CALIFORNIA PLANT PEST and DISEASE REPORT

Vol. 4 Number 3
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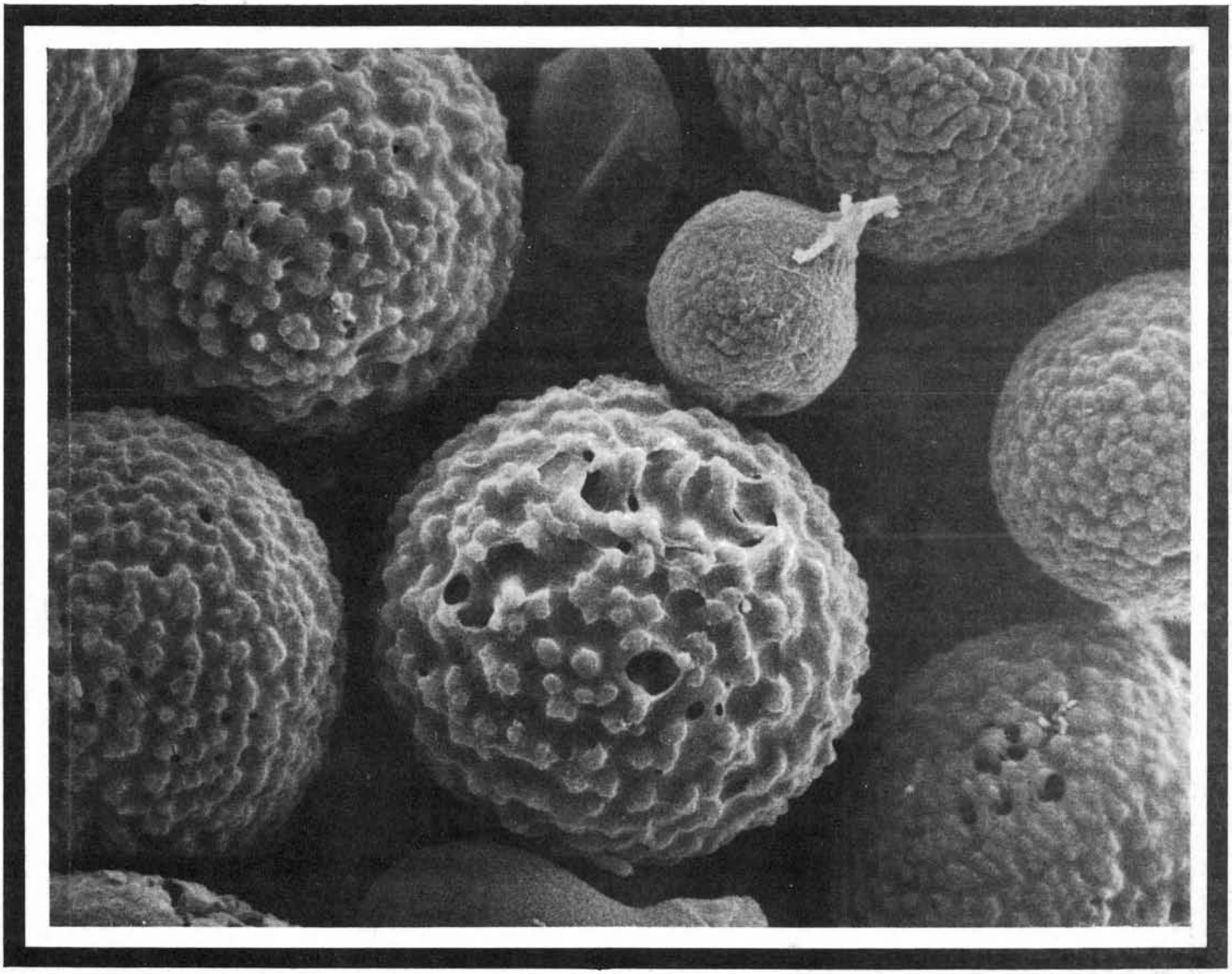

Smut teliospores of Karnal bunt of wheat, Tilletia indica, with smaller sterile companion cells. Scanning electron photomicrograph at 4000x. See article on page 66.

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KARNAL BUNT OF WHEAT PROJECT FOR 1985

By
Tom Matsumoto, George Buxton, Dave Showers,
Debbie Kapiioho and Conrad Krass

Karnal bunt of wheat is caused by the smut fungus, Tilletia indica (Neovossia indica). This disease is classified as an exotic pest. It has not been found in the United States.

Field and laboratory data on the biology of T. indica was gathered from Mexico and India and analyzed to determine the potential threat of karnal bunt to California's wheat industry. Several research projects were funded by California Department of Food and Agriculture's (CDFA's) Exotic Pest program on the identification, control and eradication of this disease. Conrad Krass and Tom Matsumoto visited and collected field data in diseased wheat fields near Ciudad Obregon, Mexico. It was determined, based on field observations, that secondary tillers in the lowest parts of the field exhibited the highest infection rates. Also, 1985 weather data for California showed that favorable environmental conditions for disease development did occur in many parts of the state.

A statewide detection survey was organized and directed by George Buxton with the assistance of Dale Woods. The United States Department of Agriculture (USDA) personnel, under the leadership of R. Nave and Ted Boratynski, surveyed Imperial Valley wheat fields near the Mexico/California border, fields adjacent to the railroad tracks, and in the Mexicali and San Luis Valley in Mexico. An extensive survey of wheat growing areas in Imperial County was under the direction of S. Birdsall, Deputy Commissioner, and 350 wheat samples were collected. Analysis and Identification personnel who participated in this project included Tim Tidwell, Dave Showers, Kathy Kosta, Dan Opgenorth, Debbie Kapiioho, Allen Noguchi, Mary Sorrell, Tony Wesley, Adolf Braun, Lisa Wagner and Tad Bell. Agricultural Commissioner's staff biologists from counties where wheat is grown are collecting field samples for this special survey.

Field symptoms are very difficult to see unless infected kernels are crushed to expose the black sooty mass of dark spores or teliospores (Fig. 1A). The infected areas of wheat seed always appear as black, darkened areas on the embryo end of kernels (Fig. 1B), sometimes extending along the suture.

Karnal bunt is also commonly known as partial bunt because only a portion of the kernel is replaced by smut spores.

Teliospores are globose to subglobose in shape and are surrounded by a thick (2-4u) covering or sheath (Fig. 1C). There is a wide variation in teliospore size (28-45u) and exospore characters on spore wall surfaces (Fig. 1D). Sterile cells (sc) have smooth spore walls and are smaller in size (15 to 28u) than teliospores.

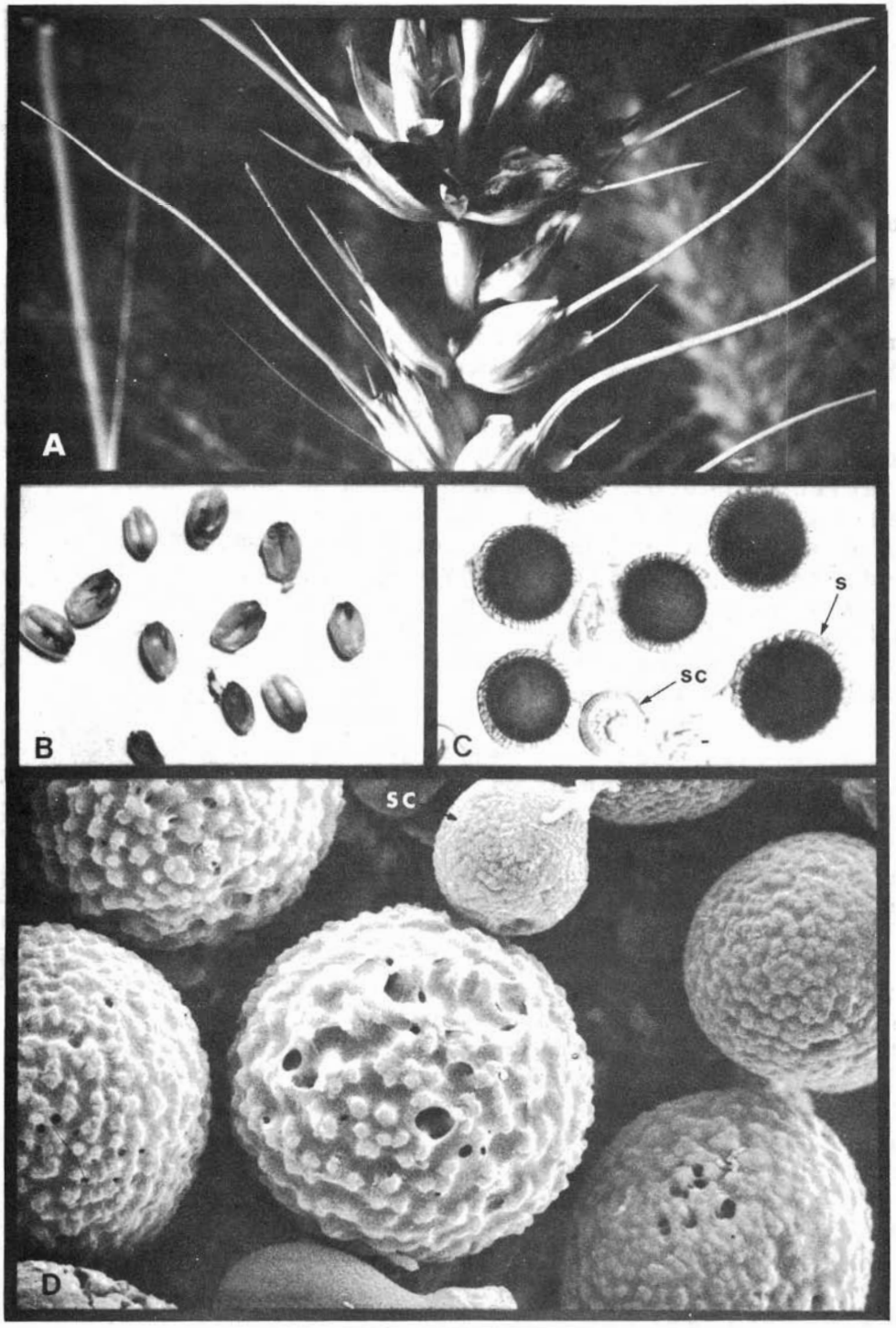


Fig. 1 (A). Symptoms of Karnal bunt, Tilletia indica, exhibiting black sooty spore masses in infected wheat heads.

(B). Wheat kernels with discoloration at the embryo end due to T. indica teliospores.

(C). Micrograph of T. indica teliospores (400X) with hyaline sheaths (s) and companion sterile cells (sc).

(D). Teliospores and sterile cells (sc) of T. indica showing exospore wall characteristics as seen with the scanning electron microscope (2200X).

ELISA TEST FOR PIERCE'S DISEASE

Dan C. Opgenorth

Pierce's Disease has been a problem for California grape growers since the late 1800's when it was found near Pomona. Shortly after its initial discovery, this disease also appeared in Napa County, Livermore, Sacramento Valley, Santa Clara Valley, and by 1921, in the San Joaquin Valley. The disease is now known to occur in Costa Rica, Mexico, California and the Southeastern United States where it is believed to have originated.

For many years the causal agent of Pierce's Disease was believed to be an unknown virus. However, in 1974 workers at University of California, Davis (UCD) were able to culture a gram-positive rod-shaped non-motile bacteria from leafhoppers suspected of vectoring the disease. The bacteria was then inoculated into healthy vines using leafhoppers and symptoms typical of Pierce's Disease developed. In addition, ultra-thin sections of diseased vines were shown to have bacteria associated with the xylem elements when examined with the electron microscope.

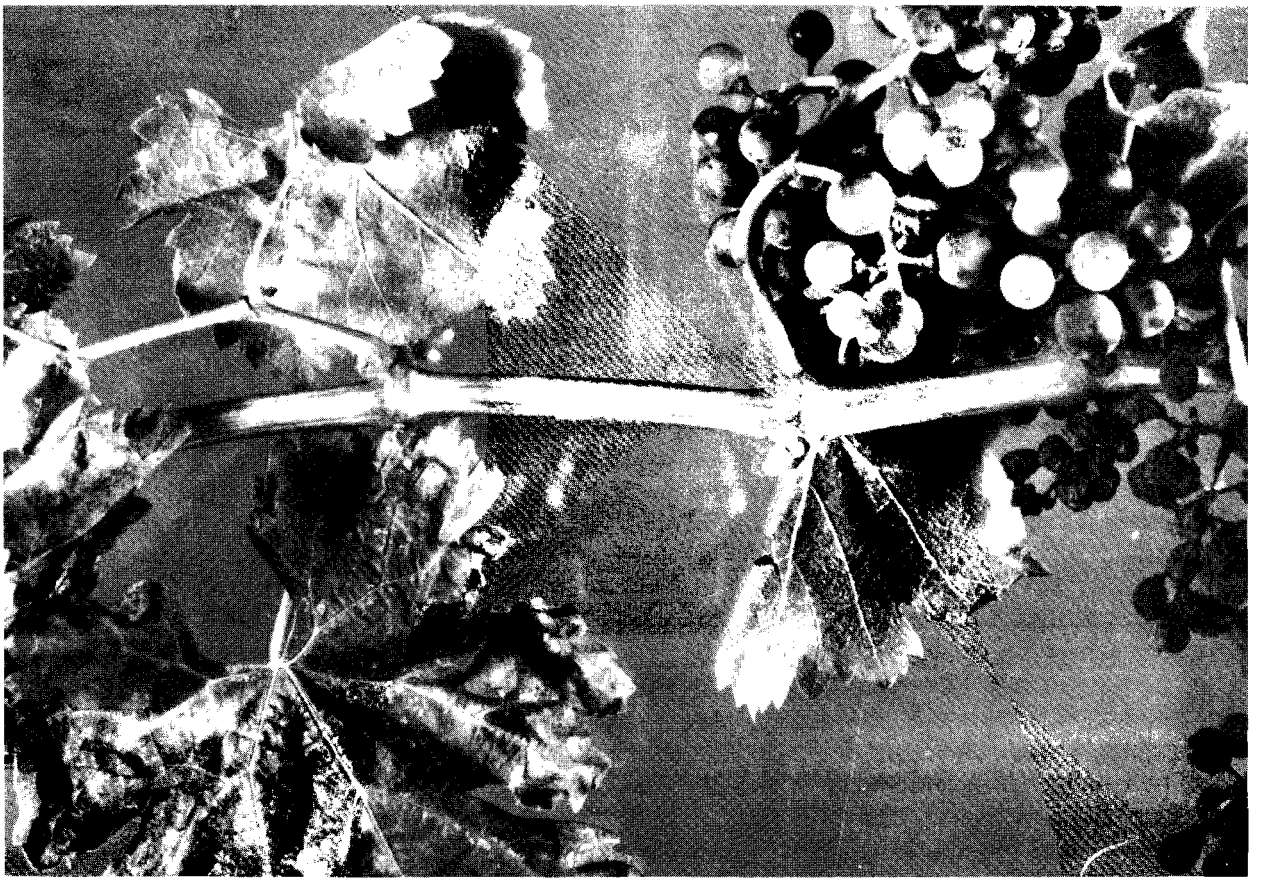
Since it was difficult to culture, the bacteria responsible for Pierce's Disease, a more reliable test was needed for disease detection. An antiserum to the Pierce's Disease bacteria was made and used in an ELISA (Enzyme Linked Immuno Sorbant Assay) test. This test can be performed in several days and is very accurate in confirming the presence of the pathogen due to the specificity of the antiserum. ELISA testing allowed additional work to be done concerning alternate hosts, alternate vectors and spatial distribution of the disease.

At this time, Pierce's Disease is still not easily diagnosed in the field. While symptoms are characteristic, it can still be confused with other diseases or physiological and environmental maladies. Thus, we have a definite need for a confirmatory ELISA test for Pierce's Disease even though symptoms may be present. Such a testing service is now being provided by California Department of Food and Agriculture (CDFA) through the cooperation of Professor Austin Goheen and Dr. Andy Walker at UCD. The test will be preformed once a week at the laboratory in Sacramento on symptomatic leaf materials, through the month of October.

Good samples can be obtained by looking for the following symptoms as illustrated in the figure. The most noticeable symtom is leaf burn and scalding. Leaf tissue initially becomes mottled about the margins and later between large veins. Leaves then turn yellow, dry and become brown or red depending on the variety. Often, the leaf blade will fall, leaving the petiole attached to the cane. Fruit may fail to set or when it does it will be small, color prematurely and then soften and dry up. Shoots may die back through mid-summer and in fall usually show an uneven maturity. Green areas of canes will become black after the first frosts with sunken and cracked lesions.

Samples should contain symptomatic leaves, canes and berries if possible. All materials can be cut to a reasonable length to fit in a large plastic bag and labeled as to the variety, vineyard and collector. Samples should be sent through your County Agricultural Commissioners Office, in Sonoma County contact Mr. John Westaby and in Napa County contact Mr. David Witmer.

I am hopeful that this service will be helpful to growers and viticultaralists. If cooperators can be identified we would like to monitor diseased vines through the year with the goal of improving the technique and eventually providing early season detection of Pierce's Disease.



Vitis sp. exhibiting typical symptoms of Pierce's diseases. Note leaf burn and scalding about leaf margins and "raisined" fruits.

SOUTHERN BLIGHT OF TURFGRASS

Jeanenne B. White and Tom M. Unruh

Southern blight disease, caused by the fungus, Sclerotium rolfsii, was first reported on cultivated turfgrass in 1977, in southern California. During the past five years this highly destructive disease has occurred with increasing frequency throughout both the southern and northern California counties. Major problems with this disease have recently occurred on golf course greens and fairways, park recreational turfs, and commercial and home landscape areas in Sacramento and Yolo counties.

Sclerotium rolfsii is a severe pathogen of cool-season turfgrasses including Agrostis, Festuca, Lolium, Poa, and broadleaf "turfs" including Dichondra and Cotula spp. The same species of the fungus that infects turfgrass will also infect numerous common ornamental plants including tulip, begonia, lily, ice plant, aster, carnation and cymbidium orchid. The extensive host range of this fungus encompasses at least 189 monocot plant and 42 dicot plant species. To date, comparison studies of variances in biotypes (strains) affecting cultivated turf to those affecting other host plants have not been systematically investigated.

Initial symptoms of southern blight disease on turf appear in early spring as chlorotic, circular to crescent-shaped areas enlarging up to 20 cm in diameter (Fig. 1). As warm summer weather develops, the disease continues to progress in a ring pattern as the dying turf eventually turns a reddish-brown color. White mycelium (thread-like fungal cells) form on the dying grass and produce the white or light to dark brown, round, overwintering structures called sclerotia (Fig. 2). The sclerotia mature rapidly and germinate in the thatch near the soil line (Fig. 3). Sclerotia are composed of tightly compacted fungal cells called hyphae which are surrounded by a hardened, pigmented rind area (Fig. 4). These tough, durable, overwintering structures will survive for years in the soil and are capable of reinfecting turfgrass year after year. Sclerotia may occur in the soil at depths of up to 15 cm where they may survive the cold winter months. Warm periods with high moisture following dry conditions are ideal for sclerotial germination. Sclerotia will form most abundantly in the light, and when the soil is warm to hot ($30^{\circ}C^{+}$), acidic (Ph 4.0), and well aerated. The pathogen is most active under warm ($25\text{-}35^{\circ}C$), wet conditions where an abundance of organic matter exists. Being a facultative

parasite, the fungus is capable of existing as a saprophyte in turf thatch when cool weather and less than optimal growing conditions exist. Once the fungus germinates in the thatch or soil, it will disseminate rapidly and indiscriminately to the plant canopy. Stem areas of turf plants are the primary infection sites, although root infections have been known to occur in locations with very dry soil. Infected plants lose the ability to translocate nutrients and water.

Complete eradication of southern blight disease is virtually impossible. However, there are several cultural control measures that may be used to reduce fungal populations to the point of minimal damage to turf areas: reduction of thatch layers, aerification, application of lime to raise the soil Ph above 8.0, regular use of fertilizer to keep turf vigorous, and use of equipment that has been de-contaminated of all sclerotia. Regular use of chemicals to reduce the population of Sclerotia rolfsii is still in the experimental stage. Successful control in several northern California golf greens has been executed with fungicides that were screened for their ability to inhibit eruptive and hyphal germination of sclerotia. Actidione, PCNB, and Captan are among the fungicides that were used to inhibit germination. For a detailed discussion of chemical control see the article: Chemical Control of Sclerotium rolfsii on Golf Greens in Northern California by Z.K. Punja, R.G. Grogan and T. Unruh, in Plant Disease, Volume 66, No 2, 1982.[1]

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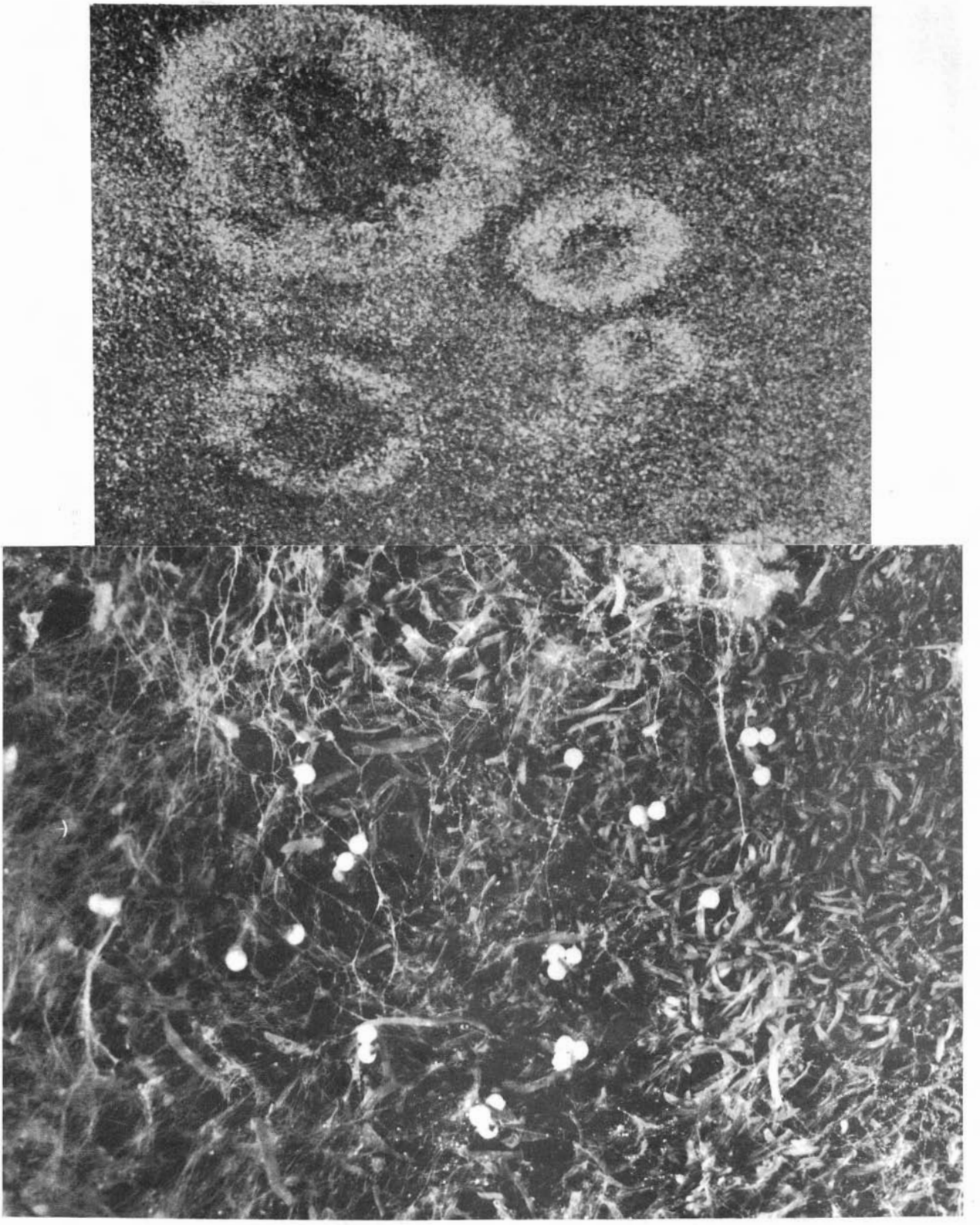
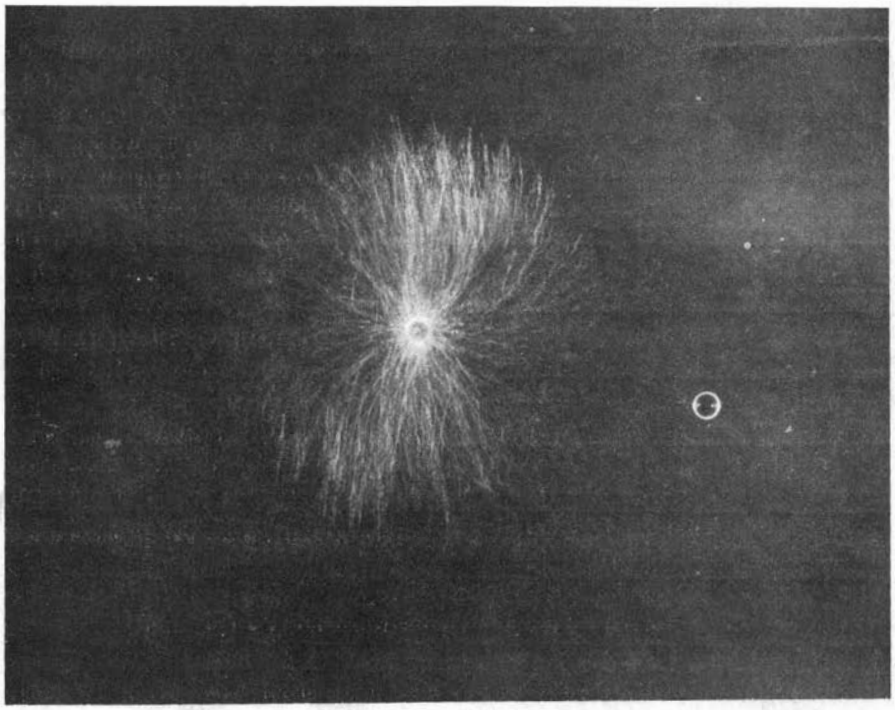


Fig. 1. Typical severe symptoms of southern blight disease on bentgrass.

Fig. 2. Thread-like fungal cells (mycelium) producing the immature (white) sclerotia of Sclerotium rolfsii on dying bentgrass.



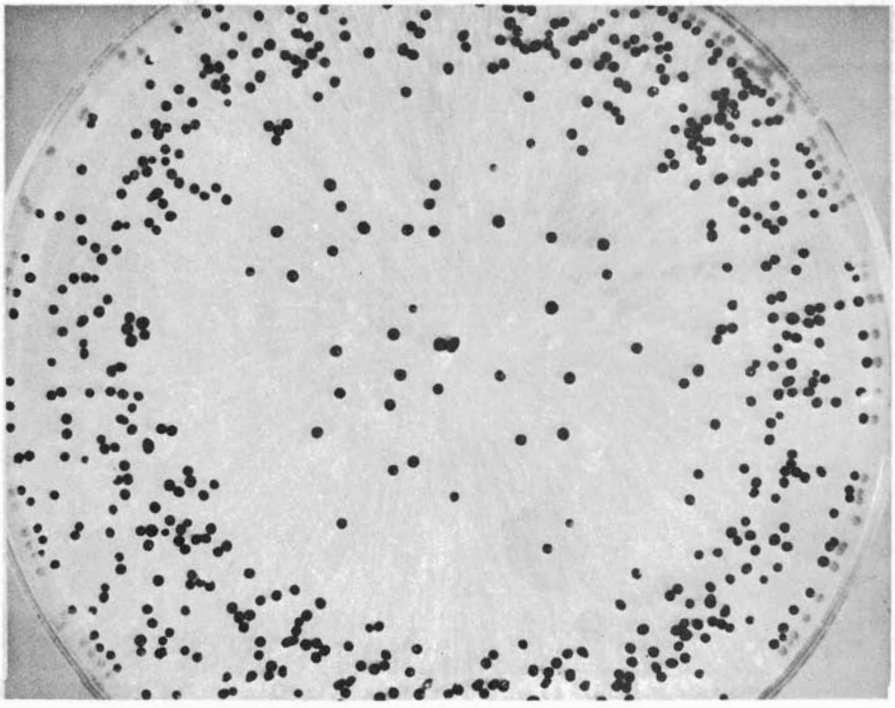


Fig. 3. Sclerotial germination in the laboratory on a culture medium.

Fig. 4. Typical dark brown mature sclerotia of Sclerotium rolfsii growing on potato dextrose agar.

BOTRYTIS RHIZOME ROT OF IRIS

T.E. Tidwell

Botrytis rhizome rot is a serious disease of rhizomatous irises in which the rhizomes are partially or entirely destroyed. First reported in Canada in 1928, the disease occurs in the USA and Canada, and has been intercepted in shipments of iris rhizomes from France, Germany, Holland, and Great Britain.

The causal organism is Botryotinia convoluta (Drayton) Whetzel. It is a sclerotial forming fungus which also has a functional spore stage of Botrytis, hence the various names for the disease--"Botrytis crown rot", "gray mold rot", and "Botrytis rhizome rot".

The disease first manifests itself in spring by plants which either fail to grow at all, or which send up only a few weak shoots which become chlorotic and die by summer. In addition, such plants can be pulled up easily because the roots and/or rhizomes have rotted. Diseased rhizomes are shriveled and wrinkled from a dry, odorless rot (rather than a soft wet rot characteristic of bacteria and certain fungi) resulting in a grayish brown discoloration and a somewhat "pithy" texture. There is usually a distinct line of demarcation between healthy and diseased tissue.

In spring the surface of the diseased tissue may be covered with the gray , fuzzy appearing Botrytis spore stage. In addition, at this time, agglomerations of convoluted black sclerotia which are diagnostic for the fungus can be found on rotted parts of roots and rhizomes (Fig. 1A). It should be noted that the fungus Botrytis cinerea, which causes a blossom blight on both rhizomatous and bulbous irises is not to be confused with the "Botrytis spore stage" of Botryotinia. Botrytis cinerea forms much smaller (ca. 4 mm long), simpler, smooth sclerotia, as opposed to the much larger (several cm long), convoluted, sclerotial mass which is characteristic of Botryotinia (Fig. 1B).

The fungus is active during cool, wet weather. Infection takes place only via wounds and openings, and grows quite rapidly in the temperature range of 12 to 18 C (ca. 53 to 65 F). At higher temperatures, the growth and spread of the fungus is greatly restricted. The mycelium and conidiophores of the Botrytis stage develop on exposed portions of rhizomes, bases of leaf sheaths of the previous year's growth, and on sclerotia. The numerous conidiophores bear clusters of grayish-brown air-borne spores.

Unfortunately, this fungus may be carried on rhizome divisions which appear normal and healthy at planting time. Thus, it is possible to unknowingly "plant" the fungus with the iris

rhizome in the soil. Once the fungus has been introduced into the soil, it can persist there from season to season because of the hard, durable sclerotia.

The best control for the disease is prevention. Thus, some of the more obvious precautions to take include using only planting stock which has been carefully inspected; avoiding the planting of obviously infected rhizomes; the removal of plants which show the Botrytis spore stage, and certainly those on which sclerotia can be seen; not planting on sites where the disease has occurred; and the digging up of weak plants together with the soil immediately surrounding the roots and rhizomes--destroy the plants and discard the soil which may contain sclerotia of the fungus.

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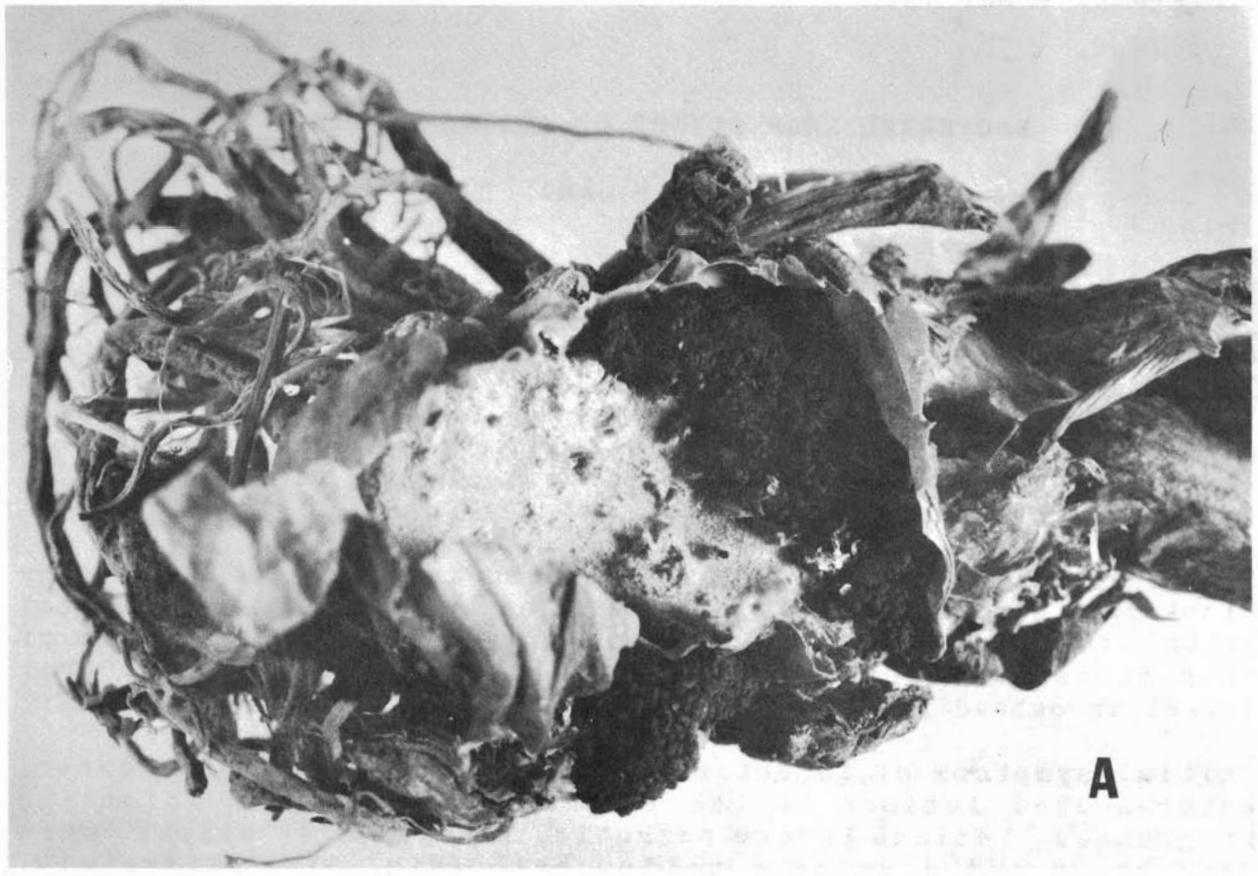


Fig. 1A. Iris rhizome partially covered with sclerotia of the fungus Botryotinia convoluta.

Fig. 1B. Close-up of convoluted sclerotia of Botryotinia convoluta.

BACTERIAL LEAF BLIGHT OF ARROWHEAD PLANT

Carl M. Lai

Recently an uncommon bacterial leaf blight disease of arrowhead plant, Nephthytis (syn. Syngonium sp)., was discovered in Sacramento county. This disease caused by the bacterium, Xanthomonas campestris p.v. vitians, first reported in Florida in 1970, had not been previously reported in California. The host plant material was traced to a Sacramento city commercial vendor. Investigations are being conducted to ascertain the existence of any other infected plants.

Xanthomonas campestris p.v. vitians also infects lettuce causing black spot disease and is reported to occur commonly on this host in California. However, it is not known whether the strains of this bacterium infecting lettuce are the same isolates that infect arrowhead plants. Further studies have to be conducted.

Initial symptoms of infection are firm, irregular, dark green, water-soaked lesions on the leaf margins. As the infection progresses, lesions become necrotic, irregular in shape, turn dark brown and develop a yellow halo (Fig. 1). Ultimately, lesions become brittle and torn causing unsightly leaf damage. These symptoms are generally indistinguishable from the common leaf blight disease of Nephthytis in California caused by Erwinia chrysanthemi. Laboratory isolation, culture and identification of the causal leaf blight organism is necessary for accurate identification of the problem.

Isolation of Xanthomonas campestris p.v. vitians from the tissue of infected leaves will consistantly yield yellow-colored colony growth on Yeast Dextrose Agar (YDC) and Nutrient Agar (NA) petri plates. Purified bacterial colonies are identified by various tests including the starch hydrolysis test, single-polar flagellum identification, oxidase test (negative), Gram test (negative) and pathogenicity tests.

Adequate control of leaf blight disease consists of removing and destroying all infected plant parts, reducing overhead irrigation and utilization of clean mother stock plant for propagation in the nurseries.

Carl M. Lai is an Associate Plant Pathologist for the Analysis and Identification Branch at CDFA.

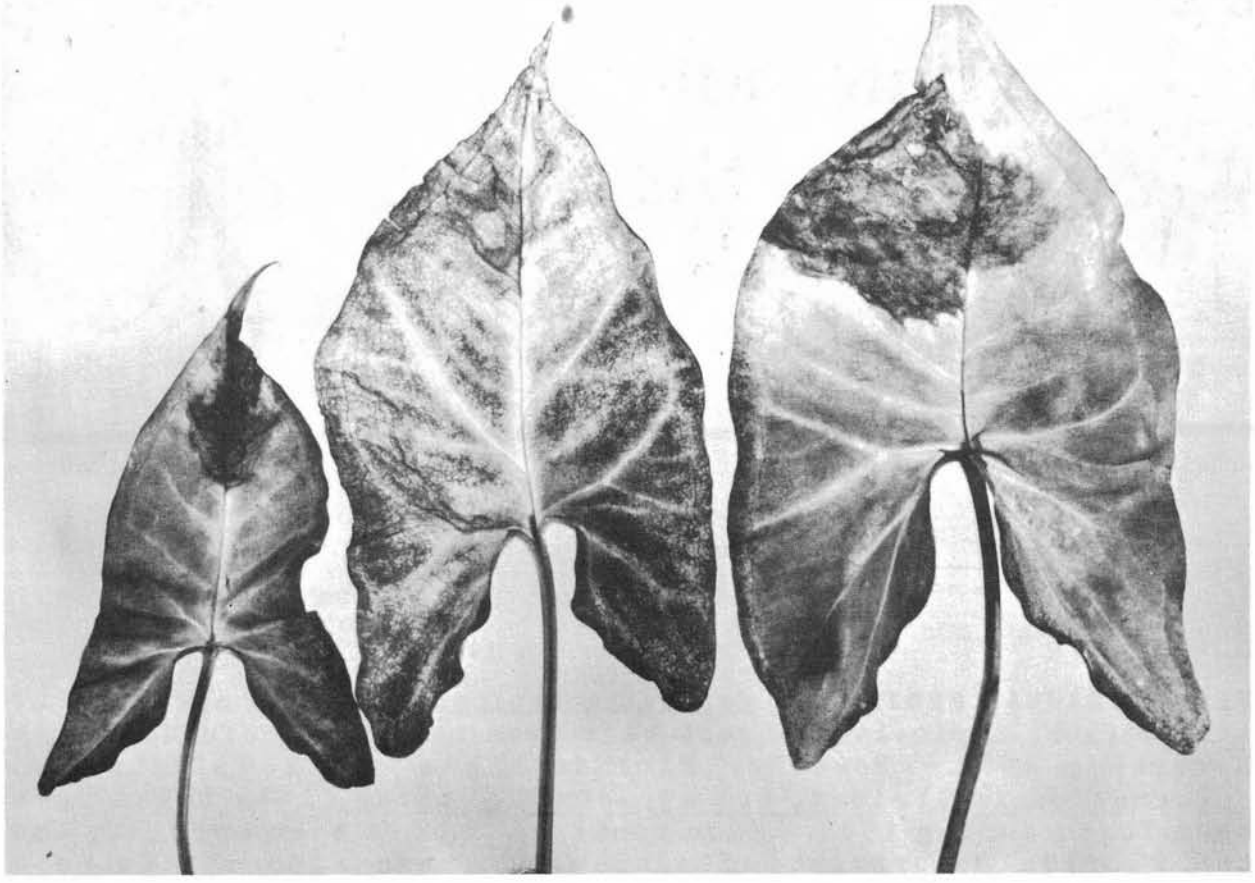
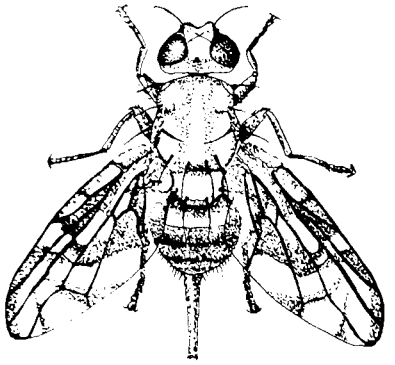
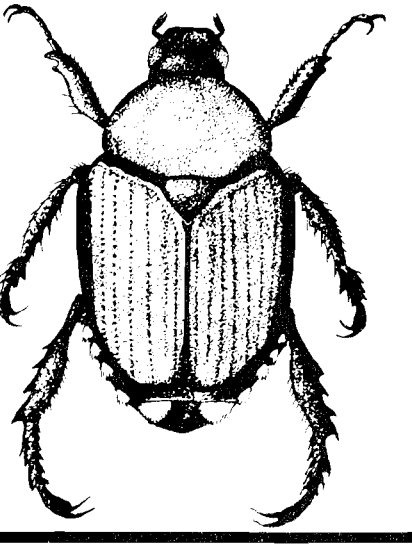


Fig. 1. Typical necrotic irregular-shaped lesions surrounded by yellow halos caused by the bacterium Xanthomonas campestris p.v. vitians on Nephthytis sp.



Entomology Highlights



MEDITERRANEAN FRUIT FLY, Ceratitus capitata -(A)- No new finds of this serious agricultural pest have been made in California since November, 1984. However, Florida has a small infestation. Information is limited, but apparently, three flies total have been found during 1985. Four treatments have been applied, and the Florida Department of Agriculture has also initiated a sterile release program.

Karen Corwin, Dipterist with our Analysis and Identification Branch, and her technician, Jill Somers, are in Florida training and assisting Florida personnel in identification of sterilized specimens.

JAPANESE BEETLE, Popillia japonica -(A)- It is a little early yet for new finds of this serious pest. However, we should know by next issue how effective the eradication program was in the Carmichael area of Sacramento. Presently, the treatment program is progressing on schedule.

NEW STATE RECORDS

The Eucalyptus Borer, A Pest New to California

R.L. Penrose

EUCALYPTUS BORER, Phoracantha semipunctata (Fab.) -Q- The occurrence of this longhorn beetle in Southern California constitutes a new state and North American record. The first specimens (larvae) were collected November 3, 1984, by Mike Bennett and Jim Wynn of the Agricultural Commissioner's staff from dying and dead Eucalyptus trees grown near El Toro, Orange County. These larvae were submitted to the insect biosystematics lab in Sacramento, recognized as representing an exotic species and forwarded to Dr. J.A. Chemsak, University of California, Berkeley for further study. Dr. Chemsak could not make a positive identification but indicated that the larvae were structurally very close to P. semipunctata, an Australian species, which has been introduced into many regions of the world where Eucalyptus is grown. At this point, it was decided that a recollection was necessary so that adults could be reared for species verification. In March 1985, detection entomologists Dick Penrose and Eugene Drake visited the infested groove and collected larvae, pupae and three dead unemerged adults. Confirmation was made on May 5 by Dr. Richard White, United States National Museum, on the basis of the adult specimens.

Adults of the Eucalyptus borer vary from 1/2" - 1 1/4" in length and have conspicuously spined antennae (segments 3-7) which are as long as the body in the female and up to 1 1/4 times body length in the male. Diagnostic features include the beetles dark reddish brown coloration with a light colored basal zigzag pattern and apical spot on each elytron. The wing covers are also very coarsely punctate on the basal half and smooth and more shining apically.

Although the larval stage cannot be positively identified in the field, the type of damage it causes is fairly characteristic. Since the larval stage attains a large size (up to 3/8" in width and 1 1/2" in length), its galleries are much broader, deeper and longer (up to several feet) than our two native Eucalyptus-infesting longhorns. The elliptical entrance hole into the pupal cell is also characteristic (smaller and round in Xylotrechus nauticus (Mann.) and Neoclytus conjunctus (LeC.).

This Australian cerambycid has become nearly cosmopolitan in distribution and is now established in New Zealand, Africa (South Africa, Zambia, Malawi, Mauritius, Algeria, Tunisia, Egypt), Asia (Turkey, Israel), Europe (Cyprus, Italy) and South America (Chile, Uruguay, Argentina). Isolated infestations (under eradication in the early 1980's-present status unknown) have also been reported from the Lisbon area of Portugal and the Huelva province of southwestern Spain (Anon., 1981). Surveys by CDFA

and County Agricultural Commissioners personnel have revealed the California infestation to be widespread in the south coastal region, particularly in the Orange County area. The currently known infested area extends from Long Beach, Los Angeles County south into northwestern San Diego County (San Onofre area) and eastward into western Riverside County (Corona).

Plants utilized for larval development are restricted to three genera in the family Myrtaceae. Australian hosts include species of Aophora, Syncarpia and Eucalyptus with the latter serving as the primary host worldwide. According to Charavas (1969) P. semipunctata shows no strict preference for any species of Eucalyptus. Felled trees of 41 species in this genus are listed as attacked by Drinkwater (1973). Live trees of the following 14 taxa are also known to be susceptible to beetle infestation: E. botryoides, E. camaldulensis, E. cinerea, E. cladocalyx, E. diversicolor, E. globulus, E. gomphocephala, E. macarthuri, E. maideni, E. occidentalis, E. paniculata, E. robusta, E. sideroxylon, and E. viminalis.

Adults are nocturnal, secreting themselves in crevices and under dry bark during the day. Oviposition generally begins shortly after dusk. Eggs are deposited in batches of 10-110 under the loose back of standing trees and on the undersides of logs. Infestation of felled trees is generally rapid during the summer with first egg laying occurring within 48 hours after cutting. Living trees which are under physiological stress due to drought or poor soil conditions may also be successfully attacked and killed. Young Eucalyptus trees, 5-12 years old, die during the first year. Older larger diameter trees are generally weakened by such attacks but frequently die when recolonized by subsequent generations. Larvae feed on the phloem, cambium and inner bark and, as they mature, their galleries expand around the circumference of the host tree. Living trees are killed when the bole is completely girdled. Healthy trees are usually resistant to attack as exuding gum is sufficient to kill the eggs and early larval instars.

Under subtropical conditions found in South Africa and the eastern Mediterranean, adults are active and oviposit when nighttime temperatures exceed 15-18°C. Eggs hatch within a two week period with larval development lasting from 3-6 months. Mature larvae remain in their pupal cells throughout the winter emerging at the beginning of the warm season. One or two overlapping generations are completed yearly, Loyttyniemi (1983) found in the humid tropical climate of Zambia that P. semipunctata adults fly and lay eggs throughout the year and on the average two, maximally three, overlapping generations are produced each year.

In Australia, a wide range of natural enemies apparently limit population growth. Unfortunately, few of these native parasites and predators have acccompanied Phoracantha to other regions of the world. Maintenance of tree vigor, good groove hygiene and prompt utilization of felled timber remain the most important control measures available.

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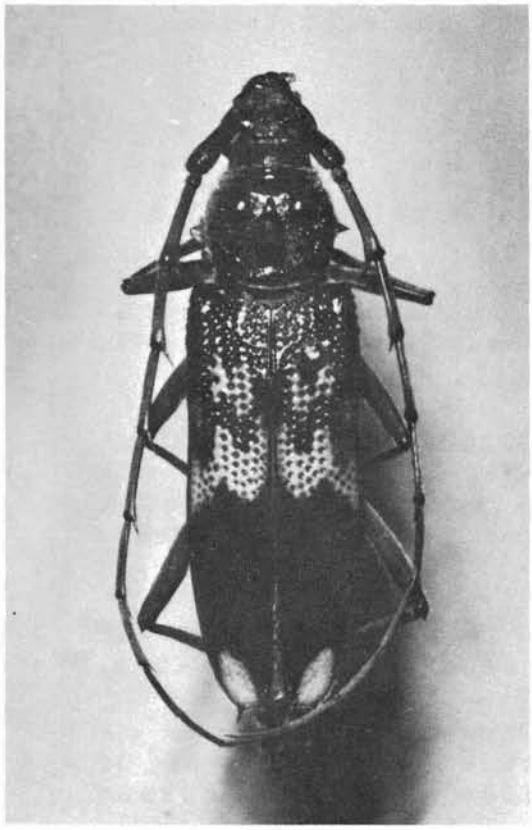
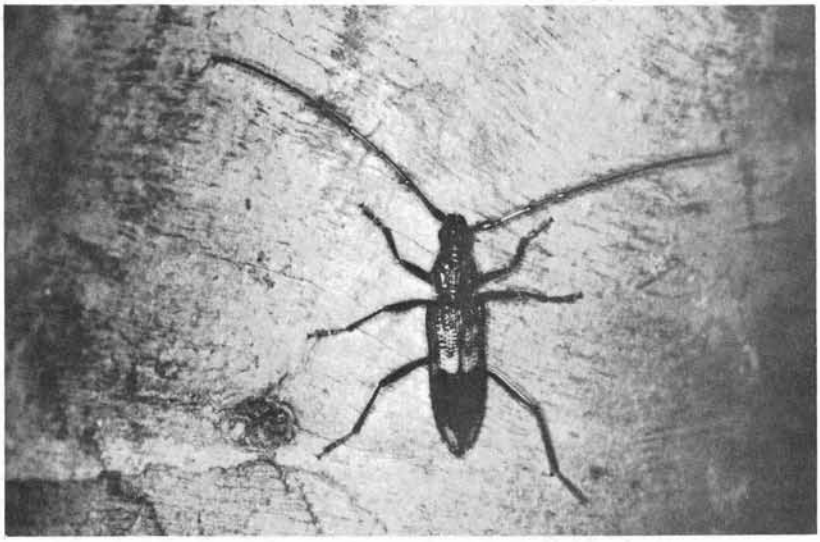
TRICHURA MEALYBUG, Cryptoripersiz trichura -(C)- ,This soil inhabiting species is apparently native to the Great Basin area on southward into New Mexico. The first California record for this species is also a Great Basin locality at Termo, Lassen County. The mealybug is probably native to this location. The collection was made by Tom Haig on March 18 from Berlesied Chrysothamnus duff. The species is not expected to be of agricultural significance.

Fig. 1, Phorancantha semipunctata, close up of adult. Fig. 2, Living adult assuming normal stance. Fig. 3, Larva. Fig. 4, Side view of pupa in pupal cell and dorsal view of an empty pupal cell.





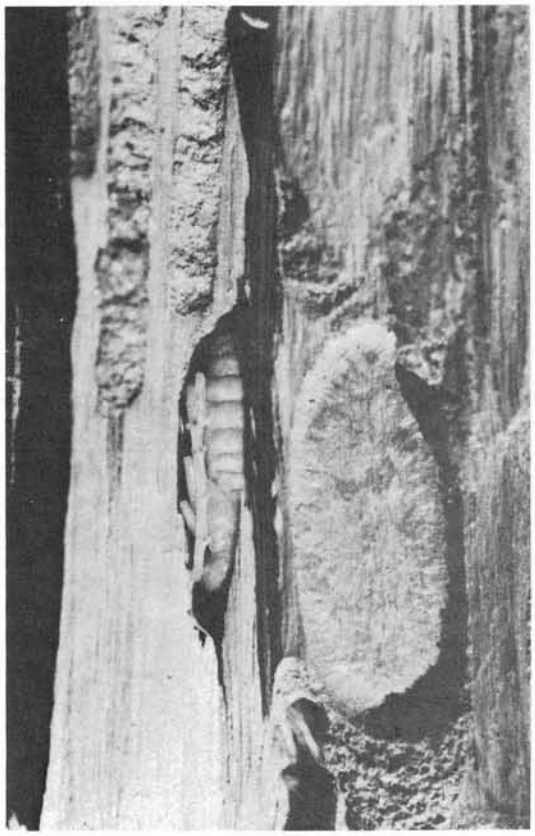
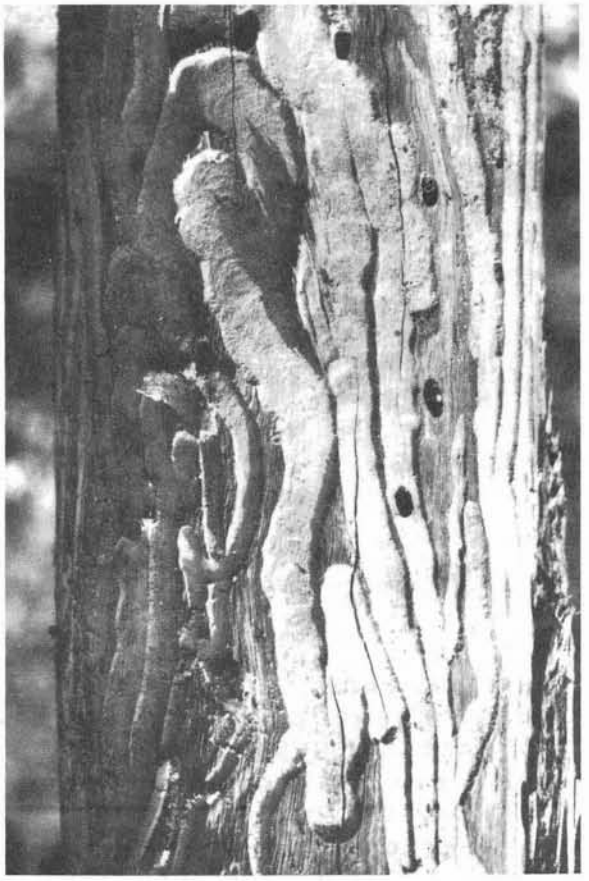
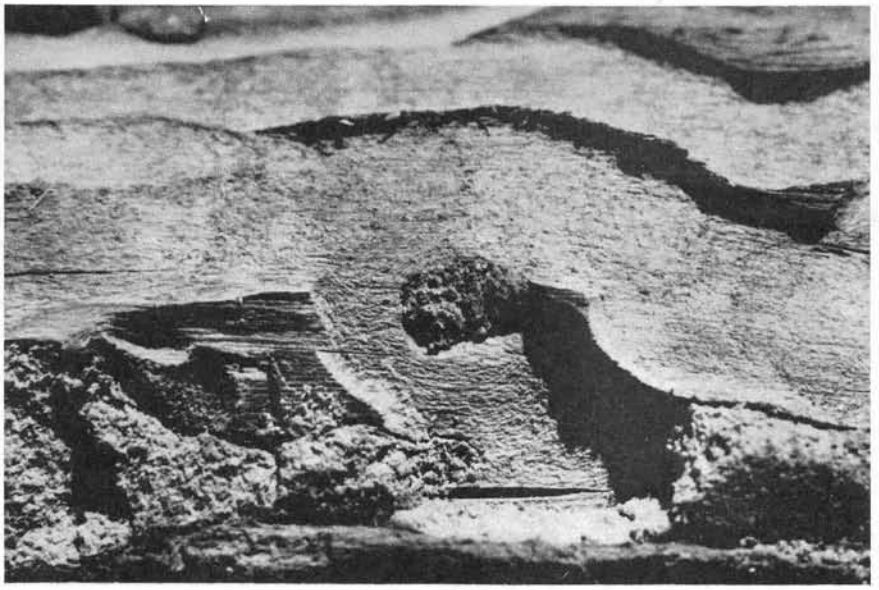


Fig. 5, Trunk of heavily infested eucalyptus tree. Fig. 6, Trunk of same tree with bark removed showing galleries of Phorancantha. Fig. 7, Close up of larval galleries of Phoracantha.





NEW COUNTY RECORDS

CLOUDYWINGED WHITEFLY, Dialeurodes citrifolii -(A)- Detection personnel have recently found this citrus pest in Orange County. First found in the State in February at Point Loma, San Diego County, (see CPPDR 4(2):53-55, March 1985), it is now known to exist in rather heavy populations at Point Loma, Mission Hills and around Balboa Park, with small satellite infestations in Claremont and Chula Vista.

The Orange County finds were at Brea on April 5 by Hill and Fernando, and at Fullerton on April 23 by Dave Byers.

A GRASS APHID, Metopolophium (Acyrthosiphum) festucae -(C)- Found for the first time in Sacramento, this aphid can be a pest of grasses. The following note by T. Kono outlines the new find and supplies pertinent data about its agricultural pest status in California.

Note on Metopolophium festucae (Theobald),
an aphid new to Sacramento County.

Barbara Pang, Student Assistant in Environmental Monitoring and Pest Management, made a first record for Sacramento County by collecting Metopolophium festucae (Theobald), a grass aphid of European origin. The aphid was collected along with six other species of aphids by sweeping grasses at the Department of Food and Agriculture headquarters on Meadowview Road, Sacramento, on April 22, 1985 (85D23-11-9).

The first California collection of M. festucae was made in Calabasas, Los Angeles County, on February 1, 1970, on Festuca elatior (meadow fescue). This was also the first record for the United States (70C18-18). Very few aphids were collected and no damage was noted.

The California county records of M. festucae to date are as follows:

Los Angeles County: Calabasas; Festuca elatior (meadow fescue); February 1, 1970; E.D. Williams (70C18-18).

Ventura County: Thousand Oaks; mixed grass lawn; March 31, 1970; D. Beuttner and E.L. Paddock (70D2-8).

San Mateo County: San Bruno; sweeping grasses; April 2, 1970; H. Struffenegger and T.R. Haig (70D2-79).

San Joaquin County: Stockton; Hordeum vulgare (barley); February 25, 1976; Brown, Greek, Mattes (76C1-42).

Sacramento County: Sacramento; grasses; April 22, 1985; Barbara Pang (85D23-11-9).

According to Fred V. Theobald in The Plant Lice or Aphididae of Great Britain, 1926, page 336, "This aphid was first found swarming on Festuca grass under an old Yew Tree in Wye Churchyard, by Mr. Langham and M. Hassan Efflatoun. The grass was killed by the swarming lice. They became alate in late May, and most disappeared. The apterae are very sluggish, but the nymphae readily fall off the narrow leaves. In 1923, I received it from several localities where it was attacking grasses in meadows and also cereal crops, and did much harm to the former, whole fields turning brown from the constant sucking of the swarms of insects. It was also common on wild wheat at Wye in the same year."

No damage has been reported in California. M. festucae has a C rating.

This aphid is about 2-3 mm long. The apterae are yellow. The alatae are basically yellow with dark brown head, antennae, and thorax. The abdomen is adorned with dark brown transverse bands on the dorsum and dark brown spots on the sides.

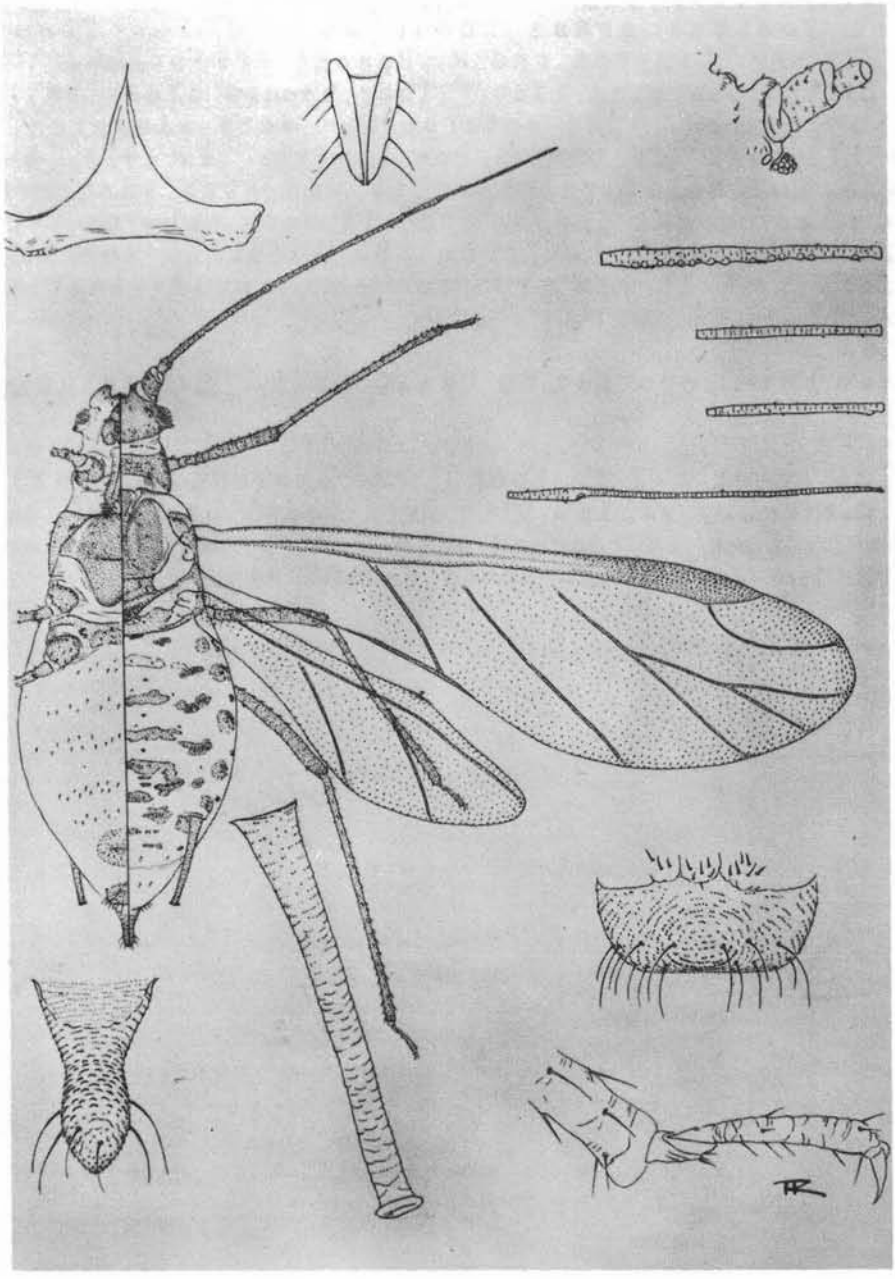


Fig. 8. Metopolophium festucae (Theobald) alata.

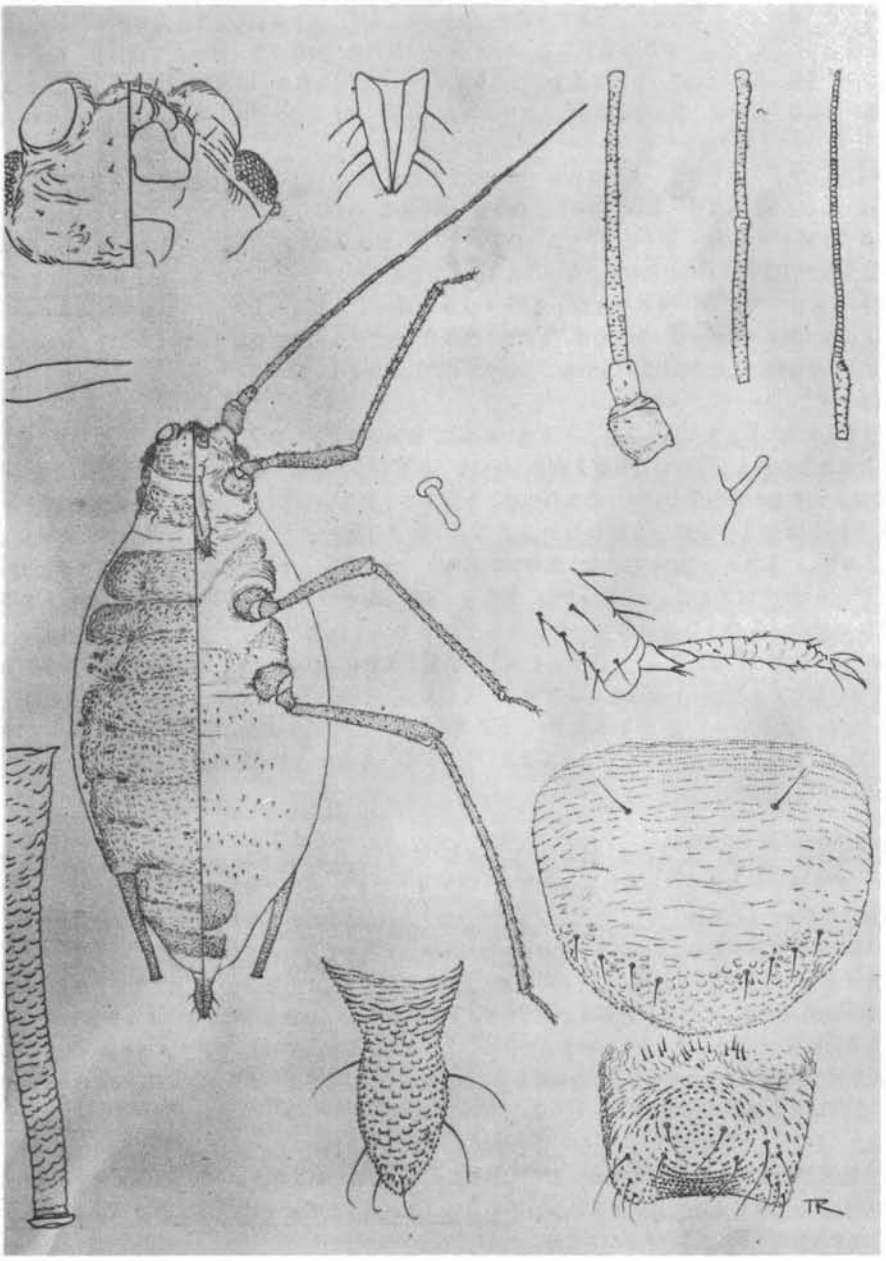


Fig. 9. Metopolophium festucae (Theobald) aptera.

OTHER INSECT PROBLEMS

VARIEGATED GRAPE LEAFHOPPER, Erythroneura variabilis -(C)- Also known as the desert grape leafhopper, this species has been a moderate and sometimes severe pest of grape vineyards in southern California. It is thought to be the most serious grape pest in that area. It is probably native to the deserts of southeastern California and the Sonoran areas of Arizona and Mexico.

The closely related grape leafhopper, Erythorneura elegantula, has been a moderate to serious pest of grapes throughout the San Joaquin Valley for many years. However, the grape leafhopper is not a problem in Southern California. It is also becoming less of a pest in the areas it does inhabit, because it can be successfully managed with the aid of the parasitic wasp Anagyrus, which developes in the leafhopper eggs.

For many years E.variabilis was known only from the State south of the Tehachapi Mountains but specimens were collected in the Fresno area in 1975. Since that time, populations have been building slowly. According to Norm Smith, Fresno County Entomologist, the population has now literally exploded in the greater Fresno area. Norm has indicated that populations were heavy enough to cause a severe, early defoliation of the vineyards last fall. Overwintering populations became active early this spring and moved into residential areas and began feeding on many plants that were in leaf at the time. Populations then moved back into the vineyards as the grapes began to leaf out.

The prognosis for this new pest in the San Joaquin vineyards is serious. The wasp parasite Anagyrus, which can effectively control populations of the grape leafhopper, are not effectively utilizing the variegated grape leafhopper eggs. It would appear that the new leafhopper is basically without natural controls in its new location. Growers in Fresno and the surrounding areas should monitor their vineyards closely and prepare to take action against this new pest in case populations should again develop to injurious levels.

For an excellent account of the economics, biology and controls for the variegated leafhopper, see the U.C. publication #4105 entitled "Grape Pest Management".

BORDER STATIONS

No wonder so many pests are being found in California these days. So many people come to our fine State. Fortunately, the border inspection personnel are finding all or most of the potential pests that are arriving with the highway traffic. Take for instance, the daily interception records set at the Mt. Shasta Station on April 6 and 7. The following report is by Dick Brown.

> Interception Records Set - An outstanding performance by the Mt. Shasta crew for this past week resulted in 378 interceptions on Friday, only to be stopped by Saturday's "eye-opening" 505 interceptions for the day. These very impressive figures brought the weekly total interceptions to 1,324. A very deserved WELL-DONE to Dave Lawfer and his crew for setting a record that is very apt to stand for years.
>
> Commercial rejections involved Hood River apples on five occasions: Larry Catton/Norm Rosenbalm got one box; Gerry Conn got 3 boxes (these both left for disposal); Scott Koller got 392 boxes; Helen Loving got 2 boxes; and Mike Garrison got 810 boxes (these three shipments were cleared by Oregon officials with paperwork to be mailed). Meanwhile, Lisa Gillete rejected oak firewood; and Leah Baker/Ernie Tracy got pine trees (these two shipments were also cleared by Oregon officials).
>
> All and all...a very busy week...under "the shadow of the Volcano"!!!

People, in fact, are coming here from all over the World. Often times, our Border Station personnel must deal with them. A good example is the following report about the Meyers Station.

> Multilinguility Preferred - The World Cup competition at Heavenly Valley Ski Resort brought both participants and spectators from all over the world. Most flew in to South Lake Tahoe Airport, but in between events many toured the local area or took side trips to "Bagdad on the Bay." The Meyers crew had their hands full dealing with the "invaders"...many of whom did not understand English. Dealing with them illustrates just another example of the many unusual talents and abilities that our inspectors must have.

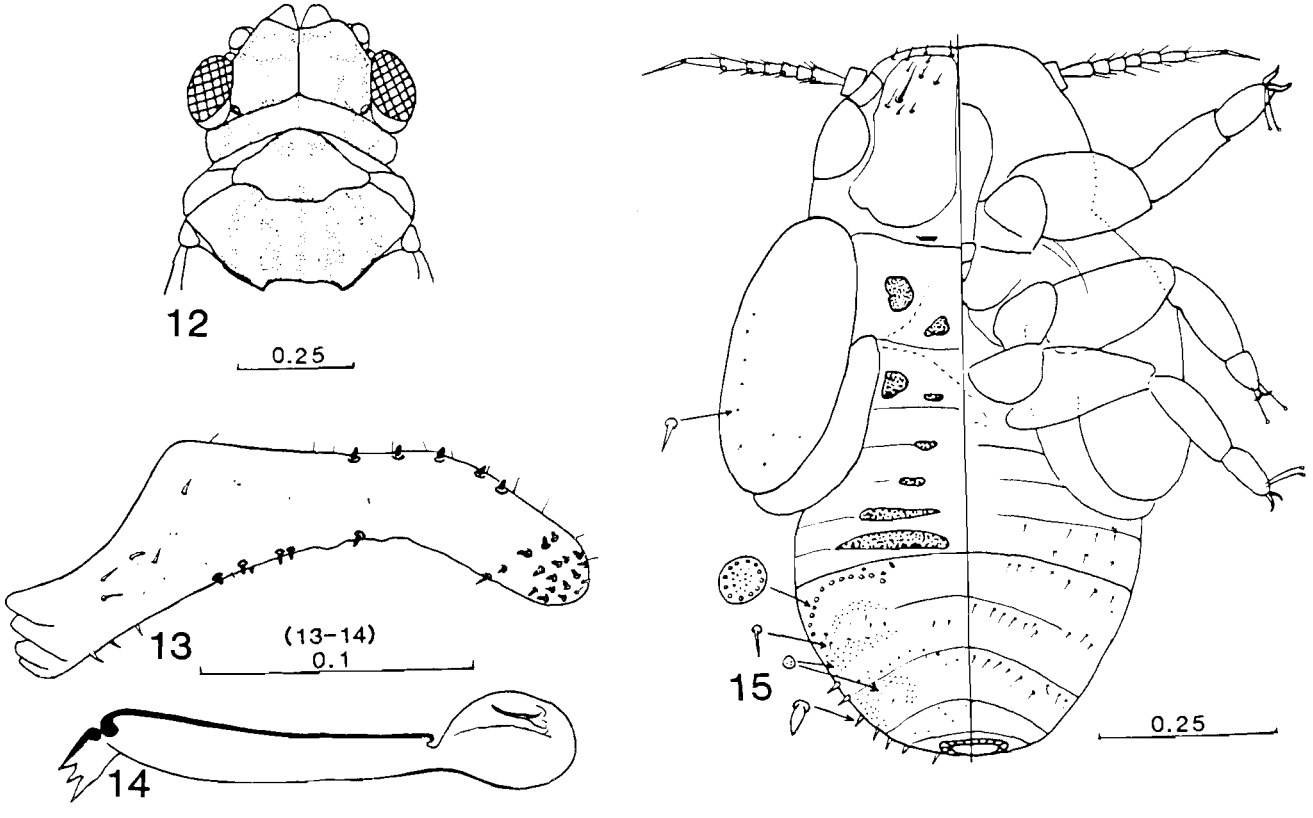
UNKNOWN PSYLLID GETS A NAME

A eucalyptus psyllid, collected for the first time in North America at Sylmar, Los Angeles County on April 8, 1983 by Karen Cornett [CPPDR 2(3):77 and 2(4):110-111] has been until now an undescribed species in an undescribed genus.

A paper by Keith Taylor with the Division of Entomology, CSIRO, Tasmania contains a generic and species description. The eucalyptus psyllid is now known as Blastopsylla occidentalis.

Blastopsylla occidentalis is one of nine species described in this genus, the other eight are also described as new in this same paper, along with a taxonomic key to the species. The paper appeared in the Journal of Australian Entomological Society 24:17-30.

The following illustration of our new species were taken from Taylor's paper:



Figs. Blastopsylla occidentalis: (12) head and thorax; (13) Paramere; (14) aedeagus; (15) final instar nymph.

Things are often not what they may seem. Kudos are in order for Sandra Ratliff of the Blythe Station for finding pests in cars from states that are not supposed to be infested.

Sandra found a --

Gypsy Moth - *Lymantria dispar* egg mass in the wheel of a "Big Wheel" tied to a trunk lid of an auto from Texas. The people had moved to Texas from New Jersey several months ago and were on their way to visit friends in the San Fernando Valley. Great interception!

BORDER STATION INTERCEPTIONS
(through April 30, 1985)

AN ANT	(*Paratrechina fulva*)	-Q-	1
GYPSY MOTH	(*Lymantria dispar*)	-A-	46
HICKORY SCHUCKWORM	(*Cydia caryana*)	-A-	24
PECAN WEEVIL	(*Curculio caryae*)	-A-	22
PURPLE SCALE	(*Lepidosaphes beckii*)	-B-	13
ORIENTAL SCALE	(*Aonidiella orientalis*)	-Q-	4
EASTERN TENT CATERPILLAR	(*Malacosoma americanum*)	-Q-	10
WHITE-MARKED TUSSOCK MOTH	(*Orgyia leucostigma*)	-Q-	7
A MEALYBUG	(*Dysmicoccus boninsis*)	-Q-	1
PARA GRASS SCALE	(*Odonaspis saccharicaulis*)	-Q-	1
PINK SUGAR CANE MEALYBUG	(*Saccharicoccus sacchari*)	-Q-	1
PUSTULE SCALE	(*Asterolecanium pustulans*)	-Q-	1
PINE SCALE	(*Chionaspis heterophyllae*)	-Q-	1
CALIFORNIA RED SCALE	(*Aonidiella aurantii*)	-B-	5
SUNFLOWER BEETLE	(*Zygogramma exclamationis*)	-A-	1
IMPORTED FIRE ANT	(*Solenopsis germinata*)	-A-	2
AN ANT	(*Tetramorium guineense*)	-C-	2
CHAFF SCALE	(*Parlatoria pergandii*)	-B-	8
GLOVER'S SCALE	(*Lepidosaphes gloverii*)	-B-	2
MINING SCALE	(*Howardia biclavis*)	-A-	1
A TREEHOPPER	(*Ophiderma pubescens*)	-Q-	1
LESSER SNOW SCALE	(*Pinnaspis strachani*)	-A-	1
BLACK THREAD SCALE	(*Ischnaspis longirostris*)	-A-	1
SWEET POTATO LEAF BEETLE	(*Typophorus nigritus*)	-A-	1
HOLLY LEAFMINER	(*Phytomyza ilicis*)	-B-	1
A SNAIL	(*Bradybaena similaris*)	-B-	2
BOLL WEEVIL	(*Anthonomus grandis*)	-A-	1
APPLE MAGGOT LARVAE	(*Rhagoletis pomonella*)	-A-	1
JAPANESE BEETLE	(*Popillia japonica*)	-A-	1
PUSS CATERPILLAR	(*Meglapyge opercularis*)	-Q-	1
COLORADO POTATO BEETLE	(*Leptinotarsa decemlineata*)	-A-	1
PALM WHITE FLY	(*Aleurotulus* sp.)	-Q-	2
TENT CATERPILLAR	(*Malacosoma* sp.)	-Q-	16
	(*Dysmicoccus* sp. near *texensis*)	-Q-	1
	(*Acrobasis* sp.)	-Q-	1
	(*Eupithecia* sp.)	-Q-	1
MARGARODID SCALE	(*Icerya* sp.)	-Q-	1
A WHITEFLY	(*Aleurothrixus* sp.)	-Q-	1
A WHITEFLY	(*Aleurothrixus* sp.)	-Q-	1
AN ANT	(*Partrechina* sp.)	-Q-	2
ARMORED SCALE	(*Parlatoria* sp.)	-Q-	1
RIBBON-COCOON MAKER	(*Bucculatrix* sp.)	-Q-	1
BARK BEETLE	(*Xyloborini* sp.)	-Q-	1
A BAGWORM	(*Solenobia* sp.)	-Q-	1
	(*Orgyia* sp.)	-Q-	1
	(*Gracillaria* sp.)	-Q-	1
COCOON	(*Malacosoma* sp.)	-Q-	1

	(Pieridae)	-Q-	1
	(Gaeometridae)	-Q-	4
A BAGWORM	(Psychidae)	-Q-	3
A WOOLLY BEAR	(Arctiidae)	-Q-	12
WOOLLY BEAR EGGS	(ARctiidae)	-Q-	1
	(Arctiidae)	-Q-	5
	(Pyralidae)	-Q-	3
	(Noctuidae)	-Q-	2
	(Tortricidae)	-Q-	5
PUPA	(Tortricidae)	-Q-	1
PLANT-HOPPER EGGS	(Fulgoroidea)	-Q-	1
OLD-PARASITIZED SPECIMENS	(Pseudococcide)	-Q-	1
INSECT EGGS	(Hemiptera)	-Q-	1
DELTOCEPHALINE LEAFHOPPER		-Q-	1

EXCLUSION AND DETECTION

Several issues back, we skipped the Exclusion and Quarantine section because of a backlog in our data filing program. With the following reports, we are bringing our status up to date through the end of April.

GYPSY MOTH, Lymantria dispar -(A)- The following chart outlines the finds for the months of November through April.

County	Origin	Date	Stage	Collector
V	?	11/6	E	Cozzola/ Bustamante
SLO	New York	11/13	E	Smithback
STCL	Massachusetts	11/13	E	Cover
O	New York	11/14	E	Bennett
MAR	New Jersey	11/21	E	Schwartz
O	New Jersey	11/21	E,P	Wyatt
STCL	Connecticut	11/29	L(skins)	Price
SD	Massachusetts	11/29	E	Smith
CC	New Jersey	11/29	E	Alavi
O	New York	11/29	E	Park
SOL	New Jersey	12/3	E	Okpisz
CC	Massachusetts	12/3	E	Alavi
SD	Massachusetts	12/6	E	Kennedy
STCL	Connecticut	12/5	E	Maggi
MER	New Hampshire	12/9	L(skins)	Akanada et al
SD	New York	12/13	E	Bowers
SD	Massachusetts	1/9	E	Bowers
R	Pennsylvania	1/14	E	Chandler
MAR	Connecticut	1/14	L,P	Schwartz
STCL	New Jersey	1/16	E,L,P	Cover
CC	New Jersey	1/18	E	Alavi
MAR	Connecticut	1/18	L,P	Schwartz
YO	Connecticut	1/22	E	Rachuy
SAC	New York	1/28	E	Jensen
O	Massachusetts	1/31	L	CLodt/Park
STN	Pennsylvania	2/4	L,P	Ellsaesser
CC	Maryland	2/7	E,L,P	Alavi
V	Massachusetts	2/11	E,L,P	Cozzola
SD	New York	2/11	E	Walsh
STCL	New Jersey	2/13	L	Cover
SD	New Jersey	2/19	L,P	Blocker
STCL	New York	2/21	E,L,P	Cover
ALA	Pennsylvania	2/27	E,P	Jones
SD	New York	3/19	E	Melvin
SD	New Jersey	3/19	E	Blocker
SM	Connecticut	3/27	L,P	Sampson
MAR	New Jersey	4/5	P	Schwartz
SD	New Jersey	4/8	E,L,P,A	Melvin
RIV	New Jersey	4/29	E,L,P	---
STCL	Connecticut	4/30	E	C'Day

Miscellaneous Homoptera, particularly scale insects, were intercepted in unusually high numbers during the period of Novmeber 1984 to April 1985. The following species were encountered with unusual frequency:

MAGNOLIA WHITE SCALE, Pseudaulacaspis cockerelli -(A)- Collected 53 times on numerous hosts primarily from Hawaii and Florida. Collectors were Adams, Boch, Bowers, Brown, Buerer, Calicchia, Cheesman, Croce, Eisenhart, Helmar, Hillis, Hudson, Kellam, King, Mellor, Melvin, Mitchell, Nash, Nielsen, Otsuji, Rawald, Rios, Sulentich, Thompson, Wagoner, Watanabe, Wegener, White, Wurster and Zinsmeyer.

LESSER SNOW SCALE, Pinnaspis strachani -(A)- Collected 23 times on numerous hosts primarily from Hawaii and Florida. Collectors were Chandler, Dowd, Eisenhart, King, Morton, Nash, Otsuji, Rios, Spadoni, Stewart and Sulentich.

BOXWOOD SCALE, Pinnaspis buxi -(Q)- Collected 27 times, mostly on Ti leaves from Hawaii. Collectors were: Adams, Beneke, Buerer, Calicchia, Helmar, Jensen, King, Matsumoto, Rios, Sulentich and Van Epp.

GREEN SHIELD SCALE, Pulvinaria psidii -(A)- Collected 28 times, mostly on Ficus benjaminia from Florida and on cut ginger flowers from Hawaii. Collectors were: Adams, Alvarez, Boch, Brown, Bunch, Eisenhart, Ginsky, Hudson, Jensen, King Kovarik, McCutcheon, Nash, Odneal, Otsuji, Rios, Sulentich, Thompson, Willson and Zinsmeyer.

GREEN SCALE, Coccus viridis -(Q)- Collected 19 times, mostly from cut ginger flowers from Hawaii. Collectors were Allert, Buerer, Chandler, Eisenhart, Karl, Rios, Spadoni, Sulentich and Willson.

ACUMINATE SCALE, Kilifia acuminata -(A)- Collected 12 times from cut flowers from Hawaii. Collectors were Eisenhart, Helmar, Kobayashi, Rawald, Rios, and Sulentich.

The following chart on the next page outlines the rest of the quarantine interceptions including the remainder of the Homoptera collections:

The following A, B and Q pests have been intercepted in Quarantine from November 1 to April 30

Rating	Species	Common Name	Date	Origin	County	Host	Collector
Q	Paratrechina sp.	an ant	11/16	HI	V	Ti	Hixson
Q	Pheidole megacephala	big-headed ant	11/21	HI	LA	Cocciloba	Eisenhart
Q	Pheidole megacephala	big-headed ant	12/19	HI	SF	Ti	Rios
Q	Pheidole megacephala	big-headed ant	12/21	HI	SF	Ti	Rios
Q	Pheidole megacephala	big-headed ant	3/12	HI	SD	flowers	Kennedy
Q	Pheidole megacephala	big-headed ant	3/18	HI	R	Protea	Nash
Q	Pheidole megacephala	big-headed ant	4/9	S.Korea	ALA	rice straw	Brown
Q	Pheidole megacephala	big-headed ant	4/29	HI	V	flowers	Mitchell
Q	Anoplolepis longipes	long-legged ant	12/5	HI	R	flowers	Chandler
Q	Anoplolepis longipes	long-legged ant	1/4	HI	SAC	flowers	Jensen
Q	Anoplolepis longipes	long-legged ant	2/11	HI	SAC	flowers	Jensen/Zukin
Q	Anoplolepis longipes	long-legged ant	3/21	HI	SBO	flowers	Nash/Zinsmeyer
Q	Anoplolepis longipes	long-legged ant	4/25	HI	SM	flowers	Buerer
Q	Anoplolepis longipes	long-legged ant	4/24	HI	LA	coconut	Sulentich
Q	Ochetomyrmex auropunctata	little fire ant	2/19	FL	LA	palm	Calicchia
Q	Technomyrmex albipes	an ant	3/15	HI	H	flowers	Spadoni
Q	Technomyrmex albipes	an ant	3/21	HI	SBO	flowers	Nash/Zinsmeyer
Q	Technomyrmex albipes	an ant	4/11	HI	ALA	auto	Brown
Q	Technomyrmex albipes	an ant	11/6	HI	SD	flowers	Ginsky
Q	Technomyrmex albipes	an ant	11/18	HI	SF	flowers	Rios
Q	Technomyrmex albipes	an ant	---	HI	SD	flowers	Ginsky
Q	Tapinoma melanocephalum	blackheaded ant	4/30	FL	SAC	dieffenbachia	Thompson
Q	Paratrechina	an ant	12/6	HI	R	flowers	Chandler
Q	Paratrechina	an ant	12/11	FL	LA	soil	Calicchia
Q	Paratrechina	an ant	12/14	HI	SD	flowers	Ginsky
Q	Paratrechina	an ant	12/17	HI	H	flowers	Spadoni
Q	Paratrechina	an ant	12/25	FL	LA	flowers	Calicchia
B	Paratrechina longicornis	crazy ant	4/11	HI	ALA	auto	Brown
B	Paratrechina longicornis	crazy ant	11/15	HI	SF	flowers	Rios
Q	Malacosoma americanum	East. tent cat.	3/28	--	SD	wheelbarrow	Sixtus
Q	Malacosoma americanum	East. tent cat.	11/29	PA	SAC	BBQ	Jensen
Q	Malacosoma sp.	tent caterpillar	3/20	PA	StCz	can	Morton
Q	Chilo supressalis	Asiatic rice borer	3/10	Korea	ALA	rice	Brown
Q	Chilo sp.	crambine moth	4/9	Korea	alA	rice	Brown
Q	Chilo sp.	crambine moth	4/18	Europe	SD	rice	Sudduth/Banzhof
Q	Crambus sp.	a sod webworm	11/5	CT	SD	auto	Banzhof
Q	Colephora sp.	a colephorid moth	11/26	VA	MER	bike	Aguilar
Q	Spodoptera sp.	an owlet moth	11/28	FL	SM	schefflera	Peppar
Q	Corcyra cephalonica	rice moth	11/6	Korea?	SD	rice	Banzhof
Q	Lithocolletis sp.	a leaf miner	11/7	TX	SLO	roses	Ouwerkerk
Q	Actias luna	luna moth	1/31	VA	O	BBQ	Wyatt
Q	Oxyderma longula?	a weevil	4/12	HI	LA	Heliconia	Sulentich
Q	Orchidophilus atterrimus	orchid weevil	4/17	HI	LA	orchids	Sulentich
Q	Phyllophaga sp.	a scarab	4/19	TX	LA	Pallets	Sulentich
A	Ostrinia nubilalis	European corn borer	2/5	MO	LA	corn	Flowers
B	Diaphania nitidalis	pickleworm	3/15	Mex	V	---	Hackworth
Q	Orgyia sp.	a tussock moth	4/30	Ill	MER	mower	Peeler
Q	Portateia fusca	mango flower beetle	11/15	HI	ALA	auto	Brown
Q	Monochamus sp.	a cerambycid	12/5	Taiwan	STB	chest	Davidson
Q	Popillia japonica	Japanese beetle	12/4	NH	MER	patio furn.	Piper et al

Rating	Species	Common Name	Date	Origin	County	Host	Collector
Q	Psammoecus desjarinsi	a cucujid beetle	11/15	HI	SF	flowers	Rios
Q	Phyllophaga crenulata	a scarab beetle	1/23	NY	ALA	tent	Touchton
Q	Plautia stali	a stink bug	12/19	HI	SJ	Ficus	Croce
Q	Diastrophus radicum	raspberry gall wasp	3/13	SD	H	raspberry	Spadoni
Q	Veronicella leydigi	a slug	1/29	HI	LA	Monstera	Eisenhart
B	Bradybaena similaris	a snail	11/15	HI	TEH	Ficus	Walker
B	Bradybaena similaris	a snail	12/11	FL	O	Ficus	Ellis
B	Bradybaena similaris	a snail	12/27	FL	SJ	Palm	Odneal
B	Bradybaena similaris	a snail	3/7	HI	SJ	Ficus	Jensen/Daveluy
B	Bradybaena similaris	a snail	3/13	FL	SJ	Schefflera	Odneal
B	Bradybaena similaris	a snail	4/1	FL	SJ	Schefflera	Hudson
B	Bradybaena similaris	a snail	4/3	HI	SD	Dracaena	Avery
B	Bradybaena similaris	a snail	4/29	FL	LA	palm	White/King
Q	Protopulviniaria mangiferae	mango shield scale	1/14	HI	SF	Ti	Rios
Q	Ceroplastes floridensis	Florida wax scale	2/4	GA	LA	Ficus	Guthrie
Q	Ceroplastes floridensis	Florida wax scale	2/11	FL	SAC	Ficus	Thompson
Q	Ceroplastes floridensis	Florida wax scale	3/13	FL	SJ	Schefflera	Odneal
Q	Ceroplastes floridensis	Florida wax scale	4/1	FL	F	Ficus	Thompson
A	Ceroplastes rubens	red wax scale	12/5	HI	LA	Monstera	Evenhart
A	Ceroplastes rubens	red wax scale	2/23	HI	STB	Aglaonema	Pitchard
A	Ceroplastes rubens	red wax scale	3/7	HI	LA	Syngonium	Sulentich
A	Ceroplastes rubens	red wax scale	3/27	HI	STB	Schefflera	Karl
B	Protopulvinaria pyriformis	pyriform scale	3/13	FL	SJ	Schefflera	Odneal
Q	Philephedra sp.	a soft scale	2/11	FL	YO	Fern	Souza/Cameron
Q	Philephedra sp.	a soft scale	2/14	FL	YO	fern	Souza-Cole
Q	Philephedra sp.	a soft scale	2/26	Columbia	SF	papaya	Brown
A	Ischnaspis longirostris	black thread scale	11/13	HI	LA	Monstera	Eisenhart
A	Ischnaspis longirostris	black thread scale	1/9	HI	LA	Monstera	Eisenhart
A	Ischnaspis longirostris	black thread scale	1/11	HI	SF	Monstera	Rios
A	Ischnaspis longirostris	black thread scale	1/17	HI	LA	Monstera	Wiseman
A	Ischnaspis longirostris	black thread scale	2/4	HI	MY	hibiscus	Bunch
A	Howardia biclavis	mining scale	11/13	FL	O	Ficus	Ellis
A	Howardia biclavis	mining scale	11/27	FL	O	Ficus	Ellis
A	Howardia biclavis	mining scale	12/7	FL	LA	Ficus	Sulentich
A	Howardia biclavis	mining scale	1/7	FL	SBO	Ficus	Nash
A	Howardia biclavis	mining scale	4/19	HI	SD	Plumeria	Ginsky
A	Parlatoria proteus	sanseveiria scale	11/29	HI	SF	Ti	Rios
A	Parlatoria proteus	sanseveiria scale	1/30	Taiwan	O	orchid	Bennett
A	Parlatoria proteus	sanseveiria scale	3/29	HI	V	orchid	Van Epp
A	Pseudoparlatoria parlatorioides	false parlatoria	11/20	HI	SF	Ti	Rios
A	Selenaspidus articulatus	rufous scale	2/26	Columbia	SF	citrus	Brown
A	Selenaspidus articulatus	rufous scale	3/20	Ecuador	SF	citrus	Brown
A	Selenaspidus articulatus	rufous scale	11/13	Mexico	ALA	citrus	Brown
Q	Aonidiella inornata	inornate scale	2/5	Taiwan	SF	citrus	Brown
Q	Aonidiella inornata	inornate scale	12/31	Manila	SF	Citrus	Brown
Q	Aonidiella orientalis	Oriental scale	11/23	Guam	MER	coconut	Caseri
Q	Aonidiella orientalis	Oriental scale	12/25	FL	SD	coconut	Nash
Q	Aonidiella sp. nr. sotetsa	a scale	1/14	Manila	SD	coconut	Banzhof
Q	Pistaciaspis pistaciae	pistachio scale	11/10	Iran	SF	pistachio	Brown
Q	Lepidosaphes tokionis	croton scale	12/17	HI	SF	croton	Rios
Q	Malleolaspis mammata	a palm scale	4/28	Mexico?	SM	palm	Buerer

Rating	Species	Common Name	Date	Origin	County	Host	Collector
Q	Unaspis yanonensis	arrowhead scale	1/21	Japan	SD	citrus	Sudduth/Banzhof
Q	Unaspis yanonensis	arrowhead scale	1/7	Japan	CC	citrus	Peterson
Q	Unaspis yanonensis	arrowhead scale	11/25	Japan	H	Citrus	Spadoni/Holland
Q	Parlatoria zizyphi	black parlatoria scale	2/31	Manila	SF	citrus	Brown
Q	Morganella conspicua	a scale	12/25	HI	SF	Calathea	Rios
Q	Hemiberlesia diffinis	tulip poplar scale	11/29	TN	YO	Liriodendron	Rachuy/Cole
Q	Aspidiella hartii	a scale	11/13	Thailand	ALA	ginger	Brown
Q	Pseudaulacaspis pentagona	white peach scale	3/13	TX	LA	?tree	Simon/Vinopal
Q	Abgrallagpis palmae	tropical palm scale	3/1	Puerto Rico	SD	Bromeliad	Boch
A	Aspidiotus destructor	coconut scale	12/7	HI	SD	palm	Nielsen
A	Aspidiotus destructor	coconut scale	11/30	HI	SD	palm	Boch
A	Aspidiotus destructor	coconut scale	11/26	HI	SD	palm	Boch
A	Aspidiotus destructor	coconut scale	4/19	HI	LA	palm	Adams
Q	Opuntiaspis carinata	a scale	11/16	GA	LA	Beaucarnia	Wiseman
B	Unaspis euonymi	euonymus scale	11/19	OH	NEV	Celastrus	Henderson
Q	Odonaspis sp.	a scale	3/11	Mexico	SD	bamboo	Boch/Sims
Q	Geococcus coffeae	a soil mealybug	1/17	HI	SJ	palm	Croce
Q	Geococcus coffeae	a soil mealybug	2/25	HI	SD	palm	Nielsen
Q	Geococcus coffeae	a soil mealybug	2/25	HI	LA	palm	Rawald
Q	Geococcus coffeae	a soil mealybug	3/6	HI	LA	palm	Wegener
Q	Geococcus coffeae	a soil mealybug	4/3	HI	LA	palm	Kellam
Q	Geococcus coffeae	a soil mealybug	4/8	HI	SD	ginger	Kennedy
Q	Geococcus coffeae	a soil mealybug	4/30	HI	LA	palm	Rawald
Q	Dysmicoccus saipanensis	Saipan mealybug	11/23	Guam	MER	coconut	Caseri
Q	Rhizoecus advenus	a soil mealybug	2/25	HI	SD	ginger	Kennedy
Q	Pseudoccus sp. (undesc.)	aglaonema mealy	4/1	FL	SJ	Schefflera	Hudson
Q	Nipaecoccus (sp. (undesc.)	a mealybug	1/7	Guatemala	SLO	Bromeliad	Smithback
Q	Discococcus sp. (undesc.)	a mealybug	3/4	Mexico	SD	bamboo	Boch
Q	Pseudoccus lycopodii?	club moss mealy	2/11	HI	H	Lycopodium	Spadoni
Q	Pseudoccus lycopodii	club moss mealy	2/12	HI	V	Lycopodium	Mitchell
Q	Pseudoccus lycopodii	club moss mealy	4/1	HI	SAC	Lycopodium	Jensen
Q	Pseudoccus lycopodii	club moss mealy	1/23	HI	V	Lycopodium	Mitchell
Q	Pseudoccus sp.	a mealybug	1/3	Singapore	CC	?plant	Brown
Q	Pseudoccus elisae	elisa mealybug	11/16	HI	STCZ	?plant	Jensen/Kovaric
Q	Crenidorsum sp. (undesc.)	a whitefly	1/25	HI	SF	Anthurium	Rios
Q	Crenidorsum sp. (undesc.)	a whitefly	11/15	HI	LA	monstera	Eisenhart
Q	Aleurodicus dispersus	spiraling whitefly	11/15	HI	LA	monstera	Eisenhart
Q	Aleurodicus dispersus	spiraling whitefly	12/12	HI	LA	monstera	Eisenhart
Q	Aleurodicus dispersus	spiraling whitefly	12/19	HI	SJ	Ficus	Croce
Q	Aleurodicus dispersus	spiraling whitefly	11/21	HI	LA	Ti	Eisenhart
Q	Aleurodicus dispersus	spiraling whitefly	11/28	HI	LA	cocoloba	Eisenhart
Q	Aleurodicus dispersus	spiraling whitefly	4/2	HI	LA	Betel	Sulentich
Q	Aleurodicus dispersus	spiraling whitefly	4/12	HI	LA	?leaves	Sulentich
Q	Aleurodicus dispersus	spiraling whitefly	4/24	HI	LA	?leaves	Sulentich
Q	Aleurodicus dispersus	spiraling whitefly	1/29	HI	LA	monstera	Eisenhart
Q	Dialeurodes chittendeni	rhododendron WF	2/22	TN	YU	holly	Storm
Q	Orchamoplatus mammiferus	croton WF	12/31	HI	SF	Ti	Rios
Q	Crenidorsum sp.	a whitefly	11/29	HI	SF	Authurium	Rios
Q	Tetraleurodes sp.	a whitefly	11/16	OH	R	daisies	Chandler

Q	Pinnaspis sp.	a scale	11/26	HI	SF	Ti	Rios
Q	Pinnaspis sp. (3)	a scale	11/27	HI	SF	Ti	Rios
Q	Pinnaspis sp.	a scale	11/29	HI	SF	Ti	Rios
Q	Pinnaspis sp.	a scale	3/7	HI	SF	Ti	Rios
Q	Melormenis antillorum	a flatid hopper	12/19	HI	SJ	Ficus	Croce
Q	Cryptotympana atrata	a cidada	12/11	Taiwan	SAC	clothing	Adams
Q	Hoplophorion sp.	a tree hopper	1/21	TX	PLA	palms	Connolly
B	Siphanta acuta	torpedo bug	11/19	HI	SF	Protea	Rios
B	Siphanta acuta	torpedo bug	12/12	HI	LA	Monstera	Eisenhart
B	Siphanta acuta	torpedo bug	1/14	HI	SF	Diefennbachia	Rios

The following insects and molluscs are "A" or "Q" rated pests intercepted between November and April in quarantine which were not immediately identifiable to species because of life stage, condition or lack of comprehensive taxonomic studies of the groups.

Rating	Species	Common Name	Date	Origin	County	Host	Collector
Q	Aleyrodidae	a whitefly	1/3	Singapore	CC	?plant	Brown
Q	Diaspididae	a scale	11/23	HI	SF	Plumeria	Rios
Q	Diaspididae	a scale	12/31	HI	SF	Dracaena	Rios
Q	Diaspididae	a scale	2/21	FL	SD	Dracaena	Bixby/Metcalf
Q	Pseudococcidae	a mealybug	4/30	FL	LA	Schefflera	Vinopal/Morse
Q	Coccidae	a soft scale	12/7	HI	SF	Ti	Rios
Q	Cicadellidae	a leafhopper	2/12	HI	SM	Ti	Buerer
Q	Cicadellidae	a leafhopper	12/26	HI	SF	basil	Rios
Q	Cicadellidae	a leafhopper	3/13	HI	SOL	flowers	Jensen
Q	Tortricidae	a tortrix moth	3/7	HI	H	flowers	Spadoni
Q	Lyonetidae	a moth	4/11	HI	SM	Anthurium	Buerer
Q	Pyralidae	a moth	4/4	TX	YO	Canna	Cole
Q	Gracillariidae	a leaf miner	4/18	Europe	SD	rice	Sudduth/Banzhof
Q	Noctuidae	owlet moth	11/15	FL	LA	Ludwigia	Eisenhart
Q	Noctuidae	owlet moth	1/9	CT	SBO	wheelbarrow	Herr
Q	Noctuidae	owlet moth	2/27	HI	STCZ	Ti	Kovarik
Q	Noctuidae	owlet moth	3/5	HI	LA	flowers	Hamilton
Q	Noctuidae	owlet moth	3/11	HI	SAC	flowers	Mellor/Thompson
Q	Arctiidae	a woolly bear	1/2	Europe	ALA	dunnage	Brown
Q	Cerambycidae	longhorn beetle	2/6	Europe	dunnage	Brown	
Q	Cerambycidae	longhorn beetle	2/26	Europe	ALA	dunnage	Brown
Q	Artiidae	a woolly bear	4/5	NY	R	furniture	Shaffer
Q	Cerambycidae	a longhorn beetle	3/13	China	TUL	grapevine	Haines
Q	Buprestidae	a flathead borer	4/9	Europe	ALA	oak	Brown
Q	Aphididae	an aphid	3/15	HI	H	flowers	Spadoni
Q	Dermaptera	an earwig	1/7	Guatemala	SLO	Bromeliad	Smithback
Q	Blattidae	a cockroach	1/7	Guatemala	SLO	Bromeliad	Smithback
Q	Blattidae	a cockroach	10/18	HI	SF	Ti	rios
Q	Curculionidae	a weevil	1/18	?	STCL	banana	Price
Q	Fulgoroidea	a plant hopper	1/28	HI	SAC	flowers	Jensen

The following "A" or "Q" pests have been encountered between November and April outside of a quarantine situation, usually in a nursery. The pests are, however, thought to be associated with the plants on which they first entered the state. Eradication programs are underway.

Rating	Species	Common Name	Date	Origin	County	Host	Collector
A	Pulvinaria psidii	green shield scale	11/15	--	O	Ficus	Wynn
A	Pulvinaria psidii	green shield scale	12/16	--	R	Ficus	Gardner
A	Ceroplastes rubens	red wax scale	11/28	--	LA	Aglaonema	Matsumoto
Q	Rhizoecus americanus	a mealybug	12/18	--	SD	--	Nielson
Q	Abgrallaspis gliwicensis	bilbergia scale	1/9	--	STB	Bilbergia	Karl
Q	Pseudococcus sp. (undesc.)	aglaonema mealybug	1/11	--	SAC	Aglaonema	Hunter
Q	Geococcus coffeae	a mealybug	1/23	--	LA	philodendron	Sulentich
A	Pulvinaria psidii	green shield scale	3/8	--	STB	Ficus	Wurster
Q	Ceroplastes floridensis	Florida wax scale	4/11	--	TUL	holly	Akana