CALIFORNIA PLANT PEST and DISEASE REPORT

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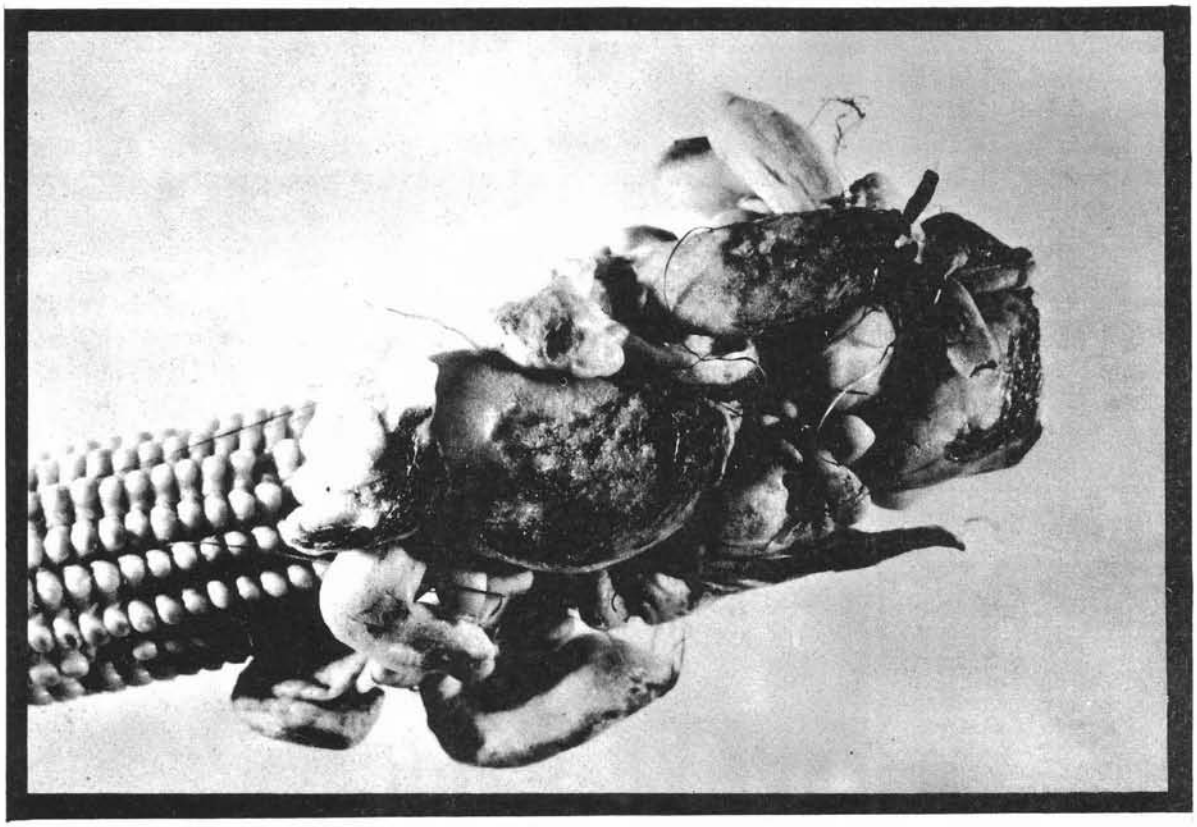
California Department of Food and Agriculture 1220 N Street Sacramento California 95814



Symptoms caused by the Corn Smut fungus, *Ustilago maydis*, on an ear of corn (photo by C.F. Fukushima).

THE SMUT FUNGI

T.T. Matsumoto, D.W. Showers and J.A. Miller

The smuts, a fungal group comprising more than 1,100 species, parasitize over 75 different plant families. The smuts include such well known genera as *Ustilago*, *Urocystis*, *Tilletia* and *Sphacelotheca*. State, county and federal regulatory programs directly apply to some 31 species of smut fungi.

Difficulties in the laboratory identification of smut fungi have been due to improper host identification, lack of adequate host material, or contamination of diseased samples with other host material (i.e. weeds). The authors are attempting to identify and differentiate the smuts involved in California's regulatory programs, relying solely on spore and sterile cell morphology. The scanning electron microscope is being used as a laboratory tool to study the spore wall ornamentation. Preliminary data has shown that the 31 species of regulatory smuts can be identified without information about host or soral characters.

Corn Smut

T.T. Matsumoto, F.F. Kuo and C.K. Fukushima

Corn smut is caused by a seed-borne fungus, *Ustilago maydis*. This disease is listed in California's phytosanitary seed certification program for corn. Corn smut is widespread in California.

Ustilago maydis occurs in actively growing plant tissue (inflorescences, leaves and stems). Sori or galls form irregular swellings and are initially covered by white, cream or greenish membranes. Later, sori rupture exposing powdery spore masses which are olive brown to dark brown in color (Fig. a). Spores are globose to ellipsoidal in shape (Fig. b-g). Spore walls are spined or echinulate (Fig. i).

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Correspondence should be addressed to the appropriate member of the editorial staff of the California Plant Pest and Disease Report (C.P.P.D.R.):

Entomology editor	*Ray Gill*
Plant Pathology editor	*Alex French*
Botany & Seed editor	*Douglas Barbe*
Nematology editor	*Renaud Fortuner*
Layout editor	*Jeanenne White*

Analysis and Identification Unit
Department of Food and Agriculture
1220 N Street, Room 340
Sacramento, California 95814

The editors and readers of C.P.P.D.R. wish to express their sincere appreciation to T.E. Tidwell for his outstanding work as Plant Pathology editor since this publication was instituted.

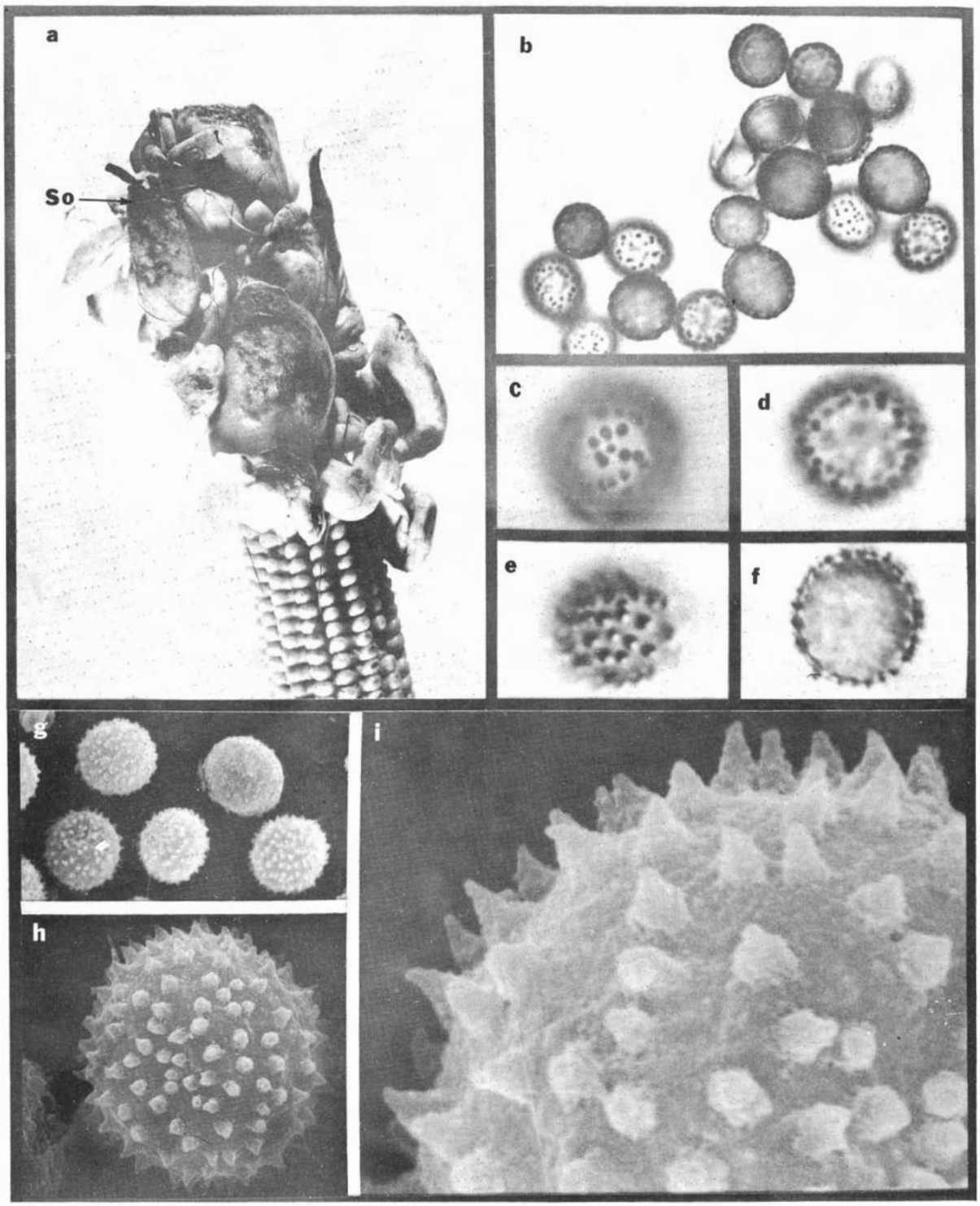


Fig. a. Galls or sori (So) of *Ustilago maydis* are covered with a membrane which later ruptures to expose spore masses.

Fig. b-f. Spores of *Ustilago maydis*, showing size and shape variations as viewed with the interference contrast microscope.

Fig. g-i. Distinctive ornamentation of echinulate spore walls revealed by the scanning electron microscope

Onion Smut

T.T. Matsumoto, C.K. Fukushima and D.W. Showers

Smut of onions, caused by the fungus *Urocystis cepulae*, is a seed-borne disease regulated by the phytosanitary seed certification program. Thus, if this disease is found in the field, the seeds cannot be given phytosanitary certification required by specific importing countries.

Urocystis cepulae can infect onions, shallots, garlic, leeks and chives. The disease occurrence in California is sporadic. The geographical distribution is worldwide.

Disease symptoms first appear as dark thickened areas on young plants. The leaf lesions, or "sori" (So, Fig. a), later break open to expose dark spore masses. The laboratory identification of *Urocystis cepulae* is based on four characteristics:

1. Host range
2. Soral Features
3. Spore Characters
4. The presence of sterile cells on the surface of the spore.

Spores of *Urocystis cepulae* are called "spore balls" (Fig. b-f). A "spore ball" is an individual spore (Sp) which is surrounded by a layer of sterile cells (SC) (Fig. g-i).

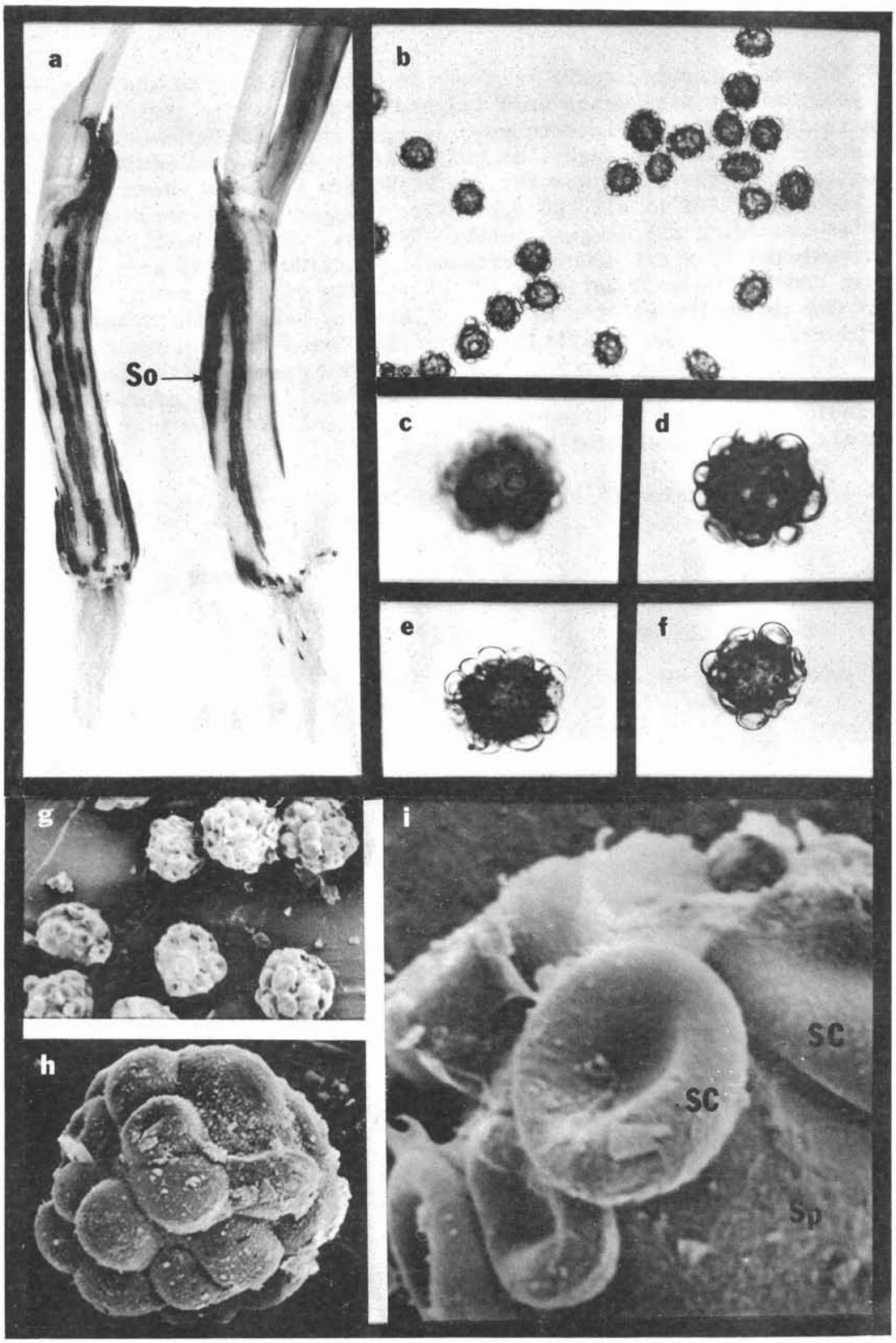
T. T. Matsumoto is a Plant Pathologist; D. W. Showers, J. A. Miller, F. F. Kuo and C. K. Fukushima are Laboratory Technicians with the CDFA Analysis and Identification Unit, Sacramento.

(Photos on opposite page)

Fig. a. Sorus (So) of *Urocystis cepulae* appears as a dark, thickened area on onion tissue.

Fig. b-f. "Spore balls" of *U. cepulae* as observed under the compound microscope.

Fig. g-h. Scanning electron micrographs show the attachment of sterile cells (SC) to individual spores (Sp).


a
So
b
c
d
e
f
g
h
i
SC
SC
Sp

HIGHLIGHTS

INSECTS

GYPSY MOTH (*Lymantria dispar*) - (A) - in California is on the increase. This year, ninety-nine moths were trapped throughout the state. The season began in June and ended in October. July, August and September were the most active months with August as our busiest, 48 trapped adults. The hottest spot in the state was the San Francisco Bay area where eight counties were involved. All in all, 80 moths were trapped with Alameda and Marin counties recording the largest number of moths. Some were taken by hand or in vehicles by alert county personnel. Outside the Bay area, Los Angeles, Ventura and San Diego counties had trap results of about seven adults per area. The detection efforts of Lopez, Bolster, Weber, Stultz and Gunnarson gave us records in the outlying areas of San Bernardino, El Dorado, Shasta and San Luis Obispo counties, respectively. We are pleased with the detection efforts and personnel who worked so hard to provide this information. Too many individuals were involved to list individually, so we wish to sincerely thank all for the successful team effort.

Adult Gypsy Moths taken in traps (unless otherwise noted):

DATE	LOCATION, CO.	COLLECTOR	REMARKS
6-29	Thousand Oaks, V	Peterson	
7-9	San Jose, STCL	Bass	Eggs, pupae-on trailer
7-13	Serra Mesa, SD	Moss	
7-16	Clayton, CC	Ramos	
7-19	Redding, SH	Weber	
7-20	Vallejo, Sol	DeHoop	larvae-plastic garbage can
7-20	San Diego, SD	Williams	
7-21	San Diego, SD	Hinton/Williams	
7-21	Pleasanton, Ala	Eastman	
7-22	Pleasanton, Ala	Whitaker/Bingham	
7-22	Pleasanton, Ala	Greene	
7-22	Pleasanton, Ala	Greene	
7-22	Pleasanton, Ala	Eastman	caught by hand
7-23	Menlo Park, SM	Struffenegger	
7-23	San Diego, SD	Moss	
7-23	Clayton, CC	Ramos, Cruickshank, Wallace	
7-25	LaJolla, SD	Moss	
7-26	Livermore, Ala	Curtner	
7-26	Cameron Park, ED	Bolster	
7-26	Clayton, CC	Kean, Cruickshank	
7-26	Atherton, SM	Struffenegger	
7-27	Thousand Oaks, V	Peterson	
7-27	Campbell, STCL	Scott	
7-28	Los Gatos, STCL	Scott	
7-28	San Jose, STCL	Archbuleta	
7-28	Novato, Mar	Perrault	

DATE	LOCATION, CO.	COLLECTOR	REMARKS
7-29	Arroya Grande, SLO	Stultz, Gunnarson	egg mass on bench
7-29	Livermore, Ala	Baggott	
7-30	Livermore, Ala	Baggott	
7-30	Novato, Mar	Argraves	Larvae-live oak
7-31	Novato, Mar	Perrault, Argraves	larvae-barbeque
7-31	Novato, Mar	Perrault	pupae, adult-wall of building
7-31	Novato, Mar	Skillman	larvae, pupae-wall of house
8-1	San Mateo, SM	Ryan	
8-2	San Mateo, SM	Ryan	
8-2	San Mateo, SM	Ryan	
8-2	Union City, Ala	Sweigart	
8-2	Livermore, Ala	Baggott	
8-2	Pleasanton, Ala	Eastman	
8-2	Novato, Mar	Alvarado	
8-2	Novato, Mar	Alvarado	
8-3	Kensington, CC	Schwartz	
8-3	Westlake Village, LA	Houck	
8-4	Menlo Park, SM	Hennessy	
8-4	Atherton, SM	Deppar	
8-4	Westlake Village, LA	Houck	
8-4	Clayton, CC	Ramos	
8-4	Clayton, CC	Ramos	
8-6	Upland, SBO	Lopez-Plant	
8-6	Upland, SBO	Lopez-Plant	larvae-rowboat, BBQ,garbage cans
8-6	Novato, Mar	Alvarado	
8-6	Novato, Mar	Alvarado	
8-7	Menlo Park, SM	Van Wassenhove	
8-9	Fremont, ALa	Keshmiry	
8-9	Novato, Mar	Alvarado	
8-10	San Mateo, SM	Masini	
8-10	Novato, Mar	Perrault	
8-10	Palo Alto, STCL	Maranon	
8-10	San Mateo, SM	Masini	
8-11	Brisbane, SM	Ryan	
8-11	San Jose, STCL	Wallace	
8-13	Alamo, CC	Case	
8-13	Los Altos Hills, STCL	Maranon	
8-13	Los Altos, STCL	Maranon	
8-13	Mountain View, STCL	Maranon	
8-16	Menlo Park, SM	Hennessy	
8-16	Menlo Park, SM	Hennessy	
8-16	Oakland, ALA	Brownfield	
8-17	Novato, Mar	Perrault	
8-17	San Diego, SD	Dearie, Anderson	
8-17	Los Altos, STCL	Maranon	
8-17	Berkeley, Ala	Brownfield	
8-17	Berkeley, Ala	Brownfield	
8-18	Los Altos Hills, STCL	Maranon	
8-19	San Mateo, SM	Gold	
8-23	Menlo Park, SM	Reppas	
8-23	Mill Valley, Mar	Sangalli	

DATE	LOCATION, CO.	COLLECTOR	REMARKS
8-24	Ladera, SM	Ryan	
8-26	Novato, Mar	Alvarado	
8-30	San Ramon, CC	Dulian	
8-30	Berkeley, Ala	Brownfield	
9-2	Novato, Mar	Datrock	
9-8	Commerce, LA	Eng	
9-8	Campbell, STCL	Bombaci	
9-9	Novato, Mar	Brown	larvae in oak
9-10	Oakland, Ala	Baggott	
9-10	Novato, Mar	Skillman	
9-15	Capitola, STCZ	Klauer	
9-15	Petaluma, Son	Mosley	
9-20	Berkeley, Ala	Brownfield	
9-23	Novato, Mar	Alvarado	
9-28	Palo Alto, STCL	Ramos, Bombaci	
9-28	Clayton, CC	Clark, Hom	egg mass, larvae, pupae in wood pile
9-28	Palo Alto, STCL	Huger, McCullough	stage? - tube of swing set
9-29	Clayton, CC	Bejarani	egg mass, pupae in buckeye & oak
10-4	Palo Alto, STCL	McCullough	pupa under house
10-5	Westlake Village, LA	Tsumara	all life stages in wooden bird-house
10-6	Westlake Village, LA	Cornett	larvae, pupae in alder

MEDITERRANEAN FRUIT FLY (*Ceratitis capitata*) - (A) - This fruit fly is of course now considered eradicated from California. However, after our last issue of CPPDR was prepared but before eradication was declared, there had been two collections of wild flies. They are reported here only to complete the CPPDR records which have temporarily fallen behind. A wild male fly was collected from a Jackson Trap in a peach tree in Stockton, San Joaquin County on June 24, 1982 by Milton O'Haire. A single wild male was also collected in a Jackson trap in a peach tree in Los Angeles on July 21, 1982 by Kenrad and Pearce.

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - (A) - Seven specimens of this fruit fly have been collected in traps since July. Locations include 1 ♂ Claremont, L.A. County 7/21/82 in lemon collected by Chester Olsen; 1 ♂ La Jolla, San Diego County on 7/30/82 in an orange tree by Gonzalez and Parisek; 1 ♂ La Verne, Los Angeles County, 8/6/82 in a plum tree by L. Lynch; 1 ♂ Montclair, San Bernardino County on 8/2/82 in a peach tree by Rachel Lopez-Plant; 1 ♂ Sierra Madre, Los Angeles County in a plum on 10/7/82 by Ron Eng; 1 ♂ La Jolla, San Diego County in a plum on 7/25/82 by B. Moss; and 1 ♂ Pomona, Los Angeles County in a plum on 8/6/82 by Mark Adams.

Careful follow up on each of these finds indicated that no active infestations were present, although the two finds in Claremont and Montclair are only 5 blocks apart.

BLACK CHERRY FRUIT FLY (*Rhagoletis fausta*) - (A) - was taken twice this last season. Both samples were collected by Mayra Morris on August 4 and 23, at the Highway 36 Crossroad Inn in the Plumas County and Lake Almanor area. This species is found in northern coastal and Sierran habitat in association with Bitter Cherry, *Prunus emarginata*. It has not yet been taken in commercial plantings of cherry within the state of California.

WESTERN CHERRY FRUIT FLY (*Rhagoletis indifferens*) - (A) - Specimens continue to be trapped in the northern mountain regions. There were 5 collections in July and August from Siskiyou County made by Doug Horn and Becki Smith. Locations in Siskiyou included Mt. Shasta City, Gazelle and Yreka. Collections were also made at Lake Almanor, Plumas County on August 8 by Mayra Morris and also at Lake Almanor but in Shasta County on August 23 by Mayra Morris.

NEW STATE RECORDS

A New Whitefly in California on Avocados, Redbanded Whitefly *Tetraleurodes* sp.

This whitefly, a species of *Tetraleurodes* which is probably undescribed, is new to California. It was found on October 5 infesting avocados at a residence at 3529 Glade Street in San Diego, by Ginsky and Blocker. The infestation averaged about 8 to 12 specimens per leaf. The specimens were identified by Steve Nakahara, whitefly specialist at the U.S. National Museum.

The whitefly has been intercepted a number of times by USDA Plant Quarantine authorities from such locations as Mexico, El Salvador and Trinidad. There are specimens in the USNM collection that were taken at Fort Pierce and other locations in Florida. Mexico collections have been made as far north as Durango and San Luis Potosi. Also, Mike Rose, whitefly parasite introduction specialist at U.C. Riverside, feels that he has seen the same whitefly causing problems on avocado in Michoacan. Natural enemies of the Michoacan whitefly were present, but pyrethroid insecticide applications may have caused the whitefly outbreak there according to Mike.

Mike Rose of UCR and Ray Rinder of San Diego County made a quick delimitation check and have found the whitefly infesting avocados at least ¼ mile away from the original San Diego location.

Economic potential of this species in California cannot be predicted at this time. There is a good chance that it will impact the Southern California avocado industry.

Our recommendations now are for a delimitation survey in San Diego and for initiation of a natural enemy importation program through the University of California.

The whitefly should be easy to recognize in the field. The pupal cases are about 1 mm long, jet black with a fringe of white marginal wax. The wax fringe in the pupa, instead of extending outward horizontally as in the mulberry whitefly, extends instead straight upward perpendicular to the leaf surface, then curls inward over the dorsum of the pupa. It should be noted however that the wax fringe of the nymphal stages are horizontal as they are in mulberry whitefly. Wings of both male and female adults have 3 brownish markings on the apical half of the wing, a vermillion zig-zag mark at mid wing and 2 small vermillion spots near the base. Because of the red wing

markings this whitefly will be given the name redbanded whitefly.

Another new state record, a plant hopper, *Pintalia delicata* in the family Cixiidae, has been identified by Dr. James Kramer at the US National Museum. The collection of 1 ♂ was made on August 13 in Orange, Orange County on marigolds at a residence by Travis McRoberts. Previous collections of what is probably this species were made as far back as 1958 in Riverside County and 1967 in Orange County. However, these specimens were all females and so positive identifications could not be made at that time.

This plant hopper is 6 mm long, brown in color with a broad tan median stripe extending from the head to about the middle of the wings.

It probably is not of economic concern to California.

Torpedo Bug - New California and North American Record

Siphanta acuta is a Fulgoroid plant-hopper in the Family Flatidae. Egg masses of this insect were collected in the University City area of San Diego on October 21 by J. Blocker and W. Williams. The egg masses were found on oleander. Identifications were confirmed when the collectors returned to the site and collected an adult male and several nymphs. The identity of the adult was confirmed by Dr. James Kramer at the U.S. National Museum.

Further collections of egg masses at 11 separate locations indicate that the infestation covers approximately a 50 square mile area bounded by Lindberg Field and La Jolla on the west and Highway 805 on the east.

Egg masses were originally collected on oleander but all subsequent collections have been from citrus. The insect is known to be a pest of citrus and coffee in Hawaii. It is a polyphagous species, also feeding on *Acacia*, *Coprosma*, eucalyptus, guava, caneberries and many other hosts.

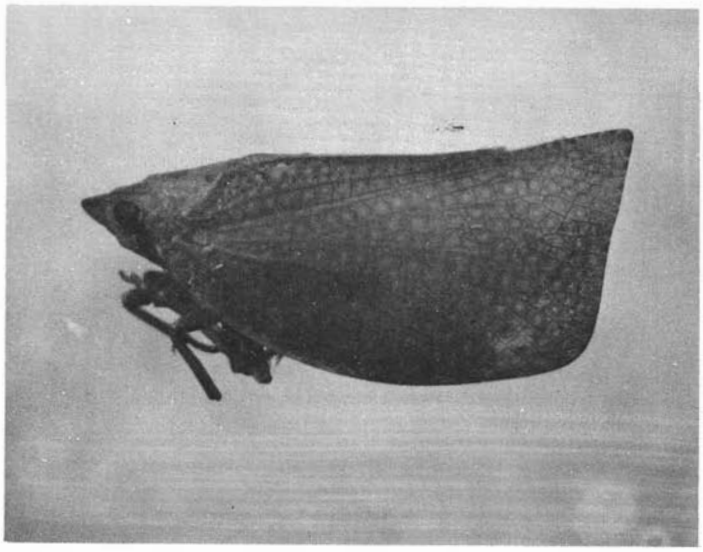
This insect is apparently native to Australia. It has been introduced into New Zealand and Tasmania. It was introduced into Hawaii about 1898. By 1900 it had become a serious pest of many plants there. Subsequently a Proctrotrupoid egg parasite was introduced by Albert Koebele from Australia. The parasite effectively controlled the hopper in Hawaii.

Egg masses of this insect are frequently seen on plants entering California from Hawaii and it is suspected that the San Diego infestation originated from the Islands. The economic potential of this species in California is unknown at this time. However, the infestation in San Diego is probably too large to warrant an eradication program. A biological control approach is recommended.

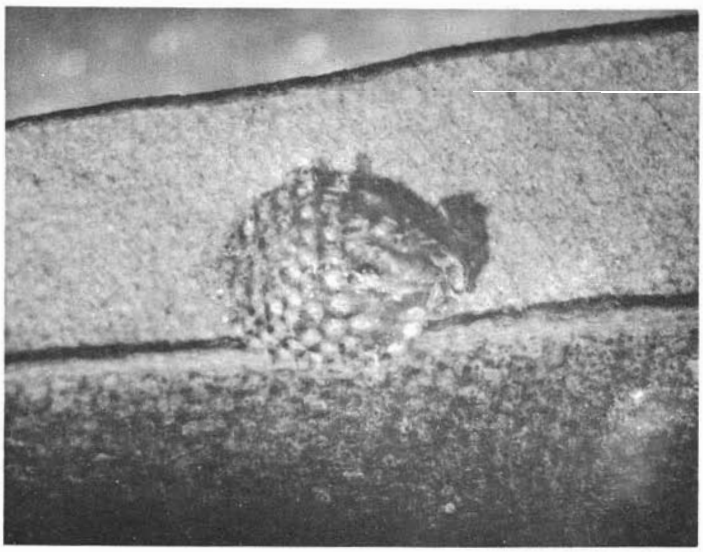
This common, widespread hopper, called "torpedo bug" because of its great leaping powers, is one of the most characteristic members of our Fulgoroid fauna. The hind edges of the green truncated tegmina are edged with pink.

The eggs are deposited in sub-circular masses about 5 mm in diameter on the leaves of plants. The egg-mass is slightly convex because the eggs in the middle of the mass are placed more nearly upright than those along the margins. The entire clutch of up to more than 100 eggs is glued together and partially covered by a cement.

Adult torpedo bug, lateral view



Torpedo bug egg masses



The green and red nymphs of the five instars prefer to feed upon leaves, but older ones feed upon stems.

"They are very inactive, sitting for hours with their beaks applied to the stem. Occasionally an abdomen commences to vibrate - the vibrations pass gradually to an up-and-down thrashing - and at the moment of greatest amplitude of the movement, on the summit of an up-stroke, a perfectly spherical bead of honeydew, almost as big as the width of the abdomen at its tip, is exuded, and rapidly jerked away between the tufts of filaments which lie on each side of anal extremity, and parted for the purpose. The younger instars are less forcible in this process, and frequently show a bead of honeydew held by the caudal filaments long after it has left the body....All of the nymphs have a peculiar habit of swaying rhythmically from side to side - either when stationary or during the act of walking slowly....The fifth instar nymphs can jump as far as 2 ft. The adult plant-hopper, if it jumps at all, almost always spreads its wings while in the air....The older nymphs are often surrounded by a mealy halo of white pruinose material from the filaments, which are easily detachable." (From J.G. Myers, 1922, Life-history of *Siphanta acuta*, the large green plant-hopper.)

Carob Moth in California

The carob moth (*Ectomyelois ceratoniae* Zell.) was recently discovered in dates on the ground in a grove in Indio, Riverside County. This represents the first recording of this exotic pest in California.

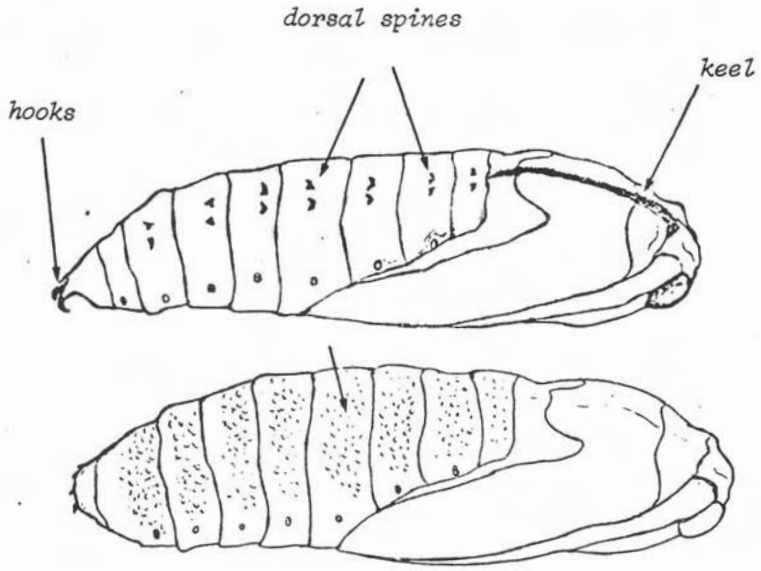
Apparently, the carob moth is a native pest of locust beans, and dried fruit and nuts in the Mediterranean region and has spread, probably via infested host material, to where it is currently known in Australia, Hawaii, Trinidad, Puerto Rico and Florida. Where it occurs in Australia, carob beans and almonds are the major hosts, but it has also been recorded from oranges, loquats, apples, pears, figs, pomegranates, quinces, peaches and apricots.

Carob moth, new to California, is most similar to navel orangeworm, and they can be found on the same hosts. The following pages contain illustrations which will aid in separating the two species. Illustrations by T.D. Eichlin

Morphological comparison of the pupae of carob moth and the similar navel orangeworm (dorso-lateral view). The dorsal thoracic keel, the paired broad dorsal spines on the abdomen and the terminal abdominal pair of hooks will distinguish the carob moth.

(E. ceratoniae)

(A. transitella)



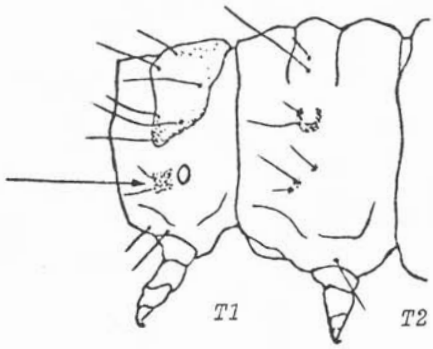
Comparison of the head capsules of carob moth and navel orangeworm (lateral view). The posterior dark brown band will distinguish carob moth.

(E. ceratoniae)

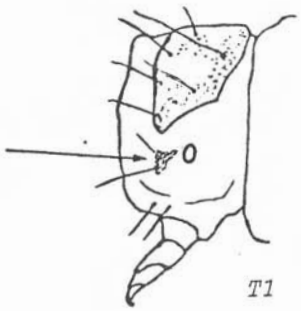
(A. transitella)

Comparison of chaetotaxy of carob moth and navel orangeworm (lateral view of thoracic segments). The quadrate pre-spiracular pinnacula of carob moth differ from the triangular pinnacula of navel orangeworm.

(E. ceratoniae)

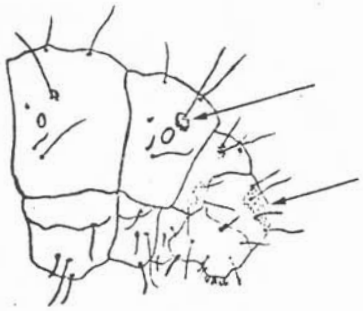


(A. transitella)



Comparison of abdominal chaetotaxy of carob moth and navel orangeworm (lateral view). The characters are somewhat variable and separation of the two species should be based on a combination of all characters indicated.

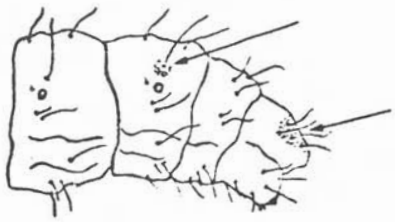
(E. ceratoniae)



A3

(A. transitella)

A7-10



Eggs are deposited directly on developing or mature fruit. The pinkish caterpillars feed in the fruit, either on the tree or on the ground. Fully grown, they measure about 3/4 inch in length. The damage resembles that caused by other pests, such as the codling moth, and several of the closely related stored products moth pests, such as the navel orangeworm, almond moth, raisin moth, Indian meal moth, etc. These pyralid moths are basically non-descript, greyish in color, with a wing span of about 3/4 inch. Pupation usually takes place in the fruit but may occur in bark crevices or in ground litter. Being of tropical or subtropical origin, this species will produce multiple broods, local climate permitting, and can become dormant as a larva during cooler months of the year.

Like its relatives, the species' habits of multiple generations and ability to feed within dried fruits, seeds, and nuts makes the carob moth an actually or potentially serious pest to products of this nature in storage, as well as fresh on the trees and in dropped fruit in orchards. Known from seed pods of various legumes, including mesquite (*Prosopis* spp.), it would have many native hosts in California to sustain a resident population in the wild and could represent a threat to various legumes (beans, etc.) under cultivation.

Most of the known host plants and many of the potential hosts for this moth are grown in California and are of considerable commercial value. The original identification was made by George Okumura. The confirming identification was made by Tom Eichlin.

NEW COUNTY RECORDS

New County Records discovered during this period include:

Fuchsia Mite *Aculops fuchsiae* at Vallejo, Solano County on July 2 by DeHoop.

A Leafhopper *Ossiannilssonola volans* at Kelsey, El Dorado County in a Jackson Trap in pear. Collected on June 22 by Terence Newkirk.

Chinese wax scale *Ceroplastes sinensis* at Modesto, Stanislaus County on citrus by Gary Beebout and Ray Bingham. This September 29 find is the first collection of this "B" rated scale outside the San Francisco Bay area.

A moth *Homadaula anisocentra* - This glyphipterygid moth was collected in the larval stage from a locust tree at Hanford, Kings County on August 12 by Lloyd Bookout.

Tuliptree aphid *Illinoia liriodendri* is new to Riverside County. This aphid was collected on tulip tree on the U.C. Campus on June 30 by Eldon Reeves and D. Sylwester.

Dusky-veined walnut aphid *Callaphis juglandis* was collected from walnut at Sonora, Tuolumne County on June 30 by Addiego.

Peach curl aphid *Brachycaudus schwartzi* has been found in two new counties. It causes severe curling of the host leaves and is possibly a recent import from Europe. Collections were made on August 3 on peach trees in Upland, San Bernardino County by Lopez and Meyers and on September 24 also on peach trees at Redding, Shasta County by Farm Advisor Russell Gripp.

Australian sod fly *Altermetoponia (=Inopus) rubricepes* seems to be spreading from original infestation sites near San Francisco. New records include Oakland, Alameda County collected from St. Augustine Grass by L.W. Barclay on June 28 and Seaside, Monterey County on October 18, by Brad Oliver.

Miscellaneous Finds of Significance

Japanese beetle *Popillia japonica* (A) has been collected three times this year in traps. These single individuals apparently do not represent an established infestation. Collections included Fresno Air Terminal on 7/14 by Robin Rogers; Los Angeles International Airport on 7/15 by Cabreina and Cummings; and Westchester on 7/28 by Cabreina and Cummings.

Tulip tree scale *Toumeyella liriodendri* (A) has again been found in San Leandro, Alameda County, just outside the old treated eradication area on 32 properties covering some 25 blocks. To date, there have been 2804 properties surveyed in a 104 block area. Eradication procedures will begin in November.

Mining scale *Howardia biclavis* (A) was found infesting *Ficus benjamina* nursery stock at Valley Center, San Diego County on May 10 by L. Parker. Eradicative measures were taken.

Purple scale *Lepidosaphes beckii* (B) has been collected in Sacramento, Sacramento County infesting citrus in June 1982 by J. Jensen and Merle Scribner. This scale has apparently not been officially recorded from this county since 1946.

Garden Bagworm *Apterona crenulata* (B) Four collections, three in June and one in August, of these tent-making moths were made in Northern California from Sonoma, Nevada, El Dorado and Alameda Counties. The Sonoma County collection, by Westoby at Santa Rosa, represents a new county record for this pest.

Pest Rating Changes

A Snail *Bradybena similaris* has been changed from a "Q" to "B" rating.
Fuchsia Mite *Aculops fuchsiae* has been changed from a "Q" to "B" rating.

Other Interesting Insect Problems

Straw Itch Mites *Pyemotes tritici* - These mites have been reported causing dermatitis conditions to ranchers in the Santa Maria area of Santa Barbara County. This mite (in the mite family Pyemotidae) is known to commonly cause severe dermatitis in man. It is primarily a parasite of the Angoumois grain moth, wheat joint worm and other grain or straw feeding insect larvae. People who come in contact with grains, straw, hay, grasses, broomcorn, and other dried crops that have been infested by the mites may be severely attacked. As many as 200 to 300 bites per person have been reported in the Middle West, causing fever, malaise and other associated symptoms. Welts or lesions are the first sign of attack and these usually appear from 10 to 16 hours after exposure. Fortunately the attacks are temporary and many cases are probably not reported to doctors. Apparently chigger repellants are said to lessen the severity of attack if one has to work around infested materials.

Grape leaf skeletonizer *Harrisina brillians* - taken from a number of locations in California this year. The largest number of submissions was from the region of the state capitol, 10 records. The cities near the infestations were Roseville, Elk Grove and Orangevale. Kern County had three submissions from McFarland, Shafter and Tehachapi. Further south, Riverside County recorded a new location for the moth at Rubidoux. One submission came from San Diego County at Vista. Most of these records were from non-commercial grapes.

Unknown Kiwifruit Disease

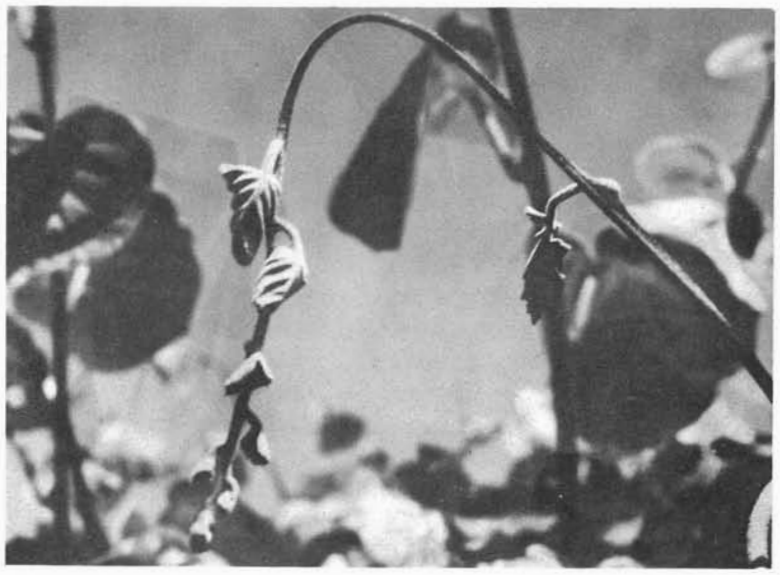
Dan C. Opgenorth and Mary Sorrell

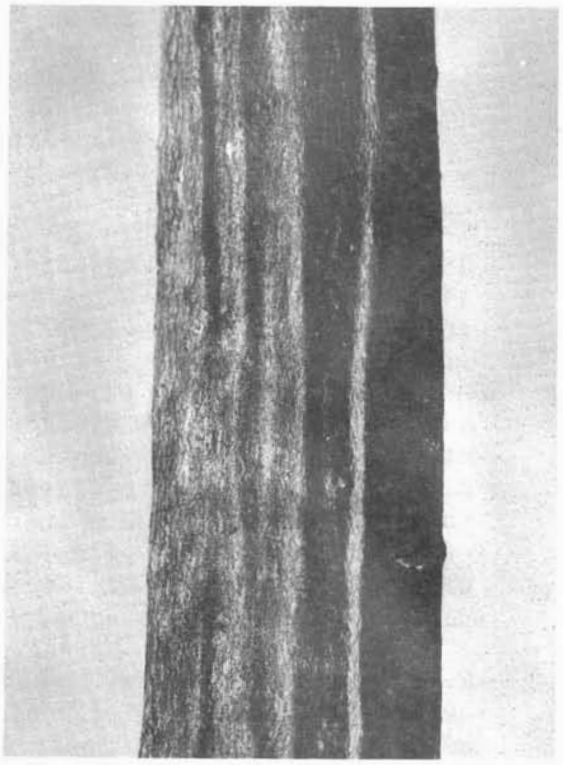
An interesting problem on Kiwifruit (*Actinidia chinensis*) has recently been brought to our attention. Symptoms of this disease appear in late winter or in early spring when established plants begin to leaf out. Our first impression was the vigorous young canes had symptoms similar to fire blight, because of the tip crosier, leaf wilt and cane blight commonly seen (Fig. 1). However, the problem is not with the growing tip but farther back on the cane where complete girdling has occurred. External cane symptoms are deeply shriveled and dried bark (Fig. 2). When this tissue is cut into, a distinct margin where bright green healthy tissue meets red, rusty brown tissue can usually be found (Fig. 3). In almost every case, a pruning wound is found in close proximity to the shriveled cane.

Initial isolations from diseased tissue yield a wide spectrum of bacterial organisms. When the active margins of diseased tissues are used to make isolations, a fluorescent *Pseudomonas* sp. is consistently isolated. These isolates show a positive hypersensitive reaction on tobacco in less than 24 hours, which is indicative of plant pathogenic bacteria (Fig. 4). Biochemical tests are being run to help determine the species responsible for this disease and field inoculations are planned for this winter and spring to satisfy Koch's postulates.

At this time, three sites have been found where this disease is believed to occur. We would appreciate the assistance of our readers in locating other areas where this problem may exist and providing cane samples for our further analysis.

Dan Opgenorth is a Plant Pathologist and Mary Sorrell is an Agricultural Biological Technician with the CDFA Analysis and Identification Unit, Sacramento.





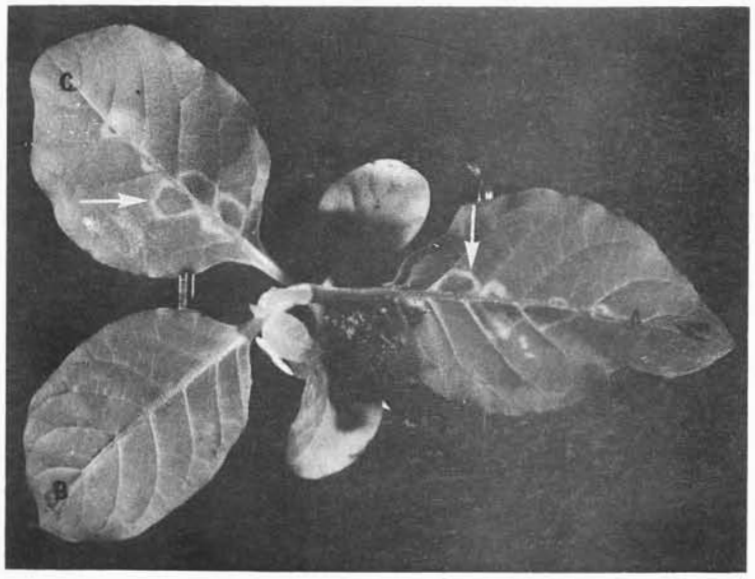


Fig. 1. Kiwifruit cane showing symptoms of tip crosier similar to fire blight.

Fig. 2. Kiwifruit cane showing symptoms of shriveled bark.

Fig. 3. Kiwifruit cane cut at margin of diseased and healthy tissue, with rusty brown discoloration at the margin.

Fig. 4. A and C: Tobacco leaves with positive hypersensitive reaction (arrow) in 24 hours; leaf labeled "B" is the control inoculated with sterile distilled water.

CACTUS VIRUS X: A POTEXVIRUS

Helene Margolis

Cactus virus X (CaVX), a long flexuous rod-shaped virus, is one of the five reported cactus viruses that occur in the United States. It is a member of the Potato virus X (Potexvirus) group which are known to occur in both monocotyledonous and dicotyledonous plants.

Potexviruses may induce various symptoms in different degrees of severity in infected plants, depending on the host-virus combination, the virus strain, the host cultivar, temperature, light, stage of development of the infection, and the presence of other viruses. Symptoms may include mosaic, mottle, vein clearing, vein banding, distortion, stunting, ringspots, and necrosis, as well as variegated color patterns in flower petals. Cactus virus X is one member of the Potexvirus group which causes symptoms that are often mild or not apparent. However, when present with another virus the combined effect may be dramatic, such as that seen on the modified stem of the *Epiphyllum* in Figure 1. Microscopic examination of infected plant cells reveals banded cytoplasmic inclusion bodies and/or fibrous masses composed of virus particles (Fig. 2). Examination of the nucleus may reveal spindles, loop-shaped or circular bodies.

CaVX is readily transmitted via sap inoculation and may be spread to healthy plants by use of contaminated tools. Although there are reports of naturally-infected cactus species, the primary source of the virus in cultivated plants is probably infected propagating material. Transmission of CaVX by dodder or arthropod vectors has not been reported, and in the cactus family transmission through seed is unknown.

It has been suggested that control and possible elimination of CaVX may be effected by 1) culling diseased plants and replanting with disease-free propagules, 2) use of seedlings rather than cuttings, and 3) sterilization of propagating and cultivating tools.

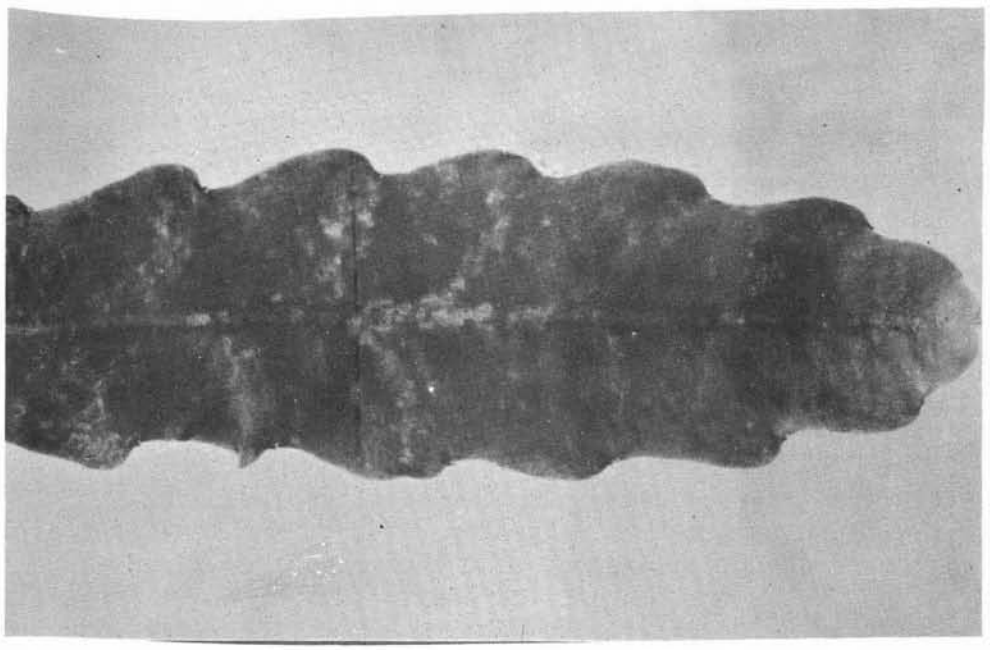


Fig. 1. Symptoms of CaVX on modified stem of *Epiphyllum*.

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Helene Margolis is a Laboratory Technician with the CDFA Analysis and Identification Laboratory.

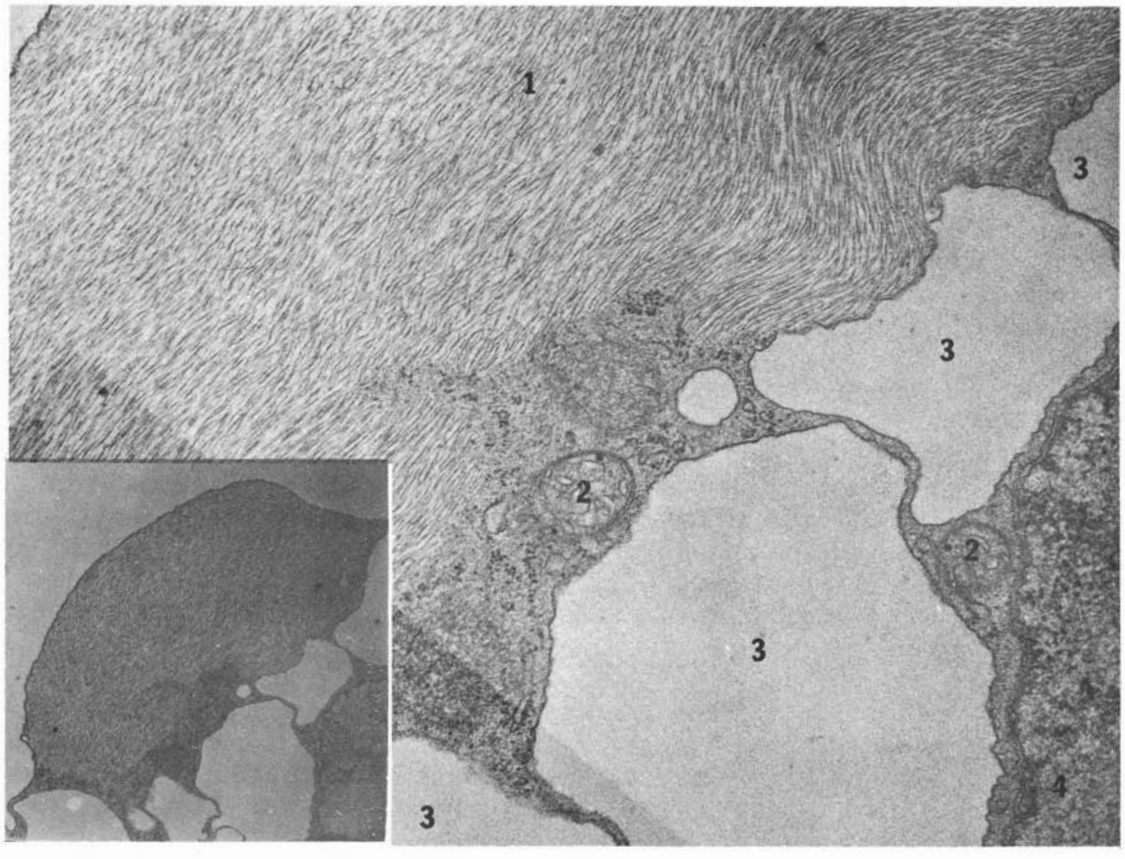


Fig. 2. Electron micrograph of a thin tissue section from the *Epiphyllum* specimen pictured in Fig. 1, shows virus particles forming a fibrous mass in the cytoplasm of the cell (1), mitochondria (2), vacuoles (3), and a portion of the cell nucleus (4). Inset is of the same fibrous mass in total.

Annosus Root Rot of Madrone

By Brad Thompson and David Adams

Fomes annosus (=Heterobasidion annosum) was recently found to be responsible for the decline and death of Madrone (*Arbutus menziesii*) in the Georgetown area of El Dorado County. Several infection centers which appeared to be enlarging were noticed in the area. Field symptoms included wilting, thinning of foliage and unusually heavy "distress crops" of fruit with the syndrome culminating in death within three years of the first observed symptoms (Fig. 1). However, some trees within the infection centers that were previously presumed dead showed renewed growth in the form of crown sprouts.

Discolored sapwood (Fig. 2) was noted in the below ground portions of the tree but did not extend above the crown. Fruit bodies of *F. annosus*, which are bracket type poroid conks, generally found below the ground or duff layer, were not noted. The fungus, however, was readily isolated and identified, based upon the imperfect stage of *Oedocephalum lineatum*, (Fig. 3) which rapidly formed in culture (1,6). This imperfect stage may also be obtained in septic culture from pieces of the infected wood. One simply needs to place such fragments in plastic bags, or in a moisture chamber and store in a warm dark place; the mycelium will quickly colonize the wood surface and will be sufficiently developed for identification within a few days.

Annosus root rot has been reported only once in California as being responsible for Madrone mortality (3). Despite this report, this particular strain has yet to be indisputably proven, via Koch's postulates, as a true pathogen of *Arbutus menziesii*. The disease is, however, well known as a serious forest root disease with a wide host range of various conifers but only a few hardwoods (2).

Perhaps the most notable and serious problem it causes in California involves *Pinus ponderosa* as its host. In such a syndrome the fungus typically becomes established in freshly cut stumps, utilizing the wood saprophytically as a food base (and may exist in this mode in excess of 60 years). From this type of central base the disease can spread through root grafts to nearby living trees. This creates the distinctive pattern of infection centers which show a gradient from healthy peripheral trees inward to dead trees and (as is often the case with *Pinus ponderosa* and certain other hosts) a stump in the center.

Control measures involve treating the freshly cut stump surface with borax or urea to prevent airborne basidiospores (the main long distance dispersal mechanism) from germinating to prevent subsequent colonization of the stump and root system. Interestingly, biological control through dispersing the fungus *Peniophora gigantea* in chainsaw oil during tree felling has been used in the southern states. The fungus is a saprophytic competitor and prevents colonization by *F. annosus* (4).

Fomes annosus attacks many conifers and some hardwoods. Pines are killed within 2-6 years without extensive decay. The fungus spreads through the inner bark sapwood reaching the root crown and girdling the tree. True firs are seldom directly killed, but generally are lost through windthrow or insect attack. The fungus grows into the heartwood of the larger roots, then into the lower bole causing a butt rot.

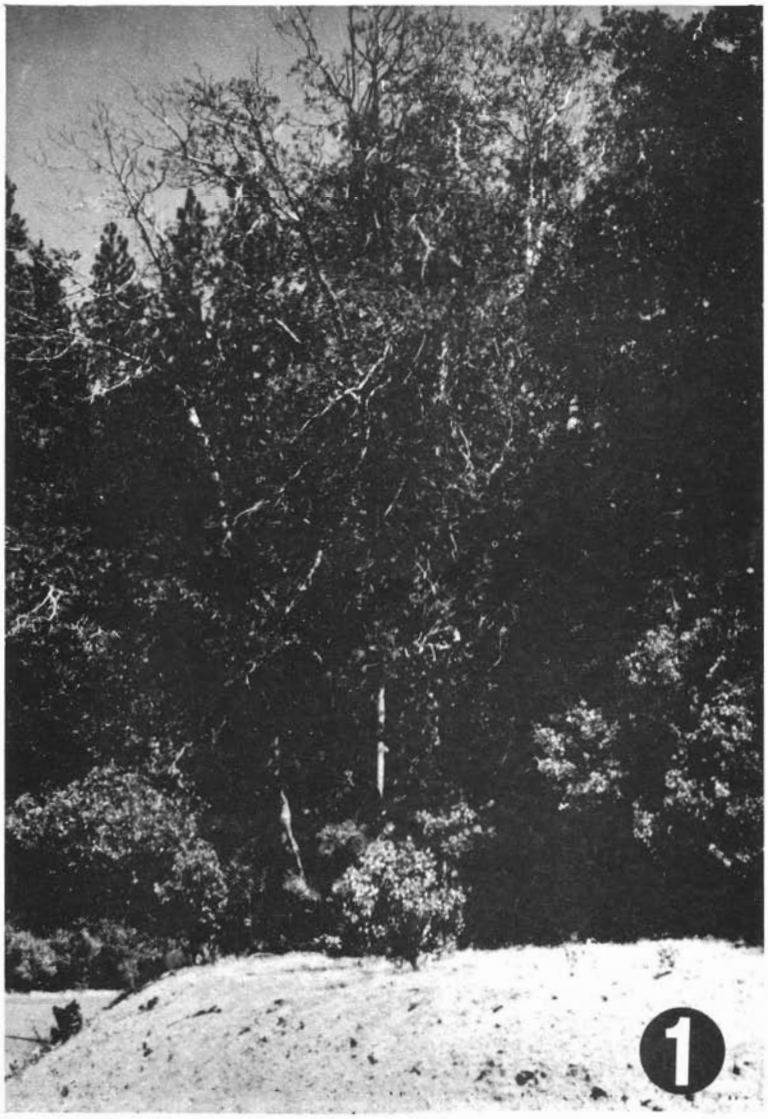
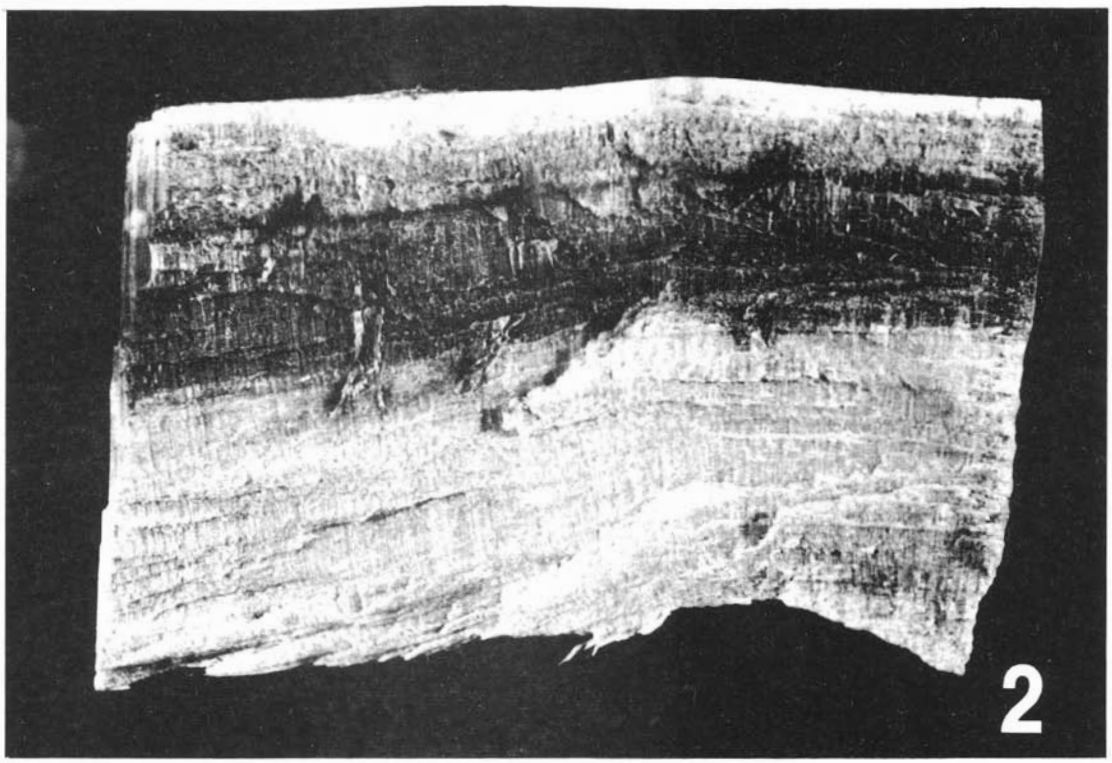


Fig. 1. Field characteristics of *Arbutas menziesii* infected with *Fomes annosus* showing wilt and thinning foliage.

Fig. 2. Woody root of Madrone infected with *Fomes annosus* showing conspicuously discolored sapwood (Photo by David Higuera).



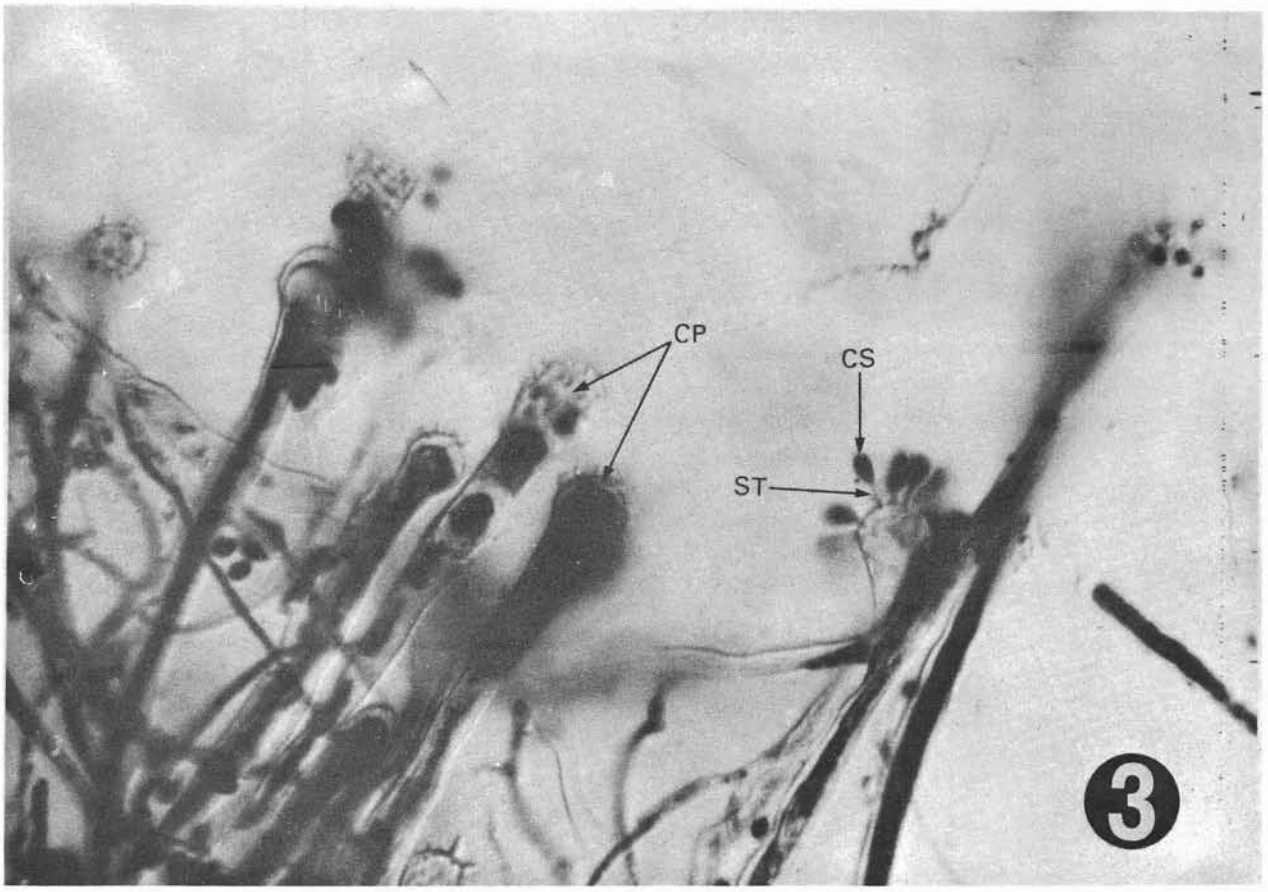


Fig. 3. Photomicrograph of *Oedocephalum lineatum* (the imperfect stage of *F. annosus*) isolated from infected Madrone wood showing club shaped conidiophores (CP) ornamented with numerous "sterigmata" (ST) which bear small ovoid conidiospores (CS).

In the Madrone syndrome no stumps were observed associated with infection centers. Furthermore, no spread was detected into nearby *Pinus ponderosa* despite the proximity of the latter to infected *Arbutus* trees. Considering the reported ability of *Fomes annosus* to spread from hardwoods to conifers, there may be a possible difference in strain type for the Madrone isolate (5).

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Brad Thompson is a graduate student in mycology at California State University, Humboldt, and an Agricultural Inspector with the Analysis and Identification Unit of CDFA. David Adams is a Forest Pathologist with the California Department of Forestry.

Quarantine and Exclusion
Pest Interceptions - Insects

Large numbers of insect pests of great economic potential have been intercepted since the last issue of CPPDR was published. CPPDR issues at least temporarily will not be produced as often as desired so that reporting of these insect pests interceptions will have to be abbreviated in the interim.

The following pests have been intercepted since May 1982:

GYPSY MOTH (*Lymantria dispar*) - (A) - has been intercepted a total of 104 times in California, mostly on outdoor furniture, garden tools and on the external parts of vehicles. Interceptions were made on goods moving from the following states: Pennsylvania, New York, Connecticut, New Jersey, New Hampshire, Massachusetts, Maryland, Vermont, Delaware, Rhode Island and even Washington (Seattle) (det. T.D. Eichlin and R.E. Somerby).

EASTERN TENT CATERPILLAR (*Malacosoma americana*) - (Q) - and other *Malacosoma* species. These tent making moths have been intercepted 12 times since June 1982 from the following states: Maryland, Massachusetts, Pennsylvania, Connecticut, New Jersey, New York and Illinois (det. T.D. Eichlin and R.E. Somerby).

BAGWORM (*Thyridopteryx ephemeraeformis*) - (A) - Two interceptions of live larvae on palms shipped from Florida were made in June and July in Los Angeles County by K. Cornett and H. Miller (det. T.D. Eichlin and R.E. Somerby).

WHITE-MARKED TUSSOCK MOTH (*Orgyia leucostigma*) - (Q) - Pupae of this moth were collected in June on outdoor goods arriving from Seattle and Massachusetts, in Alameda County by Osbun and in Los Angeles County by C. Olson (det. T.D. Eichlin).

RED-BANDED LEAF ROLLER (*Argyrotaenia velutinana*) - (Q) - Five interceptions in commercial shipments of blueberries from New Jersey were made in June and July in Los Angeles County by Adams, Shimoda, Cunningham, Atkins and Smice. Other collections, probably of this same pest, were made from June to August in Los Angeles County, three on blueberries from New Jersey and one on fruit shipped from Washington. All collections were of living specimens (det. T.D. Eichlin, R.E. Somerby and R.J. Gill).

GREEN GARDEN LOOPER (*Chrysodeixis chalcites*) - (Q) - A live specimen was intercepted in San Joaquin County, September 20, by C. Davenport on Ti plants shipped from Hawaii (conf. R.E. Somerby).

A NOCTUID (*Autographa* sp.) - (Q) - was intercepted in Ventura County May 3 by M. Hixon, on *Pothos* shipped from Colombia, South America (det. T.D. Eichlin).

A NOCTUID (*Macronoctua* sp.) - (Q) - Live larvae of this moth were intercepted on Iris arriving in Santa Cruz County from Missouri in August, by Jay Bauer (det. R.E. Somerby).

A TORTRICID (*Platynota* sp.) - (Q) - Three collections of live larvae on blueberries shipped from New Jersey to Los Angeles were made in late July, by Adams, Shimoda and Olson (det. R.E. Somerby).

A NOCTUID (*Spodoptera* sp.) - (Q) - On July 21, Leslie Buerer collected a live larva from *Dieffenbachia* arriving in San Mateo County from Colombia (det. R.E. Somerby).

A PYRALID (*Crambus* sp.) - (Q) - On May 31, Lounsbury intercepted a specimen on Sudan grass shipped from Texas to San Bernardino County (det. R.E. Somerby).

NOCTUIDAE - (Q) - Three collections of moths belonging to this family were made: May 10 - on household items shipped from New Jersey to Los Angeles County, by C. Olson; July 12 - on outdoor furniture arriving in San Luis Obispo County from Massachusetts, by Alender and Gunnarson; September 10 - on Oriental type leaf vegetables shipped from Louisiana to San Mateo County, by Leslie Buerer (det. R.E. Somerby).

ARCTIIDAE - (Q) - Two collections of these moths were made in Santa Clara County in July from outdoor furniture. One, collected by J. Shimada, was on goods shipped from New York, and the other, by Doreen Bass, originated from Vermont (det. R.E. Somerby).

PSYCHIDAE - (Q) - One collection, on *Philodendron* shipped from Florida, was made September 24 in San Mateo County by H. Struffenegger (det. T.D. Eichlin).

A SCARAB BEETLE (*Strigoderma* sp.) - (Q) - was found in blueberries shipped from New Jersey to Los Angeles on June 30 by Adams.

JAPANESE BEETLE (*Popillia japonica*) - (A) - Live adults of this scarab beetle have been intercepted in commercial shipments of blueberries from New Jersey destined for grocery stores in Los Angeles. Collections were made on July 21, July 26 and August 9 by Adams and Olson.

A WOOD-BORING BEETLE (*Heterobostrichus aequalis*) - (Q) - A live adult was found in a papier-mache gift imported from Taiwan at Monterey County September 1, by B. Oliver (det. F.G. Andrews).

MANGO WEEVIL (*Cryptorhynchus mangiferae*) - (Q) - B. Lilley, R. Hopkins and J. Lambert found a live larva in mangoes shipped from Hawaii at San Luis Obispo County in September. Live larvae and pupae, and two damaged adults, were cracked out of fresh mango seed from Hawaii at San Bernardino County July 6, by Nash, Harper and Lambert (det. T.N. Seeno).

TAHITIAN COCONUT WEEVIL (*Diocalandra taitensis*) - (Q) - On August 3, Miller collected a live adult on coconut shipped from Hawaii to Los Angeles County (det. T.N. Seeno).

ASIATIC GARDEN BEETLE (*Maladera castanea*) - (Q) - A specimen was taken from household goods arriving in San Joaquin County from New Hampshire by T. Watkins on August 23 (det. F.G. Andrews).

SUNFLOWER BEETLE (*Zygogramma exclamationis*) - (Q) - Live adults were collected in barley shipped from Utah to Sonoma County on August 26 by W.J. Foerstler (det. T.N. Seeno).

A TORTOISE BEETLE (*Chelymorpha* sp. prob. *14-punctata*) - (B) - A live adult was found in bromeliads shipped from Mexico at San Diego by G. Noel on May 24 (det. by T.N. Seeno).

MEXICAN FRUIT FLY (*Anastrepha ludens*) - (A) - One badly dried out specimen was removed from a McPhail trap at San Ysidro, San Diego County on July 26 by Ruth Acevedo. The fly was recently emerged but badly dried. The ovaries were not visible and there was no sign of dye (det. K.S. Corwin).

CARIBBEAN FRUIT FLY (*Anastrepha suspensa*) - (A) - Two live larval specimens, positively identified as this species, were taken in Los Angeles County on fruit shipped from Florida - on May 17 by D. Papilli and on September 14 by Jim White. Shimoda collected specimens in July and August, in guavas arriving in Los Angeles from Florida, which were probably also this species (det. K.S. Corwin and M.S. Wasbauer).

APPLE MAGGOT (*Rhagoletis pomonella*) - (A) - R. Drewry intercepted apples containing this pest shipped from New York at Humboldt County on August 3. This was the first interception of the season followed by numerous others from the eastern states, Oregon and Washington (det. K.S. Corwin).

ORIENTAL FRUIT FLY (*Dacus dorsalis*) - (A) - Live larval specimens were collected in San Luis Obispo County by B. Lilley and R. Hopkins on July 9. They were found in guava and *Annona* sp. shipped from Hawaii (det. K.S. Corwin).

A FRUIT FLY (*Anastrepha* sp.) - (A) - A partly decayed larva was collected in Alameda County June 16 by John Gouvaia, in Citrus from Mexico (det. K.S. Corwin).

AGROMYZIDAE - (Q) - Shimoda took live specimens of this fly from chrysanthemums shipped from Columbia via Florida at Los Angeles August 5 (det. K.S. Corwin).

The following collections of ants in quarantine were made since May 1982:

Paratrechina fulva - (Q) - Seventeen collections of this ant (all alive) have been made since last May, 13 of them on houseplants shipped from Florida, 3 from Hawaii, and 1 from Mexico via Texas. Hosts were primarily *Ficus* sp., *Dracaena* sp., and *Areca* palm. Interceptions occurred in the following counties: Los Angeles (11), Contra Costa (3), Orange, Santa Barbara, and San Diego (1 each) (det. M.S. Wasbauer and F.G. Andrews).

Paratrechina sp. - (Q) - One specimen was collected April 26 on ginger shipped from Hawaii at Ventura County by Mitchell and Hixson. A live specimen was found on sugar cane shipped from Louisiana at San Mateo County August 16 by Leslie Buerer. Anthurium from Hawaii contained a specimen intercepted June 21 by Jackie Crabb in San Luis Obispo County (det. M.S. Wasbauer and F.G. Andrews).

Anoplolepis longipes - (Q) - A live specimen was taken August 12 by Shimoda on *Aglaonema* sp. shipped from Hawaii to Los Angeles. On August 23, Leslie Buerer intercepted a specimen on cut flax foliage arriving in San Mateo County from Hawaii. In Ventura County, October 4, M. Hixson collected this ant from ginger shipped from Hawaii (det. M.S. Wasbauer).

Tapinoma melanocephalum - (Q) - Shimoda took a live specimen from *Dracaena marginata* arriving in Los Angeles County from Hawaii June 3. Another live specimen was found on *Ficus benjamina* shipped from Hawaii to San Diego County by L. Park on September 10 (det. M.S. Wasbauer).

Solenopsis invicta - (A) - Two collections, both live, arriving from Texas at San Diego County - September 9 on pitcher plant by Ginsky and Walsh, and September 14 on lily by Boch (det. M.S. Wasbauer).

Pheidole megacephala - (Q) - Live specimens were taken May 10 on cut flowers arriving in San Joaquin County from Hawaii by S.K. Barnes, and June 16 on *Chamaedorea seifrizii* shipped from Hawaii to Los Angeles County by Kellam and Smice (det. M.S. Wasbauer and F.G. Andrews).

Wasmannia auropunctata - (Q) - A live specimen was intercepted on *Ficus benjamina* arriving from Hawaii in Los Angeles County in early July by Cornett (det. F.G. Andrews).

Camponotus sp. near *japonicus* - (Q) - A live specimen taken by J. Kincaid June 7 from dunnage lumber in Los Angeles County may have been of foreign origin (det. F.G. Andrews).

Megastigmus sp. - (Q) - A live specimen of this seed-infesting wasp was collected from cedar arriving in San Diego County from West Germany May 18 by Mariscal (det. M.S. Wasbauer).

The following insects were intercepted in commercial aircraft arriving in California from points east:

JAPANESE BEETLE (*Popillia japonica*) - (A) - There were 56 collections of adult beetles, mostly from aircraft cargo areas, in July and August. Twenty-one collections were at South San Francisco, 19 at Los Angeles, and 16 at San Diego (det. F.G. Andrews and T.N. Seeno).

ORIENTAL BEETLE (*Anomala orientalis*) - (A) - Two collections, one of a live specimen originating in New York at Los Angeles by Evans July 13, and three specimens collected in South San Francisco July 20 by Alex Gold, on a flight originating in Boston (det. T.N. Seeno).

ASIATIC GARDEN BEETLE (*Maladera castanea*) - (Q) - One June 3, Condit collected a specimen at San Diego, origin unknown, and on June 30, A.V. Evans intercepted a live adult originating from Washington, D.C. (det. F.G. Andrews).

EUROPEAN CHAFER (*Rhizotrogus majalis*) - (A) - A specimen was collected at Los Angeles June 30 by A.V. Evans on a flight from Rochester, New York (det. T.N. Seeno).

A SPHINX MOTH (*Proserpinus junita*) - (Q) - Collected by C. Denny at South San Francisco July 6, on a flight originating in Pittsburgh (det. R.E. Somerby).

A BEAN WEEVIL (*Bruchidae*) - (Q) - G. Caseri found a specimen June 30 in a B-52 arriving in Merced County from Macon, Georgia (det. T.N. Seeno).

A SCARAB BEETLE (*Serica* sp. or near) - (Q) - Collected by C. Denny July 8 at South San Francisco on a flight arriving from Kansas City (det. T.N. Seeno).

A SCARAB BEETLE (*Phyllophaga* sp.) - (Q) - Two collections each at Los Angeles and South San Francisco, on flights from New York and Boston (det. F.G. Andrews, T.N. Seeno and A.R. Hardy).

AN ARCTIID MOTH (*Halisidota tessellaria*) - (Q) - Collected by Alex Gold July 28 at South San Francisco, origin New York (det. T.D. Eichlin).

A WEEVIL (*Diaprepes abbreviatus*) - (A) - Also collected by Alex Gold July 28 at South San Francisco (det. T.N. Seeno).

Elisa Mealybug (*Pseudococcus elisae*) and Alazon Mealybug (*Dysmicoccus alazon*) - Specimens of these two mealybugs have been keeping California quarantine personnel busy the last few months. Both species are "Q" rated in California. They are apparently pests of bananas in Central and South America and are also encountered on various nursery stock shipped here from Florida or locations in Mexico, Central and South America and the Caribbean.

The Hawaii Department of Agriculture placed a quarantine on all Hawaii-bound bananas infested with these mealybugs. California became involved when it was discovered that most of the bananas going to the western U.S. and Hawaii are transshipped through California brokerage and packing firms. Therefore many mealybug infested bananas are moving through California and apparently have been for sometime. Action on this problem is pending attempts at sanitation by the industry. Other species of scale insects found on these bananas are the "Q" rated armored scale, *Acutaspis umbonifera*, the "B" rated striped mealybug, *Ferrisia virgata* and the "A" rated coconut scale, *Aspidiotus destructor*.

Elisa mealybug (*Pseudococcus elisae*) has also been intercepted on four separate occasions on nursery stock entering California from Florida, Honduras and Colombia. The mealybugs were collected on *Aglaonema*, *Croton* and *Psidium guajava* in Sacramento, San Francisco and Los Angeles Counties respectively. Collectors were Otsuji, Buerer and Shimoda.

Spiraling whitefly (*Aleurodicus dispersus*) - This rather serious pest of ornamental plants in Hawaii has been intercepted a total of 12 times since last June. Some interceptions were on nursery stock, although most have been encountered on cut, edible betelnut leaves.

Many pest species of A-rated scales have been intercepted during this period on palm nursery stock and cut palm foliage. Species involved are:

Magnolia white scale, *Pseudaulacaspis cockerelli* (8 times)
Coconut scale, *Aspidiotus destructor* (2 times)
Lesser snow scale, *Pinnaspis strachani* (3 times).

Cut flowers and miscellaneous cut foliage has been found to contain the following pest species:

Green shield scale *Pulvinaria psidii* "A" (4 times)
Boxwood scale *Pinnaspis buxi* "Q" (5 times)
Magnolia white scale *Pseudaulacaspis cockerelli* "A" (4 times)
Lesser snow scale *Pinnaspis strachani* "A" (2 times).

Most interceptions are being made at South San Francisco, San Mateo County and in San Joaquin County.

A soil mealybug (*Rhizoecus americanus*) - (Q) - is continually being found on palm and African violet roots arriving from Florida and Texas. Five collections have been made since May, one each in Contra Costa County and Kings County, and three in Los Angeles County.

Another soil mealybug (*Geococcus coffeae*) has been found on the roots of palms and *Schefflera*. These plants were shipped to Los Angeles County from Hawaii where they were found infested by Kallam and Smice.

An undescribed mealybug (*Phenacoccus* sp.) which has previously been found on iris bulbs from Holland has again been found infesting the same host. Collections were made in May at Castroville, Monterey County by Sutton and Oliver and at Daly City, San Mateo County by Davis and Masini. Other collections were in August at Watsonville, Santa Cruz County by Kovanill and in September at Castroville by Cohen and Oliver.

The following scale insects and whiteflies have been collected in Quarantine since last May (Identifications by R. Gill).

Rating	Species	Common Name	Origin	County	Host	Collector
A	*Howardia biclavis*	Mining Scale	Hawaii	San Diego	*Plumeria*	Kenyon, Ginsky
			Hawaii	Los Angeles	*Allamanda*	Papilli
A	*Pulvinaria psidii*	Green Shield Scale	Hawaii	San Mateo	*Ficus*	Giusti
			Florida	Alameda	*Ficus*	Gouvaia
			Florida	Los Angeles	*Ficus*	Cornett
A	*Ceroplastes rubens*	Red Wax Scale	Hawaii	Santa Barbara	*Aglaonema*	Pitchard
	Pseudaulacaspis cockerelli	Magnolia White Scale	Florida	Santa Barbara	*Mangifera*	Burns
			Hawaii	San Luis Obispo	Coconut	Stultz
			Hawaii	" " "	Mango	Lilley, Hopkins
			Hawaii	" " "	*Cocos nucifera*	Gunnarson
A	*Selenaspidus articulatus*	Rufous Scale	Colombia, Texas	Los Angeles	*Aglaonema*	Adams, Shimoda
Q	*Aspidiotus excisus*	Aglaonema Scale	Florida	Alameda	*Aglaonema*	Gouvaia
Q	*Coccus acutissimus*	Slender soft Scale	Hawaii	Los Angeles		Papilli
			Florida	San Diego		Ginsky, Corodemas, Sims
A	*Kilifia acuminata*	Acuminate Scale	Florida	San Mateo	*Philodendron*	Buerer
A	*Pseudoparlatoria parlatorioides*	False Parlatoria Scale	Costa Rica	Los Angeles	*Dracaena*	Papilli
A	*Genaparlatoria pseudaspidiotus*	Vanda Orchid Scale	Hawaii	Humboldt	Orchid	Spadoni
Q	*Pulvinaria urbicola*	Urban Pulvinaria Scale	Florida	San Mateo	*Pachystachys*	Buerer
Q	*Aleurotulus*	Anthurium Whitefly	Hawaii	Sacramento	*Anthurium*	Jensen
Q	*Pseudococcus* sp. undescribed	Mealybug	Florida	Butte	Taro	Riley
			Hawaii	Contra Costa	Orchid	Adams
			Peru	San Bernardino	Cactus	Nash
			Brazil	Los Angeles	*Tillandsia*	Kellam
			Florida	Santa Barbara	*Ficus*	Piper
Q	*Tetraleurodes, Trialeurodes*	Whiteflies	Florida	San Diego	*Galax*	Ginsky

The following miscellaneous undeterminable insects have been encountered in quarantine.

Order	Host	Origin	Collector
Isoptera	Rum Barrel	Barbabos	Curtner
Dermoptera	*Chamaedorea*	Georgia	Olson
	Areca palm	Florida	Olson
Orthoptera	*Pittosporum*	Florida	Shimoda
	cut flowers	Hawaii	Barnes
Hemiptera	bromeliads	Mexico	Smice
	orchid	Texas	White, Adams
	aircraft	Chicago/New York	Denny
	spanish moss	Texas	Shimoda
	Dracaena	Florida	Case, Kean

A Snail, *Bradybaena similaris* - collected a total of 6 times since last June, this snail has been recently down graded from a "Q" to a "B" pest. Most interceptions are from Florida, but some infested plants have been seen from Texas and Puerto Rice (det. by T. Kono).

Other "Q" rated snails, *Veronicella floridana*, intercepted once each from Florida and Texas, and *Subulina octona* from Hawaii have been found on ornamental plants by quarantine inspectors (det. by T. Kono).

BORDER STATION INTERCEPTIONS
(Since May 1982)

EUROPEAN CORN BORER (*Ostrinia nubilalis*) -A-	8
AN OWLET MOTH (*Euxoa* sp.) -Q-	1
A TENT CATERPILLAR (*Malacosoma* sp.) -Q-	27
GYPSY MOTH (*Lymantria dispar*) -A-	95
A TIGER MOTH (*Arctiidae*) -Q-	13
BLUEBERRY MAGGOT (*Rhagoletis mendax*) -A-	1
APPLE MAGGOT (*Rhagoletis pomonella*) -A- from Oregon-Washington	118
from Mid-west, east	73
WESTERN CHERRY FRUIT FLY (*Rhagoletis indifferens*) -A-	472
WALNUT HUSK MAGGOT (*Rhagoletis suavis*) -A-	2
A LEAF ROLLER (*Acleris* sp.) -Q-	1
A LEAF MOTH (*Gracillaria* sp.) -Q-	2
HICKORY SHUCKWORM (*Laspeyresia caryana*) -A-	2
PINK BOLLWORM (*Pectinophora gossypiella*) -A-	1
KIRKALDY WHITEFLY (*Dialeurodes kirkaldyi*) -Q-	1
AN OWLET MOTH (Amphipyinae) -Q-	1
SQUASH VINE BORER (*Melitta cucurbitae*) -A-	2
A WEEVIL (*Conotrachelus* sp.) -A-	8
A WEEVIL (Curculionidae) -A-	5
A LEAF ROLLER (*Argyrotaenia velutinana*) -Q-	1
A NOCTUID MOTH (Noctuidae) -Q-	1
A SQUASH BUG (*Anasa armigera*) -Q-	1

WHITE-MARKED TUSSOCK MOTH (*Orgyia leucostigma*) -Q-	1
A WHITEFLY (*Paraleurodes naranjae*) -Q-	1
GREEN SHIELD SCALE (*Pulvinaria psidii*) -A-	1
A MEALYBUG (Pseudococcidae) -Q-	1
A LEAF ROLLER (Tortricidae) -Q-	1
A PLANT BUG (Rhopalidae) -Q-	1
A GEOMETRID MOTH (Geometridae) -Q-	1
A TUSSOCK MOTH (*Orgyia* sp.) -Q-	1
SATIN MOTH (*Leucoma salicis*) -B-	1
CALIFORNIA RED SCALE (*Aonidiella aurantii*) -B-	12
HOLLY SCALE (*Dynaspidiotus brittanicus*) -B-	1
CHAFF SCALE (*Parlatoria pergandii*) -B-	11
GLOVER SCALE (*Lepidosaphes gloverii*) -B-	1
PURPLE SCALE (*Lepidosaphes beckii*) -B-	4
HOLLY LEAFMINER (*Phytomyza ilicis*) -B-	6
CLOUDYWINGED WHITEFLY (*Dialeurodes citrifolii*) -A-	1

Colorado Potato Beetle Invades Nevada

This beetle, *Leptinotarsa decimlineata*, has been a target of California exclusion and detection programs for many years. It made a considerable jump in expanding its range into eastern Nevada last summer. The following update was written by Bob Bechtel, Entomologist for the Nevada Department of Agriculture at Reno:

> "Several larvae of this species, *Leptinotarsa decimlineata* (Say), were collected on home garden potato plants by Ray and Vickie Connley at their residence in Coal Mine Canyon, 25 miles NNE of Elko on VIII-13-82. Empty egg cases, one mature larva and several pupae were found at this site on VIII-19-82 by R.C. Bechtel, P. Dondero and J.B. Knight on potato foliage or in soil beneath the plants. Neither pepper or tomato plants adjacent to the potatoes were infested or damaged. It is thought that the source of this infestation may have been eggs on the peppers or tomatoes since the potatoes were grown from "cooking" potatoes that sprouted and were planted for seed.
>
> On VIII-19-82, numerous mature larvae and 4 adults were collected on potatoes at the Ken Johns ranch in Clover Valley, 6.5 miles S. of Wells by R.C. Bechtel, P. Dondero and J.B. Knight. The source of this infestation is unknown but it could have resulted from "dirty" seed potatoes which were brought in from Utah for research plots by the Extension Service.
>
> Hosts for this species include belladena, buffalobur, cabbage, eggplant, ground cherry, henbane, horsenettle, jimson weed, mullein, nightshade, potato, pepper, petunia, other *Solanum* spp., thistle, thorn apple, tobacco and tomato.
>
> Both infestations were treated with Sevin. Additionally, an emergency quarantine including all of Elko County was requested of the Governor since Nevada and California were the only states free of this pest in the continental United States."

NOTE: The following was inadvertently omitted from the Pest Rating List, Part II, which appeared in the April-May 1982 issue of CPPDR, pages 51-56.

rice stink bug (Q)
  Oebalus pugnax
rice water weevil (B)
  Lissorhoptrus oryzophilus
rice weevil (C)
  Sitophilus oryzae
rose chafer (Q)
  Macrodactylus subspinosus
rufous scale (A)
  Selenaspidus articulatus
rusty plum aphid (C)
  Hysteroneura setariae

saltmarsh caterpillar (C)
  Estigmene acrea
sansevieria scale (A)
  Parlatoria proteus
satin moth (B)
  Stilpnotia salicis
sawtoothed grain beetle (C)
  Oryzaephilus surinamensis
Say stink bug (C)
  Chlorochroa sayi
scurfy scale (A)
  Chionaspis furfura
seedcorn maggot (C)
  Hylemya platura
shortlegged mealybug (C)
  Chorizococcus brevicruris
shothole borer (C)
  Scolytus rugulosus
smaller European elm bark beetle (C)
  Scolytus multistriatus
smokybrown cockroach (B)
  Periplaneta fuliginosa
sorghum midge (C)
  Contarinia sorghicola
sorghum webworm (Q)
  Celama sorghiella
southern chinch bug (C)
  Blissus insularis
southern cornstalk borer (A)
 *Diatraea crambidoides
southern green stink bug (Q)
  Nezara viridula
southern potato wireworm (B)
  Conoderus falli
southwestern corn borer (A)
 *Diatraea grandiosella
spinach leafminer (C)
  Pegomya betae
spinose scale (C)
  Aspidiotus spinosus
spotted asparagus beetle (C)
  Crioceris duodecimpunctata
spruce bud scale (C)
  Physokermes piceae
spruce needleminer (C)
 *Taniva albolineana
squarenecked grain beetle (Q)
  Cathartus quadricollis
squash beetle (Q)
 *Epilachna borealis
squash vine borer (Q)
 *Melittia satyriniformis
stalk borer (Q)
 *Papaipema nebris
Stombler moth (C)
  Heliothis stombleri
strawberry weevil (Q)
  Anthonomus signatus
striped cucumber beetle (Q)
  Acalymma vittata
striped mealybug (B)
  Ferrisia virgata
sugarcane beetle (Q)
  Eutheola humilis rugiceps
sugarcane borer (A)
 *Diatraea saccharalis
sunflower beetle (Q)
 *Zygogramma exclamationis
sweet gum scale (B)
  Diaspidiotus liqidambaris
sweetclover weevil (C)
  Sitona cylindricollis
sweetpotato weevil (A)
 *Cylas formicarius elegantulus

tea parlatoria scale (A)
  Parlatoria theae
tea scale (A)
  Fiorinia theae
terrapin scale (Q)
  Lecanium nigrofasciatum
Texas citrus mite (B)
  Eutetranychus banksi
Ting scale (A)
  Acutaspis tingi
Townsend scale (Q)
  Abgrallaspis townsendi
tropical palm scale (A)
  Abgrallaspis palmae
tuliptree scale (A)
 *Toumeyella liriodendri
twospotted spider mite (C)
  Tetranychus urticae

urban pulvinaria scale (Q)
  Pulvinaria urbicola

vanda orchid scale (A)
  Genaparlatoria pseudaspidiotus
vanda parlatoria scale (A)
  Parlatoria vandae
varied carpet beetle (C)
  Anthrenus verbasci
veronica leafminer (C)
  Phytomyza crassiseta
vetch bruchid (C)
  Bruchus brachialis
viburnum whitefly (B)
  Aleurotrachelus jelinekii

walnut husk fly (C)
  Rhagoletis completa
walnut husk maggot (A)
  Rhagoletis suavis

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	6-6-82	6-8-82	6-9-82	6-13-82	6-14-82	6-14-82
LOCATION	Bellota	Roberts Island	Manteca	Manteca	Roberts Island	Bellota
TEMPERATURE			53-93	55-86		
ALFALFA LOOPER Autographa californica	1				1	
ARMYWORM Pseudaletia unipuncta	10	6	2	10	163	
BEET ARMYWORM Spodoptera exigua		29	1	6	22	4
BLACK CUTWORM Agrotis ipsilon	8	7		8	45	4
CABBAGE LOOPER Trichoplusia ni					1	
CLOVER CUTWORM Scotogramma trifolii	2	3	1	8	6	
CODLING MOTH Laspeyresia pomonella						
CORN EARWORM, (ETC.) Heliothis zea						
FALSE CELERY LEAFTIER Udea profundalis		5	1			
GRANULATE CUTWORM Feltia subterranea	7	1	3	1	5	1
GRAPE LEAFFOLDER Desmia funeralis						
NAVEL ORANGEWORM Amyelois transitella		2	8	23		
OMNIVOROUS LEAFROLLER Platynota stultana						
PEACH TWIG BORER Anarsia lineatella			7	48		
ROUGH SKINNED CUTWORM Proxenus mindara	4				21	1
SALTMARSH CATERPILLAR Estigmene acrea				1	20	
SPOTTED CUTWORM Amathes c-nigrum	5				3	
SUGARBEET WEBWORM Loxostege sticticalis					1	
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia	6	5		10	13	1
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica	1	10	1	3	29	2
FALSE CORN EARWORM Heliothis phloxiphaga				1		

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	6-20-82	6-21-82	6-21-82	6-27-82	6-30-82	
LOCATION	Bellota	Manteca	Roberts Island	Bellota	Manteca	
TEMPERATURE		55-89			58-71	
ALFALFA LOOPER Autographa californica						
ARMYWORM Pseudaletia unipuncta	9	13	± 1000	51	83	
BEET ARMYWORM Spodoptera exigua	1	5	5	2	4	
BLACK CUTWORM Agrotis ipsilon	2	5	12	14	6	
CABBAGE LOOPER Trichoplusia ni						
CLOVER CUTWORM Scotogramma trifolii	3	6	3	3	2	
CODLING MOTH Laspeyresia pomonella						
CORN EARWORM, (ETC.) Heliothis zea						
FALSE CELERY LEAFTIER Udea profundalis						
GRANULATE CUTWORM Feltia subterranea		1	1			
GRAPE LEAFFOLDER Desmia funeralis					1	
NAVEL ORANGEWORM Amyelois transitella		1				
OMNIVOROUS LEAFROLLER Platynota stultana						
PEACH TWIG BORER Anarsia lineatella						
ROUGH SKINNED CUTWORM Proxenus mindara	3			13		
SALTMARSH CATERPILLAR Estigmene acrea			12			
SPOTTED CUTWORM Amathes c-nigrum			1	14	1	
SUGARBEET WEBWORM Loxostege sticticalis						
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia	3	6	11	1	2	
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica	3	3	10	14	3	
WHITE-LINED SPHINX MOTH Hyles lineata			2			

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	7-5-82	7-5-82	7-5-82	7-12-82	7-13-82	7-14-82
LOCATION	Manteca	Bellota	Roberts Island	Bellota	Roberts Island	Manteca
TEMPERATURE	55-89					62-100
ALFALFA LOOPER *Autographa californica*						
ARMYWORM *Pseudaletia unipuncta*	78	73	510	14	515	81
BEET ARMYWORM *Spodoptera exigua*	14		78	1	22	35
BLACK CUTWORM *Agrotis ipsilon*	13	67	16	3	31	17
CABBAGE LOOPER *Trichoplusia ni*						
CLOVER CUTWORM *Scotogramma trifolii*	2	3	4			2
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*						
FALSE CELERY LEAFTIER *Udea profundalis*						
GRANULATE CUTWORM *Feltia subterranea*	1		6		2	1
GRAPE LEAFFOLDER *Desmia funeralis*						2
NAVEL ORANGEWORM *Amyelois transitella*	1		30			1
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*	20					52
ROUGH SKINNED CUTWORM *Proxenus mindara*	2	17		1	58	4
SALTMARSH CATERPILLAR *Estigmene acrea*		1	106		73	
SPOTTED CUTWORM *Amathes c-nigrum*	1	49	24	9	100	7
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*	5	13	4	2	2	4
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*	4	21	64	2	67	6
WHITE-LINED SPHINX MOTH *Hyles lineata*		1				

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	7-18-82	7-18-82	7-18-82	7-25-82	7-25-82	7-25-82
LOCATION	Manteca	Bellota	Roberts Island	Manteca	Bellota	Roberts Island
TEMPERATURE	56-92			54-91		
ALFALFA LOOPER *Autographa californica*						
ARMYWORM *Pseudaletia unipuncta*	16	11	143	3	1	19
BEET ARMYWORM *Spodoptera exigua*	5	3	39	10	2	11
BLACK CUTWORM *Agrotis ipsilon*	4	1	16	6	2	
CABBAGE LOOPER *Trichoplusia ni*			1			
CLOVER CUTWORM *Scotogramma trifolii*		1	1			1
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*			1			
FALSE CELERY LEAFTIER *Udea profundalis*						
GRANULATE CUTWORM *Feltia subterranea*	1	1	1	4	4	
GRAPE LEAFFOLDER *Desmia funeralis*	1					
NAVEL ORANGEWORM *Amyelois transitella*	14					
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*	44			29		
ROUGH SKINNED CUTWORM *Proxenus mindara*		3	8			1
SALTMARSH CATERPILLAR *Estigmene acrea*			79			
SPOTTED CUTWORM *Amathes c-nigrum*	1	1	40	1		
SUGARBEET WEBWORM *Loxostege sticticalis*	1					
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*						
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*	1	5	33	1	2	4
TOBACCO HORNWORM *Manduca sexta*						1

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	8-1-82	8-1-82	8-3-82	8-8-82	8-15-82	8-17-82
LOCATION	Bellota	Roberts Island	Manteca	Manteca	Bellota	Manteca
TEMPERATURE			53-82	59-102		62-99
ALFALFA LOOPER Autographa californica					1	
ARMYWORM Pseudaletia unipuncta	1	1				10
BEET ARMYWORM Spodoptera exigua		74	8	55	9	93
BLACK CUTWORM Agrotis ipsilon	1	7	1	1	3	5
CABBAGE LOOPER Trichoplusia ni						
CLOVER CUTWORM Scotogramma trifolii				1	1	
CODLING MOTH Laspeyresia pomonella						
CORN EARWORM, (ETC.) Heliothis zea						
FALSE CELERY LEAFTIER Udea profundalis						
GRANULATE CUTWORM Feltia subterranea	6	7	2	1	3	3
GRAPE LEAFFOLDER Desmia funeralis						
NAVEL ORANGEWORM Amyelois transitella				1		4
OMNIVOROUS LEAFROLLER Platynota stultana						
PEACH TWIG BORER Anarsia lineatella			9	46		93
ROUGH SKINNED CUTWORM Proxenus mindara	2	8			1	3
SALTMARSH CATERPILLAR Estigmene acrea						
SPOTTED CUTWORM Amathes c-nigrum		5		1		
SUGARBEET WEBWORM Loxostege sticticalis				1		
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia						
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica	3	4	1	1	2	2

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	8-17-82	8-22-82	8-22-82	8-24-82		
LOCATION	Roberts Island	Roberts Island	Bellota	Manteca		
TEMPERATURE				56-92		
ALFALFA LOOPER *Autographa californica*						
ARMYWORM *Pseudaletia unipuncta*	6	6	3	5		
BEET ARMYWORM *Spodoptera exigua*	54	69	24	106		
BLACK CUTWORM *Agrotis ipsilon*	5	3	2	7		
CABBAGE LOOPER *Trichoplusia ni*		1	1			
CLOVER CUTWORM *Scotogramma trifolii*	2	15		12		
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*		1				
FALSE CELERY LEAFTIER *Udea profundalis*						
GRANULATE CUTWORM *Feltia subterranea*	3	3	4	5		
GRAPE LEAFTOLDER *Desmia funeralis*				1		
NAVEL ORANGEWORM *Amyelois transitella*				4		
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*				181		
ROUGH SKINNED CUTWORM *Proxenus mindara*	8	6		1		
SALTMARSH CATERPILLAR *Estigmene acrea*						
SPOTTED CUTWORM *Amathes c-nigrum*	1		1			
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*		2				
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*	5	10		2		
TOBACCO HORNWORM *Manduca sexta*	3	2				

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	8-27-82	8-29-82	8-31-82	9-6-82	9-8-82	9-6-82
LOCATION	Manteca	Bellota	Roberts Island	Manteca	Roberts Island	Bellota
TEMPERATURE	53-86			64-93		
ALFALFA LOOPER *Autographa californica*						
ARMYWORM *Pseudaletia unipuncta*	6	6	18	8	25	2
BEET ARMYWORM *Spodoptera exigua*	81	8	37	347	259	20
BLACK CUTWORM *Agrotis ipsilon*	2		11		8	3
CABBAGE LOOPER *Trichoplusia ni*						
CLOVER CUTWORM *Scotogramma trifolii*	8		8	9	15	
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*		1	1		1	
FALSE CELERY LEAFTIER *Udea profundalis*						
GRANULATE CUTWORM *Feltia subterranea*	3	2	1	2	2	2
GRAPE LEAFFOLDER *Desmia funeralis*	1			10	1	
NAVEL ORANGEWORM *Amyelois transitella*	79			134		
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*	460			742		
ROUGH SKINNED CUTWORM *Proxenus mindara*	2		3	2	17	1
SALTMARSH CATERPILLAR *Estigmene acrea*						2
SPOTTED CUTWORM *Amathes c-nigrum*					4	
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*	2		3	1	5	
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*		3	10		14	3
TOBACCO HORNWORM *Manduca sexta*			1			

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	9-12-82	9-12-82	9-13-82			
LOCATION	Manteca	Bellota	Roberts Island			
TEMPERATURE	62-90					
ALFALFA LOOPER *Autographa californica*						
ARMYWORM *Pseudaletia unipuncta*	6	2	12			
BEET ARMYWORM *Spodoptera exigua*	344	8	49			
BLACK CUTWORM *Agrotis ipsilon*	5	1	2			
CABBAGE LOOPER *Trichoplusia ni*	2					
CLOVER CUTWORM *Scotogramma trifolii*	6					
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*			2			
FALSE CELERY LEAFTIER *Udea profundalis*						
GRANULATE CUTWORM *Feltia subterranea*	3	2				
GRAPE LEAFFOLDER *Desmia funeralis*	9					
NAVEL ORANGEWORM *Amyelois transitella*	128					
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*	472					
ROUGH SKINNED CUTWORM *Proxenus mindara*			3			
SALTMARSH CATERPILLAR *Estigmene acrea*						
SPOTTED CUTWORM *Amathes c-nigrum*			4			
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*	1					
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*	2	3	1			

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	9-19-82	9-20-82	9-19-82	9-26-82	9-28-82	9-29-82
LOCATION	Bellota	Manteca	Roberts Island	Bellota	Roberts Island	Manteca
TEMPERATURE		52-83				43-75
ALFALFA LOOPER *Autographa californica*			1			
ARMYWORM *Pseudaletia unipuncta*	5	2	15	8	8	4
BEET ARMYWORM *Spodoptera exigua*	27	37	95	17	51	74
BLACK CUTWORM *Agrotis ipsilon*	1	1	4	1	1	
CABBAGE LOOPER *Trichoplusia ni*						
CLOVER CUTWORM *Scotogramma trifolii*	3		4	3		
CODLING MOTH *Laspeyresia pomonella*						
CORN EARWORM, (ETC.) *Heliothis zea*	1	3	4	1	1	
FALSE CELERY LEAFTIER *Udea profundalis*					2	
GRANULATE CUTWORM *Feltia subterranea*	5	3	1	24	15	3
GRAPE LEAFFOLDER *Desmia funeralis*						
NAVEL ORANGEWORM *Amyelois transitella*		24				4
OMNIVOROUS LEAFROLLER *Platynota stultana*						
PEACH TWIG BORER *Anarsia lineatella*		222				33
ROUGH SKINNED CUTWORM *Proxenus mindara*	1			3	4	1
SALTMARSH CATERPILLAR *Estigmene acrea*						
SPOTTED CUTWORM *Amathes c-nigrum*	2		1	3	2	1
SUGARBEET WEBWORM *Loxostege sticticalis*						
TOBACCO BUDWORM *Heliothis virescens*						
VARIEGATED CUTWORM *Peridroma saucia*		1	1		3	4
W.YELLOWSTRIPED ARMYWORM *Spodoptera praefica*			1	1		
TOBACCO HORNWORM *Manduca sexta*			1			

SAN JOAQUIN COUNTY BLACK LIGHT TRAP REPORT

DATE	10-3-82	10-4-82	10-3-82	10-11-82	10-11-82	10-12-82
LOCATION	Manteca	Bellota	Roberts Island	Bellota	Roberts Island	Manteca
TEMPERATURE	52-81					49-86
ALFALFA LOOPER Autographa californica					2	
ARMYWORM Pseudaletia unipuncta		1		2	14	2
BEET ARMYWORM Spodoptera exigua	56	15	29	43	228	87
BLACK CUTWORM Agrotis ipsilon	1	1	4		3	1
CABBAGE LOOPER Trichoplusia ni	1					
CLOVER CUTWORM Scotogramma trifolii		3	2			
CODLING MOTH Laspeyresia pomonella					1	
CORN EARWORM, (ETC.) Heliothis zea	1	3			3	
FALSE CELERY LEAFTIER Udea profundalis					21	
GRANULATE CUTWORM Feltia subterranea	1	13	15	28	71	25
GRAPE LEAFFOLDER Desmia funeralis						
NAVEL ORANGEWORM Amyelois transitella	2					14
OMNIVOROUS LEAFROLLER Platynota stultana						
PEACH TWIG BORER Anarsia lineatella	22					32
ROUGH SKINNED CUTWORM Proxenus mindara	2			1	18	
SALTMARSH CATERPILLAR Estigmene acrea						
SPOTTED CUTWORM Amathes c-nigrum		1	3	10	15	3
SUGARBEET WEBWORM Loxostege sticticalis						
TOBACCO BUDWORM Heliothis virescens						
VARIEGATED CUTWORM Peridroma saucia				2	2	
W.YELLOWSTRIPED ARMYWORM Spodoptera praefica						
TOBACCO HORNWORM Manduca sexta			1			