browning. Normal quantities of eggs present in 90 percent of individuals. Parasitism low. (Wis. Ins. Sur.). CALIFORNIA - Locally heavy on Colorado spruce in Courtland, Sacramento County. (Cal. Coop. Rpt.).

BLACK PINE LEAF SCALE (Aspidiotus californicus) - WISCONSIN - Populations high on Mugho pines in southeast; needles on some trees browning. Approximately 92 percent of specimens contained apparently healthy individuals. Parasitism low. (Wis. Ins. Sur.).

A PINE RESIN MIDGE (Retinodiplosis resinicola) - ALABAMA - Few active larvae noted on limbs of loblolly and shortleaf pines in Lee County. (Barwood et al.).

A PINE SAWFLY (Neodiprion pratti pratti) - NORTH CAROLINA - Hatching underway March 18 in Vance and Granville Counties; complete April 2. Cold conditions during portion of period had no apparent effect on mortality of young larvae. (Green).

EASTERN TENT CATERPILLAR (Malacosoma americanum) - ALABAMA - Heavy numbers defoliating some cherry trees in Monroe County. (Lemons). OKLAHOMA - Present on native plum statewide. (Okla. Coop. Sur.). NORTH CAROLINA - Larvae reported leaving wild cherry and crawling about in Lumberton, Robeson County. (Bartley). VIRGINIA - Small tents noticeable in Campbell, Appomattox, Buckingham, Amelia, Cumberland, Powhatan, Goochland, Louisa, Fluvanna, Albemarle, Amherst and Nelson Counties. (Tarpley). ILLINOIS - Eggs not yet hatched in Cumberland and

Jasper Counties April 6, but larval emergence observed April 7 in White County and April 8 in Marion and Effingham Counties; no nest building had occurred. Larvae making small nests in Johnson and Franklin Counties April 8. (Ill. Ins. Rpt.).

WESTERN TENT CATERPILLAR (Malacosoma pluviale) - OREGON - Hatching noted on roadside brush in Washington County during week of March 23. (Larson).

SPRING CANKERWORM (Paleacrita vernata) - CONNECTICUT - Adults noted about lights; larvae should appear soon. (Savos). PENNSYLVANIA - Adults abundant on ash and cherry in Crawford County during late February. (Carlson). NORTH DAKOTA - Emergence of male adults continues; slight increase in numbers observed in Fargo area, Cass County. No females noted to April 10. (N.D. Ins. Sur.).

LINDEN LOOPER (Erannis tiliaria) - CONNECTICUT - Adults noted about lights; larvae should appear soon. (Savos).

FALL WEBWORM (Hyphantria cunea) - CALIFORNIA - Larvae medium on alder and willow in Twain Harte, Tuolumne County. (Cal. Coop. Rpt.).

A CUTWORM (Ufeus faunus) - NEVADA - Light to moderate on cottonwood trees in Moapa Valley, Clark County. (Bechtel).

ELM BORER (Saperda tridentata) - NORTH CAROLINA - Adults found in yard in Mecklenburg County; presumably came from dying elm in yard. (Wright).

POPLAR TWIG GALL APHID (Pemphigus populiramulorum) - COLORADO - Injury caused during 1963 season abundant on cottonwood at Yuma, Yuma County. Det. by M. A. Palmer. (Goeglein).

WHITE-LINED SPHINX (Celerio lineata) - ARIZONA - Large adult populations noted about ornamentals in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

AZALEA LEAF MINER (Gracilaria azaleella) - FLORIDA - Moderate on azalea at Fairvilla, Orange County. (Griffith, Apr. 3).

AN ARCTIID MOTH (Seirarctia echo) - FLORIDA - Larvae feeding on seeds of Zamia sp. at Englewood, Sarasota County. (Saunders, Apr. 4).

A LEAF ROLLER MOTH (Batodes angustiorana) - CALIFORNIA - Light on yew trees in Los Angeles, Los Angeles County; previous records go back to 1932 in San Francisco Bay region, Santa Cruz and San Mateo Counties. (Cal. Coop. Rpt.).

A BARK BEETLE (Phloeosinus cupressi) - CALIFORNIA - Heavy on Chamaecypris ellwoodi in nursery in San Mateo, San Mateo County. (Cal. Coop. Rpt.).

A LEAF BEETLE (Chrysomela interrupta) - FLORIDA - Abundant on alder bushes in Alachua County April 4. Collected and determined by L. A. Hetrick. (Fla. Coop. Sur.).

GREEN PEACH APHID (Myzus persicae) - OHIO - Heavy on chrysanthemums in greenhouse near Washington Court House, Fayette County, southwest. Nymphs noted on leaves and in flowers. Many flowers unsalable. (Lyon).

ROSE APHID (Macrosiphum rosae) - ALABAMA - Moderate on new growth of ornamental roses in localized areas of Montgomery, Macon and Lee Counties. Controls effective. (Blackwell et al.).

PEA APHID (Acyrtosiphon pisum) - ARIZONA - Light to moderate on roses in Graham County. Moderate to heavy populations damaging roses in Maricopa and Pinal Counties. (Ariz. Coop. Sur.).

APPLE APHID (Aphis pomi) - MARYLAND - Nymphs infesting flowering crab apple trees at Carrollton, Prince Georges County. (U. Md., Ent. Dept.).

APHIDS - OKLAHOMA - Several species active on various ornamentals in Stillwater area, Payne County. Cinara tujafilina heavy on arborvitae in Comanche and Beckham Counties. (Okla. Coop. Sur.).

AZALEA BARK SCALE (Eriococcus azaleae) - ALABAMA - Very heavy locally on azaleas in Covington County. Approximately half of plants in one landscape planting killed before controls applied. (Stephenson).

OLIVE SCALE (Parlatoria oleae) - CALIFORNIA - Medium on forsythia nursery stock in Oroville, Butte County. (Cal. Coop. Rpt.).

COTTONY-CUSHION SCALE (Icerya purchasi) - ARIZONA - Spotted infestations occurring on some ornamentals in Phoenix area of Maricopa County. (Ariz. Coop. Sur.).

A WAX SCALE (Ceroplastes sp.) - FLORIDA - Severe on stem and leaves of pigweed and leaves of hempvine at Hallandale, Broward County. (McLean, Mar. 31).

A PIT SCALE (Asterolecanium puteanum) - FLORIDA - Severe on stem of yaupon at Marineland, Flagler County. (Roberts, Apr. 2).

A MEALYBUG (Spilococcus larreae) - CALIFORNIA - Medium on Larrea sp. in Salton City, Imperial County. (Cal. Coop. Rpt.).

CITRUS WHITEFLY (Dialeurodes citri) - FLORIDA - Severe on leaves of Gardenia jasminoides at Fairvilla, Orange County. (Griffith, Apr. 2).

HOLLY LEAF MINER (Phytomyza ilicis) - OREGON - Infestations remain about same in Portland area, Multnomah County; samples taken April 6 indicate 75 percent of larvae pupated. No adults noted on that date. (Larson).

TWO-SPOTTED SPIDER MITE (Tetranychus telarius) - ARIZONA - Heavy populations defoliating sweetpeas in Yuma County. (Ariz. Coop. Sur.). FLORIDA - Severely damaging stems and leaves of croton at Pembroke, Polk County. (Snell, Apr. 2).

INSECTS AFFECTING MAN AND ANIMALS

MOSQUITOES - DELAWARE - First Aedes sollicitans larvae of season noted in eastern Kent County on April 3. (Lake). TEXAS - Fairly high population of Culex salinarius existed in Port Arthur area throughout winter; also thought to be most common species in Beaumont area. Larval surveys show Culiseta inornata most dominant species in standing water; numerous Culex salinarius also present. Aedes sollicitans numerous in flood-water locations. Only significant fresh flood-water breeding so far has been Aedes vexans, which is appearing in fallowed rice fields. (Jefferson Co. Mosq. Cont. Comm.).

HORN FLY (Haematobia irritans) - OKLAHOMA - Counts of 50 and 40 per head noted on yearling steers and cows, respectively, in Woodward and Harper Counties. Counts per head averaged 80 on yearling steers and 75 on cows in Payne County. Reported light in Seminole County. (Okla. Coop. Sur.).

COMMON CATTLE GRUB (Hypoderma lineatum) - OHIO - Of minor economic importance throughout southwestern area, especially on native cattle. Some imported western steers infested. (Lyon).

BLACK BLOW FLY (Phormia regina) - ALABAMA - Collected from cattle in Butler County. (Ledbetter).

BLACK FLIES - ALABAMA - Heavy emergence in Macon, Tallapoosa, Montgomery and other counties causing general nuisance to residents. (Ledbetter, Barwood et al.).

CHICKEN BODY LOUSE (Menacanthus stramineus) - OHIO - Several farm flocks infested in southwest; eggs and adults observed most frequently near vents. (Lyon).

BED BUG (Cimex lectularius) - ILLINOIS - Reported from 2 locations in State; in home and in poultry house. (Ill. Ins. Rpt.).

NORTHERN FOWL MITE (Ornithonyssus sylviarum) - MISSOURI - Infesting caged layer flock in Montgomery County. (Houser, Thomas, Wood.).

HONEY BEE (Apis mellifera) - SOUTH DAKOTA - Infesting cattle bunkers and causing concern to Tripp County cattlemen. (Hintz).

HOUSEHOLD AND STRUCTURAL INSECTS

BOXELDER BUG (Leptocoris trivittatus) - UTAH - Troublesome in homes at Clearfield, Davis County. Extremely numerous in and about homes in Salt Lake City area, Salt Lake County, and at Orem, Utah County. (Knowlton). COLORADO - A nuisance in numerous homes in Ft. Collins, Larimer County, and single observation of flight observed in lower foothills in area. (Ext. Serv. Staff). MINNESOTA - Reported as nuisance by homeowners in Minneapolis and St. Paul after few warm days. (Minn. Ins. Rpt.). WISCONSIN - Numerous inquiries being received concerning this pest. (Wis. Ins. Sur.). OHIO - Adults continue a major annoyance to homeowners throughout State. (Delaplane, Lyon). PENNSYLVANIA - Continues a nuisance. (Udine). VIRGINIA - Complaints increased during recent warmer weather in Roanoke area. (Allen).

CLOVER MITE (Bryobia praetiosa) - NEW MEXICO - Large numbers entering homes at Farmington and Aztec, San Juan County. (N.M. Coop. Rpt.). NEBRASKA - Activity increasing in homes in southeast area with advent of spring. (Bergman). MINNESOTA - Annoying to homeowners in Minneapolis and St. Paul after few warm days. (Minn. Ins. Rpt.). OHIO - Homeowners reporting annoyance, especially on sunny days. (Treece, Lyon). CONNECTICUT - A problem in East Hartford. (Savos). VIRGINIA - Numerous complaints concerning infestations in homes in Roanoke area during recent warmer weather (Allen); annoying in Amherst, Amherst County, and in Pennington Gap, Lee County (Rowell). NORTH CAROLINA - Large numbers annoying at a Halifax County location. (Pendleton, Robertson).

INDIAN-MEAL MOTH (Plodia interpunctella) - OREGON - Infestations in kitchen cupboards in homes in western part of State continue high. (Larson). OKLAHOMA - Adults emerging from stored products in homes causing concern in Payne County. (Okla. Coop. Sur.).

DRUGSTORE BEETLE (Stegobium paniceum) - OKLAHOMA - Presence in stored products in homes causing concern in Stillwater area, Payne County. (Okla. Coop. Sur.).

SILVERFISH (Lepisma saccharina) - WISCONSIN - Noted and reported in number of Dane County homes. (Wis. Ins. Sur.).

PAVEMENT ANT (Tetramorium caespitum) - CONNECTICUT - Problem in Willimantic homes. (Savos). MARYLAND - Winged forms appeared at a location in Rising Sun, Harford County. (U. Md., Ent. Dept.).

SUBTERRANEAN TERMITES - MASSACHUSETTS - Inquiries concerning unspecified species about homes and summer camps in eastern part of State increasing daily. (Garland, Mar. 30-Apr. 3). CONNECTICUT - Swarming throughout State. (Savos). Swarming of Reticulitermes flavipes in homes probably peaking; swarming out-of-doors just beginning. (Johnson). PENNSYLVANIA - Unspecified species continue to appear. (Udine). MARYLAND - Winged forms appeared in and around several homes in central and western sections. (U. Md., Ent. Dept.). VIRGINIA - Unspecified species severely damaging public building in Clintwood, Dickenson County. (Dinwiddie, Mar. 24). Winged adults noted in Fredericksburg, Spotsylvania County (Rowell, Beck) and at Newport News (Rowell, Apr. 1). Damaged

spirea plants in Appomattox, Appomattox County. (Rowell, Smith; Apr. 1). NORTH CAROLINA - R. flavipes alates noted in Harnett and Haywood Counties. (Jenkins, Marsh, Mount). OHIO - Swarming by R. flavipes underway since late March in Columbus, Franklin County, central area. Heaviest swarming occurred during past few days. (Becker, Apr. 9). OKLAHOMA - First swarming of R. tibialis reported in Lawton area, Comanche County, April 6. Swarming also noted in Stillwater area, Payne County. (Okla. Coop. Sur.). COLORADO - Reticulitermes spp. noted at Norwood, San Miguel County. (Ext. Serv.). UTAH - Damaging another home in Logan, Cache County. (Knowlton). NEVADA - Reticulitermes sp. light in 4 homes in Reno, Washoe County. (Ting). OREGON - R. hesperus swarmed in several areas of Jefferson County week of March 28. (Grove).

A DRYWOOD TERMITE (Cryptotermes sp.) - DELAWARE - Reported in CEIR 14(12): 218 as undetermined species. Infested wicker furniture in home and also attacked floor under furniture. Det. by T. E. Snyder. Collected by P. P. Burbutis and D. MacCreary on March 9, 1964, at Wilmington, New Castle County. This is the first record for this genus in the State. (Burbutis).

CARPENTER ANTS - MASSACHUSETTS - Inquiries increasing concerning unspecified species about homes and summer camps in eastern area. (Garland, Mar. 30-Apr. 6). OREGON - Winged adults of Camponotus sp. collected in homes in Salem area; no damage noted. (Larson).

OLD-HOUSE BORER (Hylotrupes bajulus) - NORTH CAROLINA - Larvae taken from wood of home in Martin County. Det. by D. A. Mount. (Hodges).

SPOTTED PINE SAWYER (Monochamus maculosus) - COLORADO - Newly emerged adult collected in dormitory on Colorado State University campus at Ft. Collins, Larimer County. Det. by T. O. Thatcher. (Colo. Ins. Det. Comm.).

A LONG-HORNED BEETLE (Eudermes pini) - NORTH CAROLINA - Considerable numbers emerged in several homes in Wake and Cumberland Counties about April 1. (Wray).

STORED-PRODUCT INSECTS

KHAPRA BEETLE (Trogoderma granarium) - ARIZONA - Fourth infestation found in Yuma County near original find. Trogoderma spp. heavy in stored grain products in storage bins in Phoenix, Maricopa County. (Ariz. Coop. Sur.).

RED-LEGGED HAM BEETLE (Necrobia rufipes) - CALIFORNIA - Adults medium in stored copra in Richmond, Contra Costa County. (Cal. Coop. Rpt.).

A COLYDIID BEETLE (Murmidius ovalis) - NEBRASKA - Present in stored, shelled corn in Johnson County; this is the first known record in State. (Bergman).

INDIAN-MEAL MOTH (Plodia interpunctella) - DELAWARE - Infesting soybean and other seeds in seed warehouse in Sussex County. (Burbutis).

Stored-product Insects in Alabama - Routine warehouse inspections in Mobile County showed following species present: Adults - Tribolium confusum 10; T. castaneum 1; Plodia interpunctella 1; Tenebroides mauritanicus 1. Larvae - Hermetia illucens 1; Attagenus piceus 9. (Seibles, Mathews, Wallace).

BENEFICIAL INSECTS

LADY BEETLES - ILLINOIS - Small numbers of Hippodamia convergens, Coccinella novemnotata, H. parenthesis and Coleomegilla maculata fuscilabris observed in alfalfa in extreme southern area. (Ill. Ins. Rpt.). KANSAS - Lady beetles, primarily H. convergens, present in trace numbers in several wheat, barley and alfalfa fields in central and western areas. (Peters). NEW MEXICO - Hippodamia spp. adults in Chaves and Eddy Counties on small grain and alfalfa.

(N.M. Coop. Rpt.). NEVADA - Larvae range 1-2 per sweep in many alfalfa hay fields in Moapa Valley, Clark County. (Bechtel).

LACEWINGS - KANSAS - Present in trace numbers in several wheat, barley and alfalfa fields in central and western areas. (Peters). OHIO - Several adults of Chrysopa spp. observed on tree foliage and weeds in southwest area. (Lyon).

DAMSEL BUGS - KANSAS - Trace numbers in several wheat, barley and alfalfa fields in central and western areas. (Peters). ILLINOIS - Adults noted in small numbers on alfalfa in extreme southern area. (Ill. Ins. Rpt.). WISCONSIN - Nabis ferus adults observed in grain fields in southern area. (Wis. Ins. Sur.).

A BIG-EYED BUG (Geocoris punctipes) - ILLINOIS - Adults noted in small numbers in extreme southern area on alfalfa. (Ill. Ins. Rpt.).

A FLOWER BUG (Orius insidiosus) - ILLINOIS - Small numbers of adults noted on alfalfa in extreme southern area. (Ill. Ins. Rpt.).

PREDACEOUS THRIPS - CALIFORNIA - Leptothrips mali and Rhipidothrips brunneus adults light on maple trees in Sacramento, Sacramento County. (Cal. Coop. Rpt.).

MISCELLANEOUS INSECTS

SAW-TOOTHED GRAIN BEETLE (Oryzaephilus surinamensis) - COLORADO - Collected from brand named bagged soil for house plants at Fort Collins, Larimer County. (Colo. Expt. Sta.).

LESSER MEALWORM (Alphitobius diaperinus) - MARYLAND - Adults found in wood shavings used as litter in broiler house at Girdletree, Worcester County. (U. Md., Ent. Dept.).

PUNCTUREVINE WEEVILS (Microlarinus spp.) - CALIFORNIA - M. lareynii and M. lypriformis adults caused some concern by occurring on young citrus, grapes and possibly other commercial plants. Investigations show affected crops grew close to puncturevine stands and were wrapped or had newspaper mats around young plants for protection. When feeding occurred, it was in the form of minute punctures which do little or no damage. No control of weevils needed other than removing wrappings or raising them above ground level. Inspection for other damaging pests not so obvious as puncturevine weevils recommended. Mechanical destruction of puncturevine late in season disturbs adults causing them to seek shelter. Tree or vine wrappings offer desirable protection; adults congregate inside. (J. Holloway).

A PRICKLYPEAR WEEVIL (Gerstaecheria sp.) - TEXAS - Specimens noted in Opuntia sp. in Zavala County. (Burke).

FALSE CHINCH BUGS (Nysius spp.) - NEVADA - Nysius sp. heavy on wild crucifers in Moapa Valley, Clark County. (Bechtel). COLORADO - N. raphanus adults medium on wild mustard in Cabazon, Riverside County. (Cal. Coop. Rpt.).

EUROPEAN EARWIG (Forficula auricularia) - OREGON - Hatching and moving from winter quarters in Forest Grove area, Washington County. (Getzendaner).

IMPORTED FIRE ANT (Solenopsis saevissima richteri) - FLORIDA - Single mound noted at each of 2 new locations at Apopka, Orange County. County previously known infested. (Avazian, Beck).

VESPID WASPS - UTAH - Vespa sp. and yellow jackets active in southern Utah County. (Knowlton).

A SNAIL (Oxychilus alliarius) - OREGON - Specimens collected in greenhouse in Portland, Multnomah County, determined this species. No plant damage noted. (Goeden).

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1963
(continued from page 326)

SHADE TREE INSECTS

Highlights:

FALL WEBWORM was very heavy in central and western areas of Pennsylvania, and defoliation was more prevalent than in any previous year throughout southern Indiana. Fall webworm nests were very abundant in the Mesilla and Pecos Valleys of New Mexico by mid-June and heavy infestations again appeared on various hosts in September and October in the State. SPRING CANKERWORM and FALL CANKERWORM were damaging and of concern in several areas from New England to California. Several species of TENT CATERPILLARS were of concern during 1963, with damage ranging up to severe defoliation in some areas, especially on oaks in central Texas.

ELM LEAF BEETLE was more abundant in eastern Washington than for the previous two seasons, was above normal in Utah, and extremely heavy in many locations over California. Elm leaf beetle was also serious in areas of Nevada, Arizona, New Mexico, Colorado, Nebraska, Kansas, Oklahoma, Texas and several Southern and New England States. New infestations of SMALLER EUROPEAN ELM BARK BEETLE were found in Union County, South Dakota, with additional infestations reported in Yankton County. To the end of 1963, no Dutch elm disease had been found in South Dakota, but the disease was more pronounced in Wisconsin than in 1962. This beetle was found for the first time in Midland County, Texas, during 1963.

As usual, numerous APHIDS were of concern in some areas of the Nation, as were various SCALE INSECTS.

BIRCH LEAF MINER was moderate to heavy in Maine, Vermont, Rhode Island and New Jersey, and control of this pest is becoming a problem in nurseries in Oregon from Portland to Eugene.

Several species of SAWFLIES constituted local problems in some areas of a few States.

SPIDER MITES were of some concern on a variety of hosts in Kansas, Colorado, Arizona and California during the 1963 season.

FALL WEBWORM (*Hyphantria cunea*) began appearing in RHODE ISLAND in mid-July and was spotty statewide during the 1963 season. This arctiid was very heavy during the season in certain areas of central and western PENNSYLVANIA. Fall webworm was abundant on sweetgum in areas of Sussex County, DELAWARE, and was more numerous during 1963 in New Castle County than in 1962 on walnut, hickory and other trees. This webworm was present throughout VIRGINIA during the season in usual numbers. Defoliation of native cherry, persimmon and other deciduous trees throughout southern INDIANA was the most prevalent observed in any previous year, with numerous trees being stripped of all foliage during August.

Fall webworm, which is always present and cyclic in outbreak years in KANSAS, was frequently observed in that State during 1963, and was reported feeding on ornamental trees in MISSOURI. Fall webworm appeared early in ARKANSAS, with fully grown larvae observed in southern portion of the State in late May. Infestations were heavy in northern Arkansas during late summer. The pest was of concern on shade trees in Calhoun County, TEXAS, during the season. Fall webworm adults began appearing in light trap catches in relatively large numbers the first week of June in Dona Ana County, NEW MEXICO. Nests were very abundant in shade trees in Mesilla and Pecos Valleys by the middle of June, and heavy

infestations again appeared in the State on poplar, Chinese elm and other shade trees in September and October.

Fall webworm was abundant on wild plum in wooded areas of NORTH DAKOTA, but populations were lower than usual in the Willamette Valley of OREGON during the 1963 season.

FALL CANKERWORM (*Alsophila pometaria*) populations were heavy on shade trees in the Guerneville area of SONOMA COUNTY, CALIFORNIA. Larvae of cankerworms were extremely abundant on shade trees in most areas of NORTH DAKOTA during 1963, with females of fall cankerworm being very numerous in the southeastern part of the State during late September and early October. Adults, primarily spring cankerworm (*Paleacrita vernata*) began appearing in large numbers in blacklight traps in Dane County, WISCONSIN, in late March. Severe, but localized, defoliation was noted in parts of Columbia, Dane and Dunn Counties, Wisconsin, by early summer. Spring cankerworm and fall cankerworm were very abundant in central, west and west-southwest districts of ILLINOIS in late April and May, with many elm and oak woodlands severely defoliated. Adults of spring cankerworm appeared early in IOWA, the first male being observed March 5; heavy emergence began March 20 and was completed by April 4. Wingless females were observed on April 4. Hatching was underway by April 17-18 in the Shenandoah area of Page County and probably across the southern portion of Iowa. By April 26, cankerworm larvae ranged 1-10 per elm leaf, with 10-80 percent loss of leaf surface. Cankerworm controls were applied at Bedford and Wapello. At Pella, Iowa, unspecified cankerworms had destroyed 15-20 percent of the leaf surface by May 12. Loss of leaf surface in Iowa during the 1963 season ranged 10-100 percent.

Larval activity by spring cankerworm caused heavy defoliation of trees in portions of central, eastern and southeastern NEBRASKA, and the pest, always present in KANSAS, was frequently observed there during 1963. A heavy flight of male spring cankerworm was observed in central MISSOURI during March and early April. Larval populations were reported in the southwest, west central and northwest areas of the State, where they fed on elm, apple and other trees during mid and late April. Unspecified cankerworms caused heavy, local damage to hackberry trees in several areas of TEXAS during 1963.

Fall cankerworm and spring cankerworm populations were extremely heavy throughout NEW JERSEY during the 1963 season. Larvae of mixed species of cankerworms, with fall cankerworm predominant, appeared the first week of May in RHODE ISLAND. Defoliation was heavy in residential areas of Cranston, Providence County, and Warwick, Kent County, and to a lesser extent in Smithfield, Providence County, and Middletown, Newport County. Adult females were noted in Cranston, Rhode Island, on October 30.

EASTERN TENT CATERPILLAR (*Malacosoma americanum*) was frequently observed in KANSAS during 1963, where it is always present. The pest appeared early in ARKANSAS, with nests 3-5 inches in diameter being present as early as March 30. Eastern tent caterpillar damaged ornamental trees in MISSOURI during the season. First nests of this tent caterpillar in ILLINOIS were observed as far north as Greenup, Cumberland County, on April 4. In general, the pest was not so abundant as it was the last few years; however, localized spots in southern Illinois were heavily infested, with some cherry trees being completely defoliated.

Eastern tent caterpillar was present in large numbers across TENNESSEE during the spring of 1963, was unusually abundant in parts of the Piedmont area of SOUTH CAROLINA during the season, and was present in usual numbers throughout VIRGINIA.

First small tents of eastern tent caterpillar were noted on wild cherry April 2 throughout DELAWARE. Adults and eggs were first noted on June 11. Populations on wild hosts were relatively low in Delaware during 1963, as they were during the 1962 season. Tents of eastern tent caterpillar were quite numerous along

roadsides throughout central CONNECTICUT in May. Hatching of eastern tent caterpillar in RHODE ISLAND began April 15 in Cranston, Providence County, with adults taken in blacklight traps in Kingston, Washington County, and egg masses found in East Greenwich, Kent County, July 5-9. The pest was heaviest in the northern portion of Rhode Island during 1963. Infestations and damage by eastern tent caterpillar occurred on several species of trees in southern MAINE and population levels, as determined by roadside growth, appeared to be somewhat lower than in 1962.

FOREST TENT CATERPILLAR (*Malacosoma disstria*) larvae were present in Cumberland and Johnston, Providence County, RHODE ISLAND in early June. Damage by forest tent caterpillar ranged from moderate to complete defoliation of tupelo-gum, sweetgum and several species of oak throughout the southern portion of LOUISIANA during 1963. Populations were so heavy in some areas that larvae moved off of defoliated normal hosts and defoliated adjacent pecans. Predation of pupae by several species of birds was extremely heavy in the Baton Rouge area of Louisiana. Forest tent caterpillar caused moderate to severe defoliation of oak trees in central TEXAS during the early spring of 1963, and continued numerous on fruit and shade trees in Bonner and Boundary Counties, IDAHO, as for the past several years.

WESTERN TENT CATERPILLAR (*Malacosoma pluviale*) and a few forest tent caterpillar eggs began hatching in late March and full-grown larvae were spinning in early June, with adults flying by early July in WASHINGTON. Severe, localized infestations on ornamental trees and shrubs were noted in San Juan County. GREAT BASIN TENT CATERPILLAR (*Malacosoma fragile*) populations and damage to cottonwoods were severe in Virgin Valley, Clark County, NEVADA, in April.

TENT CATERPILLARS (*Malacosoma* spp.) caused large scale infestations on alder, poplar, birch and willow in IDAHO from 10 miles south of Coeur d'Alene, Kootenai County, and continued intermittently northward to Sandpoint area of Bonner County. Pupation was general by the first week of July in Idaho. Populations of unspecified TENT CATERPILLARS were generally low in NEW JERSEY in 1963, but large numbers of a TENT CATERPILLAR (*Tolyte laricis*) were taken in blacklight traps in southern NEW HAMPSHIRE.

SATIN MOTH (*Stilpnotia salicis*) populations were moderate and caused only light damage to poplars in early June at Corinna, Penobscot County, MAINE, but larval populations were heavy locally on poplar in Modoc County and light locally in Siskiyou County, CALIFORNIA. In RHODE ISLAND, an isolated infestation of WHITE-MARKED TUSsock MOTH (*Hemerocampa leucostigma*) occurred in Pawtucket, Providence County, July 1, otherwise, only scattered individuals of this moth were seen in the State during 1963.

UGLY-NEST CATERPILLAR (*Archips cerasivoranus*) occurred locally on wild cherry in Smithfields and Scituate, Providence County, in early July, and OAK WEBWORM (*Archips ferveridanus*) was noted in Coventry, Kent County, on July 2, both in RHODE ISLAND.

OBLIQUE-BANDED LEAF ROLLER (*Archips rosaceanus*) was abundant on wild plum in shelterbelts in southeastern NORTH DAKOTA during the 1963 season. FRUIT-TREE LEAF ROLLER (*Archips argyrospilus*) was a pest of deciduous shade trees and ornamental shrubs in COLORADO, and infestations in WYOMING were lower than in 1962, with the damage to ornamentals being much less throughout the State when compared with previous years.

Unspecified LEAF ROLLER MOTHS heavily damaged oaks throughout UTAH during 1963, and several species caused heavy damage to shade trees in NEW JERSEY, with pin oaks being especially injured.

Large populations of VARIABLE OAK LEAF CATERPILLAR (*Heterocampa manteo*), SADDLED PROMINENT (*H. guttivittata*) and a NOTODONTID MOTH (*Schizura ipomeae*) defoliated several species of oaks during August and September throughout central KANSAS.

Defoliation was extensive, but occurred so late in the season that damage was more esthetic in value than in health and vigor of the trees. Infestations of another NOTODONTID MOTH (*Datana* sp.) caused severe local damage to oak trees in the Brazos-Burleson County area of TEXAS. WALNUT CATERPILLAR (*Datana integerrima*) was much less abundant in ILLINOIS during 1963 than in 1962.

GREEN-STRIPED MAPLEWORM (*Anisota rubicunda*) was frequently observed in KANSAS during 1963. The pest was also damaging to maples in west central and northwestern MISSOURI during the season, with heaviest populations in the northwest area where some defoliation of maples was observed. ORANGE-STRIPED OAKWORM (*Anisota senatoria*) was first noted in RHODE ISLAND in South Kingston and Exeter, Washington County, August 5-7, but activity was very light and of short duration.

GREGARIOUS OAK LEAF MINER (*Cameraria cincinnatiella*) infestations were moderate on oak trees early in August in Rumford, Oxford County, MAINE. LILAC LEAF MINER (*Gracilaria syringella*) was a pest of deciduous trees and ornamental shrubs in COLORADO, and BOXELDER LEAF ROLLER (*Gracilaria negundella*) caused medium to heavy damage on boxelder in Elko County, NEVADA, during August and September.

Unspecified lepidopterous, coleopterous and dipterous LEAF MINERS were pests of deciduous shade trees and ornamental shrubs in COLORADO during 1963.

ASH BORER (*Podosesia syringae fraxini*) damaged green ash in Billings, Yellowstone County, MONTANA, and was a pest of deciduous trees and ornamentals in COLORADO in 1963.

PUSS CATERPILLAR (*Megalopyge opercularis*) caused moderate to heavy defoliation of water oaks in localized areas of Laurens County, GEORGIA, and was present as usual on shade trees and various ornamentals in many areas of TEXAS. AILANTHUS WEBWORM (*Atteva aurea*) caused serious defoliation of tree-of-Heaven during late May in SOUTH CAROLINA, and was much less abundant in ILLINOIS during 1963 than in 1962.

CARPENTERWORM (*Prionoxystus robiniae*) caused some damage, particularly in shelterbelts, to poplar and ash in NORTH DAKOTA, and was a pest of deciduous shade trees and ornamentals in COLORADO. AMERICAN DAGGER MOTH (*Acronicta americana*) infestations and damage ranged medium to heavy on boxelder and light on silver maple during August and September in Washoe County, NEVADA. The pest was more prevalent in Nevada than in 1962. CALIFORNIA OAKWORM (*Phryganidia californica*) was severe on oak trees statewide in CALIFORNIA during the 1963 season.

CATALPA SPHINX (*Ceratoma catalpae*) was much lighter during 1963 in ILLINOIS than in the last few years; however, some defoliation of catalpa trees occurred, especially in western Illinois. Most of the larvae examined late in the season in the State were heavily parasitized. BUCK MOTH (*Hemileuca maia*) caused moderate to severe defoliation of oak trees in central TEXAS during the early spring.

An OLETHREUTID MOTH (*Proteoteras aesculana*) infestations were local on maple trees in Sutter County, CALIFORNIA, and another OLETHREUTID (*Petrova* sp.) was a pest of evergreen trees and shrubs in COLORADO.

MOURNING CLOAK BUTTERFLY (*Nymphalis antiopa*) was quite abundant on willows in scattered areas of PENNSYLVANIA, but only local infestations were reported from over NORTH DAKOTA during the 1963 season. Mourning-cloak butterfly larvae on shade tree foliage attracted attention in Midland, Eastland and Young Counties, TEXAS, and defoliated Chinese elms during the spring in Santa Fe, Santa Fe County, NEW MEXICO. Medium infestations of mourning-cloak butterfly developed on elms at various localities in NEVADA from May through August. TIGER SWALLOWTAIL (*Papilio glaucus*) was a pest of deciduous shade trees in COLORADO. A BRUSH-FOOTED BUTTERFLY (*Asterocampa celtis*), which is always present and cyclic in outbreak years in KANSAS, was frequently observed on hackberry in that State during the 1963 season.

Of the various Coleoptera reported during the 1963 season, LEAF BEETLES appeared to be the more serious. ELM LEAF BEETLE (*Galerucella xanthomelaena*) was more abundant than in the previous two seasons on elms in eastern WASHINGTON localities, and defoliated large numbers of elms in Jackson and Josephine Counties, OREGON. Adults, eggs and first and second-stage larvae were present in the Parma area of Canyon County, IDAHO, during the first week of July and larvae ranged up to 8 per leaf on unsprayed foliage. Elm leaf beetle numbers and/or damage were more abundant than normal in UTAH during 1963, with many elms defoliated in the Farmington-Layton area of Davis County and the Roy-Ogden area of Weber County. Elm leaf beetle infestations and damage ranged medium to heavy as usual in infested areas of NEVADA, but no additional spread was recorded. In CALIFORNIA, the pest was extremely heavy in many locations and seriously damaged elms where no treatment was applied. Elm leaf beetle fed on elm trees in Yavapai and Graham Counties, ARIZONA, both new county records during 1963. This leaf beetle continued to spread to new areas in northern counties of NEW MEXICO, but populations were not nearly so severe in the Albuquerque area of Bernalillo County, which was so heavily infested in 1962. Elm leaf beetle was a pest on deciduous trees and shrubs in COLORADO.

Elm leaf beetle adults appeared on elms in NEBRASKA in early May, with extensive foliage damage present in the southeastern area in June and July. The pest was more severe during 1963 in KANSAS than in 1962, and was reported from additional counties. Heavy infestations of the beetle were observed on elms throughout MISSOURI, with defoliation common. Damage by elm leaf beetle was serious throughout most areas of OKLAHOMA for the sixth consecutive year. Adult movement from hibernation quarters began in late March, with first egg deposition noted in mid-April. Activity continued until late September in Oklahoma during 1963. Elm leaf beetle populations caused light to moderate damage to elms in northwest TEXAS during the season. Elm leaf beetle was heavier in ARKANSAS during 1963 than in many years, and was one of the more serious pests of shade trees through central and northern ALABAMA. Large numbers of this leaf beetle appeared on elm trees across TENNESSEE during the season.

Elm leaf beetle caused severe browning and early leaf drop on many Chinese elm trees in the southern half to two-thirds of ILLINOIS in 1963. In INDIANA, larvae were feeding on Chinese elm in central areas in June, with infestations being locally heavy. Elm leaf beetle was present in usual numbers in VIRGINIA, and adults caused rather heavy feeding injury to elms early in the 1963 season in areas of Sussex County, DELAWARE. Elm leaf beetle activity was normal in RHODE ISLAND, with fluctuations probably corresponding to efficiency of local spray programs. There was a very marked reduction in defoliation by this leaf beetle statewide in VERMONT during 1963, with browning noticed on occasional elms.

LARGER ELM LEAF BEETLE (*Monocesta coryli*) emerged in large numbers under elm in Forsythe County, NORTH CAROLINA, on June 7 and 8, but did not appear to be any more troublesome than in 1962. The pest was present in Chesterfield County and other lower Piedmont counties of SOUTH CAROLINA. Larger elm leaf beetle became a serious pest for the first time in several years in central ALABAMA on American elms on lawns and in forest lowlands.

LOCUST LEAF MINER (*Xenochalepus dorsalis*) was a common pest of shade trees in OHIO during 1963. This leaf mining beetle did not cause so severe browning of black locust trees as usual in central ILLINOIS during 1963. Light infestations were observed over widely scattered areas of that State, with 9 new county records established. Locust leaf miner adults were quite abundant during May in PENNSYLVANIA, but actual injury was not so severe as in 1962.

IMPORTED WILLOW LEAF BEETLE (*Plagioderia versicolora*) adult and larval feeding injury was heavy on many willows during the last half of May in areas of Kent County, DELAWARE, and the pest was present statewide in RHODE ISLAND, with defoliation being heavier on wild pussy willow than on ornamental willows.

ELM CALLIGRAPHA (Calligrapha scalaris) was active but less damaging in OKLAHOMA during 1963; however, feeding on elms in KANSAS was more severe than in 1962, with injury being most severe in the south central area of the State.

ASPEN LEAF MINER (Chrysomela crotchii) and COTTONWOOD LEAF BEETLES (Chrysomela scripta complex) were common on poplar and willow over NORTH DAKOTA during 1963.

A LEAF BEETLE (Anomoea laticlavata), after being a minor problem on honeylocust for two years in KANSAS, was reported to have caused extensive injury in several counties throughout the State during 1963. Other LEAF BEETLES were also of some concern. Large numbers of Physonata alutacea were noted on Cordia boissieri (anacahuita) in Cameron County, TEXAS, and Lema trilineata californica occurred on native Jimson-weed and on a few other Datura spp. and Physalis spp. plants in CALIFORNIA.

SPOTTED PINE SAWYER (Monochamus maculosus) was a pest of evergreen trees and shrubs in COLORADO during 1963. The usual damage by TWIG GIRDLER (Oncideres cingulata) was evident on a variety of trees from mid-September through November in OKLAHOMA, and numerous inquiries were received during August and September concerning the severing of elm branches by this pest in KANSAS. Twig girdling by this long-horned beetle was very noticeable in Lancaster County, NEBRASKA, in September. TWIG PRUNER (Elaphidion villosum) was evident in normal numbers statewide in RHODE ISLAND during the 1963 season.

FLATHEADED APPLE TREE BORER (Chrysobothris femorata) was a common pest of shade trees in OHIO during 1963. Damage by BRONZE BIRCH BORER (Agrilus anxius) to white birch was more noticeable this season than in the past few years in WISCONSIN, and the pest continues to be a serious problem wherever birch trees are planted in urban areas of MINNESOTA. A severe infestation of a WOOD BORER (Agrilus sp.) was observed on bur oak in the Grandin area of Cass County, NORTH DAKOTA, and Agrilus angelicus was locally heavy on oaks in San Diego County, CALIFORNIA.

New infestations of SMALLER EUROPEAN ELM BARK BEETLE (Scolytus multistriatus) were found in Union County, SOUTH DAKOTA, with additional infestations also being reported again in Yankton County during 1963. Large numbers of dead and dying trees along a creek provided an optimum breeding habitat for this insect in Union County. To the end of 1963, no infection of Dutch elm disease had been found in South Dakota. Smaller European elm bark beetle commenced emerging and peaked by the first week of June in WISCONSIN. Dutch elm disease was more pronounced in Wisconsin during 1963 than in 1962. Feeding by smaller European elm bark beetle was common on elm trees in southeastern NEBRASKA during 1963, and the species was found on Chinese elm trees in Midland County, TEXAS, for the first time. Smaller European elm bark beetle was collected in large numbers from trap logs in the Clemson area of SOUTH CAROLINA. This recovery was part of a statewide survey in progress to determine the distribution of this insect, the principal vector of Dutch elm disease in South Carolina. Smaller European elm bark beetle and NATIVE ELM BARK BEETLE (Hylurgopinus rufipes) were collected in Halifax County, NORTH CAROLINA, in June, and native elm bark beetle in Forsyth County in mid-September.

WILLOW FLEA WEEVIL (Rhynchaenus rufipes) infestations in Warwick, Kent County, and in Narragansett, Washington County, RHODE ISLAND, in August and September were the first records of this weevil in the State for several years.

POPLAR-AND-WILLOW BORER (Sternochetus lapathi) was a pest of deciduous shade trees and ornamental shrubs in COLORADO during the 1963 season.

APHIDS were of concern on shade trees during the 1963 season as usual. BOXELDER APHID (Periphyllus negundinis) was very abundant on a majority of boxelder trees throughout most of the spring and summer in DELAWARE. POPLAR PETIOLE GALL APHID (Pemphigus populitransversus) occurred in Prairie, Toole and Hill Counties, MONTANA, along with many forms of leaf gall-forming insects. Although maples in

Montana were not affected to the honeydew-dripping stage, what was probably NORWAY-MAPLE APHID (Periphyllus lyropictus) attacked these trees in many places over the State. Norway-maple aphid was more abundant and/or damaging than usual in UTAH during 1963, being heavy in many Davis County communities during the summer. PAINTED MAPLE APHID (Drepanaphis acerifoliae) was heavy on many silver maples and cutleaf weeping birch trees in the area during the same period. POPLAR VAGABOND APHID (Mordwilkoja vagabunda) was more abundant and damaging in Utah than normal, but populations were about the same in WYOMING as in 1962, with galls produced by this species being very numerous throughout the State on poplar trees during 1963.

WOOLLY APPLE APHID (Eriosoma lanigerum) was a pest of deciduous shade trees in COLORADO during the 1963 season.

Light infestations of WOOLLY ALDER APHID (Prociphilus tessellatus) appeared on shade trees in Hopkins County, TEXAS, large numbers appeared on maples across TENNESSEE, and infestations of this pest were heavy and general on silver maple in northern GEORGIA. In VIRGINIA, woolly alder aphid was abundant during June and GIANT BARK APHID (Longistigma caryae) was unusually abundant in the Richmond area in late April.

A number of other APHIDS were also of some concern during the 1963 season across the country. Aphid infestations were seasonally typical on maple, oak and linden in RHODE ISLAND, with complaints concerning Lachnus salignus on weeping willow being normal in the spring and fall. Infestations of various aphids were generally heavy on many shade trees during the summer and early fall months in NEW JERSEY. Drepanaphis spp. appeared in enormous numbers on maple trees across TENNESSEE in the fall, and were heavy on red maple in northwest ARKANSAS in late 1963. Several species of aphids were active but less damaging than usual in OKLAHOMA during the season. Drepanaphis spp. were very abundant (averaged 100 per leaf) on sugar maple in Atchison and vicinity, Atchison County, KANSAS, during April, but by mid-May they were satisfactorily controlled by two-spotted lady beetle (Adalia bipunctata).

Infestations of Pterocomma smithiae were rather common on willows in Lower MICHIGAN in September. Unspecified aphids were common on spruce in the Fargo area of Cass County, NORTH DAKOTA, and moderate to heavy aphid populations were encountered on various trees and shrubs over the State during the season. Infestations of Chaitophorus populellus on poplar trees in WYOMING were lower than those present in 1962, with very little damage noticed but large amounts of honeydew found on leaves. Aphids on shade trees in UTAH were more abundant and more damaging than normal during the 1963 season. In NEVADA, infestations of Lachnus salignus were heavy on willow in Clark, Douglas and Elko Counties, and Pterocomma sp. was medium on willow in Mineral and Washoe Counties. Capitophorus hippophaes heavily infested Russian-olive, especially young trees, in Washoe County in October and November.

Aphids infested various hosts throughout the year in CALIFORNIA, with many of the infestations being heavy. Lachnus salignus was unusually heavy and widespread on willows. Prociphilus fraxinifolii and P. fraxinipetalae were heavy on many ash trees over the State, and Prociphilus sp. infested ash trees in Sacramento and Yolo Counties, but was not so prevalent as in 1962. Euceraphis gillettei was locally medium on birch in Santa Barbara County, and Neothomasia populicola was medium on cottowood in San Luis Obispo County, California. Varying populations of Cinara piceicola were present on coniferous trees in Fresno and Modoc Counties. Myzocallis californicus ranged light to heavy on black oaks in Mendocino County, California, during the 1963 season.

Heavy populations of Lachnus salignus occurred on weeping willow in the Willamette Valley of OREGON in September. In ALASKA, aphids were generally widespread on trees and flowers during the 1963 season, with Rhopalosiphum padi very heavy on most bird cherry trees in the Cook Inlet area and in the Matanuska Valley.

Various SCALE INSECTS were of some concern during 1963 on shade trees over the Nation. OYSTERSHELL SCALE (Lepidosaphes ulmi) was a pest of deciduous shade trees and ornamental shrubs in COLORADO, was locally heavy and injurious to elm, maple and lilac locally in MARYLAND, and was abundant on numerous hosts in PENNSYLVANIA. WHITE PEACH SCALE (Pseudaulacaspis pentagona) was frequently reported in VIRGINIA, was severe on goldenrain-tree, chinaberry, copperleaf and many other hosts in FLORIDA, and damaged chinaberry trees in Panola County, TEXAS. OBSCURE SCALE (Chrysomphalus obscurus) was locally heavy and injurious to various oaks in MARYLAND, but was very light on scarlet oak in Capitol Park in Sacramento, Sacramento County, CALIFORNIA, where the species is now under eradication treatment. GLOOMY SCALE (Chrysomphalus tenebrius) was locally damaging to soft maples in SOUTH CAROLINA. An ARMORED SCALE (Aspidiotus populorum) was heavy on poplar trees in the Alamogordo area of Otero County, NEW MEXICO, during the 1963 season.

GOLDEN OAK SCALE (Asterolecanium variolosum) infestations ranged light to heavy on oak locally in San Joaquin County, CALIFORNIA, and an OAK KERMES SCALE (Kermes pubescens) continued to be a problem in the oak-growing regions of eastern KANSAS during the 1963 season, where dormant sprays failed to give satisfactory control.

COTTONY MAPLE SCALE (Pulvinaria innumerabilis) occurred in small numbers on common hosts generally over MINNESOTA during 1963, but was extremely heavy on boxelder in Ravalli County, MONTANA. Cottony maple scale was a pest of deciduous shade trees in COLORADO, and caused slight to considerable damage to willow nursery stock at a nursery in northern NEW MEXICO. TULIPTREE SCALE (Toumeyella liriodendri) was local on tuliptrees in San Jose, Santa Clara County, CALIFORNIA, and was taken for the first time on magnolia. This scale insect is under eradication treatment in California. EUROPEAN FRUIT LECANIUM (Lecanium corni) was a considerable pest of California holly in CALIFORNIA during 1963. In VIRGINIA, MAGNOLIA SCALE (Neolecanium cornuparvum) was frequently reported during the season, and OAK LECANIUM (Lecanium quercifex) caused oak twigs to die in SOUTH CAROLINA.

EUROPEAN ELM SCALE (Gossyparia spuria) occurred on elms in many places over CALIFORNIA and was a high nuisance due to the dripping of honeydew. Moderately heavy populations severely damaged American elm in some areas of Albuquerque, Bernalillo County, NEW MEXICO. European elm scale was a pest of deciduous shade trees and shrubs in COLORADO during 1963, and was severe as in the past throughout western KANSAS, with a heavy population in Salina, Saline County, observed killing American elms.

BEECH SCALE (Cryptococcus fagi) was heavy in the Middlebury-Ripton area of Addison County, VERMONT, as well as being present in Stockbridge and Rochester, Windsor County, in Sherburne, Rutland County, and in Johnson and Eden Mills, Lamoille County, during the 1963 season.

A MARGARODID SCALE (Stomacoccus platani) was locally heavy in many locations in CALIFORNIA this season.

Several other Hemiptera were also of some concern during the 1963 season. HACK-BERRY-NIPPLE-GALL MAKER (Pachypsylla celtidismamma) occurred in Windsor, Windsor County, VERMONT; appeared in eastern MONTANA at Terry in Prairie County, at Glendive in Dawson County, and at Sidney in Richland County; and was a pest of deciduous shade trees and other ornamentals in COLORADO. A PSYLLID (Aleuroplatus coronatus) ranged medium to heavy on oaks in Santa Clara and Calaveras Counties, CALIFORNIA.

A LEAFHOPPER (Texananus gladius) was heavy on African-violet in a collection at Pomona, Los Angeles County, which was a new record for CALIFORNIA. Populations of Empoasca sp. were heavy on elms in Clark and Elko Counties, NEVADA, and several species of LEAFHOPPERS were pests of deciduous shade trees in COLORADO. Several species of leafhoppers occurred on unsprayed chrysanthemums at Bradenton, Manatee County, FLORIDA, with Protalebrella brasiliensis and Graphocephala versuta being the 2 most abundant species.

A SPITTLEBUG (Prosapia bicincta) built up in the Clemson area of SOUTH CAROLINA about August 1 and damaged holly in the area. A 13-year species of Brood XXIII of PERIODICAL CICADAS (Magicicada spp.) appeared in the 35 westernmost counties of TENNESSEE in May. Enormous numbers were present in some of these counties, while local spot infestations were present in other counties.

BOXELDER BUG (Leptocoris trivittatus) appeared all across TENNESSEE during the 1963 season in the largest numbers in many years. Boxelder bug and LEAF-FOOTED BUG (Leptoglossus phyllopus) were pests of evergreen trees in COLORADO during the season. A COREID BUG (Leptocoris rubrolineatus) was a nuisance problem for a good share of the year in CALIFORNIA, on boxelder and other maples, and more than the usual infestations of Leptoglossus sp. were noted in the State during the season.

ASH PLANT BUG (Neoborus amoenus) was numerous on various ash trees in Wibaux and Sweet Grass Counties, MONTANA. Medium to heavy populations of a PLANT BUG (Neoborus pacificus) occurred on ash trees at many locations in CALIFORNIA, and N. illitus occurred in some northern counties in the State. An unidentified species of PLANT BUG caused severe damage to green ash foliage in some south-eastern and western areas of NORTH DAKOTA during the 1963 season.

OAK LACE BUG (Corythucha arcuata) caused heavy damage to oak foliage in eastern areas of NORTH DAKOTA during the season. Unspecified LACE BUGS heavily attacked Quercus gambelii (Gambel oak) locally throughout UTAH during the season.

A STINK BUG (Elasmotethus interstinctanus) was very numerous in the Tanana Valley of ALASKA on birch and poplar but was generally distributed in lesser numbers throughout the interior of the State.

THRIPS were unusually abundant on shade trees in CALIFORNIA during 1963, with Oxythrips sp. infesting Pinus sabiniana in Davis, Yolo County.

WALKINGSTICK (Diaperomera femorata) continued heavy at higher elevations in ARKANSAS during the 1963 season, and unspecified GRASSHOPPERS caused some damage to shade trees in Valencia County, NEW MEXICO.

NATIVE HOLLY LEAF MINER (Phytomyza ilicicola) was about normal in VERMONT, but was apparently less troublesome than usual in OHIO because of the cold winter of 1962-1963. GALL MIDGES, Contarinia coloradensis on evergreen trees and Dasyneura spp. on deciduous shade trees, were pests in COLORADO during the season. A FRUIT FLY (Rhagoletis cingulata indifferens) infested Prunus emarginata (bitter cherry) in mountain areas of Humboldt and Siskiyou Counties, CALIFORNIA.

BIRCH LEAF MINER (Fenusa pusilla) infestations and damage ranged moderate to heavy on white and gray birch in most areas of MAINE during the 1963 season, and scattered, light to heavy infestations occurred on ornamental birch in VERMONT. Birch leaf miner adults were active the first week of May in RHODE ISLAND, with the first generation evident statewide but perhaps a little lighter than usual. The second generation was negligible in Rhode Island. Populations of this fly were heavy throughout NEW JERSEY this year. Birch leaf miner was one of the more common pests of nurseries in OHIO, and control is becoming a problem in nurseries in OREGON from Portland to Eugene.

MOUNTAIN-ASH SAWFLY (Pristiphora geniculata) was noted on mountain-ash in a nursery in Johnston, Providence County, RHODE ISLAND, in late June. MAPLE PETIOLE BORER (Caulocampus acericaulis) caused some leafdrop in PENNSYLVANIA. PEAR-SLUG (Caliroa cerasi) was noted in a few VIRGINIA localities during early June, and was a pest of deciduous shade trees in COLORADO during the 1963 season. Caliroa sp. skeletonized the leaves of many oak trees in ILLINOIS, especially in northern and western areas of the State.

A WILLOW LEAF SAWFLY (Pontania sp.) was noted in MONTANA at Columbia Falls (Flathead County), Whitehall (Jefferson County), Butte (Silver Bow County), Shelby (Toole County), Superior (Mineral County), Stanford (Judith Basin County), Augusta (Lewis and Clark County), and at Bozeman (Gallatin County). An unspecified ALDER SAWFLY defoliated alder over a large section in the Susitna area of the Matanuska Valley in ALASKA.

RED-HEADED PINE SAWFLY (Neodiprion lecontei) was a pest of conifers in COLORADO, and caused local, heavy damage to pines in Harris County, TEXAS. A CONIFER SAWFLY (Monoctenus melliceps) fed on ornamental conifers in MISSOURI, and various species of CONIFER SAWFLIES were noted on white pine in NEW HAMPSHIRE with no noticeable defoliation observed in any area.

ELM SAWFLY (Cimbex americana) caused considerable damage to trees in Harris County, TEXAS, and local infestations were reported on elm over NORTH DAKOTA. PIGEON TREMEX (Tremex columba) was a pest of deciduous shade trees in COLORADO, and was reported on several unthrifty maple trees in Providence, Providence County, RHODE ISLAND, at the end of August. A WEB-SPINNING SAWFLY (Neurotoma fasciata) was present on wild cherry in a small, localized infestation on July 16 in Exeter, Washington County, Rhode Island.

A GALL WASP (Dryocosmus palustris) was more abundant than usual on shade trees in OHIO during 1963. Many species of gall wasps were common on oak and hackberry shade trees in TEXAS, and unspecified species attacked oak throughout UTAH during the season.

LEAFCUTTING BEES (Megachile spp.) caused moderate to severe damage throughout ARIZONA during the 1963 season, and light to moderately heavy damage to leaves of various trees in several areas of NEVADA from May through August.

MITES were of concern in various areas of the country during the 1963 season. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) caused some damage to spruce in in eastern NORTH DAKOTA, and was prevalent as usual on shade trees throughout WYOMING, where damage ranged moderate to severe in some areas. This spider mite occurred statewide on shade trees in CALIFORNIA, but was not so heavy in that State as in past seasons. It infested evergreen and deciduous trees in COLORADO.

The hot, dry weather of the summer in KANSAS was very favorable for large mite populations and many evergreens were severely damaged by populations of Oligonychus spp., mostly O. coniferarum. In COLORADO, Bryobia sp. was a pest of evergreen and deciduous shade trees during the 1963 season. Trees and ornamentals in eastern and central ARIZONA were damaged by moderate to heavy populations of Oligonychus spp. and Tetranychus spp., with spruce trees being particularly damaged in Yuma and Maricopa Counties. Light populations of Bryobia spp. infested miscellaneous hosts in Calaveras County and silver maple in Fresno County, both in CALIFORNIA.

MAPLE BLADDER-GALL MITE (Vasates quadripedes) occurred on soft maple in the Fargo area of Cass County, NORTH DAKOTA, severely infested leaves of maple in some areas of PENNSYLVANIA, and was frequently reported during June and July in VIRGINIA.

An ERIOPHYID MITE (Eriophyes sp.) damaged green ash in Boseman, Livingston, Billings and Missoula Counties, MONTANA, and to a lesser degree at other points in the State. Trees that were insufficiently watered through July and August appeared wilted and droopy where this mite was present. Several species of eriophyid mites were pests of deciduous shade trees in COLORADO during the 1963 season.

Various MITES were heavy on many shade trees in NEW JERSEY during the summer and early fall months.

ORNAMENTAL INSECTS

Highlights:

BAGWORM was troublesome and damaging in Delaware, Maryland, Virginia, Tennessee, Georgia, Alabama, Arkansas and Texas, but was less abundant than in 1962 in Illinois. MIMOSA WEBWORM was damaging to mimosa and honeylocust in the various areas where it occurs and extended its range into two new counties in Illinois. Various WEEVILS caused considerable concern on ornamentals across the country, and ROSE CHAFER was heavy in Maine and caused considerable damage to ornamentals in sandier areas of Wisconsin. APHIDS were troublesome during the season in several areas of the Nation, and numerous SCALE INSECTS infested and often damaged various ornamental hosts during the 1963 season. SPIDER MITES were pestiferous on ornamentals over the country and inflicted varying degrees of damage. ERIOPHYID MITES were also of some concern in a few areas.

Of the numerous Lepidoptera infesting ornamentals during the 1963 season, BAGWORM (Thyridopteryx ephemeraeformis) was the most frequently reported species. First hatching of bagworm eggs in DELAWARE was noted May 27 in New Castle County and first young larvae were found feeding on sycamore in Sussex County on June 10. Populations appeared to be rather high on sycamore trees in the southern portion of Delaware this year. Bagworm caused heavy injury to unprotected arborvitae, juniper and cedar at several places in MARYLAND, and the usual number of inquiries concerning this pest were received in VIRGINIA. Bagworm was a general pest of evergreens across TENNESSEE, infestations were heavy and general on arborvitae in GEORGIA, and the species was one of the most serious pests of ornamental coniferous shrubs and trees in ALABAMA during 1963. Bagworm infestations in ARKANSAS were comparable to those present in the State in 1962, and infestations were of the usual severity in most areas of TEXAS during the 1963 season.

Bagworm was one of the more common pests of nurseries in OHIO during the season. Larvae 0.5 inch long damaged arborvitae in Warrick County, INDIANA, in June, with feeding also noted in Sullivan County. No viable eggs of bagworm were found in central Indiana, probably having been winter killed. Bagworm was much less abundant in ILLINOIS in 1963 than it was in 1962. Bagworm infestations were reported in Hunter, Cass County, NORTH DAKOTA, and the species was a pest of ornamental evergreen shrubs and trees in COLORADO during 1963.

Infestations of a PSYCHID MOTH (Apterona crenulella) ranged medium to heavy on ornamental flowers, shrubs and trees in Eureka County, NEVADA, in June and July, and occurred at a few locations in El Dorado, Butte, Nevada, Plumas, Lassen and Modoc Counties, CALIFORNIA.

MIMOSA WEBWORM (Homadula albizziae) was locally heavy in Chico, Butte County, CALIFORNIA. This is the only known infestation in the State and is under eradication treatment. Mimosa webworm caused heavy damage to honeylocust in southeastern areas of NEBRASKA in July and August and many trees were stripped of foliage. Although this insect has been reported in KANSAS during the winter of 1962-1963, based on a 1961 identification, the first defoliation was observed in Johnson County in July of 1963. Moderate to heavy infestations of mimosa webworm were observed on mimosa and honeylocust in southeast, east central and central areas of MISSOURI, with mimosa heavily infested in the southeast area where defoliation was common. Mimosa webworm did not cause so much damage in ILLINOIS as it has for the past few years. Populations were generally light in the State in 1963, although a few localized infestations did increase, and two new county records were established. The pest also was apparently less troublesome than usual in OHIO, probably due to the cold winter of 1962-1963. Although mimosa webworm was not so severe in 1963 on honeylocust and related varieties of trees in some areas of PENNSYLVANIA, it did remain quite abundant in the western part of the State.

Mimosa webworm infestations were light to moderate in southern counties of NEW JERSEY during the 1963 season. First young larvae of the season were noted on honeylocust in Kent County, DELAWARE, on June 27. While feeding injury was rather heavy on mimosa and honeylocust in most areas of the State, it was not so severe as last season. Infestations of mimosa webworm were again widespread and destructive to mimosa and honeylocust in all sections of MARYLAND, and were present in usual numbers throughout VIRGINIA. Mimosa webworm was one of the most serious pests in central and northern ALABAMA, and infestations were general and heavy on mimosa in GEORGIA.

BEE T ARMYWORM (Spodoptera exigua) and CABBAGE LOOPER (Trichoplusia ni) were well controlled by commercial chrysanthemum growers at Bradenton, Manatee County, FLORIDA, up to the time buds showed color, at which time larvae of both species became troublesome. In the Ft. Myers area of Lee County, these pests were fairly abundant on chrysanthemums and only the use of sprays twice a week prevented considerable economic damage. Beet armyworm was severe and much worse on gladioli and difficult to control in Bradenton, Florida. This cutworm severely damaged rosebuds during midsummer in at least 2 south Florida areas, these being Ft. Myers and south from West Palm Beach, Palm Beach County. A rose bud, once injured, is ruined for sale and 4-5 well-known insecticides failed to give satisfactory control at Ft. Myers, even with frequent applications.

STALK BORER (Papaipema nebris) was quite common on flowers over PENNSYLVANIA in 1963. COTTON LEAFWORM (Alabama argillacea) larvae fed on a small ornamental planting of cotton in York County, NEBRASKA, and adults were recovered in light traps in western areas of the State in September.

YELLOW-NECKED CATERPILLAR (Datana ministra) was locally heavy on ornamental Prunus sp. in San Mateo County, CALIFORNIA, and was much less abundant in ILLINOIS in 1963 than it was in 1962. AZALEA CATERPILLAR (Datana major) infestations were heavy on azaleas in south GEORGIA during the season.

PRIVET LEAF MINER (Gracilaria cuculipennella) heavily infested an extensive privet hedge in Narragansett, Washington County, RHODE ISLAND, in early August. Lilac in many locations in MONTANA was rendered unsightly by LILAC LEAF MINER (Gracilaria syringella), and several generations were evident due to the late first frost this year in Montana. Unspecified species of LEAF MINERS mined some aster leaves at Sanford, Seminole County, FLORIDA, but rearing showed a high rate of parasitism by Hymenoptera late in 1963.

SILVER-SPOTTED TIGER MOTH (Halisidota argentata) was a problem on ornamental coniferous trees in COLORADO, and an unspecified WOOLLYBEAR caused considerable damage to ornamentals in Jefferson County, TEXAS, during the 1963 season.

NANTUCKET PINE TIP MOTH (Rhyacionia frustrana) heavily infested ornamental and seedling pine plantings again in OKLAHOMA from mid-May to late October. This tip moth was active on red pine in nurseries in Middletown, Newport County, and in Wakefield, Washington County, RHODE ISLAND. EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana) was common in a nursery in Newport County, RHODE ISLAND, in early June, with adult emergence noted June 20.

SPRUCE BUDWORM (Choristoneura fumiferana) was a pest of evergreen shrubs and trees in COLORADO during the season, and Choristoneura sp. heavily infested and damaged dogwood, European sage, lilac, quince, rose and other shrubs in Washoe County, NEVADA, in late May and June.

Several other Lepidoptera were of concern during 1963. JUNIPER WEBWORM (Dichomeris marginella) infestations on ornamental junipers continued to spread in western OREGON, necessitating close inspections and good control measures, and the pest was common in a few localities of VIRGINIA in June and July. Adults of ARBORVITAE LEAF MINERS (Argyresthia spp.) were observed in Kingston, Washington County, RHODE ISLAND, in mid-June, but damage was less than in 1962. A mixed

infestation of PYRAUSTID MOTHS (Pyraustia orphisalis and Pyrausta sp.) caused heavy damage to mint in Barrington, Bristol County, Rhode Island, July 9. Another PYRAUSTID MOTH (Ambia sp.) has necessitated the leatherleaf fern industry in FLORIDA to initiate a spray program to prevent damage from the larvae which bore into plants. LARGER CANNA LEAF ROLLER (Calpodes ethlius) damaged cannas in Tom Green and Brazoria Counties and GRAPE LEAF SKELETONIZER (Harrisina americana) ranged moderate to heavy on Virginia-creeper in Midland County, all in TEXAS.

In CALIFORNIA, locally spotted infestations of OMNIVOROUS LOOPER (Sabulodes caberata) occurred on a few species of ornamentals and a JUNIPER TWIG MOTH (Periploca nigra) was a serious pest of juniper in many locations over the State, with prostrate junipers being more seriously affected.

A PLUME MOTH (Platyptila pica monticola) caused severe damage locally in geranium propagating stock in Los Angeles County, CALIFORNIA. Greenhouse operators in NEW JERSEY reported an increase in infestations by unspecified PLUM MOTHS in geranium cuttings received from out of the State.

Infestations of unspecified TUSsock MOTHS ranged light to medium in ornamental bitterbrush in Ormsby and southern Washoe Counties, NEVADA, in May and June.

TIGER SWALLOWTAIL (Papilio glaucus) was a pest of ornamental shrubs in COLORADO during the 1963 season.

Coleoptera were troublesome on ornamentals in some areas of the Nation. ARBORVITAE WEEVIL (Phyllobius intrusus) adults were noted in a nursery in Middletown, Newport County, on June 27 but were otherwise inconspicuous in RHODE ISLAND during 1963. BLACK VINE WEEVIL (Brachyrhinus sulcatus) larvae infested Sedum sp. in Newport, RHODE ISLAND, on April 30, with pupation noted June 11. First adults of this weevil were seen June 27 in Portsmouth, Newport County, with activity being normal for the year.

PINE ROOT COLLAR WEEVIL (Hylobius radialis) larval feeding seriously damage Scotch, red and jack pine plantations in western Lower MICHIGAN, and larvae caused considerable damage to Christmas tree plantings in Adams and Jackson Counties, WISCONSIN. ROSE CURCULIO (Rhynchites bicolor) was common on rose in southeastern NORTH DAKOTA, and DOUGLAS-FIR TWIG WEEVIL (Cylindrocopturus furnissi) damaged Christmas tree plantings in western WASHINGTON in 1963.

Other WEEVILS were also damaging. Sciopithes obscurus caused heavier damage than usual on rhododendrons in Clackamas and Multnomah Counties, OREGON, and Brachyrhinus meridionalis severely injured lilacs in Missoula and Ravalli Counties, MONTANA. A severe infestation of Curculio baculi was reported from the Killdeer Mountains in NORTH DAKOTA. Damage to azaleas by Pantomorus taeniatulus was reported for the first time in SOUTH CAROLINA during the 1963 season.

JAPANESE BEETLE (Popillia japonica) infestations and damage ranged light to moderate on many plants in the Auburn-Lewiston area of Androscoggin County, MAINE, in late July and light populations caused light damage to roses in Cumberland County in early August. Japanese beetle fed on ornamentals in CONNECTICUT during August, but in greatly reduced numbers, and populations were quite low in PENNSYLVANIA. Japanese beetle adults were considerably below normal on various ornamentals in MARYLAND, especially in central and western areas of the State, but were present in usual numbers throughout VIRGINIA during the 1963 season.

ROSE CHAFER (Macrodactylus subspinosus) appeared in heavy numbers in Cumberland and York Counties, MAINE, and fed generally on many plants in late June. Heavy populations were also present in many areas of VERMONT. First rose chafer adults in RHODE ISLAND were seen in Lincoln, Providence County, on May 29 and there were isolated complaints of heavy infestations in several areas of the county during the season; however, activity was less than in 1962. Rose chafer was active on ornamentals in CONNECTICUT in June. Rose chafer commenced feeding in

WISCONSIN in mid-June and caused considerable damage to ornamentals and some crops in the sandier areas of the State. Populations appeared to be more abundant in Wisconsin in 1963 than in 1962. Rose chafer populations in MICHIGAN appeared to be near normal and above the abnormally low level experienced in 1962.

ASIATIC GARDEN BEETLE (Maladera castanea) was uncommon in RHODE ISLAND during the season, but a SCARAB (Euphoria kerni) was found damaging ornamental cactus in Hale County, TEXAS.

BLISTER BEETLES were of some concern in a few Western States. Lytta stygica was a pest of ornamentals locally in Modoc and Siskiyou Counties, CALIFORNIA, and Epicauta sp. was a pest of evergreen shrubs in COLORADO. Several species of blister beetles became troublesome on ornamentals in MONTANA during the 1963 season, with L. stygica infesting honeysuckle locally in Missoula and Broadwater Counties and L. cyanipennis infesting caragana at many locations. Unspecified blister beetles caused some defoliation of caragana throughout NORTH DAKOTA.

An ENGRAVER BEETLE (Ips oregonis) was a pest of evergreen shrubs in COLORADO. In TEXAS, a FALSE POWDER-POST BEETLE (Amphicerus cornutus) damaged bougainvillea in Hidalgo County and a SAP BEETLE (Conotelus mexicanus) infested roses in El Paso County. Unspecified TWIG PRUNERS damaged ornamentals in MISSOURI during 1963 season.

Various APHIDS were troublesome during the 1963 season in several areas of the Nation. GREEN PEACH APHID (Myzus persicae) was severe on chrysanthemum plantings in Watsonville, Santa Cruz County, CALIFORNIA, and continued to be an obstinate pest in greenhouses in PENNSYLVANIA because of its apparent resistance to aphicides used. Green peach aphid infested miniature varieties of carnation at Bradenton, Manatee County, FLORIDA, early in the year, but not standard varieties.

ROSE APHID (Macrosiphum rosae) infestations were moderate on rose in several areas of GEORGIA, and was frequently troublesome on that host in many gardens during most of the season over MARYLAND. CHRYSANTHEMUM APHID (Macrosiphoniella sanborni) infestations were generally very high in DELAWARE this season, especially in New Castle County, and BEAN APHID (Aphis fabae) heavily infested euonymus in Peace Dale, Washington County, RHODE ISLAND, in late May. Small to moderate numbers of APPLE APHID (Aphis pomi) occurred on cotoneaster in the Fargo area of Cass County, NORTH DAKOTA.

Several aphids were troublesome in CALIFORNIA during 1963. OLEANDER APHID (Aphis nerii) was general on oleander and a few Hoya spp. plants in the southern portion of the State; SPRUCE APHID (Aphis abietina) damaged spruce nursery stock in Coloma, San Mateo County; ROSY APPLE APHID (Anuraphis rosea) infested pyracantha shrubs locally in San Diego County; and FOXGLOVE APHID (Acyrtosiphon solani) damaged Jerusalem-cherry, foxglove and pittosporum plants in San Luis Obispo County. Several other species infested various hosts in California during the entire year, with many infestations being heavy. Vesiculaphis caricis, which is not widespread in the State, infested azalea nursery stock in Chico, Butte County; Cinara curvipes infestations were medium to heavy on cedar in many locations over California; Rhopalosiphum conii populations were locally heavy on honeysuckle and Myzus ornatus infested pansy plants in San Luis Obispo County; and Amphorophora nervata was locally heavy on Arbutis unedo in Fresno County.

Unspecified APHIDS were generally widespread on flowers in ALASKA during the 1963 season. WOOLLY APPLE APHID (Eriosoma lanigerum) was a pest of deciduous ornamental shrubs in COLORADO during the season, and the pest persists on pyracantha shrubs in most locations throughout CALIFORNIA and thus is present for infesting apples.

Populations of Rhopalosiphum berberidis were medium to heavy on barberry in Washoe County, NEVADA, in May and July, and Amphorophora nervata was a problem on roses in most areas of NEW MEXICO, especially in the spring. Macrosiphum eoessigi

infestations were prevalent throughout WYOMING during the 1963 season, with some damage inflicted to hollyhock plants; however, populations remained about the same as those in 1962. Neophyllaphis araucariae was collected in FLORIDA on Norfolk Island pine at Port Orange, Volusia County, during 1963 for the first record of the species on the continental United States. Unspecified aphids were generally heavy on many ornamentals during the summer and early fall months in NEW JERSEY.

COOLEY SPRUCE GALL APHID (Chermes cooleyi) was a pest of ornamental evergreen shrubs and trees in COLORADO during the 1963 season.

WHITEFLIES were of some concern during the season. GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) was common in several greenhouses in ALASKA as the result of importation by a florist and subsequent distribution to other greenhouses. Whiteflies were generally not so prevalent this season in CALIFORNIA as in the past two years. A few locally heavy infestations occurred on garden flowers and shrubs in the State. Heavy populations of Aleurotrachelus jelinekii were discovered on Viburnum sp. in Tulare County and later in Fresno County, which was not only a first State record for California but a first record for North America. Dialeurodes kirkaldyi, which was collected in 1962 in Key West, FLORIDA, was found in the State in several other areas of Monroe and Dade Counties on morinda and varieties of jasmine. AZALEA WHITEFLY (Pealius azaleae) infested Rhododendron mucronatum in Peace Dale, Washington County, and in Greenville, Providence County, RHODE ISLAND.

Also in FLORIDA, a TREEHOPPER (Umbonia crassicornis), which can be a pest of ornamentals, was reported from the lower east coast area of the State during 1963, but not from the Tampa Bay area nor anywhere else in this latitude since the December 1962 freeze.

POTATO LEAFHOPPER (Empoasca fabae) was one of the more common pests of nurseries in OHIO during the 1963 season.

A PSYLLID (Psylla uncatoides) was a serious pest on acacia and albizia trees in CALIFORNIA during 1963. Heavy populations of Psylla ribesiae occurred on aralia nursery stock in Mountain View, Santa Clara County. Euphyllura arbuti was widespread on madrone trees in coastal northern California and Paratrioza lavaterae was heavy on Lavatera assurgentifolia in San Diego and Santa Barbara Counties, California.

Numerous SCALE INSECTS infested and often damaged various ornamentals during the 1963 season. SAN JOSE SCALE (Aspidiotus perniciosus) was locally heavy and injurious on several Prunus spp. in MARYLAND and caused local damage to shrubs and ornamentals in several sections of Texas and California. PYRIFORM SCALE (Protopulvinaria pyriformis) infested gardenia and Saxifraga sp. locally in Los Angeles County, CALIFORNIA, where the species is subject to eradication.

TEA SCALE (Fiorinia theae) infested camellias in some greenhouses in PENNSYLVANIA during the season. This soft scale severely damaged leaves of Burford holly, camellia and other ornamentals in FLORIDA, but no particular trends differing with previous years were observed.

HEMISPHERICAL SCALE (Saissetia hemisphaerica) infested a few ornamental plants in CALIFORNIA during the 1963 season. Hemispherical scale, BLACK SCALE (Saissetia oleae) and BROWN SOFT SCALE (Coccus hesperidum) were a problem throughout foliage nurseries in FLORIDA during the year.

FLETCHER SCALE (Lecanium fletcheri) eggs began to hatch June 26 in North Kingstown, Providence County, RHODE ISLAND, and an increase in infestation on taxus and juniper was noted in PENNSYLVANIA in 1963. In WISCONSIN, Fletcher scale was abundant on a planting of junipers in Jefferson County, and hatching was noted June 19 in Dane County.

Other soft scales also were of some concern during 1963. In CALIFORNIA, an unusual infestation of Lecanium persicae occurred on Daphne sp. locally in San Mateo County, and Lecanium kunoensis infested pyracantha shrubs locally in Paradise, Butte County. Physokermes coloradensis was a pest of ornamental evergreen shrubs and trees in COLORADO during the 1963 season. Ceroplastes spp. were serious pests of various ornamentals, particularly holly, throughout the year in NORTH CAROLINA; crawlers were noted in mid-June in Wake County and again during the first week of November in Cumberland County. Lecanium sp. was more prevalent on ornamental oak in North Carolina this year, newly emerged crawlers being noted in Union County in mid-May. Wax scales and other soft scales were among the most frequent scale insects submitted for determination in VIRGINIA, and Ceroplastes sp. heavily injured ornamental hemlock and hollies over MARYLAND. Franklinia in Providence, RHODE ISLAND, was heavily infested with what was probably Lecanium sp., and Lecanium excrescens was noted on wisteria and adjacent rose.

EUONYMUS SCALE (Unaspis euonymi) was present in normal abundance on ornamentals statewide in RHODE ISLAND during the 1963 season, heavily injured euonymus locally in MARYLAND, and was frequently reported in VIRGINIA. Euonymus scale was the usual problem on euonymus in NORTH CAROLINA, with crawlers noted in Wake County in March. This armored scale was apparently less common than usual in OHIO because of the cold winter of 1962-1963, but heavy numbers damaged euonymus plants throughout OKLAHOMA from January through June. Euonymus scale damaged shrubs and other ornamentals in one or more areas of TEXAS, and light to heavy populations damaged euonymus plants in the Albuquerque area of Bernalillo County and at Hobbs, Lea County, NEW MEXICO. Homeowners in the State find this pest very difficult to control.

PINE NEEDLE SCALE (Phenacaspis pinifoliae) was a pest of ornamental evergreen shrubs and trees in COLORADO in 1963. This pest was reported on spruce from 9 localities in MONTANA, with infestations also occurring on ornamental pines, especially Mugho and Bristle cultivars. Occasional infestations of pine needle scale were observed on ornamental pine and spruce in eastern areas of NORTH DAKOTA, and the species was a problem in some nurseries in MINNESOTA.

Other armored scales were of some concern during the season. WALNUT SCALE (Aspidiotus juglansregiae) was rather common on holly and dogwood in New Castle County, DELAWARE. CAMPHOR SCALE (Pseudaonidia duplex) was generally abundant and occurred on a wide variety of host plants in the Volusia County area of FLORIDA. CAMELLIA SCALE (Lepidosaphes camelliae) damaged shrubs and other ornamentals in one or more areas of TEXAS, and OYSTERSHELL SCALE (Lepidosaphes ulmi) was active on cotoneaster over NORTH DAKOTA during the season. In CALIFORNIA, heavy populations of ROSE SCALE (Aulacaspis rosae) occurred on roses in a few locations and appeared to be more prevalent than usual; scattered infestations of OLIVE SCALE (Parlatoria oleae) occurred in several counties, but biological control was effective in most instances; and CALIFORNIA RED SCALE (Aonidiella aurantii) infested several species of ornamental shrubs and trees in many locations of the State during the season.

Also in CALIFORNIA, spotted infestations of Diaspis boisduvalii occurred on orchids in Santa Barbara County and the pest infested palm trees in Borrego, San Diego County; Parlatoria camelliae infestations on camellia were scattered in a few locations in California, but other than being unsightly, apparently did little damage to plants; medium infestations of Chionaspis ortholobis occurred on dogwood trees in Sierra County; Aspidiotus degeratus occurred on camellia plants in a few locations; and heavy populations of Aspidiotus ehrhorni occurred on white fir in El Dorado County.

A MINING SCALE (Pseudaonidia clavigera), a camellia pest in FLORIDA, continued to be found in the St. Petersburg area of Pinellas County, where nurseries, when found infested, are quarantined until infestations are cleaned up; plants can be moved after fumigation. Phenacaspis cockerelli severely infested tea-olive, bird-of-paradise, California-flax, palms and other ornamentals during the 1963 season and is building up to more of a problem on ornamentals in Florida.

Lepidosaphes yangicola was noted on Euonymus alatus in several sections of PENNSYLVANIA and oviposition by this armored scale was observed June 18-20 and hatching noted June 28-July 26 in RHODE ISLAND.

AZALEA BARK SCALE (Eriococcus azaleae) infestations were frequently reported in VIRGINIA during the 1963 season.

COTTONY-CUSHION SCALE (Icerya purchasi) was locally damaging to boxwood in SOUTH CAROLINA and caused local damage to shrubs and other ornamentals in one or more areas of TEXAS. Feeding by this margarodid scale severely damaged ornamentals in eastern ARIZONA, particularly in the Globe-Miami area of Gila County. A few scattered infestations of cottony-cushion scale occurred on host shrubs and trees in CALIFORNIA, these infestations serving to sustain colonies of vedalia (Rodolia cardinalis) in the area.

MEALYBUGS caused some local concern during the 1963 season. COCONUT MEALYBUG (Pseudococcus nipae) infestations were heavy on dracaena nursery stock in Santa Barbara County, CALIFORNIA, and LONG-TAILED MEALYBUG (Pseudococcus adonidum) was present in a few locations in the State, with infestations usually heavy. GRAPE MEALYBUG (Pseudococcus maritimus) was one of the more common pests of nurseries in OHIO and was a problem on taxus in nurseries in PENNSYLVANIA. Also in Pennsylvania, Rhizoecus pritchardi was found infesting Saintpaulia sp. roots in a large greenhouse specializing in the growing of this plant. A stubborn infestation of Pseudococcus cuspidatae developed on yew in Wakefield, Washington County, RHODE ISLAND, in mid-June. Rhizoecus leucosomus was collected for the first time in FLORIDA, being taken from Mesembryanthemum sp. at Sanford, Seminole County. Rhizoecus cacticans occurred on cactus roots and in soil on Puya sp. and Anacampteros sp. nursery stock in Los Angeles County, CALIFORNIA. Pseudococcus microcirculus infested orchids locally in Larkspur, Marin County, and Pseudococcus importatus infested the same host in Arcadia and Los Angeles, Los Angeles County. P. microcirculus and P. importatus are subject to eradication treatment in California.

Infestations of a PIT SCALE (Asterolecanium arabis) were general in northern CALIFORNIA, with several local infestations showing a decline during the past few years. Another PIT SCALE (Cerococcus sp.), which was reported for the first time in FLORIDA a few years ago, continued to be found on hibiscus in a few nurseries in the lower east coast area. No collections have been made of this pest in the St. Petersburg area since the freeze of December 1962.

AZALEA LACE BUG (Stephanitis pyrioides) caused considerable damage to many azaleas this season in DELAWARE, especially in New Castle County, and infestations ranged light to heavy on azalea throughout GEORGIA.

TARNISHED PLANT BUG (Lygus lineolaris) adults were found on chrysanthemums in NEBRASKA in November. HARLEQUIN BUG (Murgantia histrionica) was locally heavy on ornamentals in San Diego County, CALIFORNIA, and infestations of a FALSE CHINCH BUG (Nysius raphanus) occurred on many native hosts in the State.

GLADIOLUS THRIPS (Taeniothrips simplex) infestations were moderate in some eastern area gardens of NORTH DAKOTA during the 1963 season. Heavy populations of CUBAN-LAUREL THRIPS (Gynaikothrips ficorum) occurred on Ficus retusa in Los Angeles County, CALIFORNIA, and is now known to occur from San Diego to Santa Barbara County. WESTERN FLOWER THRIPS (Frankliniella occidentalis) was very prevalent in many locations in California throughout the year. Unspecified THRIPS were unusually abundant on ornamentals as well as native shrubs in California, with many heavy infestations of Liothrips illex occurring on toyon plants in areas of the State where this shrub grows. Unspecified thrips were unusually serious on roses (affecting the blooms) in SOUTH CAROLINA, and were unusually abundant on various ornamentals during early June in NORTH CAROLINA.

EUROPEAN EARWIG (Forficula auricularia) was a major pest in yards and gardens in many areas of northern CALIFORNIA in 1963. TWO-STRIPED WALKINGSTICK (Anisomorpha

buprestoides) infestations were numerous and heavy on privet, aucuba and other plants in GEORGIA; defoliation was as high as 50 percent in the town of Stone Mountain, De Kalb County.

A POWDER-POST TERMITE (Cryptotermes cavifrons) infested a considerable number of living cabbage palms in Dixie County, FLORIDA, with infestation in trunks of some of the trees being sufficiently extensive to allow wind breakage. A SUBTERRANEAN TERMITE (Reticulitermes sp.) severely injured yew at College Park, Prince Georges County, MARYLAND, in June.

BOXWOOD LEAF MINER (Monarthropalpus buxi) was present in usual numbers in VIRGINIA during the 1963 season. A LEAF MINER FLY (Phytobia maculosa) was very severe in FLORIDA during the year on unsprayed Blue Chip and Iceburg varieties of chrysanthemums, being the most severe in the Bradenton area of Manatee County ever observed. Parasites were at a low level this season, below that of 1962. A CECIDOMYIID MIDGE (Oligotrophus sp.) was one of the more common nursery pests in OHIO. LESSER BULB FLY (Eumerus tuberculatus) was medium in daffodils in Humboldt County, CALIFORNIA.

PEAR-SLUG (Caliroa cerasi) was a pest of ornamental shrubs in COLORADO, and ROSE-SLUG (Endelomyia aethiops) occurred on roses in many areas of MONTANA during the 1963 season. Hatching of a SAWFLY (Macremphytus sp., probably tarsatus) was noted on red-osier dogwood in Peach Dale, Washington County, RHODE ISLAND, on July 24, with fully grown larvae noted on the same host in Kingston and Peace Dale on August 23 and 31, respectively.

PIGEON TREMEX (Tremex columba) was a pest of ornamental shrubs in COLORADO, and ROSE ROOT-GALL WASP (Diplolepis radicum) was troublesome on roses in Fallon, Glacier, Wheatland, Roosevelt and Park Counties, MONTANA.

SPIDER MITES were pestiferous on ornamentals over the county and inflicted varying degrees of damage during the 1963 season. TWO-SPOTTED SPIDER MITE (Tetranychus telarius) infestations occurred on many ornamentals throughout CALIFORNIA, but were not so heavy as in past season. Two-spotted spider mite was a pest of evergreen and other ornamental shrubs in COLORADO, and was prevalent throughout WYOMING as usual on ornamentals. Inflicted damage ranged moderate to severe in some areas of Wyoming and some controls were applied to ornamentals. Two-spotted spider mite continued to be difficult to control in greenhouses in PENNSYLVANIA.

SPRUCE SPIDER MITE (Oligonychus ununguis) was one of the more common pests of nurseries in OHIO this season, and heavy populations of this mite damaged junipers during the summer months at Los Lunas, Valencia County, NEW MEXICO. In CALIFORNIA, EUROPEAN RED MITE (Panonychus ulmi) was heavy on ornamentals in Santa Clara County and populations were variable in other locations within the State.

A number of other spider mites were also of concern during the 1963 season. In CALIFORNIA, Oligonychus coniferarum was heavy on junipers in Sacramento, Sacramento County; Oligonychus platani ranged medium to heavy on pyracantha plants in Yuba and Tulare Counties, and Tetranychus hydrangeae populations were medium on hydrangea in San Diego County. Moderate to heavy populations of Oligonychus spp. and Tetranychus spp. damaged ornamentals in eastern and central ARIZONA, with ornamental spruce trees being particularly damaged in Yuma and Maricopa Counties. Eotetranychus libocedri damaged arborvitae in Albuquerque, Bernalillo County, and E. weldoni caused considerable foliage damage on willows at Artesia, Eddy County, NEW MEXICO. Bryobia sp. was a pest of deciduous ornamental shrubs in COLORADO in 1963. Unspecified spider mites discolored ornamental blue spruce, Pfitzer juniper, arborvitae and other evergreens during the summer in Davis County, UTAH. Infestations of unspecified spider mites varied from light to heavy statewide in NEVADA on various ornamental plants throughout most of the growing season. Tetranychus sp. made unsightly webbing on spruce trees around homes in many locations of MONTANA, especially in shelterbelts in eastern counties.

The hot, dry summer in KANSAS was very favorable for large populations of spider mites and many evergreens were severely injured by Oligonychus spp., mostly O. coniferarum. Tetranychus spp. were active in OKLAHOMA during the season, but less damaging than usual. Commercial chrysanthemum growers at Bradenton, Manatee County, FLORIDA, had good control of spider mites up to the time buds showed color, then these pests became troublesome. Spider mites were responsible for the usual number of complaints in VIRGINIA during the season. Spider mites, as usual, damaged ornamentals in all sections of MARYLAND, especially Oligonychus spp. on hollies and various conifers and Tetranychus spp. on rose, hollyhock, foxglove, Prunus spp. and other ornamentals.

A number of CYCLAMEN MITE (Steneotarsonemus pallidus) infestations were recorded in greenhouses in PENNSYLVANIA during 1963, and heavy infestations of this tarsonemid mite occurred on sweet basil and aralia in local areas of San Mateo County, CALIFORNIA. PRIVET MITE (Brevipalpus obovatus) populations were heavy on acuba, gardenia and azalea nursery stock in Hanford, Kings County, California, and on privet at a few locations over the State.

ERIOPHYID MITES were present in nurseries in MINNESOTA during 1963, their presence being more common on deciduous and coniferous stock during the past few years than heretofore. Damage to terminal growth and leaf mottle were apparent symptoms on broadleaf stock. Dense, heavily sheared coniferous trees appear to favor the development of these pests in Minnesota. An unspecified eriophyid mite was noted along with a leaf gall of unknown species on roses in MONTANA this season. Aculus massalongoi seriously bronzed lilac foliage in Whitman County, WASHINGTON. Triseticus quadrisetus caused light damage to Meyer juniper in nurseries in the Portland area of OREGON throughout the year, necessitating sprays to prevent extensive bud damage.

A BUD MITE (Aceria gilloglii) infested bamboo nursery stock in Ventura and Los Angeles Counties, CALIFORNIA, and infestations of a RUST MITE (Callyntrotus schlechtendali) were medium on rose nursery stock in Ventura County. This last eriophyid mite is widespread in California but seldom causes noticeable damage.

Various unspecified MITES were active in many locations of California during the 1963 season. Weather was such that infestations built up slowly in contrast to the explosive type of more normal years when warm summer temperatures prevailed. Various ornamentals, including cymbidiums and other orchids, and many kinds of garden plants were infested in California during the 1963 season.

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