# CALIFORNIA PLANT PEST & DISEASE REPORT

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE

1220 N STREET, SACRAMENTO, CALIFORNIA, 95814

## EUCALYPTUS WEEVIL ON THE "FRASSTRACK": A PEST NEW TO CALIFORNIA

What's Inside:

Vol. 13 Numbers 1-2

January-June, 1994

# CALIFORNIA PLANT PEST AND DISEASE REPORT

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The California Plant Pest and Disease Report, Volume 13, Numbers 1-2, was issued on June 30, 1994 and printed July 1994.

# ENTOMOLOGY HIGHLIGHTS

## Errata and Name Changes

The pest rating for the avocado mite, *Oligonychus perseae*, was erroneously listed as a "C" pest in the June-September issue of CPPDR 11(3-4):46-47. This mite is rated "Q."

Sweetpotato whitefly, *Bemisia tabaci*, has been an economic problem in California in the desert valleys of southeastern California since about 1975. In 1991, severe economic losses, presumably by this species, precipitated a massive research project nationwide. However, research indicated that many major differences existed between the whitefly causing the 1991 damage and the whitefly causing the damage that occurred earlier. As a result, Tom Bellows and Tom Perring of U.C. Riverside have described this new entity as the silverleaf whitefly, *Bemisia argentifolii*. The old problem, *Bemisia tabaci*, has apparently been all but displaced by the new species. The description can be found in Bellows et al, 1994, Annals of the Entomological Society of America 87(2):193-206.

# FRUIT FLY DETECTION TRAPPING

**MEDITERRANEAN FRUIT FLY**, *Ceratitis capitata*, -(A)- It's been fairly quiet on the fruit fly front so far this year. A Mediterranean fruit fly was found in Culver City, **Los Angeles** County, on January 3 by Namahoe. Garcia found a Medfly in a panel trap placed in an orange tree on January 6 in West Covina, Los Angeles County. Also, in Los Angeles County fruit flies were trapped in Long Beach by Kasai on January 10 and in Carson by Serrato on January 12. Next door in **Orange** County, Guerra collected a Medfly in a McPhail trap on orange in Yorba Linda on January 20.

**ORIENTAL FRUIT FLY**, *Bactrocera dorsalis*, -(A)- The first trapped Oriental fruit flies of the year also were in **Los Angeles** County. One was found by Torres on January 10 in Malibu and the other was found by Wibayless on January 12 in Westminster. Both were trapped in lemon trees. A fly was trapped in an orange tree in Los Angeles by Marquez on May 18. On May 24, Espinosa found a male in a Jackson trap in a loquat tree in Walnut, Los Angeles County.

**MEXICAN FRUIT FLY**, *Anastrepha ludens*, -(A)- The first Mexican fruit flies trapped this year are from San Diego, **San Diego** County. Kolbjornsen made two finds one, in a McPhail trap placed in sapote on January 12 and the other in a grapefruit tree on January 14. A female was trapped on sapote by Abdulahad on January 12 in Leucadia, San Diego County. It wasn't until March 24 that another fly was trapped in San Diego County. Chavez made the find in a McPhail trap on sapote in National City. Sanchez trapped a female Mexican fruit fly on May 1 in San Diego.

**MELON FRUIT FLY**, *Bactrocera cucurbitae*, -(A)- Rice found a melon fruit fly in a McPhail trap in a lemon tree in Long Beach, **Los Angeles** County, on April 21.

None of the foregoing detections represent infestations.

# NEW STATE RECORDS

**A GUM-TREE WEEVIL,** *Gonipterus scutellatus* -(Q)- This weevil is an Australian native which was recently discovered for the first time in North America. The following report by Terry N. Seeno and Jerry Davidson details this discovery:

## A Gum-Tree Weevil in California

### Introduction

On March 14, 1994 larval and adult weevil specimens were sent to the CDFA's Analysis & Identification Branch by Ventura County University of California Cooperative Extension Entomologist Jim Downer. The specimens were collected by a sharp-eyed tree-trimmer on Loma Vista Drive in the city of Ventura who spotted both adults and larvae feeding in the tops of the eucalyptus trees he was working on. The specimens were tentatively identified as Australian gum-tree weevil, *Gonipterus scutellatus* Gyllenhal (Coleoptera: Curculionidae).

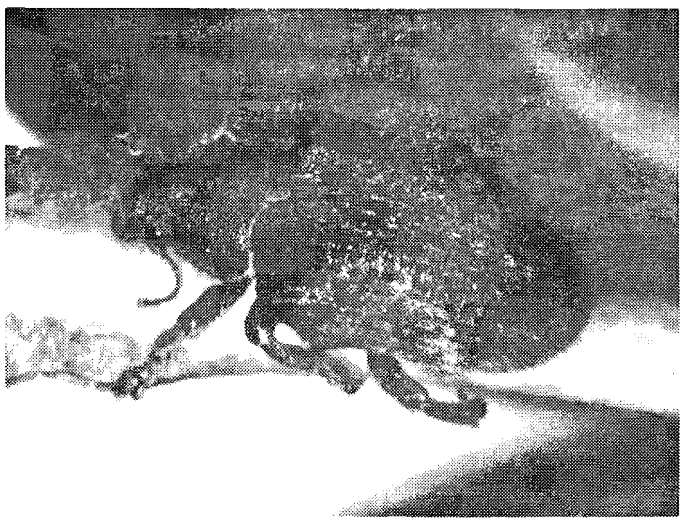

Fig. 1. Adult Gum-Tree Weevil.

An additional three, middle instar larval specimens were submitted on May 9, 1994 by the Ventura County Agricultural Commissioner's office. These specimens were collected on La Vista Road in Somis on eucalyptus.

The weevil is a severe pest of eucalyptus in its native Australia. It was recorded doing some damage to stalks of apples, but the citation is not referenced and may be incidental. Worldwide distribution is generally spotty and includes parts of Australia, New Zealand, Tasmania, Central and southern Africa, Madagascar, Franco-Italian border, Argentina, Brazil, and Uruguay.

### Description

Adult weevils are approximately 7 to 8 mm. long from the front of the head to the end of the elytra, and are somewhat robust in appearance, especially near the middle of the insect. When viewed from above, two lateral, rounded, thorn-like projections are visible just below the base of the elytra. In side view, the weevil has a dome-like upper surface and a rather flat ventral surface from just behind the eyes to the tip of the abdomen. The eyes are large and nearly round. The thorax is sub-cylindrical, narrowing near the head and is approximately half as wide as the elytra at the base.

The basic color of the integument of the entire insect is dark brown. Sparse, unevenly distributed, light brown setae on the upper surface give the adult a mottled appearance, especially on the front of the head between the eyes, on the rostrum, and at the bases of the elytra and thorax. The legs and under surface of the body are covered with light colored, scale-like setae which, nearly covering the dark integument, gives the insect an almost white under surface.

Larvae are somewhat sawfly- or slug-like in appearance. In the early larval stages, they are yellowish with small black dots and dark dorso-lateral stripes that run nearly the length of the body. When full grown, they are yellowish green with numerous small black dots. Frass (fecal material) is noticeably produced in long strings and frequently clings to the larvae.

**Life History**

Adults over winter under the bark and emerge in the spring to begin egg laying. Egg cases are attached to the leaves, dark in color and may contain as many as a dozen eggs. The larvae hatch through the bottom of the case and enter the leaf as miners. They later exit to the leaf surface to feed externally until full grown, drop to the ground and pupate. They are reported to spend four to five weeks in the larval stage and three to four weeks as a pupa. The time to complete the life cycle from egg to adult is eight to twelve weeks.

-Terry N. Seeno (CDFA, A & I)
-Jerry Davidson (Santa Barbara Co.)

This weevil often causes severe injury to eucalyptus in areas where it is introduced. The damage that it is doing so far in California is very typical of the damage that has occurred elsewhere. The adults notch the leaf edges. The most noticable injury is that caused by the older larvae, which chew down the leaf edges. This type of injury is illustrated on the front cover, with the black leaves being edge-notched, the grey background leaves are normal, untouched leaves. The larvae feed as miners for a time, then exit to feed on the leaf surface as a skeletonizer. The resultant injury appears as large irregular holes in the central areas of the leaves (see Fig. 2).

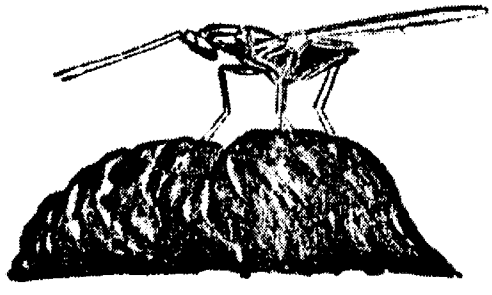

Fig. 2. Gum weevil egg mass lateral view with the egg parasite *Anaphoidea nitens.*

While the damage from this weevil can be severe, the importation of an egg parasite has brought effective control to most infested areas. The parasite is the Mymarid wasp *Anaphoidea nitens.*

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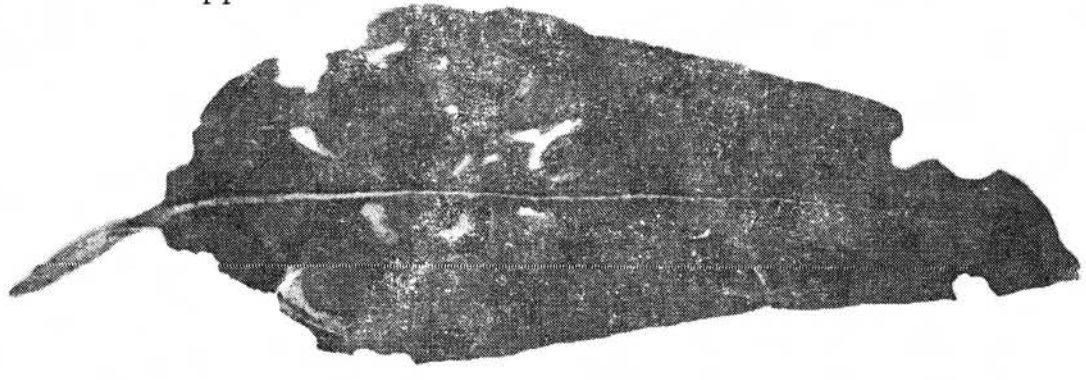

Fig. 3. Leaf showing central holes caused by mining of gum weevil larvae.

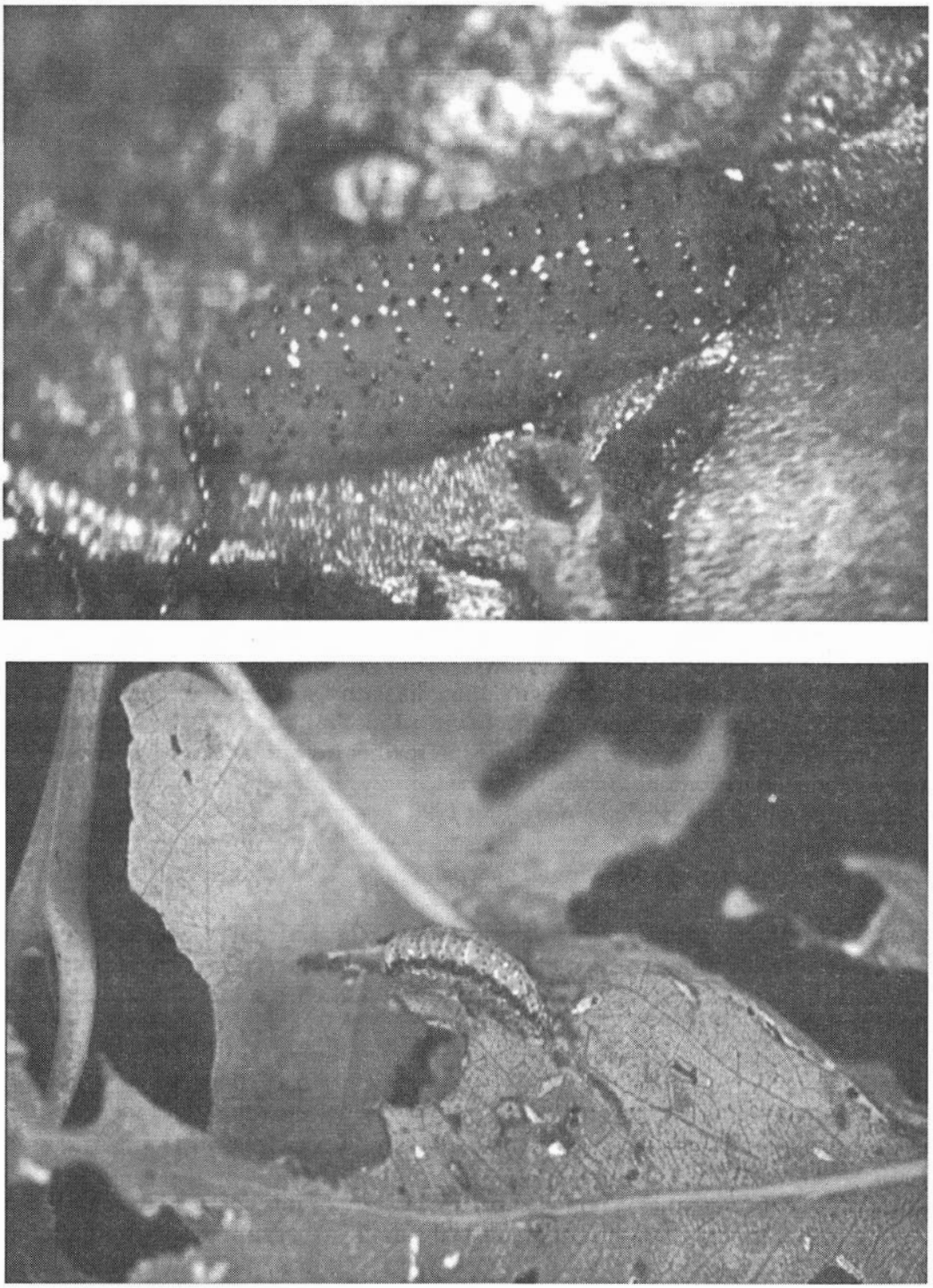

Fig. 4. Upper - Mid-instar larva of gum weevil, showing frass trail. Lower - gum weevil, full-grown larva and leaf damage. Photos by Jerry Davidson, Santa Barbara County.

**VINE MEALYBUG**, *Planococcus ficus*, -(Q)- Specimens of this mealybug were collected by Agricultural Biologist Lynn Gillis and County Entomologist Eldon Reeves of the Riverside County Agricultural Commissioner's office. Coachella Valley grape growers had noted mealybugs on grapevines for the previous three or four years and took them to be the grape mealybug that is present throughout California. The fact that this was a different mealybug was determined based on a sample submitted on June 1 from the popular "Flame" table grape variety.

Presently, the species occurs in the following areas: Palearctic region- Cyprus, Egypt, France, Greece, Iran, Iraq, Israel, Italy, Lebanon, Libya, Saudi Arabia, Spain, Tunisia, Turkey; Afrotropical Region- South Africa; Oriental Region- Pakistan; Neotropical Region- Argentina. Records by Ezzat and McConnell from the southeastern states collected during the 1950s include the states of Louisiana, Mississippi, North Carolina, and South Carolina.

This mealybug is characteristic of the tribe Planococcini by possessing a long, thin, ventral sclerotized bar that extends anteriorly from the base of the last pair of cerarian spines. It lacks a tooth on the plantar surfaces of the tarsal claws and lacks accessory setae in association with the cerarii. The species is most readily separated from the other two *Planococcus* species recorded from California by the presence of translucent pores on the hind femur. These pores are not present on most other species of *Planococcus*. However, the presence of these pores on the metafemur are manifested as a result of temperature in the environment, since specimens of *ficus* that were raised in cool temperatures did not always have them. The major differences between *ficus* and *citri* other than the femoral pores are the larger number of oral collar ducts that are found in *citri*.

**GLASSY-WINGED SHARPSHOOTER**, *Homalodisca coagulata*, -(Q)- Glassy-winged sharpshooter has been recorded for the first time in California with a specimen sent in by Santa Barbara County Entomologist Jerry Davidson. Farm Advisor Phil Phillips made the find on *Eucalyptus* spp. in Ventura, **Ventura** County, on March 7. After further investigation this new pest was also found to be established in Fontana, San Bernardino County, and in the Anaheim, Orange County area, where it apparently has existed since about 1990.

The following description of glassy-winged sharpshooter is taken from Nielson (1968):

> This pest is a very large, robust species. The male is 11.50 -12.50 mm in length while the female is between 11.80-13.80 mm. The general color is brown to black. The crown, pronotum, and scutellum are brown or black with numerous ivory or yellowish spots. The surface is coursely rugulose and the elytra subhyaline.
>
> It is prevalent in the Southeastern United States, but has been taken from Wisconsin and northern Mexico (Young, 1958). Turner and Pollard (1959) recorded it from Florida, Georgia, North Carolina, South Carolina, Mississippi, Alabama, Texas, Missouri, and Arkansas.
>
> Turner and Pollard (1959a) also reported on the biology of this species. In their life-history studies the authors listed 73 species of plants in 35 families that supported populations of this insect. Favored herbaceous hosts were sunflower, hollyhock, okra, lambsquarters, cotton, corn, and cowpeas. Oak, ash, silktree, crapemyrtle, and peach were favorite woody hosts. Nymphs of the first and second instar did not survive well on woody plants. Adults and older nymphs preferred feeding on stems and twigs rather than leaves of plants. It was a solitary feeder, but occasionally large populations were observed on a single plant.

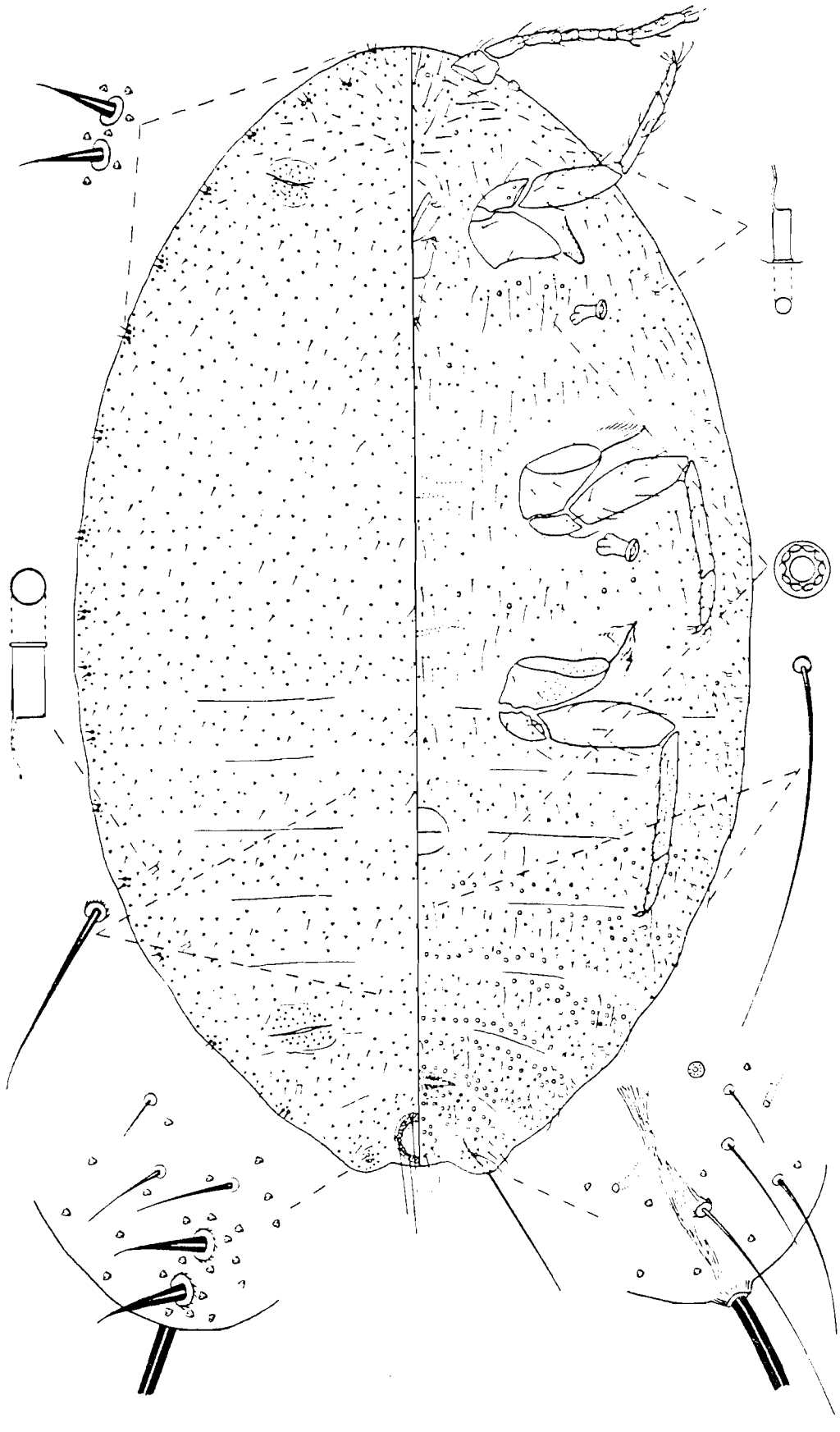

Fig. 5. *Planococcus ficus*, morphology of the adult female. Illustration taken from Ezzat & McConnell, Univ. Maryland Agr. Exp. Sta. Bull A-84, pp. 1-108, 1956

The species overwintered as adults in wooded areas. In the spring, adults gradually migrated to new hosts until populations built up in March and April. Eggs were laid in April in leaves of herbaceous plants or sometimes in leaves of woody plants. They were laid in clusters in the lower epidermal layer of leaves. In the summer, populations fed on herbaceous plants and occasionally congregated in large numbers on weakened peach trees. After summer hosts dried up, the insects moved to woody hosts during August, September, and October, at which time populations were greatest in peach orchards. In insectary studies females mated only once. Eggs hatched in 12 days. The nymphal stage averaged 59.5 days in the first generation. The second generation was carried to the fourth instar, which was completed in 33.5 days. In the third generation, the nymphal stage was completed in 72.2 days. Adult longevity averages between 60 and 64 days among generations. There appeared to be two complete generations and a partial third annually.

Pollard and Kaloostian (1961) observed the overwintering habits of large populations on oak. During cold snaps the insects dropped to the ground overnight, then gradually returned to oak to feed as the temperature rose during the day.

This species is a vector of rickettsia-like organisms (RLOs) phony peach disease and Pierce's disease of grape in Georgia. Transmission of phony peach disease was first reported by Turner and Pollard (1955) under the name of "*Homalodisca triquetra* (Fabricius)." Eight definite and eight probable cases of transmission were obtained in 203 trees tested.

Kaloostian et al. (1962) were first to confirm this species as a vector of Pierce's disease of grape in Georgia. Earlier Crall and Stover (1957) obtained transmission of this RLO, but they were unable to determine whether they were using *coagulata*, or *insolita*, or both species in their tests.

This leafhopper is readily separated from its near relative, *Homalodisca lacerta*, the smoke tree sharpshooter, by the lack of well defined, bright yellow cephalic vermiculations that are found in *lacerta*. Also, the male aedeagus of *coagulata* lacks the extra ventral lateral projections that are found in *lacerta* (see illustrations). There are 19 species in this genus; most occur in Mexico, Central America and northern South America. Five species are recorded from the U.S.

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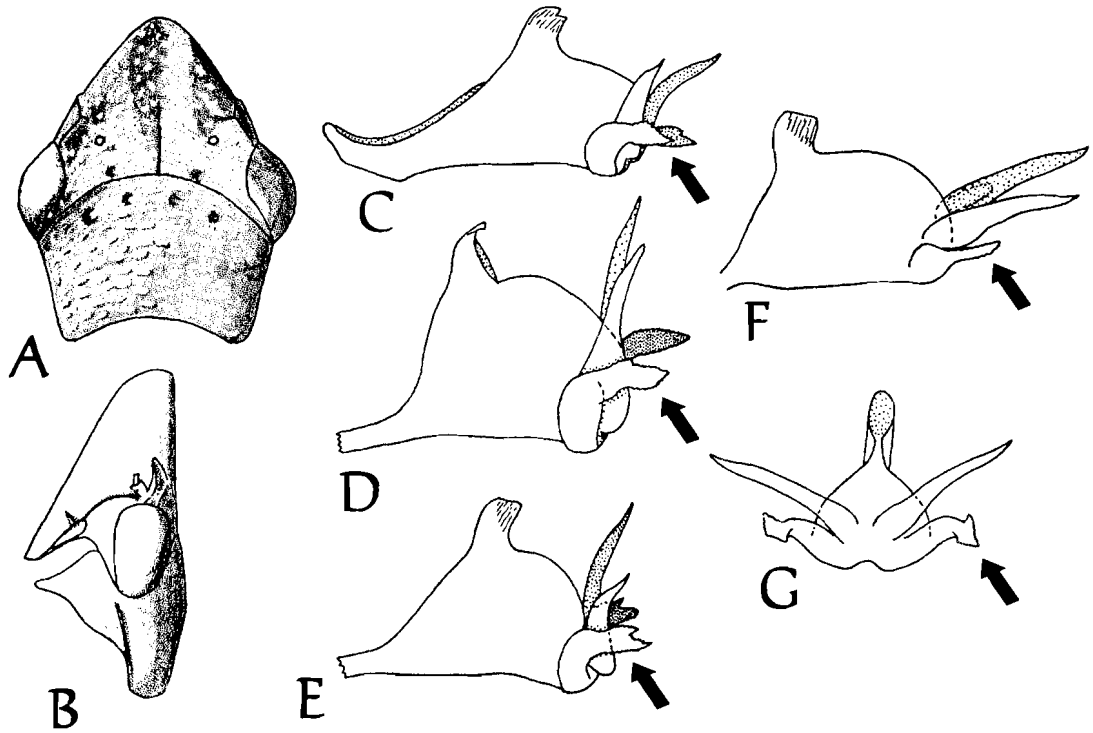


Fig. 6. Glassy-winged sharpshooter, *Homalodisca coagulata*. A-B: Head. C-F: Lateral view of aedeagus. G: Posterior view of aedeagus. Arrow indicates an extra accessory process not found in the smoketree sharpshooter.

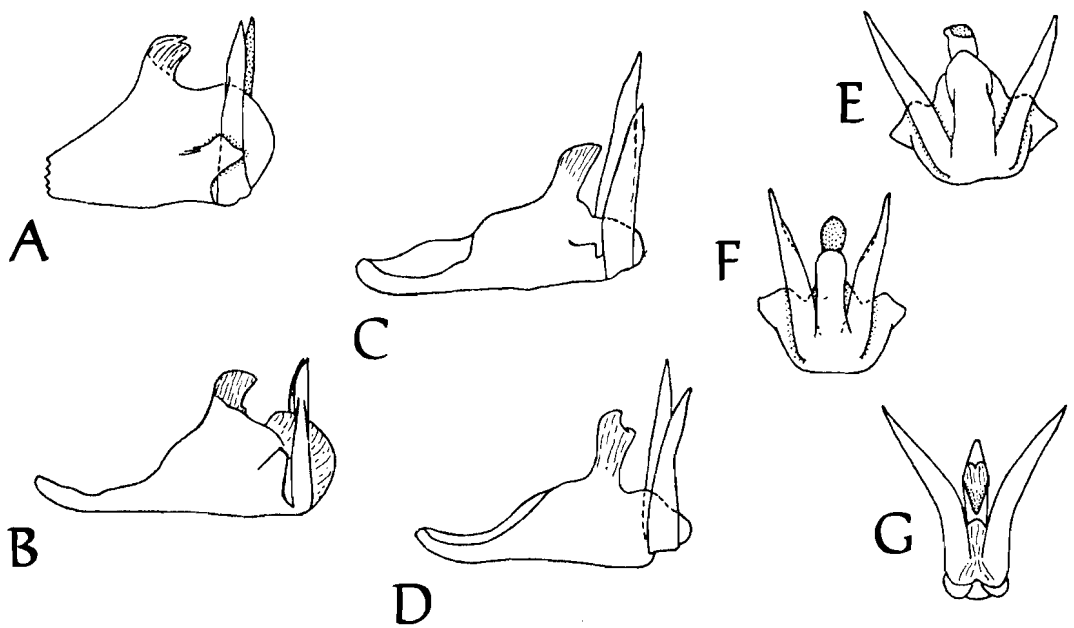


Fig. 7. Smoketree sharpshooter, *Homalodisca lacerta*. A-D: Lateral view of aedeagus. E-G: Posterior view of aedeagus.

# NEW COUNTY RECORDS

**JUNIPER GELECHIID MOTH**, *Stenolechia bathrodyas*, -(B)- Juniper gelechiid moth has been found for the first time in **Santa Barbara** County. The find was made by J. Davidson and H. Vallier in Carpinteria on a Spartan juniper (*Cedrus leylandii*) on March 1.

The following information on this moth was taken from the paper, "*Stenolechia bathrodyas* Meyrick, A Recently Introduced Pest of Ornamental Conifers in Southern Coastal California (Lepidoptera: Gelechiidae)" by Tom Eichlin, originally published in Pan-Pacific Entomologist, July 1980:

> Starting in 1969 specimens of this moth infesting conifers, including juniper and cypress, were being collected from southern California counties. By 1978, it was reported that this pest was causing extensive damage in San Diego County. It is theorized that *S. bathrodyas* was probably introduced to California on imported host material from Japan.
>
> Host plants include various species and hybrids of *Cupressus* and *Juniperus*.
>
> The distribution of the moth includes Japan: Tokyo to Osaka (Esake et al., 1969) and North America: California, Ventura to San Diego.
>
> The available collection data suggest there are at least three generations per year. The shortest duration for a single generation appears to be about 90 days, occurring during the warmer months.
>
> The small, slow moving larva (5.5-6.0 mm in length) feeds through leaves but apparently does not bore into the twigs, except perhaps in the growing tips. They migrate externally, leaving behind silk strands and producing webbing between twigs. Heavy infestation by this pest results in whole branches or sections of the plant becoming brown, resembling the effects of some plant diseases. Pupae were found in very thinly prepared cocoons of silk, covered with frass, small wood chips and pieces of leaves at the juncture of two twigs, or the juncture of a twig and a branch, or concealed under an old leaf on a branchlet.
>
> In North America *Stenolechia* most closely resembles the genus *Recurvaria* Haworth. The two genera differ primarily in details of the genitalia and immature stages. At present, *S. bathrodyas* has not been detected in native stands of cypress or juniper, but only in ornamental plantings. This gelechiid would have to be considered a potentially destructive pest to native species and to nursery operations.

**NESTING WHITEFLY**, *Paraleyrodes minei*, -(Q)- S. Squires and J. Davidson made the find on nursery citrus trees in Santa Barbara, **Santa Barbara** County. This new county record was made on May 31.

**KUNO SCALE**, *Eulecanium kunoense*, -(B)- On April 14, B. Lyon discovered Kuno scale on prune for the first time in Vacaville, **Solano** County. For more information on the bionomics and current California distribution of this scale insect see CPPDR 12(1-2):12.

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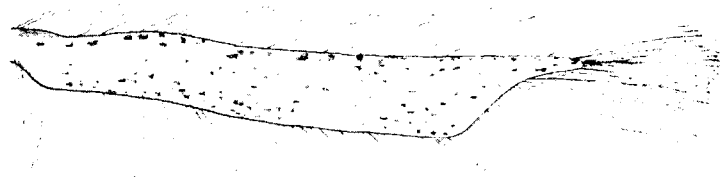

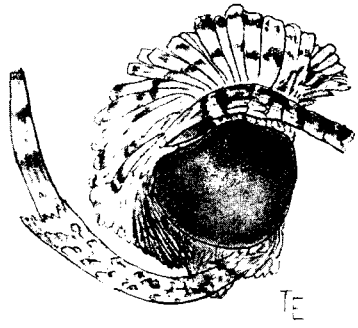

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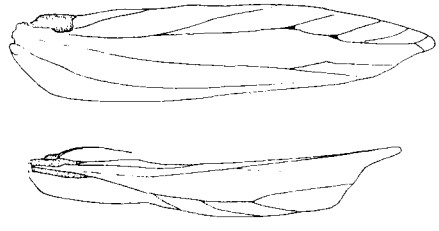

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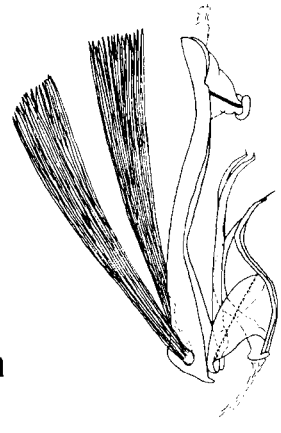

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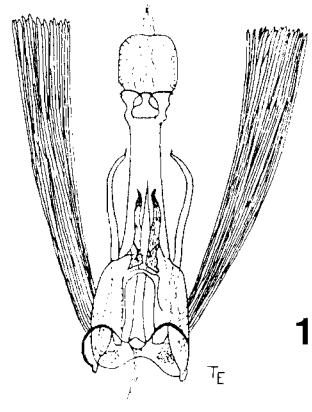
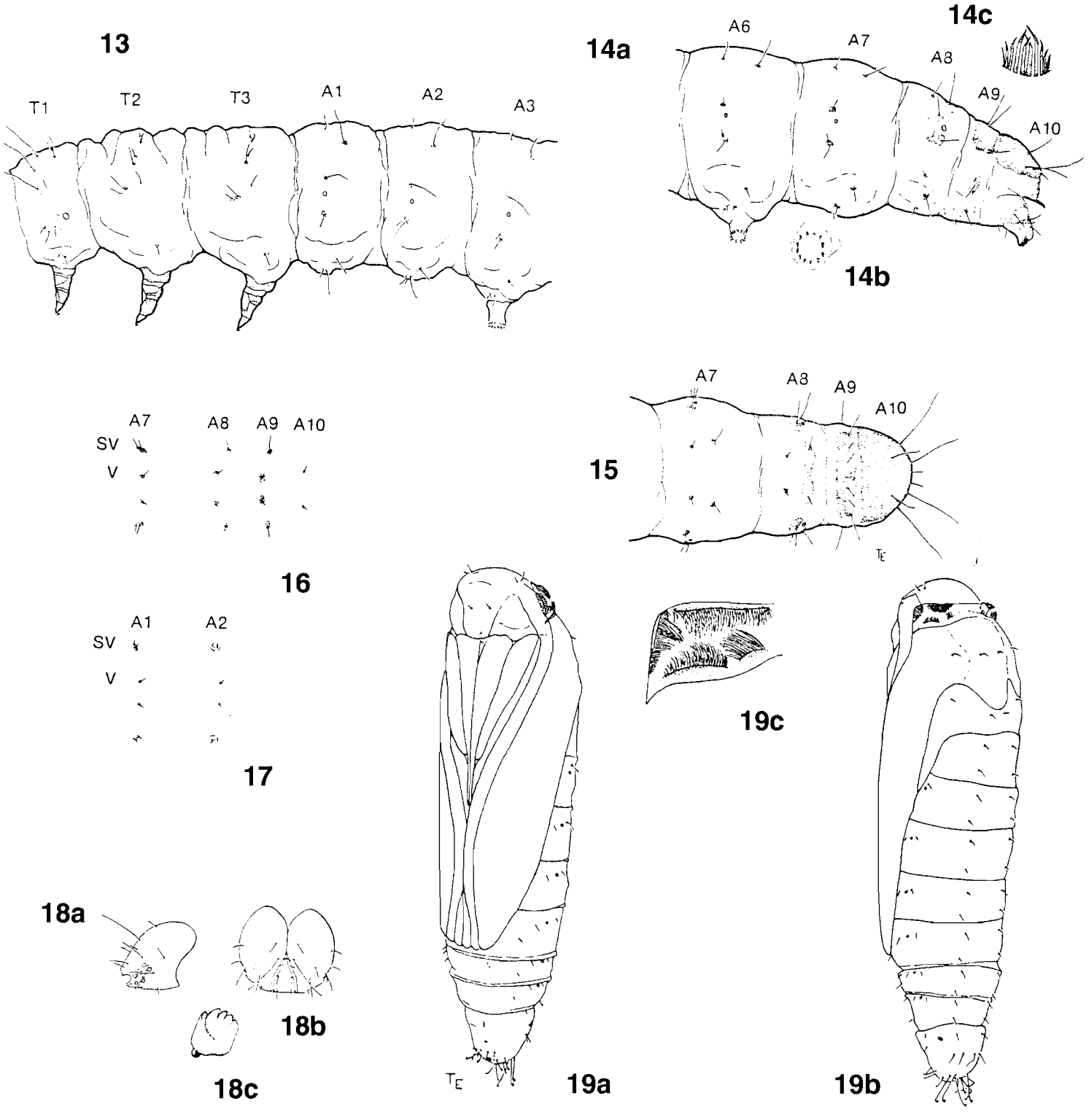


Figs. 8-12 . *Stenolechia bathrodyas*. Fig. 8, fore- and hindwing patterns. Fig. 9, head with scales, lateral view. Fig. 10, venation of fore- and hindwings. Fig. 11a, female genitalia, ventral view; b, closeup view of signa. Fig. 12, male genitalia; a, lateral view; b, ventral view. Illustrations by Tom Eichlin, in Pan-Pacific Entomol. 56(3): 213-9,1980.




Figs. 13-19. Larva of *Stenolechia bathrodyas*. Fig. 13, thorax and A1-A3, lateral view. Fig. 14a, A6-A10, lateral view; b, closeup view of crochets; c, closeup, ventral view of anal comb. Fig. 15, A7-A10, dorsal view. Fig. 16, SV and V setal arrangement for A7-A10. Fig. 17, SV and V setal arrangement for A1 and A2. Fig. 18, larval head structures; a, lateral view; b, front view; c, mandible. Fig. 19. Pupa of *Stenolechia bathrodyas*; a, lateroventral view; b, laterodorsal view; c, closeup of left side of pronotum. Illustrations by Tom Eichlin, in Pan-Pacific Entomol. 56(3): 213-9,1980.

**CHINESE WAX SCALE,** *Ceroplastes sinensis*, -(B)- Chinese wax scale has been found for the first time in **San Diego** County. David Kellum made the find on *Abelia* sp. in San Diego on March 3.

## ❀ SIGNIFICANT FINDS IN OTHER STATES AND COUNTRIES ❀

**A THRIPS,** *Elixothrips brevisetis* -(Q)- A specimen of this species was submitted for identification by Dr. Avas Hamon, Florida Dept. of Agriculture and Consumer Services, Gainesville (TSU lot 94 04180). The specimen was collected at Ft. Lauderdale, Florida, on *Schefflera arboricola* on April 7, 1994 by K. Vanyo. This adventive species was collected in 1980 on St. Johns, Virgin Islands from an unknown host (USNM Thysanoptera Collection), and found in Guadeloupe on *Acalypha* sp. in 1991 (Bournier 1993). A lot collected in 1968 with a questionable origin as ?Surinam is in the USNM Thysanoptera collection. It was detected in Hawaii in 1981.

Distribution: Seychelles Islands, Rodrigues I., Philippines, Taiwan, Guam, Gilbert Is., Marshall Is., Hawaii (Wilson 1975, Sakimura 1985); Guadeloupe (Bournier 1993); St. John, Virgin Islands, ?Surinam, and Florida (USNM collection).

Recorded hosts: *Acalypha* sp., *Canna speciosa*, *Cestrum pallidum*, *Ficus* sp., *Dioscorea* sp., *Ipomoea alba*, *Morinda citrifolia*, *Musa* sp. (banana), *Wedelia trilobata* (Bournier 1993, Muruvanda 1986, Sakimura 1985, Stannard and Mitri 1962). Also on *Artocarpus altilis*, *Calocasia esculentus*, *Passiflora* sp., *Pandanus* sp. and *Schefflera arboricola*.

Economic Importance: Caused scarification, cracking and corky growth on banana fruits in Hawaii (Muruvanda 1986).

Synonyms: *Tryphactothrips brevisetis* Bagnall, *Dinurothrips guamensis* Moulton.

**References:**

Bournier, A. 1993. Thysanopteres de Martinique et de Guadeloupe. Zoology 3(3): 227-240.

Muruvanda, D.A. 1986. Notes and Exhibitions. Thrips damaging banana. Proceedings, Hawaiian Entomological Society 27: 8.

Sakimura, K. 1985. Notes and Exhibitions. *Elixothrips brevisetis*. Proceedings, Hawaiian Entomological Society 25: 2.

Stannard, L.J. and T.J. Mitri. 1962. Preliminary studies on the Tryphactothrips complex in which *Anisopilothrips*, *Mesostenothrips*, and *Elixothrips* are erected as new genera (Thripidae: Heliothripinae). Trans. American Entomol. Soc. 88: 183-224.

Wilson, T.H. 1975. A monograph of the subfamily Panchaetothripinae (Thysanoptera: Thripidae). Memoirs of the American Entomological Institute 23, 354 pp.

## EXCLUSION

**JASMINE WHITEFLY**, *Aleuroclava jasmini*, -(Q)- Jasmine whitefly has been collected from jasmine coming into California from Hawaii. David Demmer made the interception on April 14 in Vista, San Diego County. This is the first interception of this pest by California personnel, which has only recently been found established in Hawaii.

The following pests have been found in various nurseries scattered around the state and are presently undergoing eradication:

**MAGNOLIA WHITE SCALE**, *Pseudaulacaspis cockerelli*, -(A)- Magnolia white scale has been found in Orange County on January 6 and March 16. On January 11 and April 18 this pest was found in San Francisco County and in Los Angeles County on February 28 and May 4. Magnolia white scale was found at nurseries in San Diego County on March 14 and May 23.

**ELISA MEALYBUG**, *Pseudococcus elisae*, -(B)- This pest was found in San Joaquin County on January 6. Several finds were reported of Elisa mealybug at a nursery in Madera County on January 25.

**COCONUT SCALE**, *Aspidiotus destructor*, -(A)- Coconut scale was found on January 11 in San Francisco County.

**GREEN SHIELD SCALE**, *Pulvinaria psidii*, -(A)- This important pest was found at a Gardena nursery in Los Angeles County on January 19.

**NESTING WHITEFLY**, *Paraleyrodes minei*, -(Q)- Nesting whitefly was found at a nursery in Los Angeles County on March 1 and April 11.

**WOOLLY WHITEFLY**, *Aleurothrixus floccosus*, -(B)- This pesty whitefly was also found in Los Angeles County on March 14 and March 17.

The following list records some of the uncommon or unusual pest interceptions made during the period December 1993 to May 1994. Frequently intercepted pests such as magnolia white scale and bigheaded ants are not included. The list is developed to keep quarantine inspectors and county officials informed on what pests are being intercepted.

# "A", "B", and "Q" Rated Arthropods and Mollusks Intercepted in Quarantine December 1993 - May 1994

| Rating | Species | Common Name | Date | Origin | County | Host | Collector(s) |
|---|---|---|---|---|---|---|---|
| A | *Selenaspidus articulatus* | rufous scale | 12/06/93 | Puerto Rico | SDG | *Citrus* sp. | Stalnaker |
| Q | *Unaspis citri* | citrus snow scale | 12/06/93 | Puerto Rico | SDG | *Citrus* sp. | Stalnaker |
| A | *Hemiberlesia palmae* | tropical palm scale | 12/06/93 | Florida | LAX | *Aechmea* sp. | Herrera |
| Q | *Orchidophilus* sp. | a weevil | 12/08/93 | Hawaii | SAC | *Protea* sp. | Hightower |
| Q | *Bambusaspis robusta* | robust bamboo pit scale | 12/08/93 | Hawaii | ORA | *Bambusa vulgaris* | Fernandez |
| Q | *Cenopalpus* sp. | a flat mite | 12/14/93 | New York | SBA | *Cupressus* sp. | Squires |
| Q | *Coptosoma xanthogramma* | black stink bug | 12/14/93 | Hawaii | LAX | *Zingiber* sp. | Awad |
| Q | *Sybra alternans* | a longhorned beetle | 12/18/93 | Hawaii | LAX | ? | Herrera |
| Q | *Oxydema longula* | a weevil | 12/20/93 | Hawaii | SBA | *Zingiber* sp. | Burke |
| Q | *Andaspis leucophleae* | a diaspidid scale | 12/21/93 | Florida | ORA | *Ficus benjamina* | Wynn |
| Q | *Andaspis punicae* | an armored scale | 12/21/93 | Florida | ORA | *Ficus benjamina* | Wynn |
| Q | *Diocalandra taitensis* | Tahitian coconut weevil | 12/27/93 | Hawaii | LAX | herbs | Mehraban |
| Q | *Geococcus coffeae* | a soil mealybug | 12/28/93 | Hawaii | LAX | *Howea forsterana* | Papilli |
| A | *Toxotrypana curvicauda* | papaya fruit fly | 01/04/94 | Hawaii | LAX | *Carica papaya* | Herrera |
| Q | *Parlatoria ziziphi* | black citrus scale | 01/04/94 | Puerto Rico | KRN | *Citrus* sp. | Sithole |
| Q | *Liriomyza* sp. | a leafminer fly | 01/05/94 | Florida | SMT | *Medicago sativa* | Pendleton |
| Q | *Rhizoecus americanus* | a soil mealybug | 01/05/94 | Florida | LAX | *Ravenea rivularis* | Papilli |
| A | *Selenaspidus articulatus* | rufous scale | 01/11/93 | Florida | SBA | *Cordyline terminalis* | Burke |
| Q | *Aleurocerus palmae* | palm whitefly | 01/13/94 | Mexico | SDG | *Chamaedorea* sp. | Worcester |
| Q | *Protaetia fusca* | mango flower beetle | 01/19/94 | Hawaii | SFO | automobile | Maan |
| Q | *Hemiberlesia diffinis* | diffinis scale | 01/24/94 | Florida | ORA | *Ficus benjamina* | Fernandez |
| B | *Pseudococcus elisae* | elisa mealybug | 01/25/94 | ? | MAD | *Aglaonema modestum* | Rohn |
| Q | *Coccus capparidis* | capparis soft scale | 01/27/94 | Hawaii | SJQ | *Schefflera arboricola* | Reed |
| A | *Achatina fulica* | giant african snail | 01/31/94 | Hawaii | SMT | *Dracaena compacta* | Loux |
| A | *Selenaspidus articulatus* | rufous scale | 02/04/94 | Puerto Rico | SDG | *Citrus* sp. | Matsumoto |
| Q | *Aleurotulus anthuricola* | anthurium whitefly | 02/09/94 | Hawaii | ORA | *Anthurium* sp. | Wynn |
| Q | *Morganella longispina* | plumose scale | 02/09/94 | Florida | ORA | *Ficus benjamina* | Fernandez |
| Q | *Contarinia* sp. | a gall midge | 02/11/94 | Belgium | SFO | dunnage | Olmsted |
| Q | *Saccharicoccus sacchari* | pink sugarcane mealybug | 02/18/94 | Hawaii | ORA | *Alpinia purpurata* | Wynn |
| Q | *Rhizoecus caladii* | a soil mealybug | 02/23/94 | Hawaii | LAX | *Rhapis* sp. | Banta |
| Q | *Hemiberlesia diffinis* | diffinis scale | 02/28/94 | Florida | ORA | *Ficus benjamina* | Fernandez |
| Q | *Plautia stali* | Oriental stink bug | 01/31/94 | Hawaii | SMT | *Dracaena warneckii* | Loux |

| Rating | Species | Common Name | Date | Origin | County | Host | Collector(s) |
|---|---|---|---|---|---|---|---|
| A | *Clavaspis herculeana* | herculeana scale | 03/03/94 | Hawaii | ORA | *Plumeria* sp. | Clodt |
| B | *Cecilioides* sp. | a snail | 03/09/94 | Florida | LAX | *Phoenix* sp. | Papilli |
| Q | *Curculio* sp. | a weevil | 03/09/94 | Spain | ELD | *Quercus suber* | Bolster |
| Q | *Melormenis basalis* | a planthopper | 03/09/94 | Hawaii | SFO | automobile | Maan |
| Q | *Protaetia fusca* | mango flower beetle | 03/09/94 | Hawaii | SFO | automobile | Maan |
| Q | *Aleurocerus* sp. | a palm whitefly | 03/15/94 | Florida | SDG | *Chamaedorea* sp. | Worchester |
| Q | *Coptosoma xanthogramma* | black stink bug | 03/16/94 | Hawaii | SFO | automobile | Olmsted |
| Q | *Pseudaonidia trilobitiformis* | trilobe scale | 03/16/94 | Guatemala | SJQ | *Ficus benjamina* | Moretto |
| Q | *Orthotylus* sp. | a plant bug | 03/16/94 | Hawaii | LAX | cut flowers | Herrera |
| A | *Acutaspis albopicta* | albopicta scale | 03/17/94 | Costa Rica | SJQ | *Aglaonema* sp. | Williamson |
| Q | *Veronicella ameghini* | a slug | 03/22/94 | Florida | ORA | *Phoenix roebelenii* | Fernandez |
| Q | *Diploptera punctata* | Pacific beetle cockroach | 03/23/94 | Hawaii | SFO | automobile | Olmsted |
| Q | *Odonaspis bromeliae* | an armored scale | 03/29/94 | Guatemala | MAD | *Tillandsia* sp. | Rohn |
| Q | *Rhizoecus americanus* | a soil mealybug | 03/29/94 | Florida | LAX | *Chrysalidocarpus* sp. | Sium |
| Q | *Aleurocerus* sp. | a palm whitefly | 04/08/94 | Mexico | MNT | palm | Murray |
| Q | *Eurygaster* sp. | a shield-backed bug | 04/13/94 | Hawaii | SFO | automobile | Olmsted |
| Q | *Coccus acutissimus* | slender soft scale | 04/14/94 | Hawaii | ALA | palm | Seslowe |
| Q | *Aleuroclava jasmini* | jasmine whitefly | 04/14/94 | Hawaii | SDG | *Jasminum* sp. | Demmer |
| Q | *Adoretus sinicus* | Chinese rose beetle | 04/15/94 | Hawaii | SON | *Dendrobium* sp. | Czarnecki |
| Q | *Hemiberlesia diffinis* | diffinis scale | 04/19/94 | Florida | ORA | *Ficus benjamina* | Fernandez |
| Q | *Araecerus fasciculatus* | coffee bean weevil | 04/23/94 | Hawaii | LAX | cut flowers | Herrera |
| Q | *Milviscutulus mangiferae* | mango shield scale | 04/27/94 | Costa Rica | SJQ | *Schefflera* sp. | Reed |
| Q | *Teleogryllus* sp. | a cricket | ? | Ecuador | LAX | *Musa* sp. | Jackson |
| Q | *Andaspis leucophleae* | a diaspidid scale | 04/28/94 | Hawaii | ORA | *Ficus benjamina* | Do |
| A | *Kilifia acuminatus* | acuminate scale | 04/29/94 | Hawaii | SJQ | *Schefflera arboricola* | Reed |
| Q | *Orchidophilus* sp. | a weevil | 05/02/94 | Hawaii | LAX | cut flowers | Awad |
| Q | *Coptotermes formosanus* | Formosan termite | 05/05/94 | Hawaii | SFO | automobile | Olmsted |
| A | *Hemiberlesia palmae* | tropical palm scale | 05/10/94 | Costa Rica | SJQ | *Dracaena marginata* | Williamson |
| Q | *Rhizoecus hibisci* | a root mealybug | 05/11/94 | Hawaii | ORA | *Phoenix roebelenii* | Fernandez |
| Q | *Paleocallidium rufipenne* | a longhorned beetle | 05/12/94 | Asia | SFO | ship | Olmsted |
| B | *Ferrisia virgata* | striped mealybug | 05/16/94 | Florida | RIV | *Codiaeum* sp. | Domenigoni |
| Q | *Clastoptera xanthocephala* | a spittlebug | 05/19/94 | Hawaii | LAX | *Ocimum* sp. | Awad |
| Q | *Orthotylus* sp. | a plant bug | 05/21/94 | Hawaii | LAX | cut flowers | Awad |
| Q | *Oxydema* sp. | a weevil | 05/21/94 | Hawaii | LAX | cut flowers | Awad |
| Q | *Andaspis leucophleae* | a diaspidid scale | 05/29/94 | Hawaii | ORA | *Ficus benjamina* | Wynn |

# BORDER STATIONS

Traffic into California is increasing by leaps and bounds. That includes most forms of transportation, and this increase in traffic is putting an increasing strain on the state-wide plant pest quarantine network. An example is the sheer volume of vehicular traffic handled at the border stations. The busy border inspection station at Yermo handled 4.0 million vehicles during 1991. By 1993 that volume had increased to 4.3 million vehicles. On the Sunday following Thanksgiving, 1993, 39,500 vehicles passed through the station; 29,000 passed through on New Years day, and another 45,500 on January 2, 1994.

Surprisingly, many of the interceptions on the highways leading into California from other states actually contain plant material from countries all around the world, often via Canada. The following collections are typical of the interceptions made routinely at the border stations:

| Pest | Station | Date | Origin | Collector | Host |
|---|---|---|---|---|---|
| Apple Maggot - *Rhagoletis pomonella* | RE | 09/14 | Canada | Steen | crabapples |
| Apple Maggot - *Rhagoletis pomonella* | RE | 09/15 | Massachusetts | Blakely | pears |
| Mealybugs | RE | 09/30 | Wyoming | Bledsoe | orange |
| Pickleworm - *Diaphania nitidalis* | YE | 12/17 | Mexico | Day | truck |
| Black Citrus Scale - *Parlatoria ziziphi* | DO | 12/20 | Canada | Tracy | oranges |
| Mealybugs | BL | 12/24 | Canada | Klingenmeier | leaves |
| Stink Bug - eggs | YE | 12/26 | Mexico | Khalil | truck |
| Oriental Scale - *Aonidiella orientalis* | VI | 12/29 | Mexico | Walker | coconuts |
| Mite Pests - *Steneotarsonemus* sp. - *Tydeus* sp. | BL | 01/10 | Mexico | Klingenmeier | limes |
| Mealybugs | BL | 01/09 | Mexico | Klingenmeier | papayas |
| Snout Moth - larvae | BL | 01/16 | Mexico | Klingenmeier | bell peppers |
| Arrowhead Scale - *Unaspis yanonensis* | DO | 01/14 | Canada | Mauch | oranges |
| Pickleworm - *Diaphania nitidalis* | VI | 01/23 | Mexico | Granger | truck |
| Mexican Fruit Fly - *Anastrepha ludens* | BL | 02/07 | Mexico | Klingenmeier | sweet limes |
| Termite Pest - *Paraneotermes* sp. | VI | 03/16 | Texas | Connors | catalogs |
| Oriental Scale - *Aonidiella orientalis* | BL | 04/04 | Florida | DeLeon | coconuts |
| Striped Mealybug - *Ferrisia* sp. | HO | 04/08 | Vietnam | Hamilton | guavas |
| Australian Ants - *Pheidole* sp. - *Technomyrmex* sp. | BL | 04/24 | Australia | Klingenmeier | truck |

# PLANT PATHOLOGY HIGHLIGHTS

## Bacterial Leaf Spot Unique to Manzanita (*Arctostaphylos densiflorus* var. Howard McMinn)

By
Dan Opgenorth, Karen Connolly, and Lauretta Brann

In June of 1993 a leaf spot of manzanita was observed in a wholesale nursery located in the foothills of Placer County. Container grown plants propagated for residential landscape plantings were losing leaves and had a weak or declining appearance. The leaves remaining on the plants had small dark spots of one millimeter, or slightly more, which would enlarge, become angular and coalesce to give the appearance of large areas of leaf involvement (Fig. 1). Spots seemed to appear on both sides of the leaf; severely affected leaves would later turn yellow and abscise prematurely. While all plants were sprinkler irrigated, the more severely affected plants were in wet areas or where plants were in close proximity to each other and not allowed to dry adequately.

When observed microscopically, bacterial streaming was always associated with this dark leaf spot. A light yellow bacteria was consistently isolated from the leaf spots on Kings B media. The bacteria was non-fluorescent and grew poorly on Miller-Schroth media but was able to lyse Tween 80 media. A slow hypersensitive reaction on tobacco was also indicative of a *Xanthomonas* type organism. Further work using Biolog and the Microbial I. D. System (fatty acid analysis) confirmed that the bacteria was *Xanthomonas campestris*. However, the exact pathovar was unique or unable to be precisely matched with known pathovars in the current data bases.

Pathogenicity experiments were initially preformed under greenhouse conditions. The variety Howard McMinn was used and inoculum was sprayed on new and old leaves after mechanical injury by swabbing with carborundum dust. Plastic bags were placed over inoculated areas of the plant for one week. Very small lesions appeared about two weeks later. These lesions never enlarged under greenhouse conditions. A second experiment was done in spring of 1994 under outdoor conditions using several *Arctostaphylos* spp.: *densiflorus* var. Howard McMinn; *manzanita* var. Point Reyes; *uva-ursi* var. Radiant. New and old leaves were wounded with carborundum dust and inoculum was applied with a swab. A second method was also tried using a syringe to directly pressure inoculate leaves. Inoculated leaves were placed in plastic bags for one week to increase the relative humidity. Only small spots appeared on the Howard McMinn variety on the current season growth. The results of inoculations were successful but not dramatic. The more severe pressure inoculation method produced a dark circle on the Howard McMinn variety only. Bacteria were found in association with this spot and a *Xanthomonas* sp. similar to the inoculum was isolated.

From these experiments it seems the environmental conditions necessary for this disease are quite stringent and that the Howard McMinn variety is the only one affected. Because of these results it is recommended that varieties other than Howard McMinn be used in landscape plantings, especially where overhead irrigation or sprinklers may be used for watering. A similar leaf spot has not been previously reported on *Arctostaphylos* spp. growing in natural conditions.

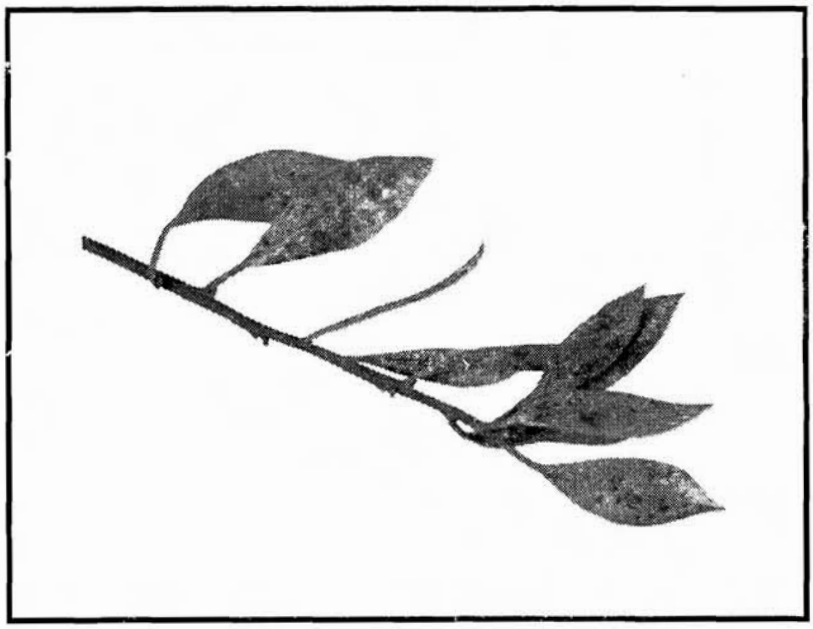


Fig. 20. Bacterial leaf spot on manzanita.

# ~ BOTANY HIGHLIGHTS ~

**SKELETONWEED**, *Chondrilla juncea*, -(A)- A new location in **Los Angeles** County has been added to the distribution map for skeletonweed, marking a new county record. The specimen, originally collected on 10 September, 1981, was discovered during a recent search by State Botantist Doug Barbe in the herbarium at Rancho Santa Ana Botanic Garden (RSA/POM). The collection 13 years ago was made by Robert Gustafson in the Ballona Wetlands, Los Angeles.

**HEART-PODDED HOARYCRESS**, *Cardaria draba*, -(B)- This weed was found for the first time in **Mariposa** County on April 5. Griffin and Parker made the discovery in Mariposa.

The current distribution maps for skeletonweed and heart-podded hoarycress, as well as other updated maps, are found on the following pages.

# STATE OF CALIFORNIA • DEPARTMENT OF FOOD AND AGRICULTURE

## DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

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DETECTION MANUAL
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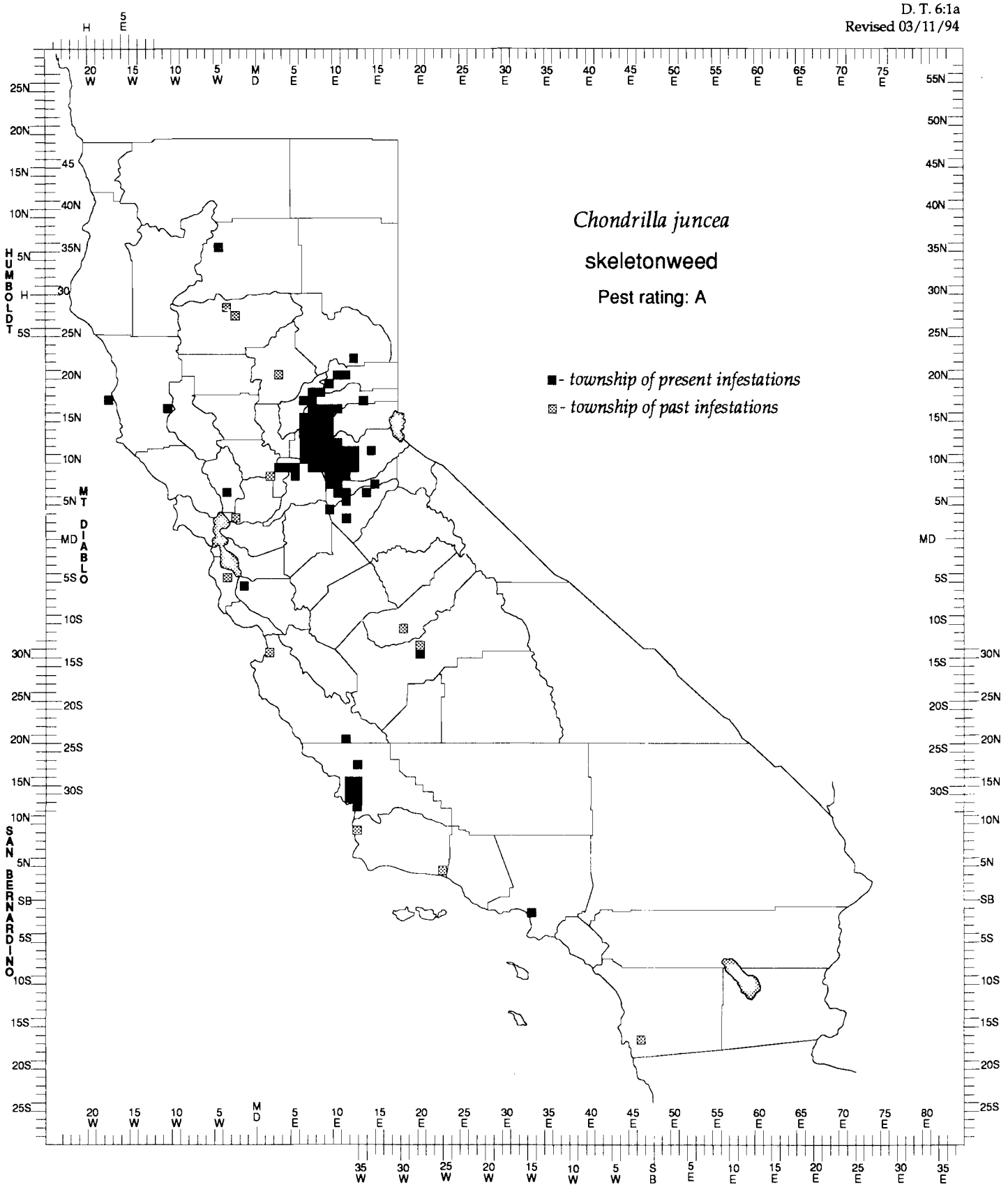

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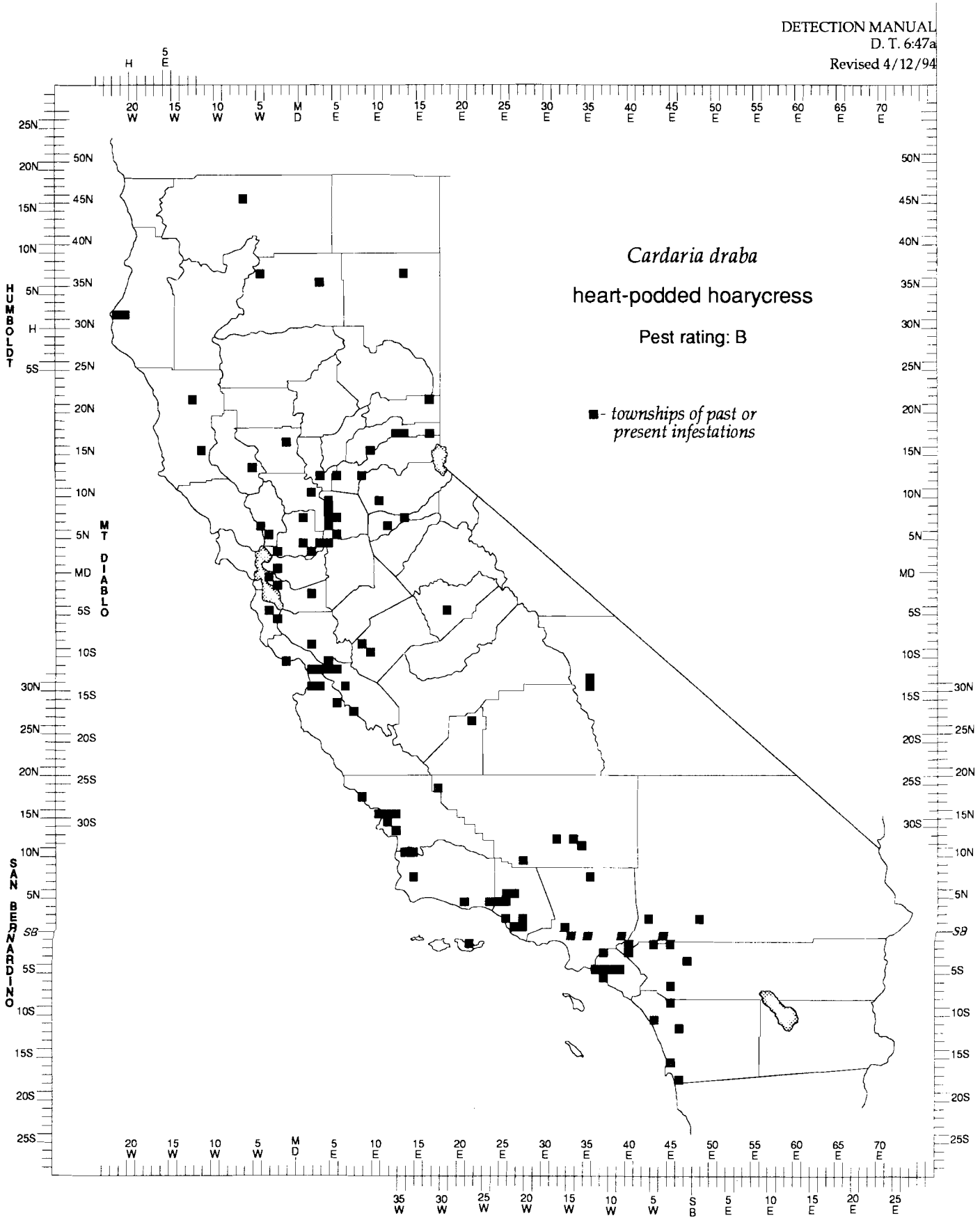

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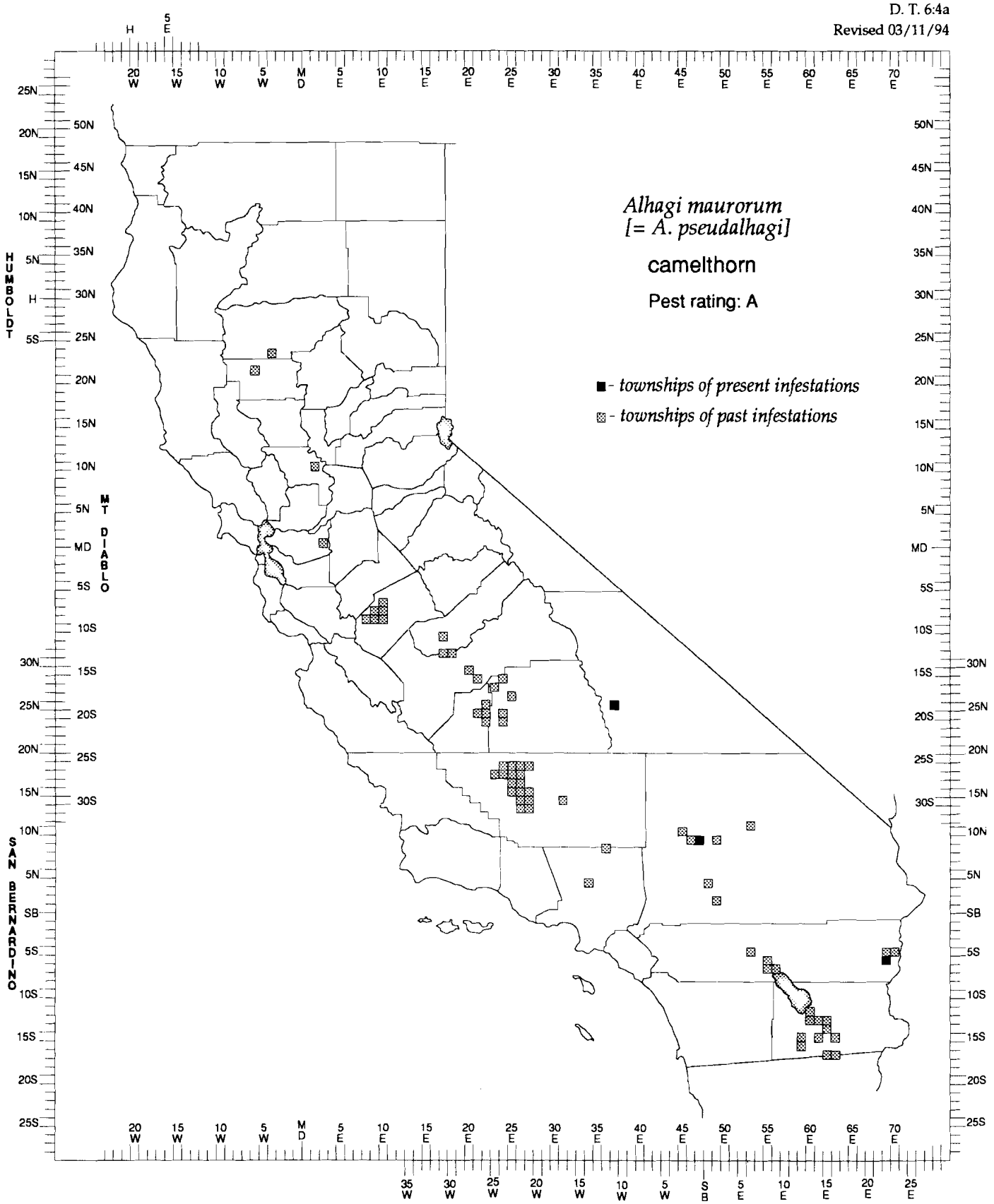

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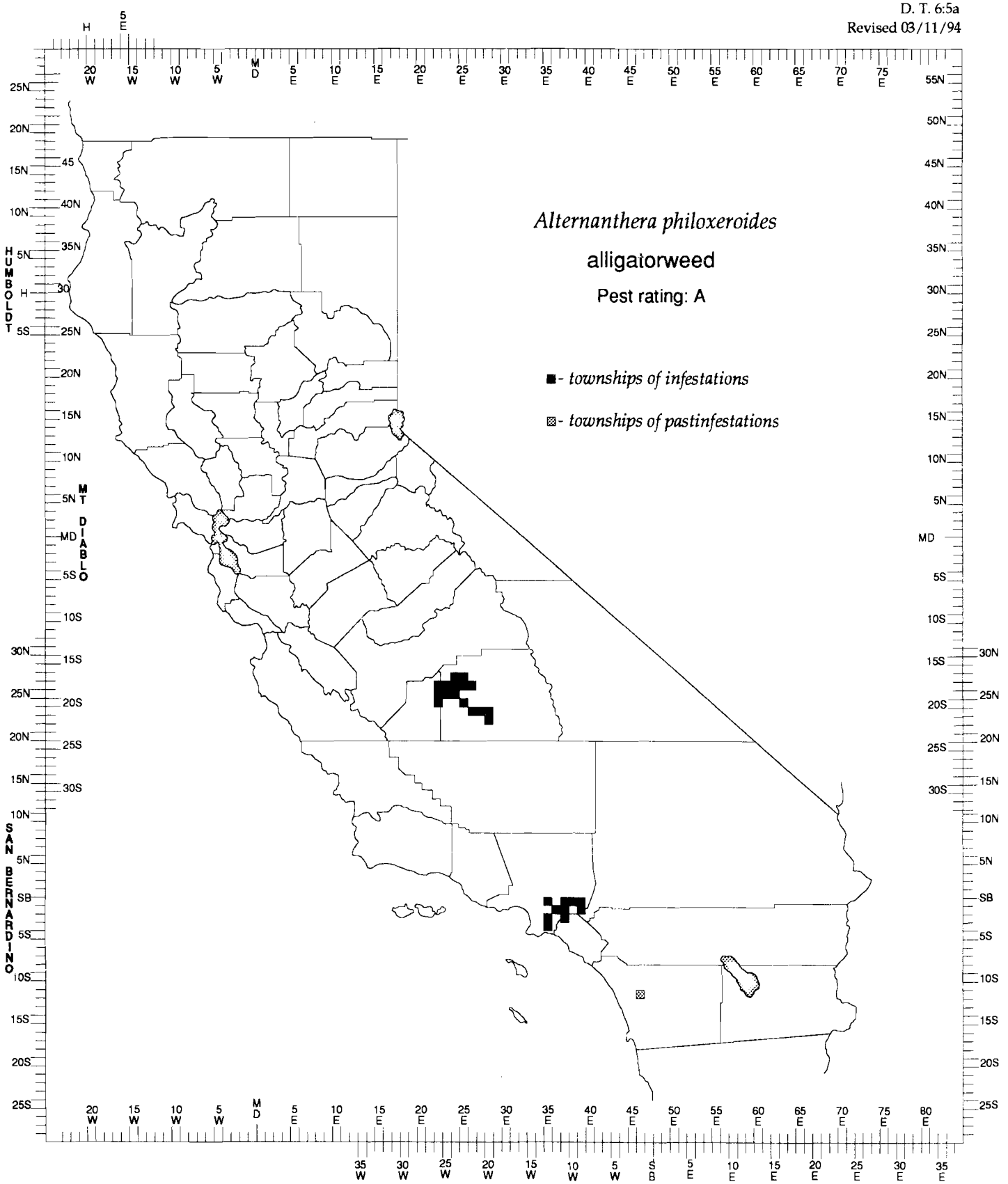

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## DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

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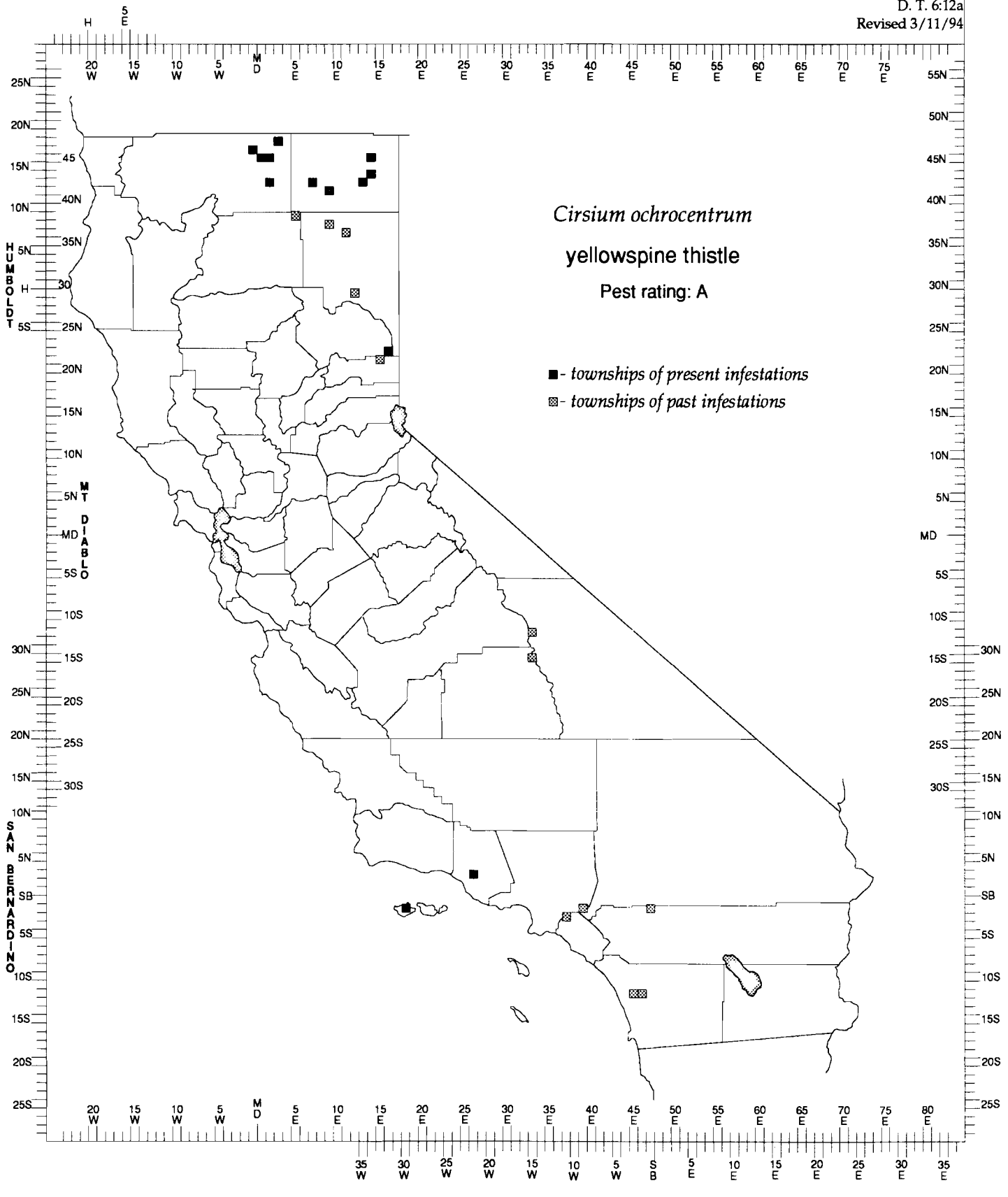

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## DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

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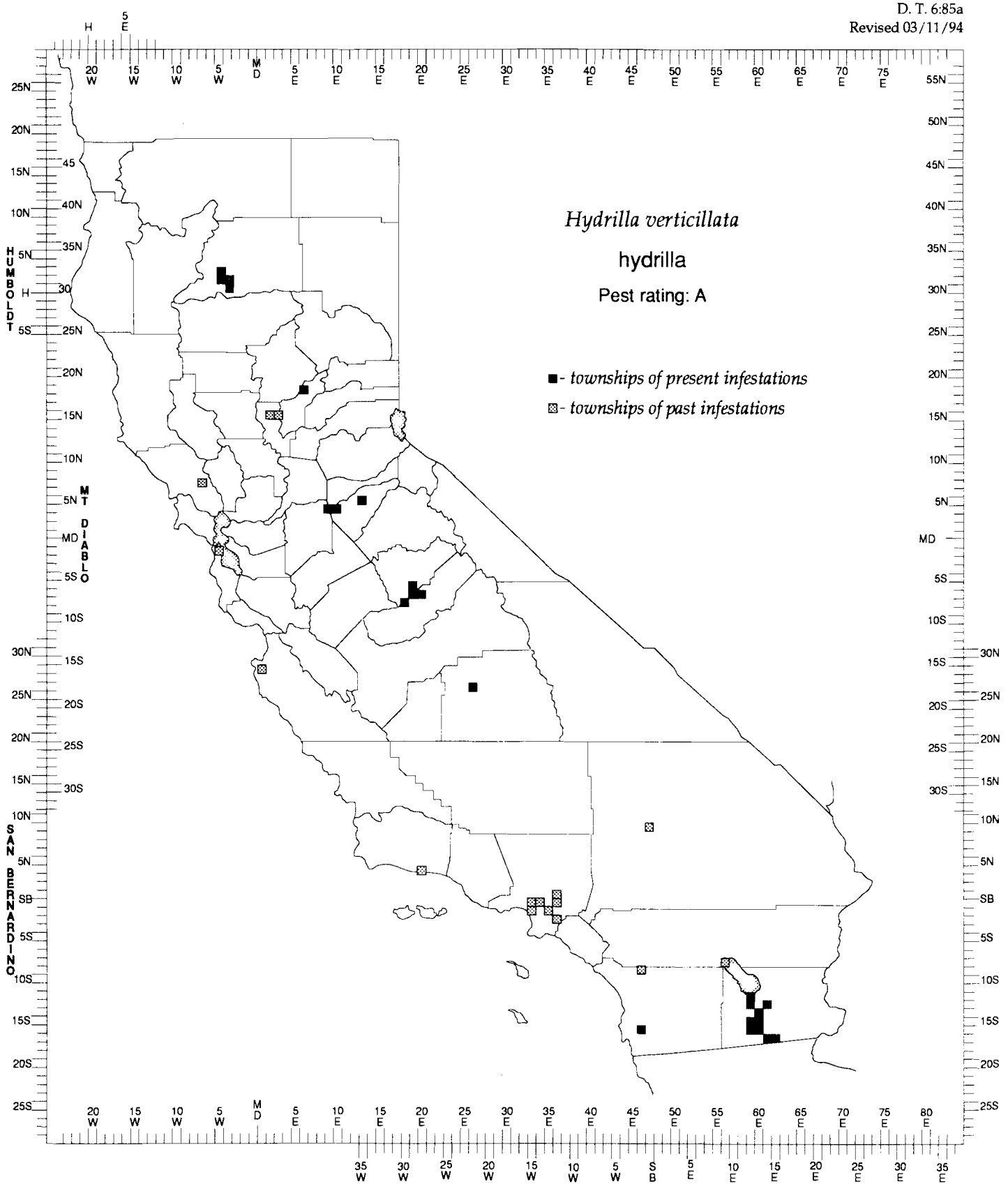

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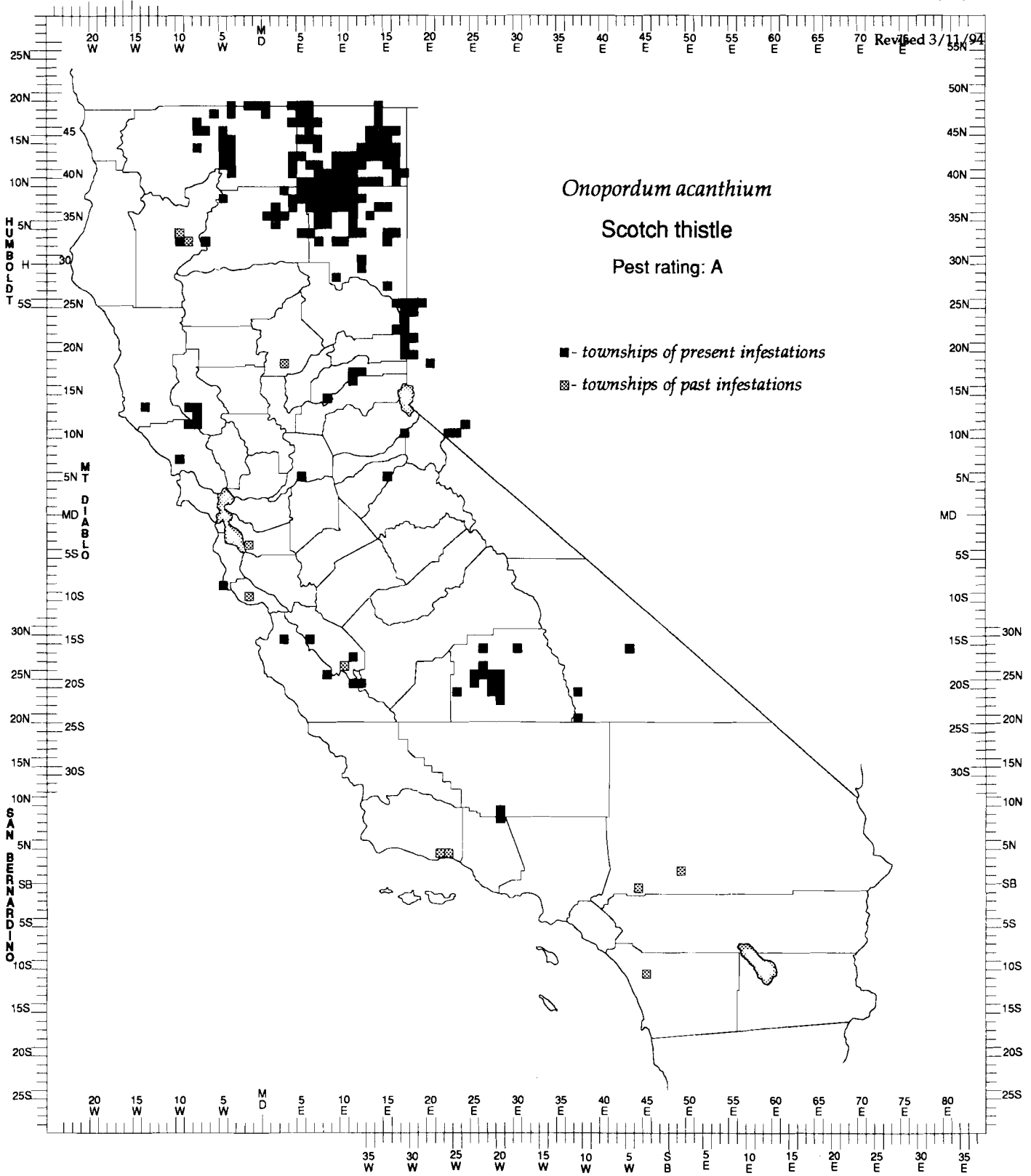

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## DIVISION OF PLANT INDUSTRY - ANALYSIS & IDENTIFICATION/BOTANY

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