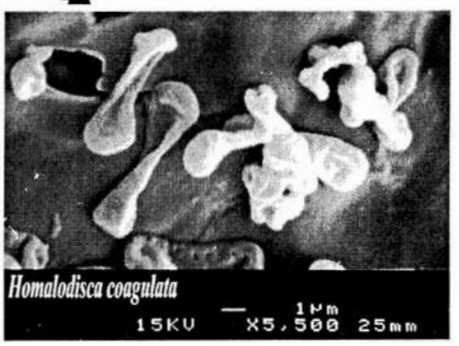
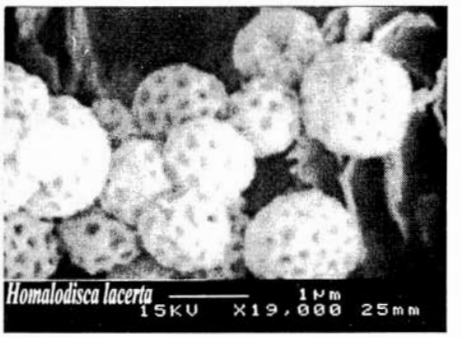
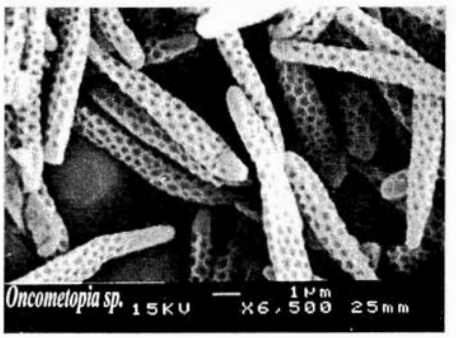
California Plant Pest & Disease Report

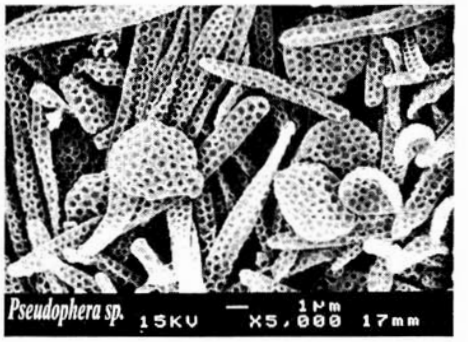
California Department of Food and Agriculture
Plant Pest Diagnostics Center
3294 Meadowview Road
Sacramento, CA 95832-1448

Sharpshooter Brochosomes









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California Plant Pest & Disease Report

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ENTOMOLOGY HIGHLIGHTS

SIGNIFICANT FINDS

A number of fruit fly species have been collected and trapped in California during the year 2002. So many have been collected that there are currently several eradication programs under way. However, the listings of the catches in the following charts indicate only those flies collected between January 1 and June 30, 2001. Trap catches and larval finds made after this date will be summarized in the next issue of CPPDR.

ORIENTAL FRUIT FLY, ***Bactrocera dorsalis*** **-(A)-** Several Oriental fruit flies have been collected during this time period. For particulars see the chart on page 3. At this point, no established infestations existed.

MEXICAN FRUIT FLY, ***Anastrepha ludens*** **-(A)-** One adult male specimen of this serious fruit pest was collected by county trapper Alfaro. The collection was made at San Ysidro, **San Diego** County on June 6. At this point, no established infestations existed.

AFRICANIZED HONEY BEE, ***Apis mellifera*** **"Africanized" -(B)-** This race of honey bee was collected in a new county, **Inyo**. See the report by John Pozzi under "New County Records" on page 12.

CITRUS LEAF MINER, ***Phyllocnistus citrella*** **-(A)-** This leafminer moth was collected for the first time in a new county, **Riverside**. For information see the story under "New County Records" on page 12.

OLIVE FRUIT FLY, ***Bactrocera oleae*** **-(A)-** This fly has been collected in numerous localities during this time period. For a listing of trap catches of this fruit fly see the charts on pages 4-7.

APPLE MAGGOT, ***Rhagoletis pomonella*** **-(B)-** Two collections of this apple pest were made late last year, but the results were not available until after the last issue of CPPDR was published. See the chart on page 4 for specific information.

Oriental Fruit Fly, *Bactrocera dorsalis* complex, -(A)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
Riverside	Oceanside	06/03/02	2M/Adult	McPhail	olive	Burquez
Santa Clara	Saratoga	06/13/02	1M/Adult	Jackson	loquat	Crawford
Los Angeles	Slymar	05/28/02	1M/Adult	Jackson	avocado	Davis
Los Angeles	Los Angeles	05/23/02	1M/Adult	Jackson	olive	Delgado
Madera	Madera Ranchos	05/09/02	1M/Adult	Jackson	lemon	Cumming/Villanneva

Mexican Fruit Fly, *Anastrepha ludens*, -(A)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
San Diego	San Ysidro	06/06/02	1M/Adult	McPhail	shade tree	Alfaro

Apple Maggot, *Rhagoletis pomonella* -(B)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
Contra Costa	Pleasant Hill	02/14/02	1F/ Adult	McPhail	apple	O'Boyle
Contra Costa	El Cerrito	02/14/02	1F/ Adult	McPhail	apple	Dillard

Olive Fruit Fly , *Bactrocera oleae*,- (A)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
Alameda	Union City	05/15/02	1F/Adult	McPhail	lemon	Wright
Alameda	Alameda	05/01/02	1F/Adult	McPhail	lemon	Franke
Alameda	Union City	05/06/02	1M/Adult	McPhail	orange	Wright
Alameda	Alameda	04/26/02	2M/Adult	McPhail	loquat	Franke
Alameda	Hayward	04/25/02	1M/Adult	McPhail	orange	Franke
Alameda	Hayward	05/06/02	2M/1F/Adult	McPhail	plum	Walker
Alameda	Fremont	05/06/02	3M/1F/Adult	McPhail	lemon	Lawrence

Olive Fruit Fly , *Bactrocera oleae*,- (A)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
Alameda	Alameda	06/25/02	1F/Adult	Mcphail	loquat	Franke
Lake	Lower Lake	06/19/02	1M/Adult	Jackson	poplar tree	Eute
San Luis Obispo	Shell Beach	06/27/02	1F/Adult	McPhail	apricot	Krose
Alameda	Pleasanton	06/27/02	1F/Adult	McPhail	plum	Vardenega
Alameda	Hayward	05/15/02	1F/Adult	McPhail	plum	King
Alameda	Hayward	05/15/02	1F/1M/Adult	McPhail	orange	King
Alameda	Hayward	04/25/02	2M/6F/Adults	McPhail	tangerine	Trudeau
Alameda	Hayward	04/25/02	1F/Adult	McPhail	orange	Trudeau
Alameda	Livermore	06/10/02	1M/Adult	McPhail	lemon	Vardanega
Alameda	Oakland	06/10/02	1F/Adult	McPhail	loquat	Franke
Alameda	Livermore	06/10/02	1F/Adult	McPhail	orange	Vardanega
Alameda	Oakland	06/10/02	2M/1F/Adult	McPhail	loquat	Shankar
Alameda	Alameda	05/15/02	2F/Adult	McPhail	olive	Franke
Santa Barbara	Carpinteria	05/15/02	1M/Adult	McPhail	apricot	Powers
Alameda	Livermore	06/17/02	1F/Adult	McPhail	orange	Vardanega
Alameda	Livermore	06/17/02	1M/Adult	McPhail	plum	Vardanega
Alameda	Pleasanton	06/11/02	1M/Adult	McPhail	orange	Walker
Alameda	Pleasanton	06/07/02	1F/Adult	McPhail	plum	Walker
Alameda	Livermore	06/17/02	1F/Adult	McPhail	loquat	Vardanega
Alameda	Pleasanton	06/17/02	1M/Adult	McPhail	plum	Vardanege
Alameda	Oakland	06/12/02	1M/1F/Adult	McPhail	loquat	Shankar
Alameda	San Leandro	06/12/02	1M/1F/Adult	McPhail	apricot	Squier
Alameda	San Leandro	06/12/02	1F/Adult	McPhail	lemon	Squier
Alameda	Oakland	06/12/02	1M/Adult	McPhail	olive	Squier
Alameda	San Leandro	06/13/02	1M/1F/Adult	McPhail	apricot	Squier
Alameda	San Leandro	06/13/02	1M/Adult	McPhail	apricot	Squier
Alameda	Alameda	06/12/02	1M/Adult	McPhail	apricot	Franke
Alameda	Oakland	06/11/02	2M/Adult	McPhail	apricot	Shankar
Alameda	Oakland	06/12/02	1M/1F/Adult	McPhail	plum	Shankar
Alameda	Oakland	06/12/02	1F/Adult	McPhail	apricot	Shankar
Alameda	Oakland	06/13/02	1F/Adult	McPhail	apricot	Shankar
Alameda	Oakland	06/13/02	2F/1M/Adult	McPhail	plum	Shankar
Alameda	Alameda	06/11/02	1F/Adult	McPhail	lemon	Franke
Alameda	Oakland	06/11/02	1F/Adult	McPhail	plum	Franke
Sonoma	Healdsburg	06/07/02	1M/Adult	Champ	olive	Parnoy
Placer	Lincon	06/05/02	1M/Adult	McPhail	unknown	Courfrey
Alameda	Piedmont	05/30/02	1M/Adult	McPhail	orange	Eckert
Alameda	Oakland	06/03/02	1M/Adult	McPhail	plum	Eckert

Olive Fruit Fly , *Bactrocera oleae*,- (A)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
San Bernardino	Victorville	06/05/02	1M/Adult	McPhail	apricot	Cruz
Glenn	Orland	06/12/02	1M/Adult	McPhail	olive	Calligne
Glenn	Orland	06/13/02	1F/Adult	McPhail	olive	Calligne
Glenn	Orland	06/13/02	1M/Adult	McPhail	olive	Calligne
Alameda	Alameda	06/13/02	1F/Adult	McPhail	olive	Franke
Alameda	Alameda	06/13/02	1F/Adult	McPhail	orange	Franke
Alameda	Oakland	06/20/02	1M/1F/Adult	McPhail	olive	Franke
Alameda	Alameda	06/25/02	1F/Adult	McPhail	loquat	Franke
Madera	Madera	06/24/02	1M/1F/Adult	McPhail	grapefruit	Haub
Madera	Madera	06/24/02	1F/Adult	McPhail	peach	Haub
Alameda	Pleasanton	06/26/02	1M/Adult	McPhail	plum	Vardanega
Alameda	Pleasanton	06/26/02	1F/Adult	McPhail	apricot	Vardanega
Alameda	Union City	06/26/02	2M/Adults	McPhail	peach	Wright
Alameda	Union City	06/24/02	2F/Adults	McPhail	apricot	Wright
Alameda	Union City	06/25/02	1F/Adult	McPhail	loquat	Wright
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	2M/Adults	Champ	olive	Scheer
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/17/02	1M/Adult	Champ	olive	Scheer
Alameda	Pleasanton	06/19/02	1M/Adult	McPhail	orange	Vardanega
Alameda	Livermore	06/18/02	1M/Adult	McPhail	loquat	Vardanega
Alameda	Livermore	06/18/02	1F/Adult	McPhail	loquat	Vardanega
Alameda	Livermore	06/18/02	1M/Adult	McPhail	orange	Vardanega
Butte	Oroville	06/18/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/18/02	1M/Adult	Champ	olive	Scheer
Butte	Chino	06/18/02	1M/Adult	Champ	olive	Santos
Butte	Oroville	06/18/02	4M/Adult	Champ	olive	Scheer
Butte	Oroville	06/18/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/18/02	1M/1F/Adults	Champ	olive	Scheer
Butte	Oroville	06/18/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/18/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/18/02	1F/Adult	Champ	olive	Scheer

Olive Fruit Fly , *Bactrocera oleae,*- (A)- January-June 2002 collections

County	City	Date	#M/F/Stage	Trap	Host	Collector(s)
Butte	Oroville	06/18/02	1F/Adult	Champ	olive	Scheer
Butte	Oroville	06/18/02	1M/1F/Adult	Champ	olive	Scheer
Tulare	Badger Hill	01/24/02	1F/Adult	Champ	olive	Carter
Tulare	Exeter	01/10/02	4F/Adult	Champ	olive	Carter
Tulare	Porterville	02/15/02	1F/Adult	Champ	olive	Quesada
Tulare	Porterville	02/26/02	1F/Adult	Champ	olive	Quesada
Tulare	Porterville	02/26/02	1F/Adult	Champ	olive	Quesada
Tulare	Porterville	02/26/02	1F/Adult	Champ	olive	Quesada
Tulare	Tulare	02/26/02	1F/Adult	Champ	olive	Quesada
Tulare	Porterville	02/26/02	1F/Adult	Champ	olive	Quesada
Alameda	Oakland	05/08/02	1M/Adult	McPhail	loquat	Franke
Contra Costa	Alamo	05/13/02	1M/Adult	McPhail	grapefruit	Greer
Contra Costa	Alamo	05/13/02	1M/Adult	McPhial	grapefruit	Greer
Alameda	Fremont	05/10/02	2F/Adult	McPhail	orange	Wright
Alameda	Newark	05/10/02	2M/Adult	McPhail	orange	Wright
Alameda	Newark	05/10/02	1M/1F/Adult	McPhail	lemon	Wright
Alameda	Oakland	04/24/02	2M/1F/Adult	McPhail	olive	Franke
Alameda	Alameda	04/24/02	3M/Adult	McPhail	olive	Franke
Alameda	Oakland	04/23/02	2M/1F/Adult	McPhail	lemon	Franke
Alameda	Fremont	05/09/02	2M/Adult	McPhail	sour orange	Wright
Alameda	Fremont	05/09/02	2M/Adult	McPhail	orange	Wright
Alameda	Fremont	05/09/02	1F/Adult	McPhail	orange	Wright
Alameda	Fremont	05/15/02	1F/Adult	McPhail	plum	Wright
Alameda	Union City	05/13/02	1M/Adult	McPhail	loquat	Wright
Alameda	Union City	05/13/02	1F/Adult	McPhail	peach	Wright
Sutter	Sutter	05/21/02	1M/Adult	McPhail	orange	Hanna
Alameda	Union City	05/14/02	1F/Adult	McPhail	loquat	Wright
Alameda	Union City	05/14/02	1M/Adult	McPhail	peach	Wright
Alameda	Union City	05/14/02	1F/Adult	McPhail	loquat	Wright
Alameda	Dublin	05/20/02	1F/Adult	McPhail	grapefruit	Walker
Alameda	Dublin	05/17/02	5F/1M/Adult	McPhail	plum	Walker
Alameda	Dublin	05/17/02	4M/2F/Adult	McPhail	olive	Walker
Alameda	Dublin	05/08/02	3M/Adult	Jackson	olive	Greer
Alameda	Fremont	05/09/02	1M/Adult	McPhail	tangerine	Wright
Alameda	Union City	05/09/02	1M/Adult	McPhail	lemon	Wright
Shasta	Olinda	06/27/02	2M/Adult	McPhail	olive	Abernathy
Stanislaus	Modesto	06/20/02	1M/Adult	Champ	olive	Walter
Riverside	Palm Desert	06/05/02	1 Adult	Champ	olive	O'Sullivan

NEW STATE RECORDS

ASIAN WOOLLY HACKBERRY APHID, *Shivaphis celti* -(Q)- This aphid has been found in a number of locations in central California in recent months. However, the first known record was collected from hackberry (*Celtis* spp.) trees in Merced, **Merced** County. The collection was made on April 12 by county trapper Kris Rasmussen. The common name is in reference to the large amounts of greyish-white flocculent wax that is produced by all stages of the aphid.

This aphid is becoming a troublesome pest, since it produces large amounts of honeydew, which is dripping on to parking lots and on to vehicles parked under the infested trees. Many parking lots are literally a sticky mess.

The aphid was first found in the western hemisphere in the state of Georgia, and then later at Jacksonville, Florida in 1997. It is also becoming a nuisance in Florida as well, and is widespread now across the state. The species is one of several *Shivaphis* species known to attack *Celtis* trees in Asia. *Shivaphis celti* was described in 1918 by B. Das from Lahore, Pakistan. It is known also from Japan, Korea, Turkey and China, and it probably occurs over most of Asia. The following morphological illustration (Fig. 2) is taken from Essig and Kuwana as *Chromaphis celticola* in Proc. Calif. Acad. Sciences, 18(3):35-112,1918.

Other references and photos for this aphid include Florida Dept. Agric. & Consumer Services Entomology Circular. 392 by S.E. Halbert and P.M. Choate, Jan./Feb. 1999 and the web site: http://extlab1.entnem.ufl.edu/PestAlert/awh-0828.htm

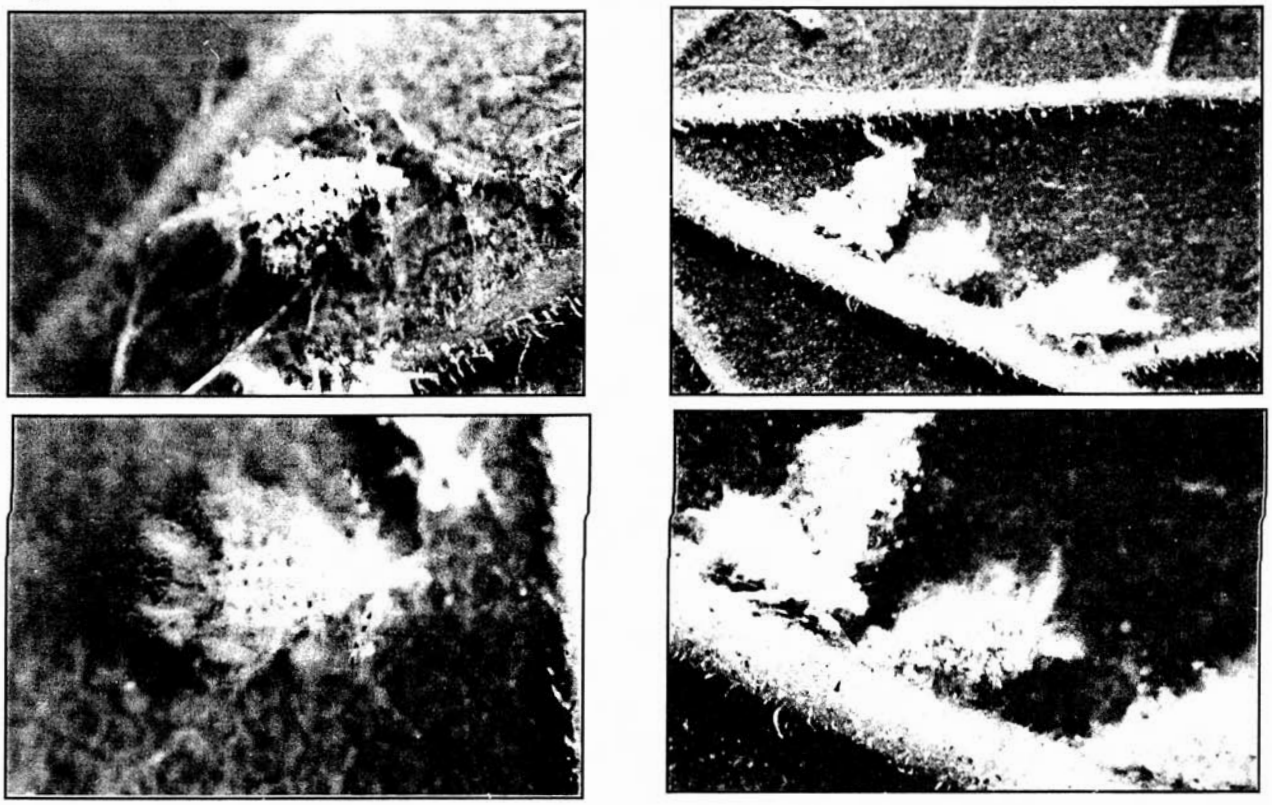


Fig. 1 Photos of Asian woolly hackberry aphid, *Schivaphis celti.*

NEW STATE RECORDS, CONT.

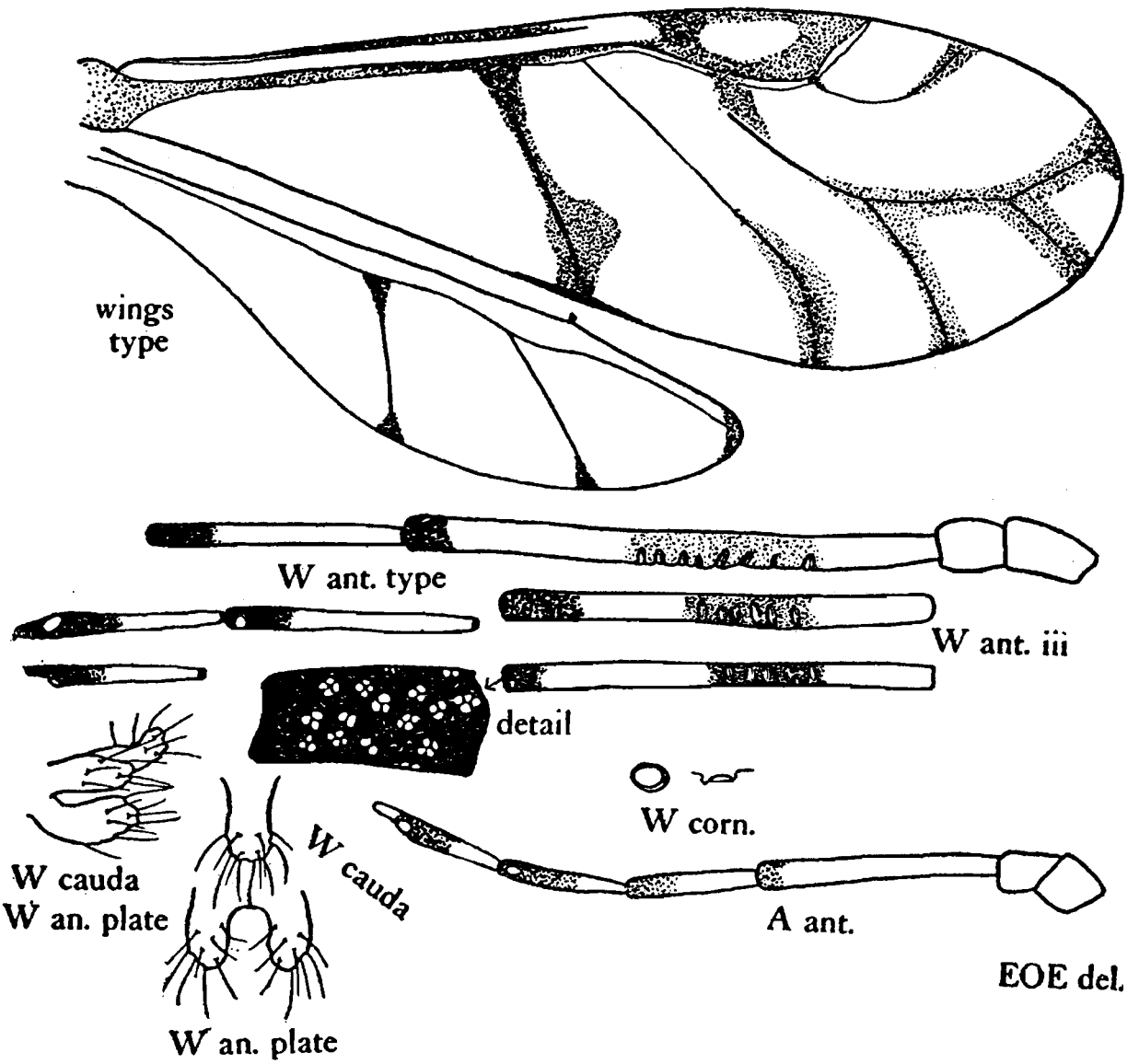


Fig. 2, Morphology of Asian hackberry aphid *Shivaphis celti* - taken from Essig and Kuwana, 1918: Proc. Calif. Acad. Sci. 8(3):95, as *Myzocallis* (*Chromaphis*) *celticolens*.

NEW STATE RECORDS, CONT.

PAPAYA WHITEFLY, *Trialeurodes variabilis* -(Q)- This whitefly has been detected for the first time in California at El Centro, **Imperial** County. The collection was made from orchid tree (*Erythrina*) by County GWSS Trapper Raul Arellano on March 15. This whitefly is part of a group of species to which the common greenhouse whitefly (*Trialeurodes vaporariorum*) belongs. The whitefly is a problem on papaya and manihot in northern South America particularly, but in other areas as well. It has occurred also in Florida for many years but they rarely see it there and it is not a problem. Indications are that it is under good biocontrol there, according to Avas Hamon, Insect Taxonomist at the Florida Department of Agriculture. Also, it is known to occur in Manzanillo, Colima and in Hermosillo and Nogales in Sonora, Mexico. It has been intercepted on palo verde trees coming into California from Arizona. With the known range of this insect so close to California, it is very likely that it could have entered Imperial County by natural spread.

The known hosts of the whitefly are *Acer mexicanum, Carica papaya, Citrus paradisi, Coccoloba floribunda, Gardenia, Manihot glaziovii* and *Erythrina*. Morphologically papaya whitefly pupae are similar to greenhouse whitefly but differ by having spines on the inside of the legs (Fig. 3D) and the intersegmental lines converge between abdominal segments 7 & 8 (Fig. 3A).

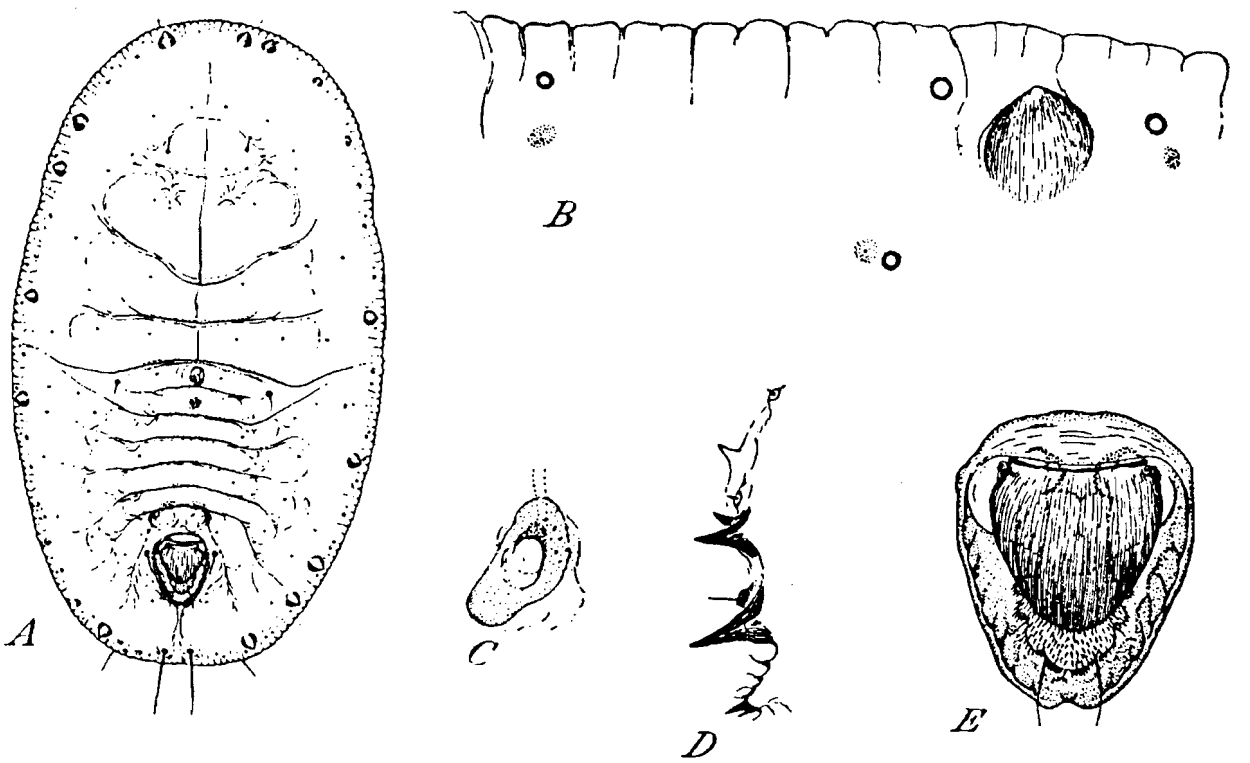


Fig. 3 - *Trialeurodes variabilis*: A, Outline; B, section of margin and sub-margin; C, thoracic spiracle; D, part of inner basal area of middle leg; E, vasiform orifice

NEW STATE RECORDS, CONT.

A FRESHWATER SCUD, *Crangonyx pseudogracilis* -(D)- This creature is actually an amphipod, or freshwater shrimp. While this animal probably will never be of any harm to agriculture, it is nevertheless an indication of how easily exotic animals and plants are moving around the world. According to CDFA Associate Entomologist Gene Drake, the first find of this scud is from Stenner Creek, near the Cal Poly University Campus in San Luis Obispo, **San Luis Obispo County**. How the scud got to this location is a very intriguing question. It is native to streams, rivers and slow moving waters of the eastern seaboard. It has also been accidentally introduced into Ireland, where it has been the subject of some intensive ecological studies in its interaction with several other amphipod species. How it will affect the native stream fauna in California is unknown, although it is felt that this particular scud is relished by brown trout. The identification was made by an amphipod specialist at Old Dominion University in Virginia.

A FRESHWATER SCUD, *Crangonyx floridanus* -(D)- This is another amphipod native to the eastern US. This particular species has been introduced into the Sacramento River delta. Its ecological significance is unknown, but unlike *C. pseudogracilis*, its introduction via boating is at least a plausible explanation for its presence in California.

NEW COUNTY RECORDS

CHINESE ELM APHID, *Tinocallis ulmiparvifolia* -(Q)- This aphid was first discovered in California in 1998 at a nursery in Sylmar, Los Angeles County. In March and April of 2001, CDFA Detection Entomologist Dick Penrose made a quick survey for this aphid and found it in the following new county locations: Fresno, **Fresno** County, Bakersfield, **Kern** County, Chowchilla, **Madera** County, Merced, **Merced** County, Elk Grove, **Sacramento** County, Lodi, **San Joaquin** County, Tulare, **Tulare** County, Camarillo, **Ventura** County and Winters, **Yolo** County. The aphid also occurs in **Orange** County as identified by County Entomologist Nick Nisson.

CITRUS LEAFMINER, *Phyllocnistus citrella* -(A)- This moth was discovered in Imperial County in 2000 for a new state record. It has now been found just to the north, at Thermal, **Riverside** County. The collection was made on April 4 by County Trapper Guillen, from grapefruit leaves. For more information on this pest see CPPDR 18(5-6)79.

HAKEA PSYLLID, *Acizzia hakeae* -Q- This psyllid has been found for the first time at Trabuco Canyon, **Orange** County. The collection was made by County Ag Inspector Donna Barnes on June 5. The collection was from *Grevillea noellii*, commonly called "she oak." The first California record of this species was also recorded from *Grevillea* at Santa Barbara County in May 2000. Subsequent collections have been recorded from the counties of Ventura and Los Angeles. The psyllid is a native of Australia, and apparently is capable of feeding on several plant genera in the family Proteaceae. The original identification was tentative pending further study of Australian psyllids by Dr. Daniel Burckhardt in Geneva, Switzerland. Dr. Burckhardt has since confirmed the identity as *A. hakeae*. For more information on this pest see CPPDR 19(3-6)28.

GIANT WHITEFLY, *Aleurodicus dispersus* -(C)- This large whitefly has been found for the first time in San Luis Obispo, **San Luis Obispo** County on the Cal Poly University Campus. The collection was made on May 2 by County Inspector Christine Linne from red hibiscus. This whitefly now occurs in all the counties along the coast all the way from San Luis to San Diego County.

A LEAFHOPPER, *Thamnotettix zelleri* -C- This leafhopper, a native of Europe, was first found in California in 1995. Recently, it has been found in several locations in **San Joaquin** County. The specimens were submitted by Larry Allen, County Entomologist. The leafhopper also occurs in Alameda, Napa, Sacramento, San Mateo, Santa Clara, Solano and Sonoma Counties. So far it seems restricted to spring time weeds, and has not been associated with any agricultural crops. It does develop large populations in areas where it occurs, however.

AFRICANIZED HONEY BEE, *Apis mellifera* "Africanized" -(B)- While surveying in April 2002 for 'Africanized' honey bee (AHB) outside of the colonized area of California, Detection Entomologist Art Gilbert found AHB foraging on roadside plants at or near Lone Pine, Olancha, and Coso Junction. This is the first time AHB has been detected in **Inyo** County. The AHB colonized area in California has been expanded to include 3,120 square miles in Inyo County. The new AHB colonized area is approximately 59,020 square miles and includes all of Imperial, Kern, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Tulare and Ventura Counties. Also included are portions of Inyo and San Luis Obispo Counties.

SIGNIFICANT FINDS IN OTHER STATES

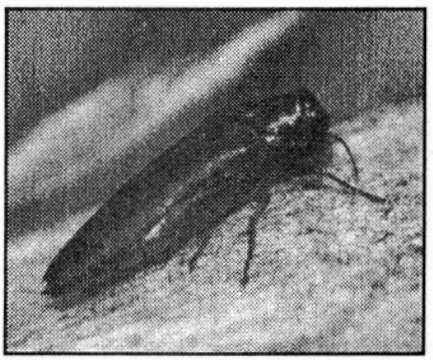
EMERALD ASH BORER, *Agrilus planipennis* -(Q)- This metallic wood boring beetle is in the family Buprestidae, and is considered to be a serious pest of ash trees in its native range. It has been found established in southeastern Michigan in July 2002, and it is believed to have been in this area for at least five years. It is an Asian species that is recorded from China, Korea, Japan, Mongolia, the Russian Far East and Taiwan. It has been found in the counties of Livingston, McColm, Oakland, Washtenaw and Wayne, and it has been found also farther north in Windsor, Canada.

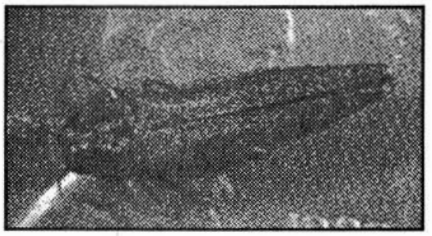
In Asia the recorded hosts include the plant genera *Fraxinus* (ash), *Ulmus*, (elm), *Juglans* (walnut) and *Ptyerocarya* (pecan). In Michigan, the only known hosts are green ash (*F. pennsylvanica*), white ash (*F. americana*) and black ash (*F. nigra*).

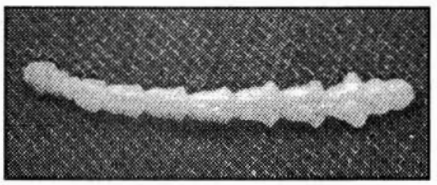
The larvae feed in the phloem and other sapwood, producing galleries that eventually girdle and kill branches and whole trees. The adults are not particularly active nor are they strong fliers, and it is thought that the main avenue of spread is going to be movement of infested wood, especially fire wood.

The adult beetle is very similar to native North American beetles in the genus *Agrilus*, but is larger than most of these, at 7.5 to 13.5 mm in length. The color is a metallic brassy or golden green overall, with a bright green elytra.

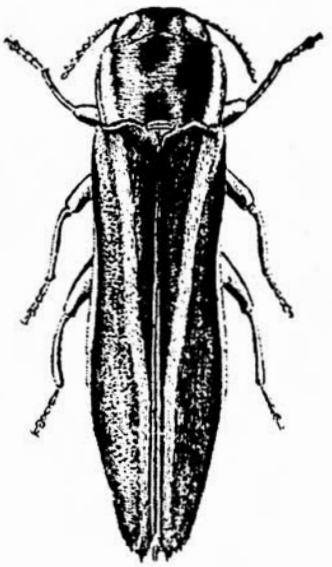
Emerald Ash Borer







Wood-boring beetle in genus *Agrilus*, similar to the Emerald ash borer



SIGNIFICANT FINDS IN OTHER STATES, CONT.

LOBATE LAC SCALE, *Paratachardina lobata* -(Q)- This insect belongs to the unusual scale insect family Kerriidae (=Tachardiidae). This scale has been found established in Florida, for a new North American record. The collection was made in 1999 in Broward County, and subsequently has been found in the Miami-Dade County area. Current word out of Florida is that the species is becoming quite a pest of ornamentals there. It has a long host range in Florida, including hibiscus (*Hibiscus rosa-sinensis*), cocoplum (*Chrysobalanas icaco*), black olive (*Bucida buceras*), weeping fig (*Ficus benjamina*), buttonwood (*Conocarpus erectus*), sand live oak (*Quercus geminata*), and wax myrtle (*Myrica cerifera*) It is also recorded from a number of other tropical and subtropical plants such as citrus and mango.

The scale is about 1.5 mm long, convex, and lobate, looking similar to a bow-tie in shape. The scale insect itself is covered by a reddish to brown resinous coating or "test," which is hard and crust-like. Individual tests have the distinctive shape, but in heavy populations the tests will coalesce together forming masses of individuals so that the number of individuals cannot be discerned.

This scale is native to Asia, most likely the Indian subcontinent, where it is known from India and Sri Lanka. It has previously been introduced into the Bahamas. There are a half dozen or so species native to North America, including four species in California. Another lac insect, *Tachardia lacca*, is famous because the resinous tests are used in the production of commercial shellac and varnishes. Pictures for this species are available on Florida University and Department of Agriculture web sites at:
http://doacs.state.fl.us/~pi/enpp/ento/paratrachina.html.
http://creatures.ifas.ufl.edu/orn.scles/lobate_lac.htm

Following are comments about the new scale insect by Forest Howard at the University of Florida.

> "The species is *Paratachardina lobata lobata*, which is native to southern India and Sri Lanka. Since detected in Florida in 1999 it has spread very rapidly in urban and natural areas in southeastern Florida. We are concerned about its impact on the vegetation here and its potential spread to other regions of Florida and elsewhere. We have found this species of scale insect on more than 120 host plants, including 39 species of plants native to Florida. We consider it a very serious invasion of an exotic scale species."

CAMPHOR SHOOT BEETLE, *Xylosandrus mutilatus* -(Q)- This Asian species, a wood boring ambrosia beetle in the family Scolytidae, has been found in both Mississippi and Florida. Specimens were collected in Mississippi in 1999, and identified positively in May of this year. It now occurs there in the counties of Lowndes, Winston, Weber, Clay, Oktibbeha, Montgomery and Attala. In Florida, it occurs in Highlands County in the central part of the state.

SIGNIFICANT FINDS IN OTHER STATES, CONT.

Surveys are being conducted in several adjoining states. Lindgren funnel traps are the main survey and detection tool. Indications are that the beetles may be rather widespread and have been for some time, but a two year drought cycle may be accounting for the sudden appearance of this beetle in areas where traps had not picked it up previously. This particular species is not known to attack healthy trees as near as is known, but there is not a lot of information published about it. Bark and ambrosia beetles often cause serious economic damage to logs and timber as a result of the gallery formation when their colonies reach the sapwood and cause dark fungus-induced staining around the galleries. The ambrosia beetles can have a wide host range because they actually feed off of the symbiotic ambrosia fungus that they culture in the galleries rather than actually feeding on the wood. It is not known which hosts are being attacked in either Mississippi or Florida.

The beetle is know from Borneo, Indonesia, China, Japan, and Korea. Hosts listed include Japanese maple (*Acer sieboldiana*), hornbeam (*Carpinus* sp.), camphor (*Cinnamomum camphora*, Japanese spring orange (*Citrus*), spicebush (*Lindera thunbergii*), and avocado (*Persea*). Several of the above hosts are in the plant family Lauraceae, including avocado. Introduction of this beetle into California could conceiveably cause damage to avocados and camphor trees, both widely planted here.

EXCLUSION

Large number of potential pests are collected in incoming quarantine shipments of plant material and agricultural or similar situations; pests that are rated as "A", "B", "Q." These organisms are usually not established in the state. Some of the following insects are a small but notable example of the many interceptions that have been made during the first half of 2002. See the charts on pages 16 - 18.

BORDER STATION

Over the years we have featured in each CPPDR some of the interesting pests intercepted at the California Plant Inspection Stations (Border Stations) strategically placed along highways leading into the state. These stations are part of the first line of defense against the introduction of new agricultural pest species into the state. The stations started operating a long time ago to small amounts of traffic. Current day traffic levels are phenomenal. We do not wish to reproduce there the weekly reports generated by border station officials on traffic stations and the people that operate them. But the chart on page 19 reflects a few of the more interesting organisms that were intercepted early this year.

Important "A", "B", and "Q" Rated Arthropods and Mollusks Intercepted in Quarantine January through June 2002

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Hemiberlesia diffinis*	diffinis scale	12/05/01	Florida	ORA	*Ficus benjamina*	Fernandez
Q	*Sybra alternans*	longhorned beetle	01/07/02	Hawaii	LAX	Hawaii fresh herbs	Carillo
A	*Hemiberlesia palmae*	tropical palm scale	11/26/01	Florida	SMT	*Neorgelia* sp.	Eide
A	*Diastrophus radicum*	raspberry root gall wasp	01/08/02	Arkansas	SMT	black raspberry	Eide
Q	*Conocephalus saltator*	a katydid	01/10/02	Hawaii	SMT	kai choi vegatable	Stevens
Q	*Aclerda* sp.	a bamboo aclerdid scale	01/08/02		MAD	tillandsia plants	Brar
A	*Selenaspidus articulatus*	rufous scale	01/10/02	Hawaii	LAX	ti leaves	Messineo
Q	*Frankliniella schultzei*	cotton bud thrips	01/11/02	Hawaii	LAX	orchid stems	Messineo
A	*Chrysodeixis eriosome*	green garden looper	01/10/02	Hawaii	LAX	basil leaf	Carrillo
A	*Aonidiella orientalis*	Oriental scale	01/15/02	Peru	LAX	organic bananas	Lugo
Q	Philomycidae	a slug	01/15/02		SMT	red ginger	Ferguson
A	*Pseudococcus cryptus*	a mealybug	01/15/02	Hawaii	LAX	ginger	Miller
Q	*Orchidophilus* sp.	a weevil	01/16/02	Hawaii	SHA	ginger	Cobb
B	*Parlatoria pittospori*	pittosporum scale	01/15/02	Hawaii	SDG	protea	Betschart
Q	*Oxydema longula*	a weevil	01/15/02	Hawaii	SON	coconut	Inman
Q	*Rhizoecus hibisci*	a root mealybug	01/22/02	Florida	LAX	*Syagrus romanzoffiana*	Burton
Q	*Rhizoecus americanus*	a soil mealybug	01/22/02	Florida	SMT	*Syagrus romanzoffiana*	Eide
Q	*Kallitaxila granulata*	a planthopper	01/22/02	Hawaii	LAX	curry	Carrillo
Q	*Kallitaxila granulata*	a planthopper	01/22/02	Hawaii	LAX	ginger	Carrillo
A	*Ischnaspis longirostris*	black thread scale	01/18/02	Florida	SHA	palm	Cobb
A	*Diastrophus radicum*	a raspberry root gall wasp	01/23/02	Arizona	SMT	blackberries	Eide
Q	*Chaetanaphothrips signipennis*	a thrips	01/16/02	Hawaii	LAX	ti leaves	Miller
Q	*Coccus acutissimus*	slender soft scale	01/27/02	Hawaii	SMT	*Cycas* sp.	Rodriguez
Q	*Aleurotracelus* sp.	a whitefly	01/24/02	Hawaii	LAX	Hawaii fresh herb	Carrillo
A	*Fiorinia theae*	tea scale	01/24/02	Florida	YOL	*citrus paradisi*	Lyon
B	*Dialeurodes citrifolii*	cloudywinged whitefly	01/24/02	Florida	YOL	grapefruit	Lyon
Q	*Pseudococcus lycopodii*	club moss mealybug	01/31/02	Hawaii	MEN	Hawaiian foliage	Linegar
Q	*Pseudococcus landoi*	a mealybug	02/02/02	Ecuador	SMT	pink ginger	Loux
Q	*Hemiberlesia ocellata*	an armored scale	02/01/02	Ecuador	LAX	bananas	Mandel
B	*Siphanta acuta*	torpedo bug	02/02/02	Hawaii	SMT	king protea	Rodriguez
A	*Pseudaulacaspis pentagona*	white peach scale	01/31/02	Hawaii	SMT	papaya	Ferguson
Q	*Oxydema longula*	a weevil	01/07/02	Hawaii	LAX	lalot/basil/betel	Carillo
Q	*Aclerda* sp.	a bamboo aclerdid scale	01/08/02		MAD	tillandsia plants	Brar
B	*Dialeurodes citrifolii*	cloudywinged whitefly	01/24/02	Florida	YOL	grapefruit	Lyon
A	*Fiorinia theae*	tea scale	01/24/02	Florida	YOL	*Citrus paradisi*	Lyon

Important "A", "B", and "Q" Rated Arthropods and Mollusks Intercepted in Quarantine January through June 2002

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Pseudaonidia trilobitiformis*	trilobe scale	02/06/02	Florida	SMT	*Dypsos lutescens*	Eide
Q	*Ceroplastes sp.*	a wax scale	02/07/02	Florida	SHA		Cobb
Q	*Selenaspidus* sp.	an armored scale	02/13/02	Ecuador	LAX	plantains	Elhawary
B	*Protopulvinaria pyriformis*	pyriform scale	02/06/02	Florida	SMT	*Shefflera*	Eide
Q	*Pomacea canaliculata*	an apple snail	02/15/02	Florida	SAC	pet store	McCarthy
Q	*Chrysodeixis* sp.	a plusiine looper	02/22/02	Hawaii	SON	florals	Inman
Q	*Aleurocerus palmae*	palm whitefly	02/25/02	Florida	SAC	palm fronds	McCarthy
Q	*Gyponana* sp.	a leafhopper	02/07/02	Hawaii	SMT	basil	Loux
A	*Ceroplastes rusci*	fig wax scale	02/26/02	Florida	SDG	majesty palm	Persky
Q	*Anoplolepis longipes*	longlegged ant	02/28/02	Hawaii	SAC		Zepeda
Q	*Xyloborus* sp.	a bark beetle	01/24/02	Columbia	HUM	funnel traps	Spadoni
Q	*Rhizoecus hibisci*	a root mealybug	02/22/02	Hawaii	LAX	*Rhapis excelsa*	Regis
Q	*Rhizoecus americanus*	a soil mealybug	03/01/02	Florida	SDG	*Wodyetia bifurcata*	Olivares
Q	*Milviscutulus mangiferae*	mango shield scale	02/22/02	Florida	SDG	*Schefflera*	Olivares
A	*Diastrophus radicum*	raspberry root gall wasp	02/26/02	Arkansas	SMT	blackberry	Eide
Q	*Anoplolepis longipes*	longlegged ant	02/26/02	Hawaii	SAC		Zepeda
Q	*Pseudococcus jackbeardsleyi*	a mealybug	03/01/02	Ecuador	SMT	red ginger	Rodriguez
Q	*Euschistus* sp.	a stink bug	03/04/02	Florida	SMT	cocculus	Russo
A	*Phyllocnistis citrella*	citrus leafminer	03/18/02		SCL	lemon	Hernandez
A	*Thrips palmi*	a thrips	03/21/02	Hawaii	RIV	flowers	Lomeli
Q	*Ponera* sp.	an ant	03/28/02	Hawaii	SMT	malungai	Toruno
Q	*Orgyia* sp.	a tussock moth	03/29/02	Maryland	YUB		Anderson
Q	*Gyponana* sp.	a leafhopper	03/21/02	Hawaii	RIV	egg	Lomeli
Q	*Frankliniella* sp.	a flower thrips	03/26/02	Florida	SMT	leatherleaf ferns	Eide
Q	*Coccus acutissimus*	slender soft scale	03/28/02	Hawaii	SMT	palm leaves	Toruno
A	*Ceroplastes floridensis*	Florida wax scale	03/22/02	Florida	ALA	*Ficus benjamina*	Duarte
Q	*Tetrapriocera* sp.	a false powder post beetle	04/05/02	Equador	LAX	*Musa* .	Huerta
Q	*Hemiberlesia ocellata*	an armored scale	04/05/02	Ecuador	LAX	*Musa* sp.	Huerta
Q	*Gyponana* sp.	a leafhopper	04/01/02	Costa Rica	SJQ	*Dracaena marginata*	Curtoni
A	*Ischnaspis longirostris*	black thread scale	04/12/02	Florida	SHA	cut greens	Yingst
Q	*Aleurocerus palmae*	palm whitefly	04/12/02	Florida	SHA	cut greens	Yingst
Q	*Orthotylus* sp.	a plant bug	04/15/02	Hawaii	SMT	taro stalks	Rodriguez
A	*Maconellicoccus hirsutus*	a mealybug	04/17/02	Hawaii	SMT	pink ginger	Rodriguez
A	*Ceroplastes floridensis*	Florida wax scale	04/18/02	Florida	SLO	*Ficus benjamina*	Schram
B	*Parlatoria pittospori*	pittospori scale	04/15/02		VEN	calothamnus	Nekic
Q	*Ormenaria rufofascia*	a flatid planthopper	04/23/02	Florida	TUL	cut palm fronds	Sihota
Q	*Marmara* sp.	a gracilariid moth	04/23/02	Florida	TUL	cut palm fronds	Sihota
Q	*Acutaspis perseae*	an armored scale	04/23/02	Florida	TUL	cut palm fronds	Sihota

Important "A", "B", and "Q" Rated Arthropods and Mollusks Intercepted in Quarantine January through June 2002

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Nysius sp.*	a seed bug	04/22/02	Hawaii	SHA	*Anthurium* sp.	Rodriguez
Q	*Kallitaxila granulata*	a planthopper	04/19/02	Hawaii	SMT	*malunggai*	Rodriguez
Q	*Aleurocerus* sp.	a palm whitefly	04/18/02	C. America	SBD	palm leaves	Davey
Q	*Rhizoecus americanus*	a soil mealybug	05/21/02	Florida	SMT	*Ficus benjamina*	Eide
Q	*Pseudococcus jackbeardsleyi*	a mealybug	05/20/02	Florida	SMT	*Schefflera arboricola*	Eide
Q	*Prosapia bicincta*	twolined spittlebug	10/03/01	Georgia	NE	truckbed	Aragon
Q	*Ischnodemus* sp.	a seed bug	08/10/99	Tennessee	VI	trailer	Granger
Q	*Nysius* sp.	a seed bug	07/15/01	Mississippi	VI	boxes/pine soil	Martinez
Q	*Oncometopia* sp.	a leafhopper	05/07/02	Florida	TUL	palm fronds	Sihota
A	*Coccus viridis*	green scale	05/22/02	Hawaii	SMT	cut ginger	Garibaldi
A	*Selenaspidus articulatus*	rufous scale	03/26/02	Florida	SHA	palm	Cobb
Q	*Hemiberlesia ocellata*	an armored scale	03/18/02	Ecuador	LAX	*Musa* sp.	Yeutter
Q	*Philephedra* sp.	a soft scale	03/13/02	Florida	SJQ	*Spathiphyllum* sp.	Curtoni
B	*Nezara viridula*	southern green stink bug	03/03/02	Hawaii	SMT	malungai leaves	McCoon
Q	*Kallitaxila granulata*	a planthopper	01/23/02	Hawaii	ORA	*Alpinia purpurata*	Rivas
Q	*Aleurotulus anthuricola*	anthurium whitefly	12/13/01	Hawaii	SMT	Anthurium	Stevens
A	*Ceratitis capitata*	Mediterranean fruit fly	12/17/01	Spain	SJQ	Clementine mandarin	Allan
Q	*Milviscutulus mangiferae*	mango shield scale	12/04/01	Florida	ORA	*Schefflera arboricola*	Wynn
Q	*Toumeyella pini*	striped pine scale	12/04/01	Miami	ORA	*Pinus sylvestris*	Wynn
Q	*Banasa* sp.	a stink bug	12/08/01	Hawaii	SMT	malungai	Rodriquez
Q	*Camponotus abdominalis*	an ant	12/17/01	Hawaii	KRN	bee colony	Rodriguez
Q	*Meghimatium* sp.	a slug	12/21/01	Hawaii	ORA	*Dracaena* sp.	Phoutrides
Q	*Agallia* sp.	a leafhopper	12/17/01	Hawaii	LAX	poky leaves	Carrillo
Q	*Cerataphis* sp.	an aphid	11/28/01	Hawaii	SMT	bird of paradise	Fergson
Q	*Geococcus coffeae*	a soil mealybug	11/13/01	Hawaii	LAX	*Ficus monique*	Cervantes
Q	*Megaselia seticauda*	a scuttle fly	11/13/01	Mexico	LAX	corn	Arellano
Q	*Ponera* sp.	an ant	11/17/01	Florida	SMT	moss	Russo
Q	*Puto mexicanus*	Mexican giant mealybug	12/19/01	Mexico	ORA	*Crataegus pubescens*	Fernandez
Q	*Wasmannia auropunctata*	an ant	12/04/01	Hawaii	LAX	cut flowers	Carrillo
Q	*Tetranychus* sp.	a tetranychid mite	12/14/01	Florida	SAC	cut roses	Stallions
Q	*Pyrausta* sp.	a pyraustine pyralid moth	01/08/02	Florida	SMT	*Spathyphylum* sp.	Bide
Q	*Sybra alternans*	a longhorned beetle	01/07/02	Hawaii	LAX	lalot	Carillo
Q	*Abgrallaspis ithacae*	hemlock scale	12/12/01	Massachusetts	ORA	*Abies balsamea*	Katchmar
Q	*Chionaspis heterophyllae*	pine scale	12/04/02	Mississippi	ORA	*Pinus sylvestris*	Wynn

Important "A", "B" and "Q" Rate Arthopods and Mollusks Intercepted at Border Stations January through June 2002

Pest	Station	Date	Origin	Collector	Host
Grapholita sp. - an olethreutine moth	HO	07/21/01	Colorado	Saunders	cherries
Coleophora sp. - a casebearing moth	NE	10/20/01	Vermont	Derichsweiler	rv frame
Euxesta sp. - a picture-winged fly	BL	09/25/01	Mexico	Siye	corn
Orgia sp. - a tussock moth	NE	10/03/01	Kansas	Derichsweiler	old wagon
Megaselia seticauda - a scuttle fly	YE	05/14/01		Khalil	corn on the cob
Dasineura mali - apple leaf gall midge	HO	07/03/01		Martin	apples
Euxesta stigmatias - corn silk fly	BL	12/19/01	Mexico	Perez	corn on the cob
Megaselia seticauda - a scuttle fly	YE	04/14/02	Ohio	Terrie	corn ear
Phytomyza ilicis - holly leafminer	HO	12/16/01	Oregon	Sage	Ilex
Anastrepha sp. - an exotic fruit fly	BL	01/22/02	Nicaragua	Pate	*Mangifera indica*
Dasineura mali - apple leaf gall midge	HO	08/14/01	New Zealand	Craig	New Zealand apples
Proxys punctulatus - a stinkbug	NE	11/05/99	Florida	Livingston	plant
Proxys punctulatus - a stinkbug	VI	11/05/99	Mississippi	Granger	trailer
Lymantria dispar - gypsy moth	LV	01/18/02	New York	Gilis	RV
Diaphania nitidalis - pickleworm	VI	02/07/02	Arizona	Granger	mixed vegetables
Dreissena polymorpha - zebra mussel	NE	02/28/02	Mississippi	Johnson	boat
Rhagoletis pomonella - apple maggot	HO	10/22/01	Washington	Sage	pear/ apple
Bucculatrix sp. - a ribbed cocoon maker	NE	02/26/02	Viriginia	Martinez	rims of trailer
Dreissena polymorpha - zebra mussel	TR	04/05/02	Indiana	Coons	sail boat
Euxesta stigmatias - corn silk fly	WI	04/08/02	Florida	Gonzalez	corn
Marmara sp. - a gracilariid moth	VI	04/10/02	Mexico	Connors	mango
Marmara sp. - a gracilariid moth	VI	04/10/02	Mexico	Troxler	papaya
Spodoptera sp. - an armyworm	VI	04/06/02	Florida	Engelhardt	corn

SHARPSHOOTER BROCHOSOMES

An intriguing chemical phenomenon and a useful identification tool

A brochosome is a crystalline form of protein and lipid chemical compounds apparently secreted by special sections of the Malpighian tubules (analagous to mammalian kidneys) of certain insects, most notably leafhoppers. A considerable amount of research has recently been done on brochosomes by Dr. Roman Rakitov, a postdoctorate worker at the Illinois Natural History Museum. Dr. Rakitov has published several papers on the subject, and has a web site http://www.inhs.uiuc.edu/~rakitov/brochosomes.html. Also, Dr. Raymond Hix at the University of California, Riverside has published a paper on the brochosomes of the glassywinged sharpshooter and their use by that insect.

According to Dr. Rakitov, most if not all leafhoppers cover themselves with these crystalline structures, possibly for protection or for water repellency or other tactical reasons. Their actual function is not known.

There are two tribes of sharpshooters (Proconiines and Cicadellines), that are capable of transmitting Pierce's disease of grape and other *Xylella fastidiosa* induced diseases. Females of some of these sharpshooter species in the tribe Proconiini, but not all, have the curious ritual of gathering the crystalline brochosomes in a pile on the forward center of the forewing in a circular-shaped mound. During egg laying, the female will lay two eggs, stop, and transfer some of the brochosomes from the wings to the host surface over the eggs, then repeat the process for each of the next pair of eggs, until egg laying is complete.

Further studies have indicated that the brochosomes that are used to cover the body of the insect may be quite different from those brochosomes used by the proconiine sharpshooters to cover the egg laying sites. The brochosomes appear as a fine white or grey powder on the leaves where the egg masses are laid. Actual size of the individual brochosomes are in the neighborhood of 1 to 19 microns, which is small even to be discerned with the light microscope, but they are easily located and studied using a scanning electron microscope (SEM).

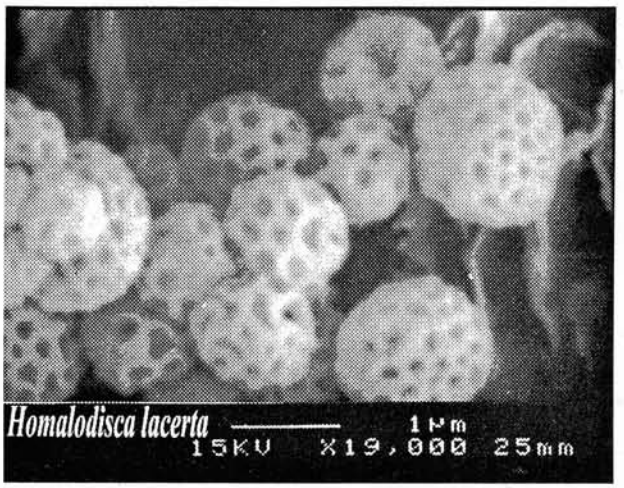
Over the last year or so, during attempts to limit the distribution of glassywinged sharpshooter (GWSS), it became necessary to separate the egg masses of GWSS from those of the closely related native species, the smoketree sharphoooter. Since there initially was no consistent method for separating the two egg masses by physical appearances or kinds of ovipositional sites, a chemical test (PCR or Polymerase Chain Reaction) was developed to aid in making determinations. This technique proved to be quite useful, but it had some drawbacks. If the egg mass was old, hatched, or was parasitized, the test could not be run.

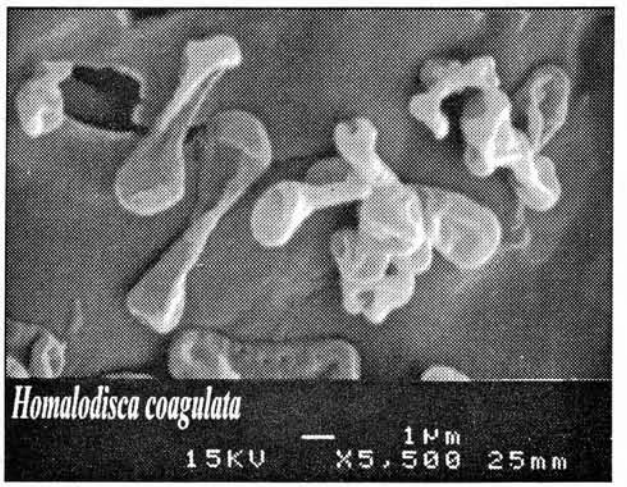
Dr. Rakitov visited California last spring to further study sharpshooter behavior, and while here he mentioned that he was separating sharpshooter species on the basis of the shapes of the ovipositional brochosomes. This fact suggested right away a method to use as a supplement or a replacement for the PCR test to separate sharpshooter egg masses to species. The technique is simple, less expensive and less time consuming than PCR, and requires only an SEM picture of the leaf surfaces around or on the egg mass. This works even for old, hatched and parasitized egg masses, as long as the sample is not too old (several months) or the brochosomes have not been washed off by rain or sprinkler irrigation.

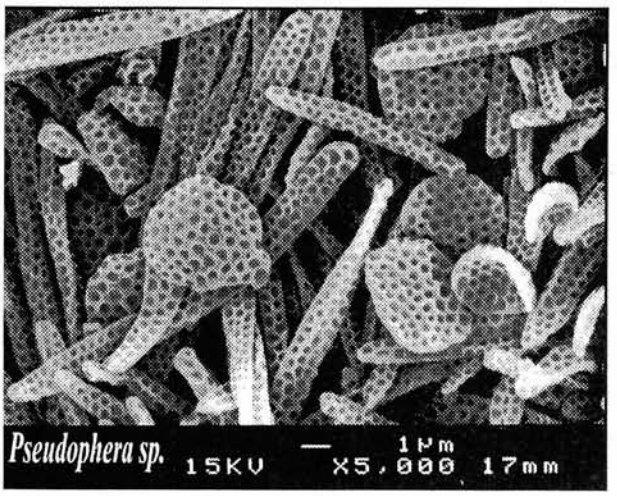
SHARPSHOOTER BROCHOSOMES, CONT.

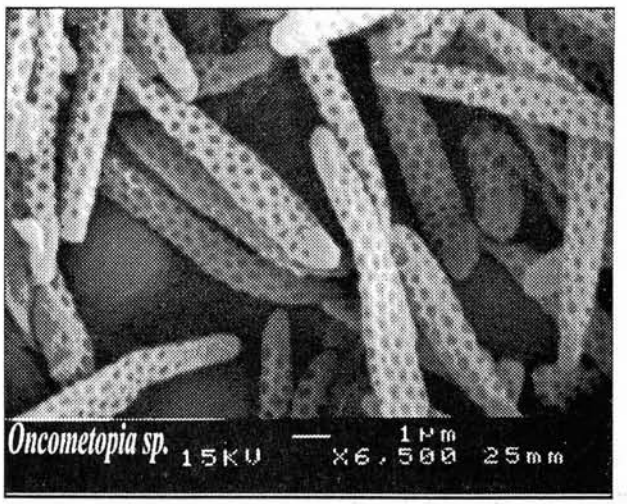
The ovipositional brochosomes of glassywinged sharpshooter are elongate with blunt ends, many resembling a "dog biscuit." The ovipositional brochosomes of smoketree sharpshooter are spherical with indentations so that the sphere somewhat resembles a "golf ball." The smoketree sharpshooter ovipositional brochosomes resemble closely the normal brochosome shapes that other leafhoppers use to cover the entire body. Note the illustrations below to see what other sharpshooter species brochosomes look like.

As a result of this breakthrough, the egg masses are currently being separated primarily through the use of the SEM, and the PCR test usually is not run unless other information is needed, or the SEM pictures are not available for some reason.



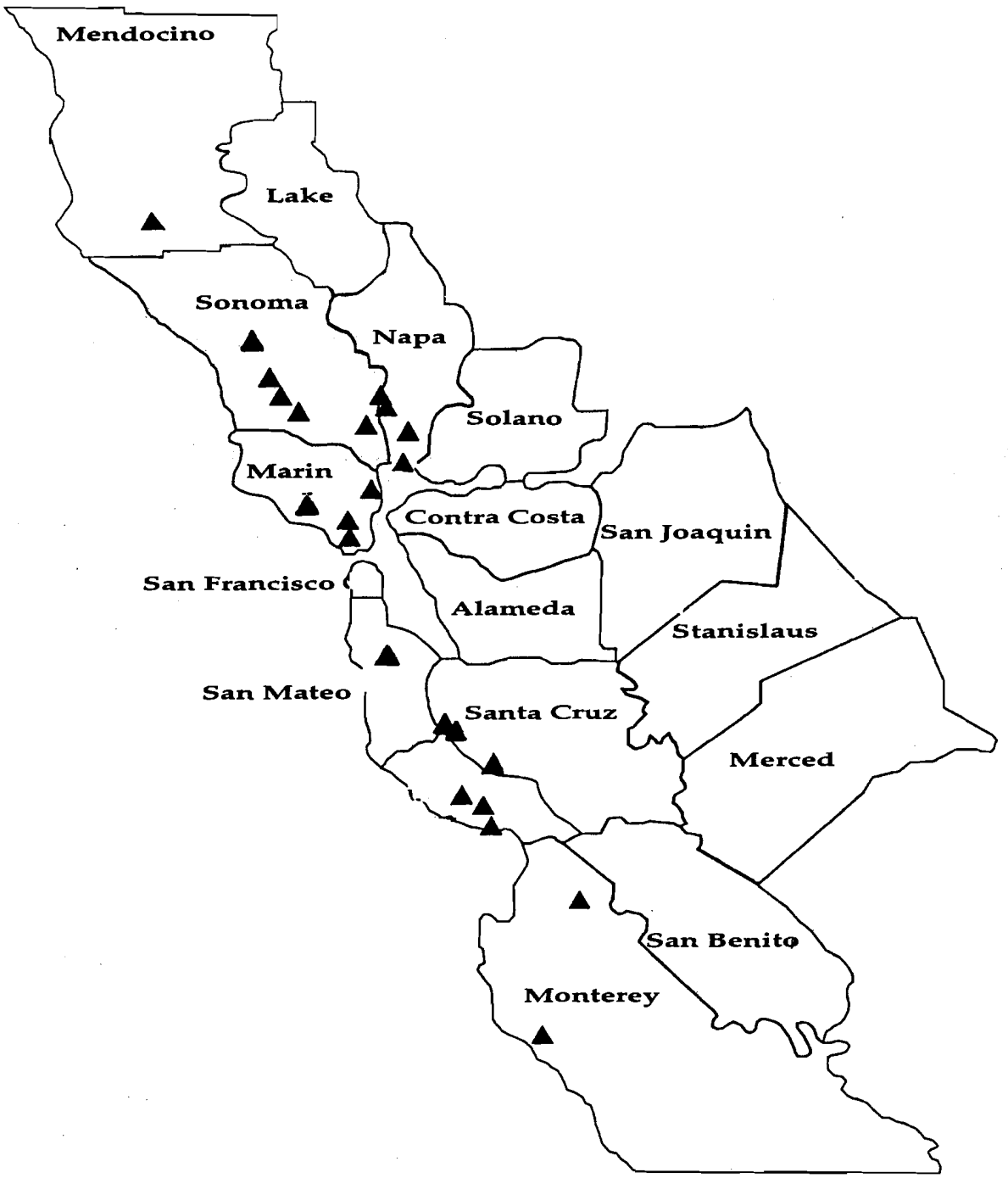






PLANT PATHOLOGY HIGHLIGHTS

Current distribution of confirmed SOD
As of December 31, 2001



The last issue of CPPDR had an incorrect SOD location at the southern end of Santa Cruz County. That error is corrected in this map.

RATING CHANGES

The following list reflects recent changes in the action ratings for various insect, mite and mollusk pests. The list is meant primarily for State and County regulatory officials, and is an indication of the actions (i.e. eradication, treatment, or release) that needs to be taken on quarantine shipments, nursery certifications and other programs. The list contains the name of 95 organisms that have had a rating change from "Q" or "A" to "B" or "C" ratings. There had been questions about the rating change for the twospotted leafhopper, *Sophonia rufofascia*, but it is now determined that the rating is officially changed from "Q" to "C." The list appears twice, first aligned by Order and Family, and second aligned alphabetically by scientific name.

NAME	ORDER	FAMILY	OLD	NEW RATING
Aceria genistae	Acari	Eriophyidae	Q	C
Phoracantha semipunctata	Coleoptera	Cerambycidae	B	C
Trachymela sloanei	Coleoptera	Chrysomelidae	Q	C
Atrichonotus taeniatulus	Coleoptera	Curculionidae	Q	B
Gonipterus scutellatus	Coleoptera	Curculionidae	Q	C
Chrysomya rufifacies	Diptera	Calliphoridae	Q	C
Dasineura rhodophaga	Diptera	Cecidomyiidae	Q	B
Musca autumnalis	Diptera	Muscidae	B	C
Euxesta stigmatias	Diptera	Otitidae	Q	C
Megaselia seticauda	Diptera	Phoridae	Q	B
Tipula paludosa	Diptera	Tipulidae	A	B
Holocranum saturejae	Hemiptera	Lygaeidae	Q	C
Rhyparochromus saturnius	Hemiptera	Lygaeidae.	Q	C
Nezara viridula	Hemiptera	Pentatomidae	B	C
Aleurothrixus floccosus	Homoptera	Aleyrodidae	B	C
Aleurotuberculatus jasmini	Homoptera	Aleyrodidae	Q	C
Dialeurodes citrifolii	Homoptera	Aleyrodidae	B	C
Tetraleurodes perseae	Homoptera	Aleyrodidae	B	C
Greenidia formosana	Homoptera	Aphididae	Q	C
Hyadaphis coriandri	Homoptera	Aphididae	Q	C
Melanaphis sacchari	Homoptera	Aphididae	Q	C
Melanaphis species	Homoptera	Aphididae	Q	C
Nasonovia ribisnigra	Homoptera	Aphididae	Q	C
Asiphum pseudobyrsum	Homoptera	Aphididae	B	C
Tinocallis ulmiparvifoliae	Homoptera	Aphididae	Q	C
Asterolecanium arabidis	Homoptera	Asterolecaniidae	B	C
Pollinia pollini	Homoptera	Asterolecaniidae	B	C
Empoasca near *guevarai*	Homoptera	Cicadellidae	Q	C
Sophonia rufofascia	Homoptera	Cicadellidae	Q	C
Ceroplastes sinensis	Homoptera	Coccidae	B	C
Eulecanium kunoense	Homoptera	Coccidae	B	C
Parlatoria oleae	Homoptera	Coccidae	B	C
Abgrallaspis howardi	Homoptera	Diaspididae	B	C
Aonidiella citrina	Homoptera	Diaspididae	B	C
Lepidosaphes camelliae	Homoptera	Diaspididae	B	C

RATING CHANGES TABLE, Cont.

NAME	ORDER	FAMILY	OLD	NEW RATING
Lepidosaphes destefanii	Homoptera	Diaspididae	B	C
Lepidosaphes gloverii	Homoptera	Diaspididae	B	C
Neopinnaspis harperi	Homoptera	Diaspididae	B	C
Parlatoria pittospori	Homoptera	Diaspididae	B	C
Siphanta acuta	Homoptera	Flatidae	B	C
Pseudococcus microcirculus	Homoptera	Pseudocccidae	B	C
Antonina graminis	Homoptera	Pseudococcidae	B	C
Dysmicoccus alazon	Homoptera	Pseudococcidae	B	A
Heterococcus pulverarius	Homoptera	Pseudococcidae	B	C
Pseudantoninia arundinariae	Homoptera	Pseudococcidae	B	C
Pseudococcus comstocki	Homoptera	Pseudococcidae	B	C
Pseudococcus elisae	Homoptera	Pseudococcidae	B	A
Rhizoecus arabicus	Homoptera	Pseudococcidae	Q	C
Vryburgia trionymoides	Homoptera	Pseudococcidae	Q	C
Bactericera chenopodii	Homoptera	Psyllidae	Q	C
Ctenarytaina spatulata	Homoptera	Psyllidae	Q	C
Freysuilla caesalpiniae	Homoptera	Psyllidae	Q	C
Glycaspis brimblecombei	Homoptera	Psyllidae	Q	C
Heteropsylla near *flexuosa*	Homoptera	Psyllidae	Q	C
Homotoma ficus	Homoptera	Psyllidae	B	C
Eucalyptolyma maideni	Homoptera	Psyllidae	Q	C
Eupristina verticillata	Hymenoptera	Agaonidae	Q	C
Josephiella microcarpe	Hymenoptera	Agaonidae	Q	C
Walkerella microcarpae	Hymenoptera	Agaonidae	Q	C
Apis mellifera scutellata	Hymenoptera	Apidae	B	C
Megastigmus pistaciae	Hymenoptera	Chalcididae	Q	C
Epichrysocharis burwelli	Hymenoptera	Eulophidae	Q	C
Aprostocetus spp.	Hymenoptera	Eulophidae	Q	C
Sycophila species	Hymenoptera	Eurytomidae	Q	C
Pheidole fervens	Hymenoptera	Formicidae	Q	C
Pheidole moerens	Hymenoptera	Formicidae	Q	C
Polistes dominulus	Hymenoptera	Vespidae	Q	C
Odontofroggatia galili	Hymentoptera	Agaonidae	Q	C
Odontofroggatia ishii	Hymentoptera	Agaonidae	Q	C
Homaldera sabalella	Lepidoptera	Coleophoridae	Q	B
Tildenia glochinella	Lepidoptera	Gelechiidae	Q	C
Apterona helix	Lepidoptera	Psychidae	B	C
Dichomeris marginella	Lepidoptera	Pyralidae	Q	C
Pyraustra volupialis	Lepidoptera	Pyralidae	Q	C
Spectrobates ceratoniae	Lepidoptera	Pyralidae	B	C
Podosesia syringae	Lepidoptera	Sesiidae	B	C
Dryadaula terpsichorella	Lepidoptera	Tineidae	Q	C
Phereoeca praecox	Lepidoptera	Tineidae	Q	C
Ceciloides acicula	*Mollusca*	*Achatinidae*	*B*	*A*

RATING CHANGES TABLE, Cont.

NAME	ORDER	FAMILY	OLD	NEW RATING
Lamellaxis clavulinas	Mollusca	Achatinidae	B	**A**
Opeas pumilum	Mollusca	Achatinidae	B	**A**
Opeas pyrgula	Mollusca	Achatinidae	B	**A**
Pomacea canaliculata	Mollusca	Ampullariidae	Q	**A**
Xerotricha conspurata	Mollusca	Hygromiidae	Q	**C**
Subulina octona	Mollusca	Subulinidae	B	**A**
Anabrus simplex	Orthoptera	Tettigonidae	Q	**C**
Aeolothrips collaris	Thysanoptera	Aeolothripidae	Q	**C**
Danothrips trifasciatus	Thysanoptera	Thripidae	Q	**B**
Frankliniella hemerocallis	Thysanoptera	Thripidae	Q	**C**
Pseudanaphothrips achaetus	Thysanoptera	Thripidae	Q	**C**
Scirtothrips perseae	Thysanoptera	Thripidae	Q	**C**

RATING CHANGES TABLE

Alphabetical Order

NAME	ORDER	FAMILY	OLD	NEW RATING
Abgrallaspis howardi	Homoptera	Diaspididae	B	**C**
Aceria genistae	Acari	Eriophyidae	Q	**C**
Aeolothrips collaris	Thysanoptera	Aeolothripidae	Q	**C**
Aleurothrixus floccosus	Homoptera	Aleyrodidae	B	**C**
Aleurotuberculatus jasmini	Homoptera	Aleyrodidae	Q	**C**
Anabrus simplex	Orthoptera	Tettigonidae	Q	**C**
Antonina graminis	Homoptera	Pseudococcidae	B	**C**
Aonidiella citrina	Homoptera	Diaspididae	B	**C**
Apis mellifera scutellata	Hymenoptera	Apidae	B	**C**
Aprostocetus spp.	Hymenoptera	Eulophidae	Q	**C**
Apterona helix	Lepidoptera	Psychidae	B	**C**
Asiphum pseudobyrsum	Homoptera	Aphididae	B	**C**
Asterolecanium arabidis	Homoptera	Asterolecaniidae	B	**C**
Atrichonotus taeniatulus	Coleoptera	Curculionidae	Q	**B**
Bactericera chenopodii	Homoptera	Psyllidae	Q	**C**
Ceciloides acicula	Mollusca	Achatinidae	B	**A**
Ceroplastes sinensis	Homoptera	Coccidae	B	**C**
Chrysomya rufifacies	Diptera	Calliphoridae	Q	**C**
Ctenarytaina spatulata	Homoptera	Psyllidae	Q	**C**
Danothrips trifasciatus	Thysanoptera	Thripidae	Q	**B**
Dasineura rhodophaga	Diptera	Cecidomyiidae	Q	**B**
Dialeurodes citrifolii	Homoptera	Aleyrodidae	B	**C**
Dichomeris marginella	Lepidoptera	Pyralidae	Q	**C**
Dryadaula terpsichorella	Lepidoptera	Tineidae	Q	**C**
Dysmicoccus alazon	Homoptera	Pseudococcidae	B	**A**
Empoasca near *guevarai*	Homoptera	Cicadellidae	Q	**C**
Epichrysocharis burwelli	Hymenoptera	Eulophidae	Q	**C**
Eucalyptolyma maideni	Homoptera	Psyllidae	Q	**C**
Eulecanium kunoense	Homoptera	Coccidae	B	**C**
Eupristina verticillata	Hymenoptera	Agaonidae	Q	**C**
Euxesta stigmatias	Diptera	Otitidae	Q	**C**
Frankliniella hemerocallis	Thysanoptera	Thripidae	Q	**C**
Freysuilla caesalpiniae	Homoptera	Psyllidae	Q	**C**
Glycaspis brimblecombei	Homoptera	Psyllidae	Q	**C**
Gonipterus scutellatus	Coleoptera	Curculionidae	Q	**C**
Greenidia formosana	Homoptera	Aphididae	Q	**C**
Heterococcus pulverarius	Homoptera	Pseudococcidae	B	**C**
Heteropsylla near *flexuosa*	Homoptera	Psyllidae	Q	**C**
Holocranum saturejae	Hemiptera	Lygaeidae	Q	**C**
Homaldera sabalella	Lepidoptera	Coleophoridae	Q	**B**
Homotoma ficus	Homoptera	Psyllidae	B	**C**

RATING CHANGES TABLE, Cont.

NAME	ORDER	FAMILY	OLD	NEW RATING
Hyadaphis coriandri	Homoptera	Aphididae	Q	C
Josephiella microcarpe	Hymenoptera	Agaonidae	Q	C
Lamellaxis clavulinas	Mollusca	Achatinidae	B	A
Lepidosaphes camelliae	Homoptera	Diaspididae	B	C
Lepidosaphes destefanii	Homoptera	Diaspididae	B	C
Lepidosaphes gloverii	Homoptera	Diaspididae	B	C
Megaselia seticauda	Diptera	Phoridae	Q	B
Megastigmus pistaciae	Hymenoptera	Chalcididae	Q	C
Melanaphis sacchari	Homoptera	Aphididae	Q	C
Melanaphis species	Homoptera	Aphididae	Q	C
Musca autumnalis	Diptera	Muscidae	B	C
Nasonovia ribisnigra	Homoptera	Aphididae	Q	C
Neopinnaspis harperi	Homoptera	Diaspididae	B	C
Nezara viridula	Hemiptera	Pentatomidae	B	C
Odontofroggatia galili	Hymentoptera	Agaonidae	Q	C
Odontofroggatia ishii	Hymentoptera	Agaonidae	Q	C
Opeas pumilum	Mollusca	Achatinidae	B	A
Opeas pyrgula	Mollusca	Achatinidae	B	A
Parlatoria oleae	Homoptera	Coccidae	B	C
Parlatoria pittospori	Homoptera	Diaspididae	B	C
Pheidole fervens	Hymenoptera	Formicidae	Q	C
Pheidole moerens	Hymenoptera	Formicidae	Q	C
Phereoeca praecox	Lepidoptera	Tineidae	Q	C
Phoracantha semipunctata	Coleoptera	Cerambycidae	B	C
Podosesia syringae	Lepidoptera	Sesiidae	B	C
Polistes dominulus	Hymenoptera	Vespidae	Q	C
Pollinia pollini	Homoptera	Asterolecaniidae	B	C
Pomacea canaliculata	Mollusca	Ampullariidae	Q	A
Pseudanaphothrips achaetus	Thysanoptera	Thripidae	Q	C
Pseudantoninia arundinariae	Homoptera	Pseudococcidae	B	C
Pseudococcus comstocki	Homoptera	Pseudococcidae	B	C
Pseudococcus elisae	Homoptera	Pseudococcidae	B	A
Pseudococcus microcirculus	Homoptera	Pseudocccidae	B	C
Pyraustra volupialis	Lepidoptera	Pyralidae	Q	C
Rhizoecus arabicus	Homoptera	Pseudococcidae	Q	C
Rhyparochromus saturnius	Hemiptera	Lygaeidae.	Q	C
Scirtothrips perseae	Thysanoptera	Thripidae	Q	C
Siphanta acuta	Homoptera	Flatidae	B	C
Sophonia rufofascia	Homoptera	Cicadellidae	Q	C
Spectrobates ceratoniae	Lepidoptera	Pyralidae	B	C
Subulina octona	Mollusca	Subulinidae	B	A

RATING CHANGES TABLE, Cont.

NAME	ORDER	FAMILY	OLD	NEW RATING
Sycophila species	Hymenoptera	Eurytomidae	Q	C
Tetraleurodes perseae	Homoptera	Aleyrodidae	B	C
Tildenia glochinella	Lepidoptera	Gelechiidae	Q	C
Tinocallis ulmiparvifoliae	Homoptera	Aphididae	Q	C
Tipula paludosa	Diptera	Tipulidae	A	B
Trachymela sloanei	Coleoptera	Chrysomelidae	Q	C
Vryburgia trionymoides	Homoptera	Pseudococcidae	Q	C
Walkerella microcarpae	Hymenoptera	Agaonidae	Q	C
Xerotricha conspurata	Mollusca	Hygromiidae	Q	C