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THE INSECT PEST SURVEY
BULLETIN

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THE MORE IMPORTANT RECORDS FOR MARCH

Reports from Missouri, Oklahoma, and Colorado indicate that grasshoppers passed the winter with very little mortality. Eggs are present in large numbers in practically every county in Missouri. In the Imperial Valley of California Melanoplus mexicanus Sauss. began hatching the third week of March.

Mormon crickets began hatching during the month in Montana, Colorado, and Utah.

A heavy northern flight of the Monarch butterfly was observed in Ventura County, Calif.

Wireworms were reported in destructive numbers in parts of Louisiana, Colorado, and California.

Winter mortality of chinch bugs in Missouri is reported as very low.

The outbreak of the green bug in parts of the Southeast is rapidly terminating. Similar conditions are reported of an outbreak in north-central Oklahoma.

The codling moth is reported as having passed the winter with but little mortality in Georgia and Missouri, whereas in Idaho only 10 percent of the larvae survived the winter in the southwestern part of the State, where temperatures reached 28° below zero late in January.

Winter mortality of the San Jose scale was reported as below normal in Virginia and Georgia. In the Midwest and Pacific Northwest the carry-over was comparatively light.

Although the plum curculio began to emerge earlier than usual in parts of Georgia, the main emergence from hibernation is decidedly behind the blooming of peach trees in that section.

The green citrus aphid is extremely abundant in the main Citrus Belt of southern and central Florida.

The tomato pinworm is reported as having successfully passed the winter out of doors in the vicinity of Kennett Square, Pa. This insect appeared much earlier than usual in Manatee County, Fla. It has also been reported from Dade County, Fla.

Several new infestations of the sweetpotato weevil have been found in Mississippi. It has been possible to trace many of these infestations to the movement of sweetpotato plants.

Reports from the Big Bend of Texas indicate that the pink bollworm passed the winter with very little mortality.

Activity of screwworms is confined principally to the overwintering areas of Florida and southern Georgia and the extreme southern part of Texas.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Missouri. L. Haseman (March 24): Recent limited observations indicate that grasshopper eggs have survived the winter very well and, with 100 of 114 counties carrying rather heavy supplies of eggs, we are expecting much trouble this summer, particularly if it should be dry.

Oklahoma. F. A. Fenton (March 20): Examination was made on March 18 to determine the condition of eggs in an egg bed of Melanoplus differentialis Thos. In the more sunny part of the bed the embryos have developed to the point where the eyes are visible through the shell. Most eggs, however, have not developed this far. All pods examined were in good condition, but there is evidence of considerable destruction of pods by ground-beetle larvae.

Montana. H. B. Mills (March 25): Numerous reports of overwintering grasshoppers, largely Chortophaga viridifasciata Deg., becoming active.

Colorado. S. C. McCampbell (March 8): Grasshopper eggs came through the winter in good condition throughout northeastern Colorado.

California. S. Lockwood (March 27): Grasshoppers are now hatching in considerable numbers in alfalfa fields at Westmoreland, Imperial County. Most of the nymphs of M. mexicanus Sauss. examined were in the first instar, but a few second-instar nymphs were observed. Four or five grasshoppers were collected at each sweep of a standard insect net. This is probably less than half of the hoppers present, as many of them were entangled in the high alfalfa and did not fall into the net.

MORMON CRICKET (Anabrus simplex Hald.)

Montana. H. B. Mills (March 25): Mormon crickets are just beginning to hatch in southern Montana, in Big Horn and Carbon Counties.

Colorado. C. R. Jones (March 26): Mormon crickets are hatching in Moffat County, in northwestern Colorado. Most of this infestation, however, is still under 2 feet of snow.

Utah. C. J. Sorenson (March 22): Mormon crickets began hatching on March 6 in several localities in Millard County, central Utah.

CUTWORMS (Noctuidae)

Missouri. L. Haseman (March 24): Strawberry growers in southwestern Missouri report what seems to be early work of cutworms in strawberry fields.

ARMY CUTWORM (Chorizagrotis auxiliaris Grote)

Colorado. S. C. McCampbell (March 8): So far reports of the army cutworm from Arapahoe County, near Denver, are not as general as last year, but it is a little early and a large territory has not yet been surveyed.

SOUTHERN ARMYWORM (Prodenia eridania Cram.)

Florida. J. R. Watson (March 22): The semitropical armyworm has been abundant throughout the southern third of the State.

WHITE-LINED SPHINX (Sphinx lineata F.)

California. R. E. Campbell (March 4): An adult of the striped sphinx was seen hovering over narcissus blossoms at Alhambra this evening.

MONARCH BUTTERFLY (Danaus menippe Hbn.)

California. F. H. Wymore (March 20): Thousands of butterflies were observed at the eastern edge of Ventura City, flying north toward the mountains. I had never before seen such large numbers of this species.

WIREWORMS (Elateridae)

Louisiana. C. O. Eddy (March 24): Wireworms are damaging the eyes of seed sugarcane in several 10- or 12-acre tracts in southern Louisiana.

Colorado. C. R. Jones (March 26): Wireworms are reported from Adams County, northeast of the central part, as damaging wheat and also from Montrose County, on the western border. I do not know whether these are the true or false wireworms, as no specimens were submitted.

California. M. W. Stone (March 3): Male adults of Limonius californicus Mann. were collected on alfalfa near Artesia, Los Angeles County, on February 8, and at Smelzer, Orange County, on February 17. Males began to emerge from laboratory cages on February 16 and females on February 19. Larvae were recovered in large numbers in Orange County on wild barley and malva in bean fields on February 24.

WHITE GRUBS (Phyllophaga spp.)

Maryland. E. N. Cory (March 18): Grubs were observed at Hagerstown, in western Maryland.

Texas. F. L. Thomas (March 9): On March 9, a female P. calceata Lec. was taken at College Station. On March 24, a female P. hirtiventris Horn was taken at a light at College Station. These are the first records for the season.

COMMON RED SPIDER (Tetranychus telarius L.)

Virginia. H. G. Walker (March 24): Red spiders are rather scarce in most of the strawberry fields examined in southeastern Virginia.

Missouri. L. Haseman (March 24): In northwestern Missouri, where for the last 3 years the red spider has been a serious problem, particularly on raspberry, blackberry, and apple trees, our field man, Lee Jenkins, reports that they have passed the winter in much smaller numbers.

Arizona. C. D. Lebert (March 15): Rather severe webbing of T. telarius on many of the Italian cypress and some of the arborvitae in the Phoenix district. Some of the trees were brown and severely webbed.

C E R E A L A N D F O R A G E - C R O P I N S E C T S

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Missouri. L. Haseman (March 24): With the severe set-back which the wet spring of 1935 gave to the hessian fly in Missouri, the pest did not rebuild its populations seriously during the summer and fall of 1936; however, in northeastern Missouri and in scattered areas throughout the rest of the State some early seeded fields are showing rather serious winter carry-over. The winter mortality seems to have been very light.

CHINCH BUG (Blissus leucopterus Say)

Missouri. L. Haseman (March 24): Winter surveys indicate that the chinch bug infestations in Missouri are spotted, with occasionally abundant carry-over on individual farms. The winter mortality seems to have been low, and the two general areas where hibernating bugs are most abundant are the northwestern and the west-central counties, with a general sprinkling throughout most of the area north of a line from the southwestern corner of the State across to St. Louis.

GREEN BUG (Toxoptera graminum Rond.)

South Carolina. F. Sherman (March 29): Complaints of aphids on small grains have come from all parts of the State. T. graminum and other grain aphids perhaps have been involved. Parasites and predators have helped to check the aphids.

Georgia. T. L. Bissell (March 25): At Experiment (central Georgia) small numbers of aphids are working, but the oats seems to be beyond further injury. Bare patches of dead oats are evident in fields. Since the report a month ago I have heard of injury in Talbot, Jasper, and Franklin Counties.

Oklahoma. F. A. Fenton (March 20): On March 11 a trip was made to the wheat sections of north-central Oklahoma, in Garfield and Kingfisher Counties, and on March 18 to sections of Noble and Payne Counties. The green bug is present in only a few fields and is apparently in about the same condition as it was last January. No further killing of plants has been noticed and the infestation is very spotted. Parasites are also present in a few places. We do not anticipate serious trouble from this pest this year.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (March 22): On March 15 the weevil was abundant in a single field in the San Joaquin Valley near Patterson, where an average of 197 larvae and 35 adults were collected in 100 sweeps of an insect net. In other fields examined the larval count was generally less than 30 per 100 sweeps. In the San Francisco Bay district on March 18 the highest average larval count per 100 sweeps was 158. In other fields examined it was below 25. At Pleasanton on March 18 only 3 larvae and 1 adult were collected in 600 sweeps. Adults of Bathyplectes curculionis Thoms. were found throughout the infested region. In the San Francisco Bay district a high percentage of the alfalfa weevil larvae were parasitized, while in the most heavily infested field in the San Joaquin Valley a smaller percentage appeared to be parasitized. The weevil population is much lower than a year ago, when counts of 1,000 or more were not uncommon; however, the alfalfa was more advanced than it is this year.

LEAF BEETLES (Diabrotica spp.)

Oregon. B. G. Thompson (March 3): D. soror Lec. is numerous and damaging young clover in the Willamette Valley.

California. J. Wilcox and M. W. Stone (February 3): The following chrysomelid beetles were taken on alfalfa near Alhambra, Los Angeles County, in their order of importance: D. soror, D. balteata Lec., Gastroides cyanea Melsh., and D. trivittata Mann.

S. Lockwood (March 27): The 12-spotted cucumber beetle (D. duodecimpunctata F.) is numerous in alfalfa fields in Imperial County, in the southern part of the State.

PEA APHID (Illinoia pisi Kalt.)

California. S. Lockwood (March 27): The pea aphid is more than ordinarily numerous in alfalfa at Bard, Imperial County, in the extreme southeastern corner of the State.

Oregon. K. N. Gray and W. D. Edwards (March 3): Eggs are hatching near Astoria, Clatsop County, in northwestern Oregon.

California. J. Wilcox and M. W. Stone (March 18): Pea aphids were much more abundant on alfalfa, at Downey, Los Angeles County, than last month. Syrphid larvae were common.

THREE-CORNERED ALFALFA HOPPER (Stictocephala festina Say)

Louisiana. E. O. Ellisor (March 24): The alfalfa girdler (S. festina) has been active and oviposition has continued in southern Louisiana during warm periods throughout the winter. A small percentage of these eggs hatched during warm periods in February and the early part of March; however, the nymphs were killed by cold weather. Large numbers of nymphs hatched from March 17 to 24. A microscopic examination of about 50 alfalfa plants showed that most of the eggs were deposited at least 2 inches above the surface of the soil.

California. S. Lockwood (March 27): The treehopper (S. festina) is common in alfalfa throughout the Imperial Valley but damage is not apparent.

ALFALFA CATERPILLAR (Eurymus eurytheme Bdv.)

Idaho. R. W. Haegele (March 19): A heavy infestation of the alfalfa caterpillar was found in a 1936 seeding of alfalfa in southwestern Idaho. The larvae averaged 1/2 inch long and have been feeding since early in March on the green growth that had come through the winter. From early in January until March 1 the field was covered with 6 to 10 inches of snow and the minimum temperature during January was -27° F. at Weiser. The larvae became active as soon as the snow melted early in March. This insect is recorded as spending the winter in the Northern States in the pupal stage and as larvae in the warmer States. The larvae in this instance have lived through the winter.

COWPEAS

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

North Carolina. Z. P. Metcalf (March): Cowpea weevils are generally more abundant on cowpeas than usual.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis F.)

Louisiana. C. O. Eddy (March 24): Larvae of the sugarcane borer are transforming to pupae rapidly in southern Louisiana. A few moths have emerged. Most larvae and pupae are being found in the tops and in trash; very few in stubble.

FRUIT INSECTS

APPLE

APPLE APHIDS (Aphididae)

Virginia. W. S. Hough (March 18): Aphid eggs are not plentiful in apple orchards at Winchester, northern Virginia. Fall migration to the apple trees was greatly reduced last October and November, and about 10 percent of the winged forms at that time were rosy aphids (Anuraphis roseus Baker).

Missouri. L. Haseman (March 24): There seems to be a scarcity of aphid eggs on fruit trees throughout central Missouri.

Idaho. R. W. Haegele (March 19): Eggs of the rosy apple aphid (A. roseus) are moderately abundant and starting to hatch in southwestern Idaho. Practically all the eggs seem to have survived the winter in southwestern Idaho, where minimum temperatures in January ranged down to -28° F.

LEAFHOPPERS (Cicadellidae)

Missouri. L. Haseman (March 24): Winter mortality of leafhoppers at Columbia has been rather low, on the average not more than 10 to 20 percent. In northwestern Missouri they show 25 percent mortality in leaves and from 50 to 100 percent mortality in bluegrass.

CODLING MOTH (Carpocapsa pomonella L.)

Georgia. C. H. Alden (March 24): Larvae still in hibernating cocoons at Cornelia, in northeastern Georgia, but there has been no pupation to date.

Missouri. L. Haseman (March 24): Lee Jenkins reports that in northwestern Missouri practically 100 percent of the overwintering worms are alive. In our breeding material at Columbia the winter mortality is very low. In southwestern Missouri the carry-over of worms is heavier than at any other place in the State. Generally overwintering worms are less numerous than they have been any year since the late 1920's; but, with conditions now favoring a fair-to-heavy set of fruit, our growers will be obliged to spray thoroughly to prevent the insect from increasing in numbers in 1937.

Idaho. R. W. Haegele (March 19): Only 10 percent of the larvae survived the winter in untreated corrugated paper bands on tree trunks in the southwestern part of the State. Where the bands were covered with burlap sacks, 85 percent of the larvae were alive. The lowest temperature reading for the winter was -28° F. on January 21, at Parma, in the southwestern part of the State.

EASTERN TENT CATERPILLAR (Malacosoma americana F.)

North Carolina. W. A. Thomas (March 9): This insect was observed at Chadbourn, where it was just beginning to web in wild cherry leaves just coming out.

Kentucky. W. A. Price (March 26): Several egg masses of the apple tree tent caterpillar have been received from Hodgenville and vicinity. Those received today were hatching.

Arkansas. W. J. Baerg (March 20): Hatching of eggs in northwestern Arkansas was well under way on March 18 and probably began on March 17, or earlier.

Texas. R. K. Fletcher (March 17): Worms nearly grown on plum trees in east-central Texas.

FLATHEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Missouri. L. Haseman (March 24): This pest was again very abundant last year and recent observations indicate that it is surviving the winter in large numbers and in healthy condition. On exposed limbs and tree trunks, however, hairy and downy woodpeckers have been very active in feeding on the borers.

ROUNDHEADED APPLE TREE BORER (Saperda candida F.)

Missouri. L. Haseman (March 24): Over the State generally the carry-over of this borer has been less heavy than for the two or three preceding seasons, but some orchard men report rather alarming infestations.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Virginia. W. S. Hough (March 18): Examination of scales in one orchard in northern Virginia, where the infestation is moderately severe, showed that about 60 percent of the individuals were alive, which is somewhat in excess of the usual proportion of live individuals expected at this time of the year. This insect, although present in many orchards, is not as abundant as it was a few years ago, and careful searching is required to locate sufficient numbers to make a count in neglected orchards.

Maryland. E. N. Cory (March 11): San Jose scale observed at Royal Oak.

Georgia. O. I. Snapp (March 22): There has been no mortality of the San Jose scale at Fort Valley from low temperatures during the winter, and the unusually mild winter permitted uninterrupted reproduction, especially in unsprayed orchards. The infestation is now greater than that of an average year, as the percentage of live scale was unusually high at the beginning of the winter. Of 13,200 scales counted under a binocular microscope in November, 95.5 percent were alive. The percentage of live scale in the same orchard in January was 92.9 percent.

Georgia. C. H. Alden (March 24): San Jose scale continues to be abundant on peach and apple trees at Cornelia, in northeastern Georgia, especially in unsprayed or poorly sprayed orchards.

Illinois. W. P. Flint (March 23): There has apparently been no increase in San Jose scale mortality during the past month.

Missouri. L. Haseman (March 24): Observations of San Jose scale in central and northeastern Missouri indicate a rather light carry-over of live scale. In southwestern Missouri there is an increased demand for dormant-spray materials, indicating that considerable spraying will be done before buds open.

Idaho. R. W. Haegele (March 19): Scale counts from several districts in southwestern Idaho showed from 70 to 85 percent winter mortality. Low temperatures in January ranged from -20° to -28° F., for a few hours' duration on only 1 day, which probably accounts for the relatively high survival.

SCURFY SCALE (Chionaspis furfura Fitch)

Virginia. W. S. Hough (March 18): Scurfy scale very abundant in many apple orchards throughout northern Virginia.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

Vermont. H. L. Bailey (March 26): Eggs reported moderately abundant in southern Vermont, with considerable percentage of them dead or parasitized.

Massachusetts. A. I. Bourne (March 12): The red mite was unusually abundant in all orchard sections late in the summer of 1936. Growers find that although there was an unusually heavy deposit of eggs last fall, in many instances many of them have been killed. Apple twigs containing the overwintering cocoons of a small neuropteran, Conwentzia hageni Banks, are much more numerous than for many years, and are especially abundant in the orchards where the red mite was very numerous last fall. I do not know whether there is any association between the neuropteran and the red mite.

PEACH

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (March 19): Plum curculios have not yet appeared in numbers from hibernation at Fort Valley, although full bloom of peach trees is past. They are usually disseminated throughout the orchards by full bloom. Peach trees began to bloom unusually early this year, and with the curculio being held in hibernation later than usual, as compared with the development of the fruit, Georgia peaches may escape an attack by the second brood.

C. H. Alden (March 24): Jarred 20 trees in Elberta peach orchards in northeastern Georgia on March 23 but caught no curculios. Orchard in full bloom.

T. L. Bissell (March 25): We have jarred peach trees and wild plum trees three times a week at Experiment, central Georgia, since March 3, but so far have not taken any curculios.

CUCUMBER BEETLES (Diabrotica spp.)

Georgia. T. L. Bissell (March 25): Beetles, D. duodecimpunctata F., have been common on peach and wild-plum blossoms at Experiment since March 5.

California. S. Lockwood (March 6): The cucumber beetle D. soror Lec. apparently has wintered over in more than normal numbers. They are now easily found in a number of wild plants, particularly in miner's lettuce (Montia perfoliata?). Considerable alarm has been expressed by growers of apricots and early peaches as this beetle was responsible for a considerable loss of tonnage of early peaches and apricots in the Sacramento Valley.

PEACH BORER (Conopia exitiosa Say)

North Carolina. Z. P. Metcalf (March): The peach tree borer has been general throughout North Carolina.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

South Carolina. F. Sherman (March 29): Adults are being caught in traps at Clemson, in the western part of the State.

BLACK PEACH APHID (Anuraphis persicae-niger Smith)

South Carolina. F. Sherman (March 29): A considerable number of complaints of the black peach aphid have been received. The forms above the ground, as well as those below the surface, were reported.

PEAR

PEAR THRIPS (Taeniothrips inconsequens Uzel)

Oregon. S. C. Jones (March 3-10): Pear thrips were emerging on March 2 in the Umpqua Valley, in southwestern Oregon, and on March 10 in the Willamette Valley.

CHERRY

CHERRY SCALE (Aspidiotus forbesi Johns.)

Virginia. W. S. Hough (March 18): Cherry scale was very abundant in a large sour-cherry orchard near Winchester. This orchard has never been sprayed for scale, although the trees have been bearing fruit for a number of years.

RASPBERRY

RED-NECKED CANE BORER (Agrilus ruficollis F.)

Oklahoma. F. A. Fenton (March 20): Reports have been received of severe damage by the red-necked raspberry cane borer to blackberries, dewberries, and youngberries, all important crops in Oklahoma.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

California. C. S. Morley (March 8): Grape leafhoppers are very abundant in Kern County. Vineyards are being plowed and trap crops left for the leafhoppers to hibernate in for the remaining few days of hibernation. The hoppers are very active during the present warm weather.

PECAN

OBSURE SCALE (Chrysomphalus obscurus Comst.)

Louisiana. C. O. Eddy (March 24): Obscure scale is reported very numerous in northeastern Louisiana.

CITRUS

A LONG-HORNED BORER (Prionus sp.)

Arizona. C. D. Lebert (March 1): The large larvae of P. californicus Mots. or P. heroicus Semen., or both, have been found in several citrus groves northeast of Phoenix. Severe tunneling and, in some cases, complete girdling of the trunks from 3 to 6 inches below the soil level have been observed. There are from one to six larvae per tree.

GREEN CITRUS APHID (Aphis spiraecola Patch)

Florida. J. R. Watson (March 22): The green citrus aphid has been extremely abundant during the last month. The spring flush of growth has been prolonged over an unusually long period this year, affording the citrus aphid a continuous food supply. It is extremely abundant in the main Citrus Belt of central and southern Florida. The Chinese ladybeetle, Leis dimitata quinque-decimspilota Hope, has continued to spread and has now reached Seminole County, in central Florida, and is in Broward County, in the southeastern part of the State.

COTTON APHID (Aphis gossypii Glov.)

Texas. S. W. Clark (March 19): Abundant on limes and certain species of oranges at Weslaco.

PURPLE SCALE (Lepidosaphes beckii Newm.)

Louisiana. C. O. Eddy (March 24): Purple scale is common on citrus in southern Louisiana.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Louisiana. C. O. Eddy (March 24): It is reported that the citrus mite is unusually numerous because of the mild winter.

Texas. S. W. Clark (March 15): P. oleivorus is more than usually abundant for this time of year at Weslaco.

A MITE (Anychus clarki McG.)

Texas. S. W. Clark (March 15): Very few specimens of A. clarki observed. This mite is usually abundant at this time of year at Weslaco.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Klug)

Florida. J. R. Watson (March 22): Many complaints of the depredations of the vegetable weevil, especially on carrots and beets, have been received from the northern part of the State.

Louisiana. P. K. Harrison (March 24): The vegetable weevil is still generally abundant, injuring turnip, mustard, cabbage, and other plants, in southern Louisiana.

S. S. Sharp (March 24): Vegetable weevil larvae were found feeding on strawberry fruit at Independence, in eastern Louisiana.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata F.)

Virginia. H. G. Walker (March 24): The twelve-spotted cucumber beetle has been active on warm days throughout the winter in kale, collard, spinach, rye, and other fields at Norfolk.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Virginia. H. G. Walker (March 24): Adults of the seed corn maggot are rather abundant at Norfolk.

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia. H. G. Walker (March 24): The spinach aphid is very scarce at Norfolk.

Utah. G. F. Knowlton (March 1): Aphids, M. persicae, were seriously abundant on sugar beets in an experimental greenhouse at Logan.

TOMATO

TOMATO PINWORM (Gnorimoschema lycopersicella Busck)

Pennsylvania. C. A. Thomas (March 22): The tomato pinworm is now restricted in Chester County, southeastern Pennsylvania, to four greenhouse establishments in the vicinity of Kennett Square; however, studies indicate that it survived the mild winter out of doors, hence it may spread rapidly this spring. There was no evidence last spring that it had successfully hibernated out of doors through the severe winter in this vicinity, and all individuals found here last spring undoubtedly came from nearby greenhouses, where they had passed the winter on the growing tomato plants.

Florida. M. D. Leonard (March 17): A letter just received from the County Agent of Manatee County states that the tomato pinworm has appeared much earlier than usual at Bradenton on their big tomato crop. The insect has been found in Dade County from Miami to Homestead.

A CHIRONOMID (Camptocladius sp.)

Pennsylvania. C. A. Thomas (March 22): An unusual injury to recently potted tomato seedlings was found in a greenhouse at Kennett Square, southeastern Pennsylvania, in February. The seedlings fell over on the soil as if "damped off." Examination revealed that each plant had been bored into just below the surface of the soil and then hollowed out by these tiny larvae. The larvae had probably come from the barnyard manure with which the potting soil had been mixed, and after the manure became dry they attacked the tomato plants.

BEANS

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Florida. M. D. Leonard (March 17): During January and February there has been one of the worst infestations of the potato leafhopper on string and lima beans that has occurred in several years in the lower east coast of Florida and along the eastern shore of Lake Okeechobee.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Virginia. H. G. Walker (March 24): Nearly full-grown imported cabbage worms were observed feeding on collards the middle of January at Norfolk. A few imported cabbage worm butterflies have been observed flying over kale, collard, and cabbage fields during the past week.

North Carolina. W. A. Thomas and F. A. Wright (March 8): Adults of the common cabbage butterfly have been intermittently active in the vicinity of Chadbourn most of the winter, no doubt due to the abnormally high winter temperature.

South Carolina. F. Sherman (March 29): The white cabbage butterfly was in flight as early as February at Clemson, but we have no complaint of damage.

Louisiana. C. E. Smith and R. W. Brubaker (March 24): Adults have been active and ovipositing for 2 weeks, and a considerable sprinkling of larvae, mostly of the first instar, are present on cabbage at this time, at Baton Rouge.

DIAMONDBACK MOTH (Plutella maculipennis Curt.)

Virginia. H. G. Walker (March 24): The larvae of the diamondback moth continued to be quite destructive to kale and collards until about the middle of January at Norfolk; however, all stages of this insect are rather scarce, while its hymenopterous parasite, Angitia hellulae Vier., is rather abundant.

Louisiana. C. E. Smith and R. W. Brubaker (March 24): The larva of the diamondback moth is relatively scarce on the experimental cabbage planting at Baton Rouge.

CABBAGE APHID (Brevicoryne brassicae L.)

Virginia. H. G. Walker (March 24): The cabbage aphid is very scarce at Norfolk.

Texas. S. W. Clark (March 22): B. brassicae is very abundant on late cabbage at Weslaco, in the lower Rio Grande Valley.

Arizona. C. D. Lebert (March 16): The cabbage aphid was extremely abundant on seedling cabbages in frames in the river-bottom area of south Phoenix.

ASPARAGUS

ASPARAGUS BEETLE (Crioceris asparagi L.)

South Carolina. W. C. Nettles (March 29): Injury by the asparagus beetle was observed as early as January in Dorchester County, in eastern South Carolina.

California. J. Wilcox and M. W. Stone (March 18): Several adult beetles were taken from a few scattered new shoots in the field at Downey, Los Angeles County. No eggs or larvae were found.

PEAS

PEA APHID (Illinoia pisi Kalt.)

Georgia. T. L. Bissell (March 25): Colonies of pea aphids becoming thick on terminals of Austrian winter pea. No damage apparent.

Florida. J. R. Watson (March 22): Pea aphids have been rather abundant around Gainesville, Alachua County, in northeastern Florida.

Arizona. C. D. Lebert (March 16): The pea aphid was found on some of the truck farms on the south-side river-bottom area. The pea vines were heavily infested in spots. This pest was not present on earlier peas examined 3 days ago west of Phoenix.

SQUASH

SQUASH BUG (Anasa tristis Deg.)

Utah. G. F. Knowlton (March 16): One adult squash bug was observed to be active at Logan.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Florida. J. R. Watson (March 22): Celery in the Sanford, Seminole County, district has been severely attacked by onion thrips.

Louisiana. C. O. Eddy (March 24): T. tabaci is much more numerous now than last year and has increased during the winter.

CARROT

CARROT RUST FLY (Psila rosae F.)

Washington. R. L. Webster (March 20): P. rosae, referred to in the last number of the Pest Survey Bulletin, is represented in A. L. Melander's private collection by two specimens - one taken on May 26, 1908, at Nooksack, a few miles from the Canadian border in Whatcom County; the other on May 17, 1910, at Olga, on one of the islands of Puget Sound.

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

Louisiana. P. K. Harrison (March 24): The population of the turnip aphid is increasing on turnip and mustard in the vicinity of Baton Rouge. Parasites of this insect are also becoming more numerous.

LETTUCE

POTATO APHID (Illinoia solanifolii Ashm.)

Georgia. T. L. Bissell (March 19): Aphids abundant on lettuce on one garden, at Griffin, in central Georgia.

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

North Carolina. W. A. Thomas and F. A. Wright (February 9): Owing to the unseasonably warm weather of January which caused huckleberries to bloom heavily early in February at Chadbourn, some weevils emerged from hibernation at that time. The cold weather in February caused the weevils to cease emerging and up to March 12 no further emergence had been observed.

STRAWBERRY ROOT APHID (Aphis forbesi Weed)

Virginia. H. G. Walker (March 24): Strawberry root louse eggs were hatching at Norfolk on January 22, about 2 months earlier than eggs hatched last year. The eggs and young aphids were very scarce in every field examined and very little injury is expected.

SWEETPOTATO

SWEETPOTATO WEEVIL (Cylas formicarius F.)

Mississippi. C. Lyle (March 24): During the past few weeks several new infestations of the sweetpotato weevil have been found in southern Mississippi. A considerable number of infested properties have been found in Pike and Jefferson Davis Counties with smaller infestations in Amite, Lawrence, and Jones Counties. The new areas are being placed under quarantine.

PEPPER

PEPPER WEEVIL (Anthonomus eugenii Cano)

Florida. J. R. Watson (March 22): In two or three infestations in Manatee County the pepper weevil has become so abundant as to destroy all peppers and most of the bloom.

SUGAR BEETS

BEET LEAFHOPPER (Eutettix tenellus Baker)

Utah. G. F. Knowlton (March 10): Beet leafhoppers are rather abundant on mustard hosts at Genola and moderately abundant near Lampo, in northern Utah.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula F.)

North Carolina. Z. P. Metcalf (March): The tobacco flea beetle is apparently starting earlier this year than last in eastern North Carolina.

J. U. Gilmore and J. P. Vinzant (March 23): In a 3-day survey of tobacco plant beds in eastern North Carolina only a few beds were found to show serious losses from flea beetle attack. Most of the beds that were well covered with cloth were unaffected. The maximum infestation was 40 beetles per square foot of plant-bed area.

South Carolina. W. A. Shands and N. Allen (March 17): A survey through north-eastern South Carolina showed the flea beetle to be causing economic losses in tobacco plant beds in Florence, Marion, and Horry Counties. The most severe injury was found where the plant beds were poorly constructed or where the canvas did not properly cover them. In one instance of severe injury circumstances indicated that hibernating beetles were carried to a plant bed in pine needles that were used to protect the plants from cold weather.

F. Sherman (March 29): The tobacco flea beetle is seriously abundant in the eastern part of the State.

GREEN JUNE BEETLE (Cotinis nitida L.)

North Carolina. J. U. Gilmore and J. P. Vinzant (March 23): One tobacco plant bed of 130 yards in Pitt County, in eastern North Carolina, had sustained a loss of 50 percent, owing to attack by larvae of the green June beetle. The previous crop was sweetpotatoes that had produced luxuriant growth, providing suitable conditions for June beetle egg deposition.

MUSHROOMS

A MITE (Tarsonemus sp.)

Pennsylvania. C. A. Thomas (March 22): A mite has been very common and destructive to mushrooms and mycelium in mushroom houses in the vicinity of Kennett Square, Chester County, during the past several months, more infestations than usual being reported.

COTTON INSECTS

PINK BOLLWORM (Pectinophora gossypiella Saund.)

Texas. A. J. Chapman (February): An examination of infested cotton bolls in the hibernation experiments at Presidio, in the Big Bend of Texas, indicated that the mortality at the close of February this year (43.75 percent) was about the same as last year (40.80 percent). Examinations made on February 27 in a few fields in which stalks were standing indicated that the winter had caused little mortality.

THURBERIA WEEVIL (Anthonomus grandis thurberiae Pierce)

Arizona. W. A. Stevenson (March 13): At Tucson, in southern Arizona, the first Thurberia weevils from infested cotton bolls that were plowed under and irrigated on February 5, began to emerge last week. This is a few days later than the first emergence of this type of weevils during the last 2 years. Several Thurberia weevils were out of their pupal cells on Thurberia plants on March 11 but, as the plants have not begun to bud, these weevils will undoubtedly die before food is available.

FIELD CRICKET (Gryllus assimilis F.)

Mexico. C. S. Rude (March 23): Crickets are very numerous in the fields at Tlahualilo, in the Laguna. The most common species is G. assimilis. When the cotton begins to come up the species may do considerable damage.

COTTON FLEA HOPPER (Psallus seriatus Reut.)

Texas. F. L. Thomas (March 26): Cotton flea hoppers began hatching in small numbers at College Station, in south-central Texas, on March 18 and were found in the fields shortly afterwards. On warm days, about the 22d, many hatched in the cages.

FOREST AND SHADE - TREE INSECTS

CANKERWORMS (Geometridae)

New Jersey. M. D. Leonard (March 21): Cankerworms, mostly Paleacrita vernata Peck, were observed in considerable numbers ascending trunks of oaks and other woodland and shade trees at Ridgewood. The worms were mating freely.

TENT CATERPILLARS (Malacosoma spp.)

Vermont. H. L. Bailey (March 26): Egg masses of forest tent caterpillars, (M. disstria Hbn.) are abundant in Windham, Windsor, and Rutland Counties, southern Vermont. Scouting records show an average of from 5 to 20 egg masses per tree.

Arizona. C. D. Lebert (March 16): Small webs of Malacosoma sp. were observed on cottonwoods north of Phoenix. The trees are scarcely in leaf at this date. A few webs were found on a crab apple tree in this same area. The caterpillars had done no damage.

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma S. & A.)

Illinois. W. P. Flint (March 23): It is practically impossible to find tussock moth eggs anywhere in the northern half of Illinois. This is probably because the severe winter of 1935-36 killed nearly all of the eggs above the snow line.

BOXELDER

A BOXELDER LEAF ROLLER (Cacoecia negundana Dyar)

Colorado. S. C. McCampbell (March 16): Eggs of the boxelder leaf roller (Archips negundana Dyar) are more abundant than for many years and have come through the winter in viable form in Weld County, north-central Colorado.

C. R. Jones (March 26): In towns in northern Colorado considerable dormant spraying is being done on boxelder and cottonwood trees for control of the boxelder leaf roller.

ELM

EUROPEAN FRUIT LECANIUM (Lecanium corni Bouche)

Oklahoma. F. A. Fenton (March 20): The infestation on elms in many localities in the State is serious. Males are emerging and female scales are about one-third developed at Stillwater. One species of parasite has been reared. The percentage of parasitization of scale appears to be quite high.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Colorado. C. R. Jones (March 26): Considerable dormant spraying for control of the European elm scale on elms is being done in northern Colorado towns.

MAPLE

JAPANESE MAPLE SCALE (Leucaspis japonica Ckll.)

New York. E. P. Felt (March 25): The Japanese scale is generally distributed in the village of Freeport, Long Island, though relatively few living insects were to be found on the above date.

PINE

WOOD BORERS (Ips spp.)

Pennsylvania. R. M. Baker (March 24): Pine trees have been severely injured by drought during the past few years. As a result, many inquiries have been received concerning borers, usually Ips spp., which infest these weakened trees. Most plantation owners blame these secondary borers for the death of the trees.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

New York. E. P. Felt (March 25): Specimens of the work of the Nantucket pine moth were received from near Hempstead, Long Island.

SYCAMORE

A CERAMBYCID (Oberea schaumii Lec.)

Mississippi. C. Lyle (March 4): Sycamore twigs infested with Oberea sp., probably O. schaumii, were received from Greenville, northwestern Mississippi, on March 4.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

A LOOPER (Autographa sp.)

Louisiana. C. E. Smith (March 24): The larvae of one or more species of Autographa are present in injurious numbers on snapdragon and calendula in greenhouses and gardens at Baton Rouge.

CAMELLIA

SCALE INSECTS (Coccidae)

Georgia. O. I. Snapp (March 22): Infestations by Fiorinia theae Green, Parlatoria pergandii camelliae Comst., and Lepidosaphes camelliae Hoke, on camellia bushes, mostly Camellia japonica, are unusually heavy at Fort Valley. (Det. H. Morrison.)

Mississippi. C. Lyle (March 24): Scale insects, F. theae, reported from Port Gibson, Centreville, and Laurel, and L. camelliae on Camellia japonica from Centreville, all in the southern part of the State.

HOLLY

A LACEBUG (Tingididae)

North Carolina. Z. P. Metcalf (March): The first report of lacebug on ornamental holly in this State has been received recently.

JUNIPER

JUNIPER WEBWORM (Dichomeris marginellus F.)

Delaware. L. A. Stearns (March 6): Specimens received for identification and request for advice concerning control at Bridgeville, southern Delaware.

PENTSTEMON

CHECKER SPOT (Euphydryas chalcedona Dbldy. & Hew.)

Arizona. C. D. Lebert (March 8): The larvae of the checker spot, or chalcedon, one of the brush-footed butterflies, was found feeding on bushy pentstemon at the Boyce Thompson S. W. Arboretum at Superior, south-central Arizona. Every bush in the canyon was covered with the caterpillars, which were rapidly defoliating the plants.

INSECTS ATTACKING MAN AND
DOMESTIC ANIMALS

MAN

BEDBUG (Cimex lectularius L.)

North Carolina. Z. P. Metcalf (March): Reported as general in North Carolina.

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

North Carolina. Z. P. Metcalf (March): Reported in Wake and Robeson Counties.

G. B. Lay (March 24): Specimens of the tropical rat mite were collected in a house at Raleigh on February 12. This collection was made following an investigation of the occurrence of three cases of endemic typhus in Raleigh.

SANDBLIES (Culicoides spp.)

Georgia. J. B. Hull (March 24): Notwithstanding the unusually warm weather during the middle of February, no sandflies have been observed biting in the vicinity of Savannah.

Florida. S. E. Shields (February 28): Sandflies have been present in annoying numbers on the island east of Fort Pierce, on the eastern coast. A few complaints have been received from the mainland.

BLACK WIDOW SPIDER (Latrodectus mactans F.)

Maryland. E. N. Cory (March 15): Found in a basement in Salisbury, on the Eastern Shore.

Kentucky. W. A. Price (March 26): A female black widow spider was found at Lexington on March 22.

CATTLE

SCREWORM (Cochliomyia americana C. & P.)

United States. W. E. Dove (April 1): At the end of March screwworms were confined principally to the overwintering areas of Florida and southern Georgia and to that portion of Texas south of U. S. Highway 90, which runs from Orange County, on the east to Del Rio, Val Verde County, on the west. In Florida the low point of the winter was experienced during the last week of December, when 194 cases were reported from the entire State. Since then summer temperatures permitted the pest to build up in dry swamps where wild hogs were infested and when cases occurred in navels of young animals in other areas. In Florida the number of cases reported for December was 1,663; for January, 3,213; for February, 3,573; and from March 1 to 26, 2,930. Cases are now most numerous in navels of young calves and the infestations are rather generally distributed over the peninsular portion of the State, with a

lower incidence in the more northern counties. During January specimens were identified from Georgia as Cochliomyia americana C. & P. from Brooks and Lowndes Counties on the southern border in the central part of the State, and Effingham County, on the Georgia-South Carolina State line. During the third week of February screwworms were again identified from Brooks County. The situation in Florida differs from that of last year in that the low point occurred during the last week in December for last winter and during the third week in February for the preceding winter. At the present time screwworms have a higher incidence and are more evenly distributed in Florida than they were at this time last year. In Texas the situation is somewhat encouraging in that shearing of goats advanced ahead of the spread of the pest so as to prevent a build-up from this source. Cases are present, however, where shearing of sheep is now getting under way and efforts are being made to prevent building up a large population of the pest in such injuries. As yet screwworms have not been found in localities west of Del Rio, Tex., or in any of the other Southwestern States. A few cases were found in the canyons of Uvalde County, but there is yet no evidence that they are present on the Edwards Plateau. At San Antonio one local infestation was apparently stamped out. Counties near the Rio Grande between Del Rio and Brownsville, Tex., show the greatest number of cases for the winter months, as well as for March. For all counties in southern Texas there were reported for December 1,121 cases; for January, 675 cases; for February, 298 cases; and from March 1 to 26, 1,560 cases. During the last week of March 469 cases were reported, as compared to 395 during the preceding week. Stockmen in Texas are screwworm conscious and are preventing a build-up of population of the pest in young animals born during this season.

Texas. E. F. Knipling (March 24): Ranchmen in Hidalgo County, in the southern tip of Texas, report increased activity of the screwworm fly during the last week of February. The most common infestations were in the navels of young calves. Only a few cases were reported during the period from January 1 to the end of February.

A. W. Lindquist (March 24): No infestations of animals were observed in the vicinity of Uvalde from January 16 to February 28. On March 1, two sheep and one calf were found to be infested.

W. L. Barrett (March 24): A survey of the abundance of C. americana along the lower Rio Grande indicates that the flies were more numerous along the Rio Grande from Laredo, in Webb County, to Rio Grande City, in Starr County, during the period from January 15 to February 15. Continuing this survey west to Presidio, from March 8 to 12, no flies or screwworm cases were found west of Del Rio, Val Verde County.

Arizona. C. C. Deonier (March 20): In a survey on March 20, four cases of screwworms were reported from the Arizona-Mexico line, 30 miles west of Nogales, near the central part of the State.

CATTLE GRUBS (Hypoderma spp.)

- Georgia. E. R. McGovran (March 24): An examination on February 5 of 10 cattle showed 6 carrying 75 grubs. Four animals did not show infestation.
- Iowa. R. W. Wells (March 24): An examination of several hundred head of dairy cattle in the vicinity of Des Moines on March 14, showed that none of these animals carried more than 6 or 7 grubs, and less than 10 percent of them were infested.
- Missouri. L. Haseman (March 24): Throughout central Missouri ox warbles generally are less abundant than they have been during past years, although some cows have been showing heavy infestation. Most of the warbles that have not been killed have left the cattle.
- Texas. E. W. Laake (March 24): An examination of 131 dairy cattle in the vicinity of Dallas on March 1-2, showed that 88 animals, or about 67 percent, were or had been infested with cattle grubs. Of the 275 larvae that had infested the 88 cattle, approximately 94 percent had already left the animals.

BUFFALO GNATS (Eusimulium spp.)

- Mississippi. G. H. Bradley (March 24): In northwestern Mississippi buffalo gnats were causing considerable annoyance prior to February 27. An examination of the Yalobusha River showed the presence of large numbers of young larvae, but very few grown larvae and no pupae were found. The onset of cold, rainy weather on February 26 apparently prevented annoyance in the Mississippi Delta during that week, but reports indicate that the pests had been abundant. Examinations of the rivers indicate that the gnats are still in the larval stage, as few pupae or pupal cases were seen on the vegetation and trash in the streams. The rapid fall of the rivers in this section since the flood probably caused the stranding of many larvae in quiet back waters. Reports indicate that little trouble from the gnats had been experienced in Coahoma and Leflore Counties. From March 11 to 14 the gnats were very bad in Tallahatchie County and work stock required repeated treatments with repellents to prevent severe annoyance. Unfavorable weather during the week of March 19 apparently prevented serious annoyance.

C. Lyle (March 24): Buffalo gnats have been reported at intervals during the past few weeks from several points on the Delta. An unconfirmed report of gnats in Neshoba County in central Mississippi has also been received. The outbreak thus far has not been severe.

- Arkansas. M. W. Muldrow (March 24): It was reported that buffalo gnats made their appearance in eastern Arkansas in January and small numbers were noticed from time to time throughout that month and February. On March 18 they appeared in such numbers as to be extremely troublesome to work stock in a large part of Monroe, Saint Francis, Lee, and Phillips Counties.

HOUSEHOLD AND STORED-PRODUCTS INSECTS

TERMITES (Reticulitermes spp.)

Pennsylvania. R. M. Baker (March 24): Termites continue to be among the most important insect pests in this State. Requests for information have been increasing.

Maryland. E. N. Cory (March): Termites were reported from Hagerstown, on March 6, and from Cambridge, on March 15.

North Carolina. Z. P. Metcalf (March): Termites are more abundant in North Carolina than they were last year.

Georgia. C. H. Alden (March 24): Several swarms of flying termites were noted during the past 2 weeks at Cornelia, in northeastern Georgia.

Kentucky. W. A. Price (March 26): Observed swarming at Lexington on February 28.

Illinois. W. P. Flint (March 23): Swarms have been reported from a few houses during the last month.

Oklahoma. F. A. Fenton (March 20): Termites reported swarming at Ripley, Payne County, in the north-central part of the State.

Texas. F. L. Thomas (March 26): Termites reported in Starr County, southern Texas.

ANTS (Formicidae)

Texas. S. W. Clark (March 15): Scattered infestations of Solenopsis geminata F. on young citrus trees in Hidalgo County, southern Texas.

F. L. Thomas (March 26): Cut ants have been reported as injurious in gardens and to trees and shrubs in Aransas and Travis Counties.

PAINTED HICKORY BORER (Cyllene caryae Gahan)

Ohio. J. N. Knull (March 20): Numerous complaints of adults in homes have come from various places in Ohio, where they were emerging from hickory firewood in basements.

CARPET BEETLE (Anthrenus scrophulariae L.)

Montana. H. B. Mills (March 25): Requests for information on the control of carpet beetles have been received.

LESSER GRAIN BORER (Rhizopertha dominica F.)

Kentucky. W. A. Price (March 26): Large numbers of the lesser grain borer were found in the screenings of wheat at a Lexington mill.

RICE WEEVIL (Sitophilus oryzae L.)

South Carolina. F. Sherman (March 29): One very heavy infestation of the rice weevil on stored corn was recently observed in Aiken County.

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