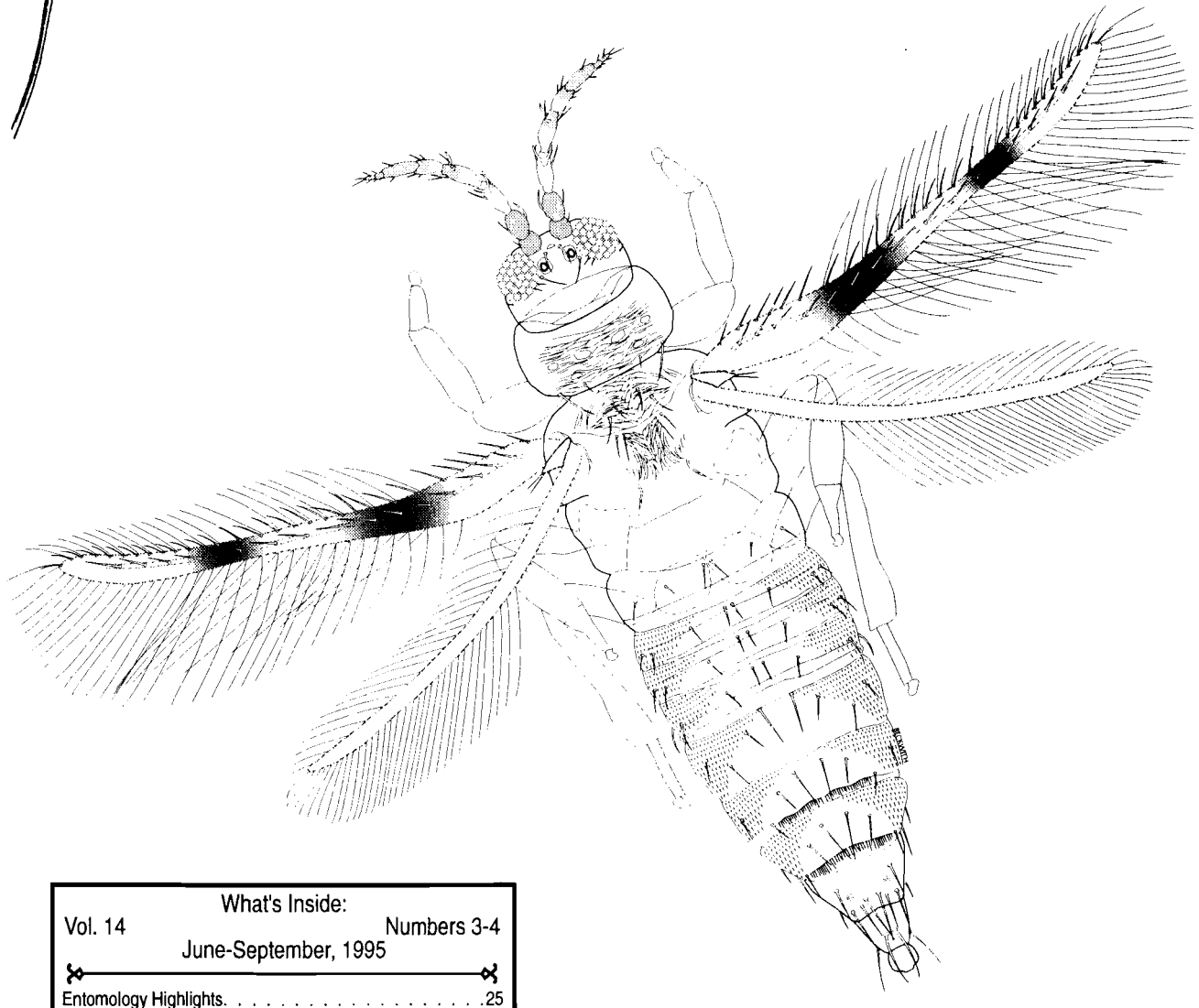
CPDR

CALIFORNIA PLANT PEST AND DISEASE REPORT

CALIFORNIA DEPARTMENT OF FOOD AND AGRICULTURE
PLANT PEST DIAGNOSTICS CENTER
3294 MEADOWVIEW ROAD, SACRAMENTO, CALIFORNIA, 95832-1448



What's Inside:

Vol. 14 Numbers 3-4
June-September, 1995

MARIGOLD THRIPS

A NEW STATE RECORD IN CALIFORNIA

Marigold from L. H. Bailey, 1941: The Standard Cyclopedia of Horticulture. Vol. 3:3305.

CALIFORNIA PLANT PEST AND DISEASE REPORT

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The editor acknowledges the contributions of numerous individuals within this department, without whose cooperation and assistance this project would not be possible.

Funding for this publication is provided through the Cooperative Agricultural Pest Survey, Special Project #44 USDA-APHIS-PPQ

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The California Plant Pest and Disease Report, Volume 14, Numbers 3-4, was issued on September 30, 1995 and printed December 1995.

THE CPPDR MAILING LIST

We sincerely thank all those who returned the request for continued receipt of the CPPDR, additional thanks to those who added comments and/or suggestions. There were many very useful ideas and recommendations and we will try our best to incorporate some of the information that has been requested. Material included in the CPPDR depends a lot on the kinds of samples submitted to the lab and on the amount of time that the lab scientists have for producing reports on those samples. So, bear with us as we try to improve our coverage of new and unusual plant pests and diseases.

→ ENTOMOLOGY HIGHLIGHTS ←

CORRECTIONS

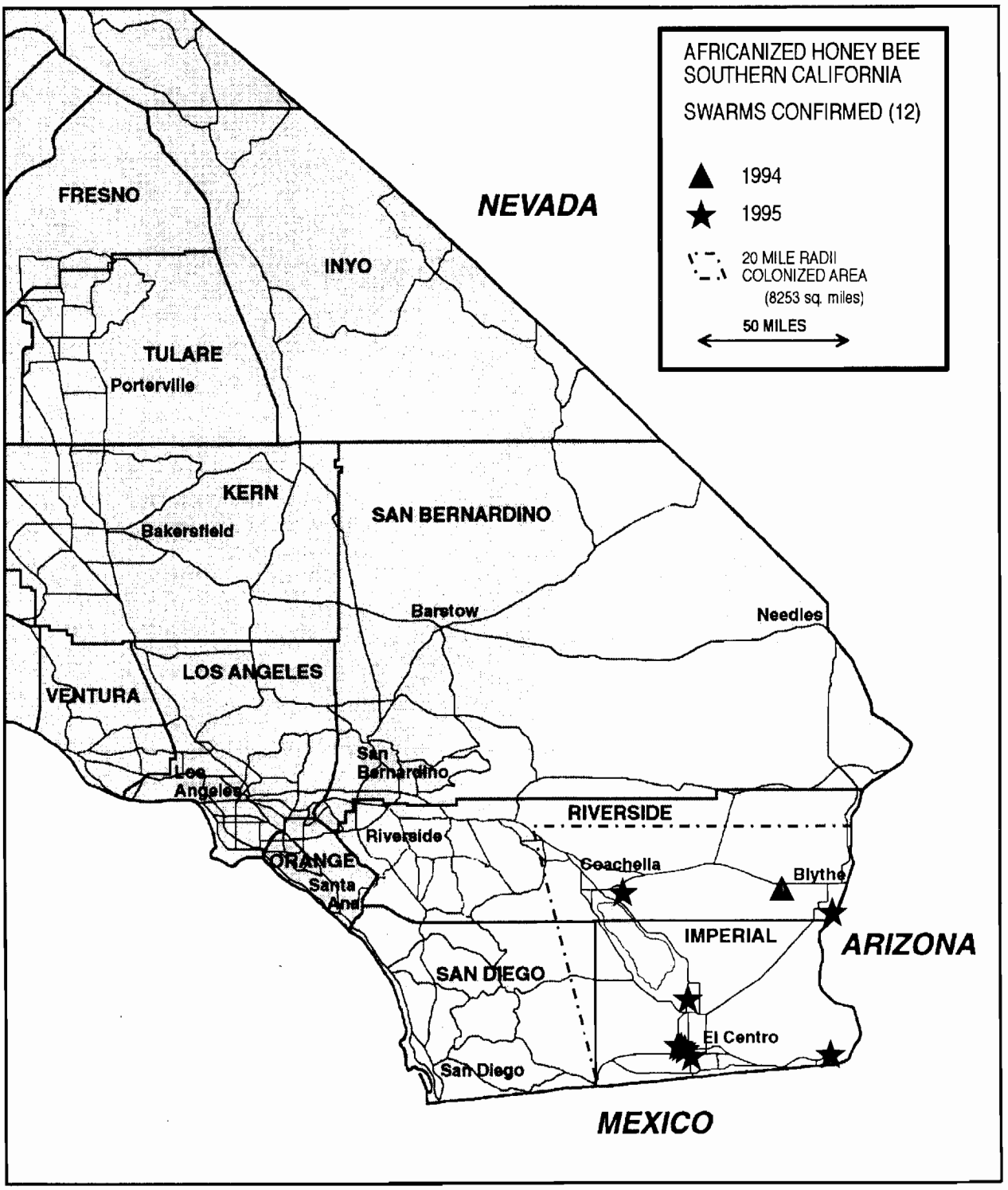
In the previous issue of the CPPDR [14(1-2)], we neglected to change two pest ratings marked "X." No, this is not a new rating for California. Please note that the whitefly, *Dialeurodes* sp., has a rating of "Q," and the papaya fruit fly, *Toxotrypana curvicauda*, has a "A" rating. We apologize for any misunderstanding these oversights may have caused.

SIGNIFICANT FINDS

MEXICAN FRUIT FLY, *Anastrepha ludens*, -(A)- A Mexican fruit fly was found in a McPhail trap on June 25. Ebsen made the find on loquat in Chula Vista, **San Diego** County. Amador found a Mexican fruit fly on July 11 in San Ysidro, San Diego County. This fruit fly was caught in a McPhail trap in sapote. On August 21, C. Cardenas discovered this pest on sapote in a McPhail trap. This find was in Los Angeles, **Los Angeles** County.

ORIENTAL FRUIT FLY, *Bactrocera dorsalis*, -(A)- An Oriental fruit fly was found in a Jackson trap in nectarine. Herrera found this fruit fly on June 30 in Foster City, **San Mateo** County. An Oriental fruit fly was found by J. Maciel in a Jackson trap in peach on July 19. The find was made in Wilmington, **Los Angeles** County. J. Maciel also found this pest in Carson, Los Angeles County, on August 9. The find was made on peach in a McPhail trap. On August 2 another Oriental fruit fly was found in Concord, **Contra Costa** County. V. Cervantes made the find in a Jackson trap on plum. J. Carrera found an Oriental fruit fly in Los Angeles, **Los Angeles** County on August 8. This find was made in a Jackson trap on lemon.

AFRICANIZED HONEY BEE (AHB), *Apis* "Africanized," -(A)- An Africanized honey bee colony was found in a tree in El Centro, **Imperial** County. Estrada made the find on June 9. On June 24 Estrada found another AHB colony in an El Centro tree. See the next page for an updated distribution map for Africanized honey bee in California.


AFRICANIZED HONEY BEE
SOUTHERN CALIFORNIA
SWARMS CONFIRMED (12)
1994
1995
20 MILE RADII
COLONIZED AREA
(8253 sq. miles)
50 MILES
NEVADA
FRESNO
INYO
TULARE
Porterville
KERN
Bakersfield
SAN BERNARDINO
Barstow
Needles
LOS ANGELES
VENTURA
Los Angeles
San Bernardino
RIVERSIDE
Riverside
ORANGE
Santa Ana
Coachella
Blythe
IMPERIAL
ARIZONA
SAN DIEGO
El Centro
San Diego
MEXICO

JAPANESE BEETLE, *Popilla japonica*, -(A)- A Japanese beetle was trapped in wild iris in Westchester, **Los Angeles** County. This find was made on July 14 by Hsu. Hsu trapped a beetle in Los Angeles on July 27 in a street tree. On August 10 J. Davey trapped a Japanese beetle in Ontario, **San Bernardino** County.

APPLE MAGGOT, *Rhagoletis pomonella*, -(A)- Shankhand trapped an apple maggot in a Jackson trap in Berkeley, **Alameda** County.

AVOCADO MITE, *Oligonychus perseae*, -(Q)- An avocado mite was found on *Persea americana* by R. Garrison. This find occurred in La Habra Heights, **Los Angeles** County.

SATIN MOTH, *Leucoma salicis*, -(B)- A satin moth was found in Scotia, **Humboldt** County. The find, on July 19, was made by P. Haggard on a security light.

GYPSY MOTH, *Lymantria dispar*, -(A)- The following table represents the finds of gypsy moth over the summer (gmt = gypsy moth trap):

County	City	Date	Collector	Host
Los Angeles	Panorama City	07/12	Petrey	gmt/ornamental
	Bel Air	08/02	Marquez	gmt/ornamental
Napa	Angwin	07/26	Anderson	gmt
Nevada	Grass Valley	08/14	Knappen	gmt/pine/oak/cherry /cedar/telephone pole
San Francisco	San Francisco	08/14	Tokarzewski	gmt/pine
Santa Barbara	Montecito	07/31	Slaughter	gmt/oak
		08/16	Asakawa	gmt/acacia
Santa Clara	Los Gatos	07/25	Thompson	gmt/acacia
Santa Cruz	Felton	07/20	Stegger	gmt/Douglas fir
		07/21	Wolstenholme	gmt/cedar
		07/25	Nicoletti	trailer
			Nicolas	ladder
			Ramos	backboard
		07/26	Maxwell	trailer/backboard
			Nicolas	backboard
		08/01	Travers	gmt/oak
		08/02	Maxwell	gmt/oak
Sonoma	Windsor	08/08	Milligan	gmt/oak

NEW COUNTY RECORDS

GRAPE PHYLLOXERA, *Daktulosphaira vitifoliae* , -(C)- Grape phylloxera was found for the first time in **Santa Barbara** County on June 28. J. W. Davidson and J. Newton made the discovery at a Solvang vineyard.

PYRIFORM SCALE, *Protopulvinaria pyriformis*, -(B)- Pyriform scale was found for the first time in Sanger, **Fresno** County. The find was made by G. Barber on *Schefflera arboricola*.

A EUCALYPTUS GALL WASP, *Aprostocetus* sp., -(B)- On June 21, this wasp was found in **Los Angeles** County in Baldwin Park. A gall former on lemon gum, *Eucalyptus citriodora*, this eulophid wasp was originally found in Santa Barbara and Orange Counties last February, marking a new state record [see CPPDR 14(1-2):5-6]. This recent find was made by R. Garrison, also on *Eucalyptus citriodora*.

ASH PSYLLID, *Psyllopsis fraxinicola*, -(C)- R. Aguilar found this psyllid in Merced, **Merced** County, for the first time. The find was made on July 7. Then, on July 17, R. Case found ash psyllid on raywood ash in Pleasant Hill, **Contra Costa** County.

GLASSY-WINGED SHARPSHOOTER, *Homalodisca coagulata*, -(Q)- Recently brought to our attention is an important new county record for glassy-winged sharpshooter from last year, on September 1, 1994. The discovery was made by E. Reeves in Corona, **Riverside** County. There is also a new county record for this pest for 1995. D. Papilli found *H. coagulata* on *Ficus benjamina* in Rosemead, **Los Angeles** County. This find was made on September 12. See CPPDR 13(1-2):8,10-11 for a detailed report on glassy-winged sharpshooter.

NEW STATE RECORDS

MARIGOLD THRIPS, *Hydatothrips samayunkur*, -(Q)- Marigold thrips has been found for the first time in California in Buena Park, **Orange** County. W. Schuster made the new discovery on July 9 on *Tagetes* sp. The following information on marigold thrips was summarized from a paper by Iwao Kudô in which the species was described [Kudô, 1995: Appl. Entomol. Zool 30(1): 169-179]:

> *Hydatothrips samayunkur* was first noticed on Oahu, Hawaii, in 1986, and reported as *Neohydatothrips variabilis* by Tsadu and Sakimura (1988). It has been found on marigold in Florida. It is also found in Japan and Okinawa, and since intensive surveys for *Thrips palmi* on Asteraceae in Japan in the 1980s failed to turn up this thrips, it is thought that the Japanese population may have been introduced into Japan from Hawaii or elsewhere in the United States.
>
> *H. samayunkur* differs from *H. (N.) variabilis* as follows:

H. samayunkur: Hind tibia yellow with a brown area at middle; cephalic setae, PMS B_2 and fore veinal setae brown; female abdominal segments IX and X brown, as dark as segments VII and VIII; fore wing without hind veinal setae; abdominal terga and sterna with 5-7 pairs and 3-4 pairs of small brown spots respectively; female S_7 with a pair of minute pores at submiddle and 2 pairs at posterior margin between B_1 and B_2; female T_{10} with long setae being 1.3-1.5 times as long as T_{10}; male S_7 with a glandular area. In 2nd instar larva pteronotum with 3 pairs of brown patches, head without brown patch, and all tibiae with light gray cuticular color. Monophagous, feeding on marigold.

H. variabilis: Hind tibia entirely yellow; cephalic, pronotal and 5-7 basal fore veinal setae pale; female abdominal segments IX and X yellowish brown, never as dark as segments VII and VIII; fore wing with 2 hind veinal setae; abdominal terga and sterga each with 2-3 pairs of brown spots; female S_7 without small pores; female T_{10} with short setae being 1.1-1.2 times as long as T_{10}; male S_7 without a glandular area. In 2nd instar larva pteronotum without brown patches, head with anteromedian brown patch , and all tibiae pale. Polyphagous, feeding on clover, cotton, cucumber, elm, grape, orange, sage, soybean, and others.

The species will key to *Sericothrips* in Bailey's key to the Thrips of California [Bailey, S. J., 1957: Bull. Calif. Insect Surv. 4(5):140-220]. However, *Hydatothrips* and *Neohydatothrips* have been removed from the genus *Sericothrips* because the microtrichia (very thin setal-like structures on the sides of the abdominal tergites) do not occur all the way across the middle of the tergites in *Hydatothrips*, but do so in *Sericothrips*. The common *Sericothrips* on the Asteraceae in California also is separated from marigold thrips because it is bicolored, with a strong, sclerotized, darkenened saddle on the prothorax and with the last four abdominal segments dark brown in comparision with the anterior abdominal segments, whereas marigold thrips is nearly uniform in coloration except for the banding pattern on the wings. See illustration on morphology on the next page.

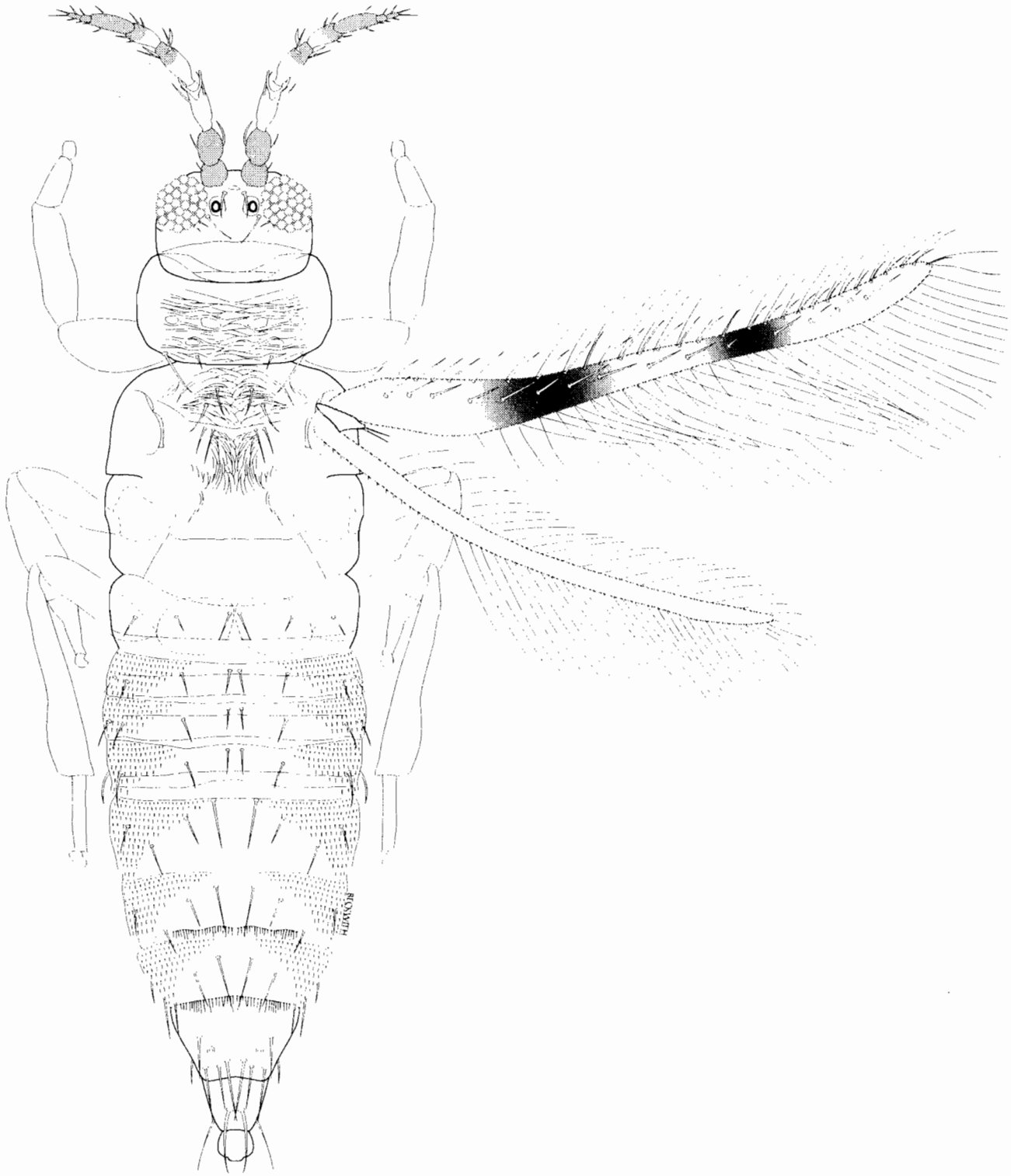


Fig. 1. Marigold thrips, *Hydatothrips samayunkur.*

LEMON GUM PSYLLID, *Cryptoneossa triangula*, -(Q)- This psyllid has been found for the first time in California in **Orange** County on July 13. This is not only a new state record but a new North American record as well. The important find was made by Nick Nisson on *Eucalyptus citriodora* in Anaheim. The psyllid ws found during a collection of the eucalyptus gall wasp at the request of CDFA. The population was low, and no evidence of injury to the trees was apparent.

The psyllid was positively identified by Keith Taylor, psyllid specialist formerly with CSIRO in Australia. He is the author of the species and the genus (Invertebr. Taxon., 1990, **4**, 95-121). There are four other species in the genus, but only this one occurs on lemon gum. The psyllid is straw-colored; the nymphs produce no apparent waxes. It is unlike any other psyllid in California, with distinct male parameres (see illustrations below, adapted from Taylor, 1990).

On August 24, J. Davidson found lemon gum psyllid on *Eucalyptus citriodora* in Goleta. This is a new county record for **Santa Barbara** County.

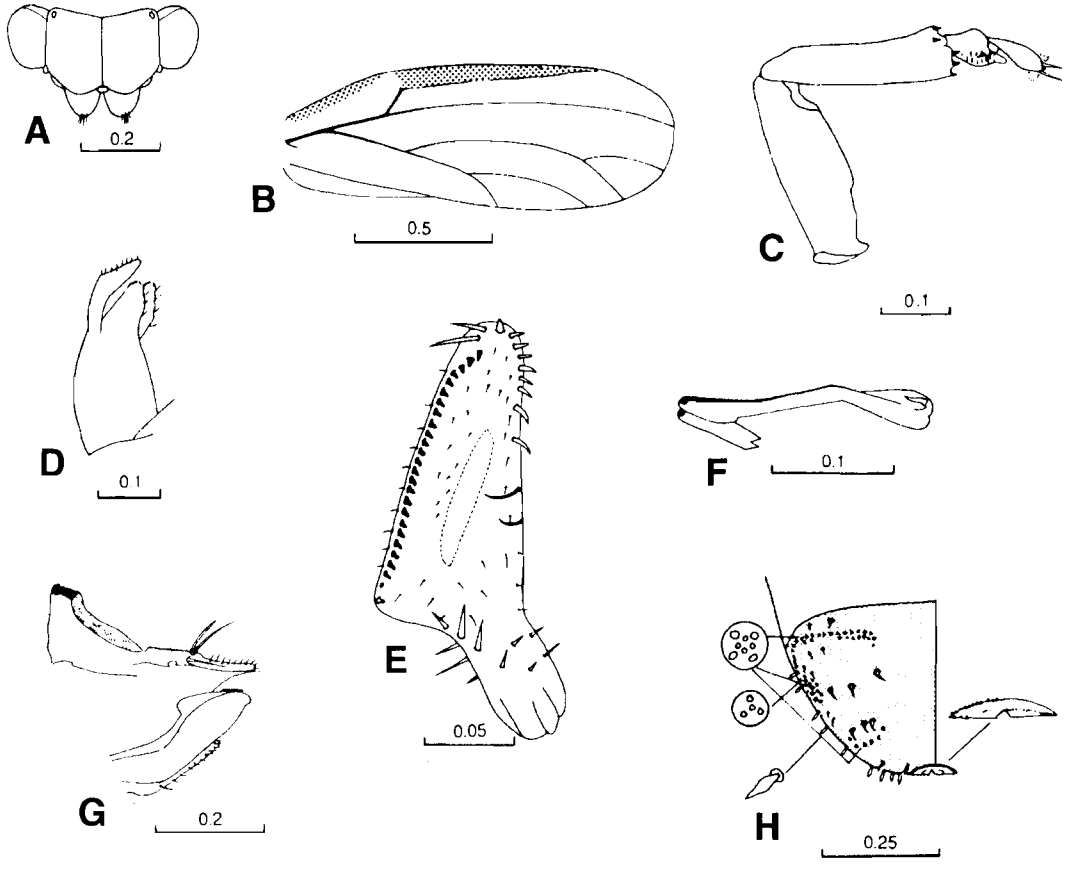


Fig. 2. *Cryptoneossa triangula*: A-F, male. A: Head. B: Forewing. C: Hindleg. D: Proctiger. E: Paramere. F: Aedeagus. G: Female; genitalia. H: Final instar nymph, caudal plate.

GARDEN BAGWORM
(*Apterona crenulella* "helix")

Thomas D. Eichlin
Entomologist

The garden bagworm is an introduced insect first recorded in the United States from an infestation in a yard in Nevada City, Nevada County, California, June 18, 1940. Thirteen years later Dan Robinson wrote in an article in "The Bulletin" (1953) that this species had spread out about 30 miles and into Placer County. It has since spread to areas of Idaho and Nevada and now has been recorded in most northern California counties from Alameda and Calaveras counties northward to the Oregon border.

In the early 1960's the garden bagworm was apparently introduced into the northeastern region of the United States. The origin of these introductions is probably eastern Europe or western Asia, where the species is native.

European authors maintain that this bagworm species includes a typically bisexual form and a form "helix" which is composed only of parthenogenetic females. To date, no males have been found in the U.S. populations.

Typical of the members of their family, Psychidae (the bagworms), the larvae of *Apterona crenulella* and the form "helix" construct cases of white silk covered by fine-grained particles of soil, but uniquely, their cases are spiraled, resembling small brown helical snail shells (3-5 mm in diameter; 4-5 mm in depth).

The larvae feed at night by fastening their cases to the leaf surface and then mining out circular areas that resemble the damage caused by *Coleophore* (Coleophoridae) larvae. They overwinter in California as young larvae within the adult's pupal skin, usually maturing by the following summer. Pupation takes place inside the case, the larvaform females appearing by early July. Without mating the females deposit 10-30+ yellowish-white eggs in the remaining portion of the pupal case. Much shrivelled and shrunken in size, they then exit the cases through lateral pre-formed slits on

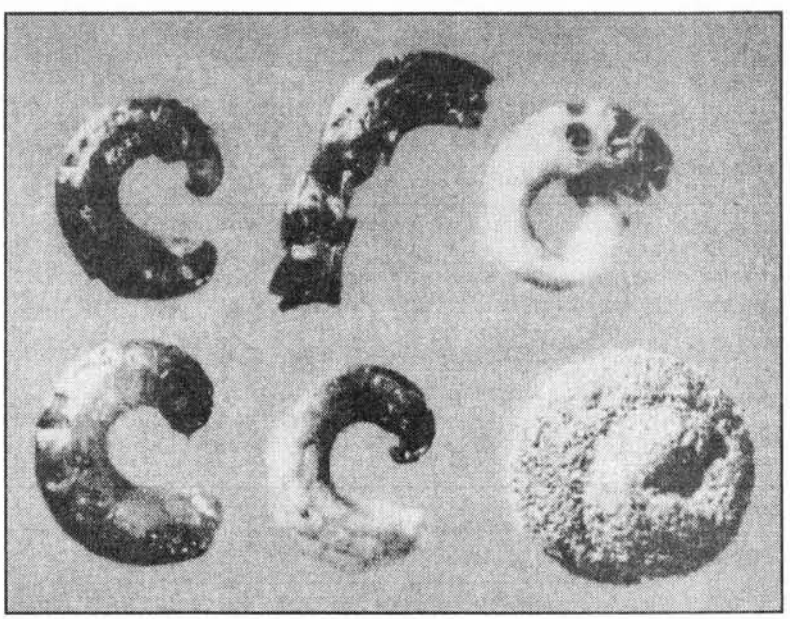


Fig. 3. A,B: Pupa case. C: Larva. D: Pupa. E: Adult female. F: Case viewed from above showing granular composition. Figs. 3-5 taken from D. Robinson, 1953; The Bulletin 42(1):25-33.

the outermost whorl and fall to the ground to die.

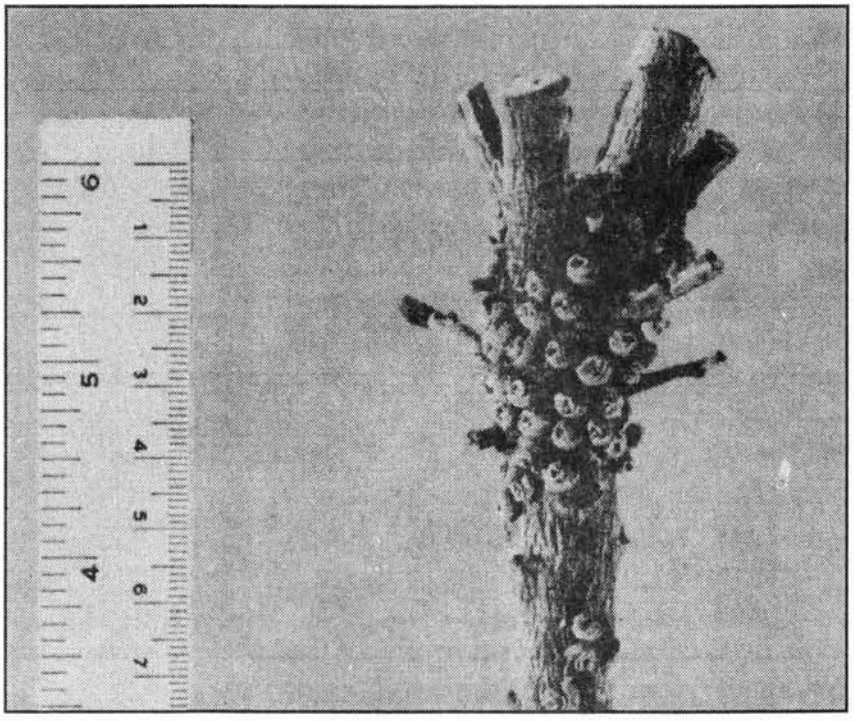


Fig. 4. Overwintering bagworm on apple twig from Nevada County.

This species is polyphagous and according to Davis (1964) is recorded from the following hosts: common brake fern *(Pteridium aquilinum)*, *Gladiolus* sp., ripgut *(Bromus rigidus)*, rough stock blue, wild oat *(Avena fatua)*, meadow foxtail *Alopecurus pratensis)*, California mugwort *(Artemisia vulgaris* var. *heterophylla)*, *Chrysanthemurn* sp., *Gaillardia* sp., giant marigold *(Tagetes erecta)*, *Zinnia* sp., black mustard *(Brassica nigra)*, broccoli (*B. oleracea* var. *botrytis)*, cabbage *(B. oleracea* var. *capitata)*, turnip *(B. rapa)*, wild radish *(Raphanus raphanistrum)*, alfalfa *(Medicago sativa)*, Ladino clover *(Trifolium* sp.), lupine *(Lupinus* sp.), sweet pea *(Lathyrus odoratus)*, trefoil *(Trifolium* sp.), vetch *(Vicia* sp.), wild clover *(Trifolium* sp.), horehound *(Marrubium vulgare)*, hollyhock *(Althaea* sp.*)*, *Sidalcea* sp., plantain *(Plantago* sp.), statice *(Statice* sp.), sour dock *(Rumex* sp.), apple *(Malus* sp.), pear *(Pyrus sp.)*, rose *(Rosa* sp.), tomato *(Lycopersicon esculentum)*, *Viola* sp., *Pinus ponderosa*, winter squash *(Cucurbita maxima)*, beans *(Phaseolus* sp.), *Cytisus scoparius*, sweet clover *(Melilotus* sp.), oak *(Quercus* sp.*)*, rhubarb *(Rheum rhaponticum)*, peony *(Paeonia* sp.), *Ceanothus cuneatus*, almond *(Prunus amygdalus)*, raspberry (*Rubus* sp.). Certainly, the list could be expanded should a more recent and thorough survey be conducted.

The following is quoted from Robinson (1953):

Economic Importance

> Since its discovery in California . . ., the bagworm has been reported as causing only moderate economic injury to crop hosts where infestations occur. It also has been listed as effecting only minor injury to apples in southern Russia and near Venice; Italy. It is thought that this insect requires a prolonged exposure to low winter temperatures in order to maintain itself . . . The consensus of those concerned has been that the bagworm will not become an important pest on crop hosts which receive regular applications of insecticides for other insect pests. Greatest danger of buildup would seem to be on wild hosts, pastures, roadside weeds, or untreated crop hosts.

Since Robinson's report, the garden bagworm has spread considerably but the economic levels of damage have remained relatively low. As with other insect pests (i.e. gypsy moth), the alledged requirement of prolonged exposure to low winter temperatures which would result in the particular pest species not becoming established in most of California has proven not to be the wisest assumption to make. These pests species which are so successful because of their wide ranging inherent adaptability should be expected to find the varied habitats found in California much to their liking.

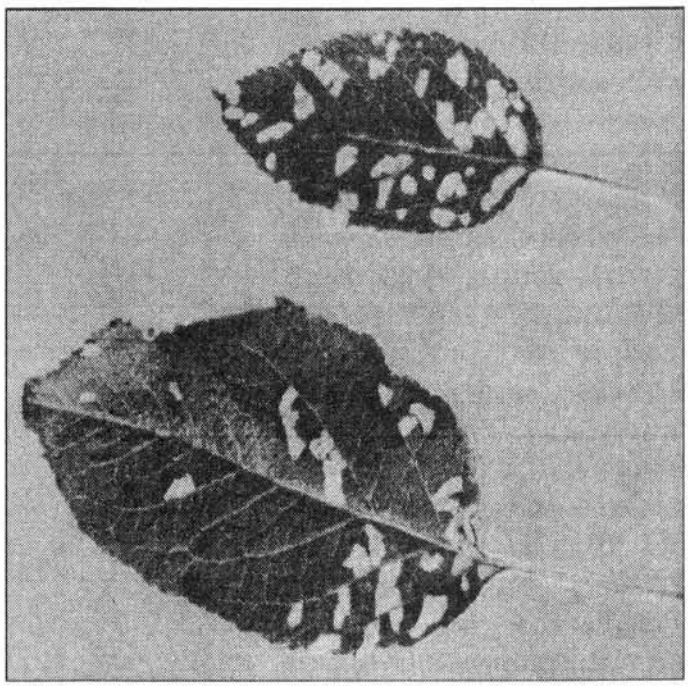


Fig. 5. Injury to apple leaves from a Nevada County orchard.

References

Robinson, D. 1953. Garden bagworm *Apterona crenulella (-helix)* in Nevada and Placer Counties, California. Bull. Dept. Agric. Calif., 42(1):1-9.

Davis, D. R. 1964. Bagworm moths of the Western Hemisphere. Smithsonian Institution, V.S.N.M. Bull. 244:1-233.

EXCLUSION

The following "Q" rated insects have been found infesting nursery stock in the state during the summer of 1995.

MACKENZIE MEALYBUG, *Dysmicoccus mackenziei*, -(Q)- B. Rohn found this mealybug on *Tillandsia* plants in a Coursegold nursery in **Madera** County on August 9.

AN ARMORED SCALE, *Abgrallaspis* sp., -(Q)- At the same location in Coursegold, **Madera** County, B. Rohn discovered this armored scale. This scale was also found on August 9 on *Tillandsia* plants.

On the next four pages are the recent quarantine interceptions beginning with those involving tropical fruits on the adjacent page. These quarantine lists are developed to keep inspectors and county officials informed on what pests are being intercepted.

"A", "B", and "Q" Rated Pests on Tropical Fruits Intercepted in Quarantine Summer 1995

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Drepanococcus* sp.	a soft scale	06/21/95	B.C.	SIS	*Litchi chinensis*	Pastell
Q	*Thysanofiorinia nephelii*	longan scale	07/11/95	Thailand	FRE	rambutan/longan	Emino
Q	*Nipaecoccus vastator*	a mealybug	07/11/95	Thailand	FRE	rambutan/longan	Emino
B	*Ferrisia virgata*	striped mealybug	07/11/95	Thailand	FRE	rambutan/longan	Emino
Q	*Conopomorpha* sp.	a gracillariid moth	07/11/95	Thailand	FRE	rambutan/longan	Emino
Q	*Camponotus abdom. floridanus*	Florida carpenter ant	08/03/95	Florida	SMT	euphoria longan	Pendleton
Q	*Sybra alternans*	a longhorned beetle	08/03/95	Florida	SMT	euphoria longan	Pendleton
Q	*Planococcus minor*	Pacific mealybug	08/16/95	Florida	SMT	euphoria longan	Garibaldi

"A", "B", and "Q" Rated Arthropods and Mollusks Intercepted in Quarantine
June 1995 - September 1995

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Cyclocephala* sp.	a scarab beetle	05/17/95	Costa Rica	LAX	cantaloupes	Kawakami
Q	*Cyclocephala* sp.	a scarab beetle	05/18/95	Costa Rica	LAX	*Cucumis melo*	Dayyani
Q	*Dynatopechus aureopilosus*	a weevil	05/18/95	Hawaii	SFO	automobile	Olmsted
Q	*Rhizoecus hibisci*	a root mealybug	05/18/95	Hawaii	ORA	*Rhapis excelsa*	Fernandez
Q	*Monomorium floricola*	an ant	05/19/95	Hawaii	ORA	*Alpinia purpurata*	Nester
A	*Bactrocera dorsalis*	Oriental fruit fly	05/20/95	Hawaii	LAX	*Carica papaya*	Mehrabar
Q	*Morganella longispina*	plumose scale	05/24/95	Florida	ORA	*Ficus benjamina*	Fernandez
Q	*Geococcus coffeae*	a soil mealybug	05/25/95	Hawaii	LAX	*Rhapis* sp.	Sium
A	*Parlatoria proteus*	sansevieria scale	05/25/95	Hawaii	ALA	furniture	Peek
Q	*Aleurodicus dispersus*	spiraling whitefly	06/05/95	Guatemala	SBA	*Cordyline terminalis*	Squires
A	*Selenaspidus articulatus*	rufous scale	06/05/95	Guatemala	SBA	*Cordyline terminalis*	Squires
A	*Ceroplastes rubens*	red wax scale	06/07/95	Hawaii	ALA	*Alyxia loivaeformis*	Seslowe
Q	*Coccus capparidis*	capparis soft scale	06/07/95	Hawaii	ALA	*Alyxia loivaeformis*	Seslowe
Q	*Palmicultor palmarum*	palm mealybug	06/07/95	Hawaii	ORA	palm	Fernandez
Q	*Rhizoecus hibisci*	a root mealybug	06/07/95	Hawaii	LAX	*Rhapis* sp.	Banta
A	*Ischnaspis longirostris*	black thread scale	06/08/95	Hawaii	SBA	*Alyxia loivaeformis*	Squires
Q	*Eutheola humilis rugiceps*	sugarcane beetle	06/13/95	aircraft	ALA	?	Chin
A	*Ischnaspis longirostris*	black thread scale	06/14/95	Hawaii	SCL	*Alyxia loivaeformis*	Squires
Q	*Phloeosinus* sp.	a bark beetle	06/14/95	Korea	SFO	wood dunnage	Wion
Q	*Dyscinetus* sp.	a scarab beetle	06/15/95	Costa Rica	SJQ	*Dracaena sanderana*	Watkins
Q	*Sophonia rufofascia*	a leafhopper	06/16/95	Hawaii	SBA	ginger/ti	Squires
A	*Ceroplastes rubens*	red wax scale	06/17/95	Hawaii	ALA	*Alyxia loivaeformis*	Peek
Q	*Melanocoryphus* sp.	a lygaeid bug	06/18/95	Costa Rica	LAX	pineapple	Jackson
A	*Ceroplastes rubens*	red wax scale	06/19/95	Hawaii	ALA	*Alyxia loivaeformis*	Peek
Q	*Coccus viridis*	green scale	06/20/95	Hawaii	SMT	*Zingiber* sp.	Swanson
Q	*Tomicus piniperda*	a bark beetle	06/20/95	Japan	SFO	cedar	Wion
Q	*Coleophora* sp.	a casebearing moth	06/21/95	New York	SBD	RV underside	Urquidi
Q	*Coptosoma xanthogramma*	black stink bug	06/22/95	Hawaii	SFO	automobile	Olmsted
Q	*Radionaspis indica*	a mango scale	06/22/95	Florida	RIV	*Mangifera indica*	Dang
A	*Rhizotrogus majalis*	European chafer	06/22/95	Kentucky	ALA	aircraft	McNeil
Q	*Argyrotaenis velutinana*	red-banded leafroller	06/23/95	Vermont	LAX	cut flowers	Bakri

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
B	*Diaphania nitidalis*	pickleworm	06/23/95	Florida	ORA	*Tindora* sp.	Bennett
Q	*Monomorium floricola*	an ant	06/23/95	Hawaii	SON	*Dracaena massangeana*	Kobayashi
A	*Rhizotrogus majalis*	European chafer	06/26/95	Texas	ALA	aircraft	Chin
Q	*Pseudaonidia corbetti*	an armored scale	06/26/95	Thailand	SFO	*Garcina mangostana*	Olmsted
B	*Lamellaxis gracilis*	a snail	06/26/95	Florida	ORA	*Spathiphyllum* sp.	Wynn
B	*Dysmicoccus alazon*	alazon mealybug	06/27/95	Costa Rica	SDG	*Epipremnum aureum*	Ginsky
Q	*Geococcus coffeae*	a soil mealybug	06/27/95	Hawaii	LAX	*Ravanea rivularis*	Sium
Q	*Gyponana* sp.	a leafhopper	06/28/95	Hawaii	SBD	*Polycias fruticosa*	Pearson
Q	*Orchamoplatus mammaeferus*	croton whitefly	06/29/95	Hawaii	SBA	*Alyxia loivaeformis*	Cummins
Q	*Phyllophaga* sp.	a may beetle	07/05/95	Tennessee	LAX	aircraft	Barberia
Q	*Phyllocnistis citrella*	citrus leafminer	07/07/95	Florida	SDG	*Citrus hystrix*	Ginsky
Q	*Rhodobaenus* sp.	a weevil	07/07/95	?	LAX	aircraft	Carranza
Q	*Orgyia leucostigma*	whitemarked tussock moth	07/10/95	Maryland	ALA	wooden lobster traps	Eaton
Q	*Morganella longispina*	plumose scale	07/10/95	Florida	SBA	*Alyxia loivaeformis*	Squires
A	*Rhizotrogus majalis*	European chafer	07/10/95	Texas	ALA	aircraft	Dubbs
Q	*Rhizotrogus* sp.	a scarab beetle	07/13/95	?	RIV	aircraft	Cantrell
Q	*Sophonia rufofascia*	a leafhopper	07/15/95	Hawaii	KRN	*Protea* sp.	Lapp
Q	*Pseudococcus citriculus*	a mealybug	07/17/95	Taiwan	LAX	starfruit	Rabe
Q	*Coccus viridis*	green scale	07/19/95	Hawaii	ORA	*Tupidanthus* sp.	Wynn
A	*Kilifia acuminatus*	acuminate scale	07/19/95	Hawaii	ORA	*Tupidanthus* sp.	Wynn
B	*Diaphania nitidalis*	pickleworm	07/20/95	Florida	ORA	*Tindora* sp.	Bennett
A	*Rhizotrogus majalis*	European chafer	07/20/95	Texas	ALA	aircraft	Dubois
Q	*Adoretus sinicus*	Chinese rose beetle	07/21/95	Hawaii	SFO	automobile	Olmsted
Q	*Phyllophaga* sp.	a may beetle	07/21/95	Illinois	SON	*Hydrasis canadensis*	Correia
Q	*Technomyrmex albipes*	an ant	07/21/95	Hawaii	SAC	tropical flowers	Bianchi
Q	*Elimaea punctifera*	narrow-winged katydid	07/22/95	Hawaii	LAX	*Ocimum* sp.	Awad
Q	*Rhizoecus hibisci*	a root mealybug	07/24/95	Florida	LAX	*Ravanea rivularis*	Calichia
A	*Ceroplastes rubens*	red wax scale	07/25/95	Hawaii	SDG	*Anthurium* sp.	Stalnaker
Q	*Malacosoma americanum*	eastern tent caterpillar	07/25/95	Pennsylvania	SCL	barbeque	Clement
Q	*Maladera castanea*	Asiatic garden beetle	07/26/95	Utah	ALA	aircraft	McNeil
Q	*Coccus acutissimus*	slender soft scale	07/27/95	Hawaii	ORA	*Michelia* sp.	Nestor
Q	*Malacosoma americanum*	eastern tent caterpillar	07/27/95	Pennsylvania	SCL	log holder/doghouse	Clement

Rating	Species	Common Name	Date	Origin	County	Host	Collector(s)
Q	*Orgyia leucostigma*	whitemarked tussock moth	07/27/95	Pennsylvania	SCL	doghouse	Clement
Q	*Pseudococcus citriculus*	a mealybug	07/27/95	Taiwan	LAX	starfruit	Kawakami
Q	*Zophobus atratus*	a darkling ground beetle	07/27/95	?	LAX	box	Mehraban
Q	*Hylastes ater*	a bark beetle	07/31/95	New Zealand	SFO	*Pinus radiata*	Wion
Q	*Nysius* sp.	a seed bug	07/31/95	New Zealand	SFO	*Pinus radiata*	Wion
Q	*Maladera castanea*	Asiatic garden beetle	08/01/95	Utah	ALA	aircraft	Dubbs
Q	*Megalopyge opercularis*	puss caterpillar	08/01/95	?	LAX	aircraft	Carranza
Q	*Monomorium floricola*	an ant	08/01/95	Hawaii	ORA	*Dracaena* sp.	Wynn
A	*Aspidiotus destructor*	coconut scale	08/02/95	Florida	ORA	areca palm	Wynn
Q	*Prosapia bicincta*	twolined spittlebug	08/02/95	Pennsylvania	LAX	aircraft	de la Cruz
Q	*Paleocallidium rufipenne*	a longhorned beetle	08/03/95	Japan	SFO	dunnage	Wion
Q	*Philephedra tuberculosa*	a soft scale	08/03/95	Florida	ORA	*Spathiphyllum* sp.	Wynn
Q	*Philephedra tuberculosa*	a soft scale	08/04/95	Florida	SBA	*Spathiphyllum* sp.	Davidson
Q	*Euxoa* sp.	a cutworm	08/07/95	Hong Kong	LAX	deck	Rabe
Q	*Anomala orientalis*	Oriental beetle	08/08/95	?	LAX	aircraft	Barberia
Q	*Diabrotica undecimpunctata howa*	southern corn rootworm	08/09/95	?	ALA	aircraft	Dubbs
Q	*Chrysodeixis eriosoma*	green garden looper	08/10/95	Hawaii	LAX	herbs	Bakri
Q	*Orgyia* sp.	a tussock moth	08/10/95	Massachusetts	ALA	basketball hoop	Eaton
Q	*Protaetia fusca*	mango flower beetle	08/10/95	Hawaii	SFO	automobile	Olmsted
A	*Rhizotrogus majalis*	European chafer	08/10/95	Tennessee	ALA	aircraft	McNeil
Q	*Coccotrypes* sp.	a bark beetle	08/11/95	Mexico	ALA	*Chamaedorea plumosa*	Eaton
Q	*Coccus viridis*	green scale	08/15/95	Hawaii	SMT	*Zingiber* sp.	Garibaldi
A	*Hemiberlesia palmae*	tropical palm scale	08/15/95	Costa Rica	SJQ	*Dracaena marginata*	Watkins
Q	*Philephedra tuberculosa*	a soft scale	08/15/95	Florida	SDG	*Spathiphyllum* sp.	Kellum
A	*Pseudoparlatoria parlatorioides*	false parlatoria scale	08/15/95	Costa Rica	SJQ	*Dracaena marginata*	Watkins
Q	*Epinotia opposita*	olethreutine-tortricid moth	08/16/95	Guatemala	SFO	*Phaseolus vulgaris*	Lino

BORDER STATIONS

USDA Blitz Report

During the weeks of June 17 through July 7, 1995, there were 82 reportable interceptions made (including 30 Oriental fruit fly interceptions) at the Blaine, Washington border crossing. Civil penalties totaled 98 ($7,200). This represents one-half of all the fruit fly interceptions obtained during all of last year's blitz at the same location.

Miscellaneous pests intercepted at the border this summer make for interesting reading. The following list incorporates a few of the more important or unusual discoveries made by border station personnel.

Pest	Station	Date	Origin	Collector	Host
Zebra mussel - *Dreissena polymorpha*	YE	05/07	Michigan	Blakely	boat motor
	TR	06/09	Michigan	Rudolph	boat housing
	TR	06/13	Michigan	Cox	yacht hull
Flies - *Anastrepha* spp.	BL	05/08	Florida	Vasquez	grapefruit
	BL	06/14	Florida	Hinsley/ Tennefos/Sandoval	sapodilla
	BL	06/14	Florida	Perez-Argueta	sapote
Surinam roach - *Pycnoscelis surinamensis*	NE	06/03	Mississippi	Urquidi	plants/soil
Sweetpotato weevil	BL	06/12	Florida	Day	boniatos
- *Cylas formicarius elegantulus*	BL	06/14	Florida	Klingenmeier	boniatos
	BL	06/20	Florida	Klingenmeier	boniatos
Caribbean fruit fly - *Anastrepha suspensa*	BL	06/13	Florida	Day/Klingenmeier	sapote
Plum gouger - *Coccotorus scutellaris*	NE	06/26	Texas	DeWalt	plums
Reniform nematode - *Rotylenchulus reniformis*	BL	07/17	Florida	Klingenmeier	plant/soil
Cyst nematode - Heteroderidae	NE	06/03	Florida	Martinez	plants/soil
	YE	07/19	Florida	Williams	plant debris
Red imported fire ants - *Solenopsis. invicta* (25+)	AL	07/26	Alabama	LeNeave	dragline mat
Acuminate scale - *Kilifia acuminatus*	YE	07/30	Florida	Guthrie	palm fronds

There are still numerous exotic pests from foreign fruit being intercepted from Canada, Washington, and Oregon. The list on the next page outlines some of the important finds at the Hornbrook Station during the summer of 1995.

Pest	Date	Origin	Collector	Host
Oriental fruit fly - *B. dorsalis*	06/18	Canada	Zavala	sugar apples
	07/13	Washington	Johnson	litchi nuts
	08/18	Oregon	Hirsch	longans
	08/19	Washington	Clifford	longans
Vanda orchid scale - *Genaparlatoria pseudaspidiotus*	06/18	Canada	Zavala	mangosteens
Snail - Gastropoda	06/18	Canada	Zavala	mangosteens

Pest	Date	Origin	Collector	Host
Soft scale - Coccidae	06/18	Canada	Zavala	litchi nuts
	06/21	Canada	Pastell	litchi nuts
Mealybug nymphs - Pseudococcidae	06/18	Washington	Zavala	litchi nuts
	06/21	Canada	Pastell	litchi nuts
Magnolia white scale - *Pseudaulacaspis cockerelli*	06/21	Canada	Pastell	litchi nuts
Soft scale - *Drepanococcus* sp.	06/21	Canada	Pastell	litchi nuts
	06/30	Washington	Pastell	litchi nuts
Stem borer - *Conopomorpha* sp.	06/18	Washington	Zavala	sugar apples
	06/29	Canada	Hamilton	litchi nuts
	06/30	Washington	Pastell	litchi nuts
	07/04	Oregon	Proctor	litchi nuts
	07/05	Washington	Zavala	litchi nuts
	07/12	Washington	Leslie	litchi nuts
	07/13	Washington	Johnson	litchi nuts
	07/21	Oregon	Johnson	longan leaves
	07/21	Canada	Johnson	litchi nuts
	07/21	Canada	Stone	litchi nuts
	07/27	Oregon	Zavala	longan fruit
	08/04	Washington	Middleton	litchi nuts
	08/06	Washington	Middleton	litchi nuts
	08/09	Canada	Weeks	litchi fruit
	08/09	Oregon	Johnson	longans
	08/10	Canada	Johnson	longans
	08/12	Canada	Weeks	longans
	08/17	Canada	Johnson	litchi fruit
	08/28	Washington	Zavala	longans
	08/29	Oregon	Hamilton	longans
Fruit flies - *Bactrocera* sp.	07/21	Oregon	Johnson	longans
	07/21	Canada	Johnson	longans
Pacific mealybug - *Planococcus minor*	07/21	Canada	Johnson	longans
	08/10	Washington	Brown	breadfruit
	08/14	Canada	Hamilton	durians
Longan scale - *Thysanofiorinia nephelii*	06/30	Washington	Pastell	longans
	07/24	Canada	Baker	longans
	07/29	Canada	Zavala	longans
	08/02	Oregon	Pastell	litchi nuts
Green shield scale - *Pulvinaria psidii*	07/02	Washington	Hamilton	litchi nuts
	07/29	Washington	Zavala	litchi nuts
Foreign ant - *Hypoclinea* sp.	08/25	Washington	Kirby	longans

PLANT PATHOLOGY HIGHLIGHTS

PHYMATOTRICHUM ROOT ROT ON COTTON

Jeanenne White
Agricultural Biological Technician

During July 1995 the Plant Pathology Laboratory collaborated with the Arizona Department of Agriculture to identify the A-rated fungal pest *Phymatotrichum omnivorum* (syns. *Ozonium omnivorum* Shear, *Phymatotrichopsis omnivora* (Duggar) Hennebert). Numerous cotton samples were submitted from Arizona to our California laboratory for diagnosis of *Phymatotrichum* root rot disease, also known as *Ozonium*, Texas root rot or cotton root rot.

Dr. James Smith, CDFA Plant Pathologist, identified *P. omnivorum* on over twenty-five of the cotton root samples. Diagnostic results were expedited to the Arizona Department of Agriculture. This destructive "A" pest is currently under a California State Interior Quarantine in designated sections of Riverside and San Diego counties, and in all of Imperial County.

Phymatotrichum root rot occurs on over 2,000 species of dicotyledonous plants. Monocotyledonous plants are not included in the large range of host plants. The fungus is a virulent pathogen on cotton causing significant economic losses in the southern and southeastern USA and northern Mexico. In Texas, more than 2% of the potential cotton yield each year is lost with a value exceeding twenty-five million dollars annually.

The disease is geographically restricted by the high temperature and soil alkalinity requirements of the pathogen. *P. omnivorum* is prevalent in alkaline, calcareous montmorillonite soils with an approximate pH of 8.2. Infection occurs in the summer at relatively high soil temperatures. Above ground symptoms include chlorosis and bronzing of immature foliage, wilting, and eventual plant death. Characteristically, the dead leaves will remain attached to the plant (Fig. 6, A, B). Underground, root surfaces are covered with networks of tan-to-brown coarse thread-like mycelial strands (rhizomorphs) composed of masses of twisted fungal hyphae. The strands, an important diagnostic characteristic, eventually develop a fuzzy appearance due to the formation of cruciform (cross-shaped) hyphae exhibiting bristle-like acicular points (Note Fig. 7, A-H, for diagnostic morphology). Irregularly-shaped necrotic burgandy-colored sunken lesions occur on the roots, girdling and destroying the root cortex. Characteristic cottony white mycelium may appear on the taproot near the soil surface.

P. omnivorum is a filamentous, soilborne fungus in the subdivision Deuteromycotina, order Moniliales, and family Moniliaceae. Three distinct growth or reproductive stages of the fungus are identified: mycelial and strand, sclerotial, and conidial. The strand or rhizomorph produces light yellow (immature) to reddish-brown (mature) amorphic sclerotia occurring in chains along the strand or in conglomerate masses in the soil. These propagules may develop over eight feet below soil surfaces and survive for as long as ten years. During humid conditions buff-colored mycelial spore mats form on soil surfaces, producing laterally borne, spherical conidiophores and single-celled hyaline blastoconidia (spores) 4.5-5.5 µm in diameter. Sclerotia in the soil or mycelial strands overwintering on roots of perennial crops are the primary source of inoculum to infect new host plants.

To date, attempts to prevent and control the disease have not been successful. Non-infested area protection is provided through quarantine measures. Cultivating cotton varieties with seedling tolerance to cool soils for early season seeding and harvesting, and amending soil with sodium-containing materials to reduce the number of fungal sclerotia are techniques utilized in some current disease management programs.

References

American Phytopathological Society: Compendium of Cotton Diseases. 1981: Phymatotrichum Root Rot, pp. 44-47.

Domsch, K. H., Gams, W., and Anderson, T. H. 1980: Compendium of Soil Fungi. Academic Press London, pp. 655-664.

King, C. J., and Loomis, H. F. 1929: Further studies of cotton root rot in Arizona, with a description of a sclerotium stage of the fungus. J. Agric. Res. 39:641-676.

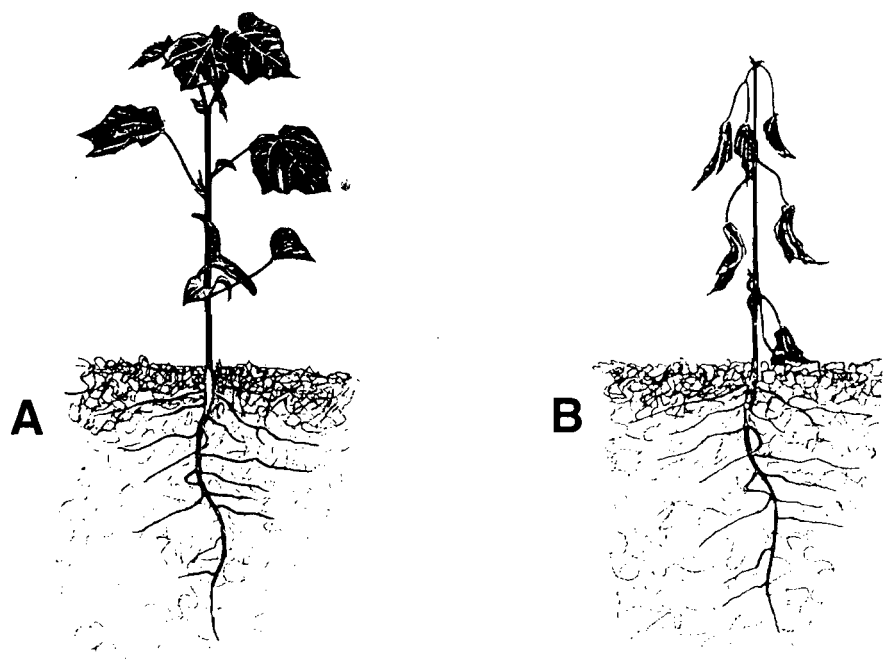


Fig. 6. A: Early symptoms of Phymatotrichum root rot exhibiting upper taproot enveloped by buff-colored mycelium. B: Advanced severe wilting. Ilustrations taken from G. M. Watkins, ed. 1981: Compendium of Cotton Diseases, A. P. S.

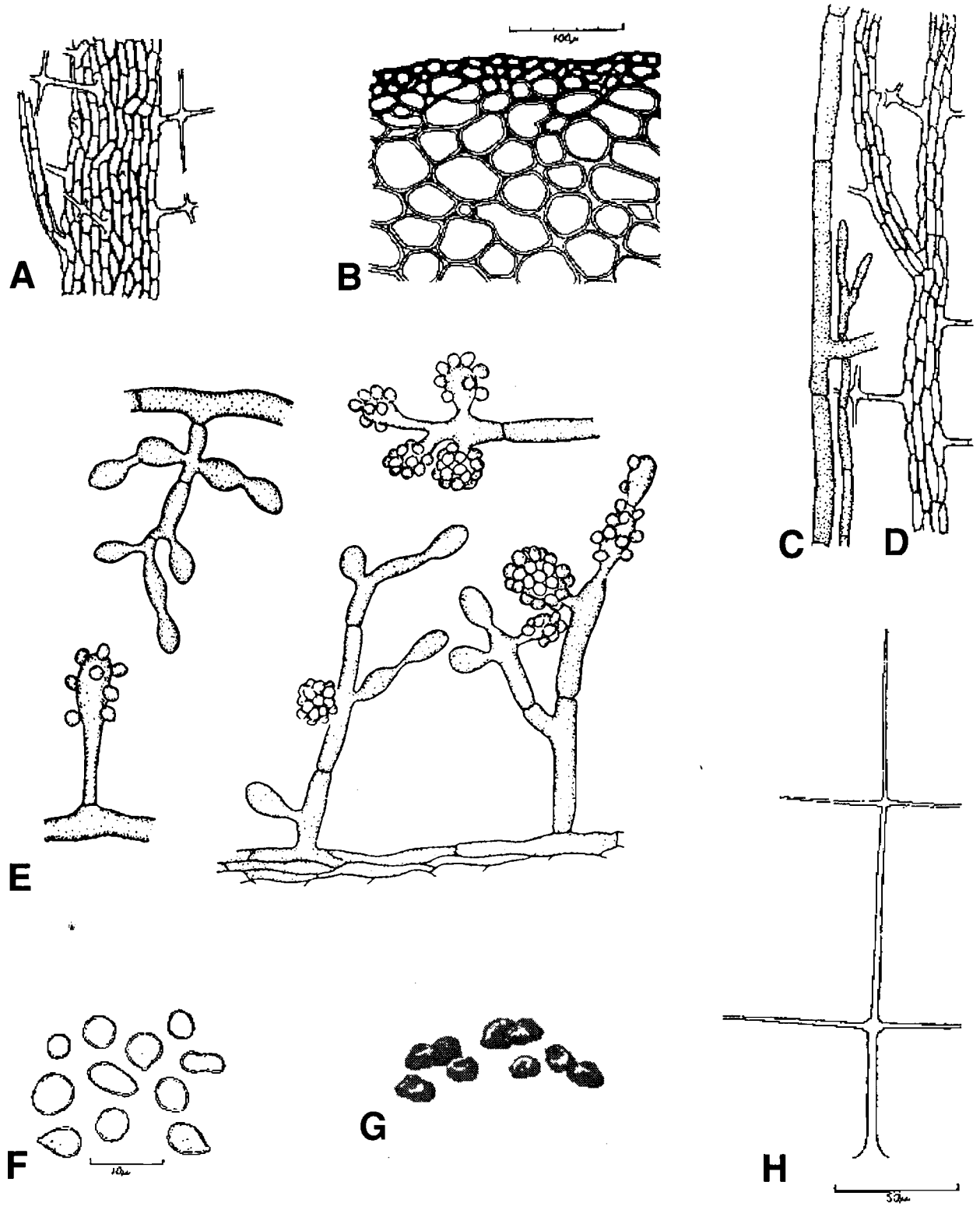


Fig. 7. *Phymatotrichum omnivorum* morphology. A: Mature twisted mycelial strand (rhizomorph). B: Sclerotial cross-section. C: Single hypha. D: Immature hyphae forming strand. E: Conidia and conidiophores formed on mycelial mat. F: Conidia. G: Sclerotia. H: Bristle-like acicular hypha - identifying character. Original illustrations taken from R. B. Streets and H.E. Bloss, 1973: University of Arizona.

BACTERIAL FRUIT BLOTCH OF WATERMELON

Acidovorax avenae subsp. *citrulli*
Pseudomonas pseudoalcaligenes subsp. *citrulli*
Pseudomonas syringae subsp. *citrulli*

By
Dan Opgenorth
CDFA Plant Bacteriologist

According to a Pest Exclusion Advisory (Jan., 1995), a new disease was added to Q. C. Circular #204 for cucurbits. The disease was bacterial fruit blotch of watermelon, caused by *Acidovorax avenae* subsp. *citrulli*. Since the disease was previously not known to be present in California, numerous requests had been made concerning the identification of field symptoms for submission of plant quarantine samples. To further emphasize the importance of the problem, this year many of our plant quarantine watermelon samples were submitted with special requests to check for this disease.

Watermelon fruit blotch may have been in the country since 1967, but serious problems were not reported until 1989. Losses of 5 to 100% occurred in the southeast and mid-west, resulting in sensational newspaper and television reports. As more was learned about the seed borne nature of this disease, several lawsuits were filed against seed companies.

Symptoms are most obvious on fruit approaching maturity, and usually consist of an irregular dark olive-green stain. Leaf symptoms can range from small brown or black necrotic lesions to larger necrotic areas forming along the middle or secondary leaf veins. The disease is also believed to occur on muskmelon fruit, which exhibit small necrotic crater-like pox or lesions. The disease is believed to be limited to curcubits. Symptoms on seedlings or plants may not be extremely obvious and could easily be overlooked. A good description of the disease, including color pictures and the historical background, is provided in the August 1995 issue of Plant Disease.

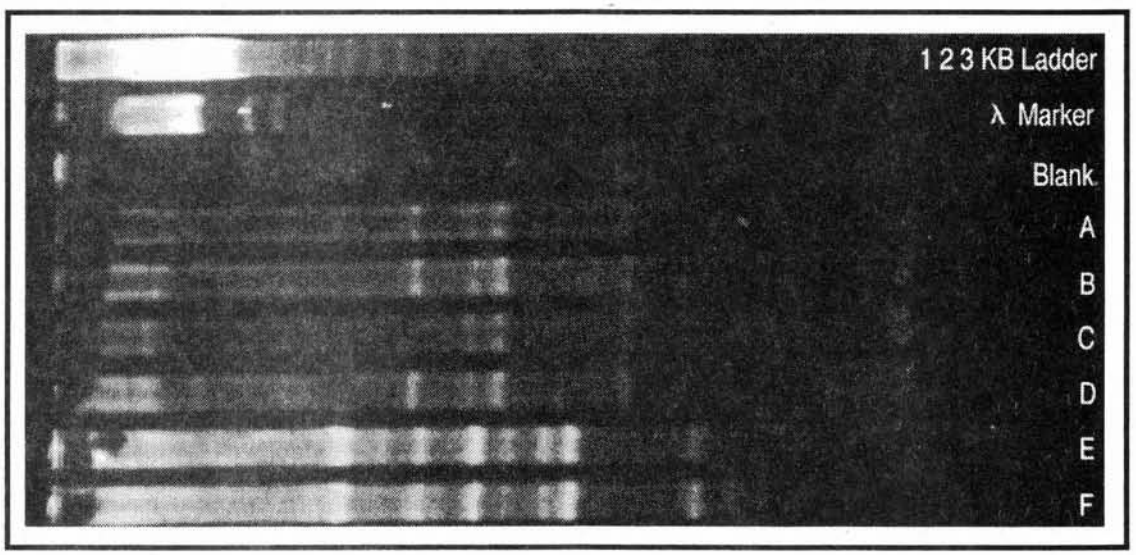
Since this problem seemed to be significant, the Bacteriology laboratory spent some time learning to culture and identify the pathogen. We found that a selective media worked well when culturing from seedlings with symptoms. However, pathogenicity testing did not always result in the dramatic decline and death of the host which was expected. With further work, using our BIOLOG system and PCR (polymerase chain reaction), we were able to distinguish a secondary bacterium that appeared similar in culture, produced initial symptoms on inoculated plants, but would not kill the plants. BIOLOG identified this bacteria as *Alcaligenes faecalis* type II, which is in a similar taxonomic group as the true pathogen. Additional work using RAPD Rep primers and PCR methods reinforced our suspicion because the DNA profiles were different (Fig. 8).

Even though no new outbreaks of this disease were reported in the United States this year, the problem of producing clean seed remains. Efforts to make good phytosanitary inspections on

all curcurbits should continue. In the laboratory a new media will be evaluated, as well as more specific PCR techniques which could identify the bacteria from plant tissues without culturing. Hopefully, we will not find the disease in California seedfields, but the first step in dealing with the problem is rapid and accurate diagnosis, which we will try to improve as new methods develop.

References

Latin, R. X. and D. L. Hopkins. 1995: Bacterial Fruit Blotch of Watermelon: The Hypothetical Exam Question Becomes Reality. Plant Disease 79(8):761-765.



A: Control + isolated from seedling with typical symptoms.
B: Control + culture.
C: Test isolate from plant with typical symptoms.
D: Test isolate from plant with typical symptoms.
E: Test isolate from plant that did not collapse.
F: Test isolate from plant that did not collapse.

Fig. 8. Gel electrophoresis of RAPD PCR using Rep primers with bacteria isolated from watermelon seedlings having symptoms of Fruit Blotch disease.


BIOLOGICAL CONTROL PROGRAM
California Department of Food and Agriculture

On the opposite page is a copy of the front cover of the annual Biological Control Program produced by the CDFA Integrated Pest Management Branch. Below is the table of contents of the report. There are still a limited number of copies of this report. If anyone is interested contact Larry Bezark at (916) 654-0768.

Table of Contents

Insect Projects

General Research

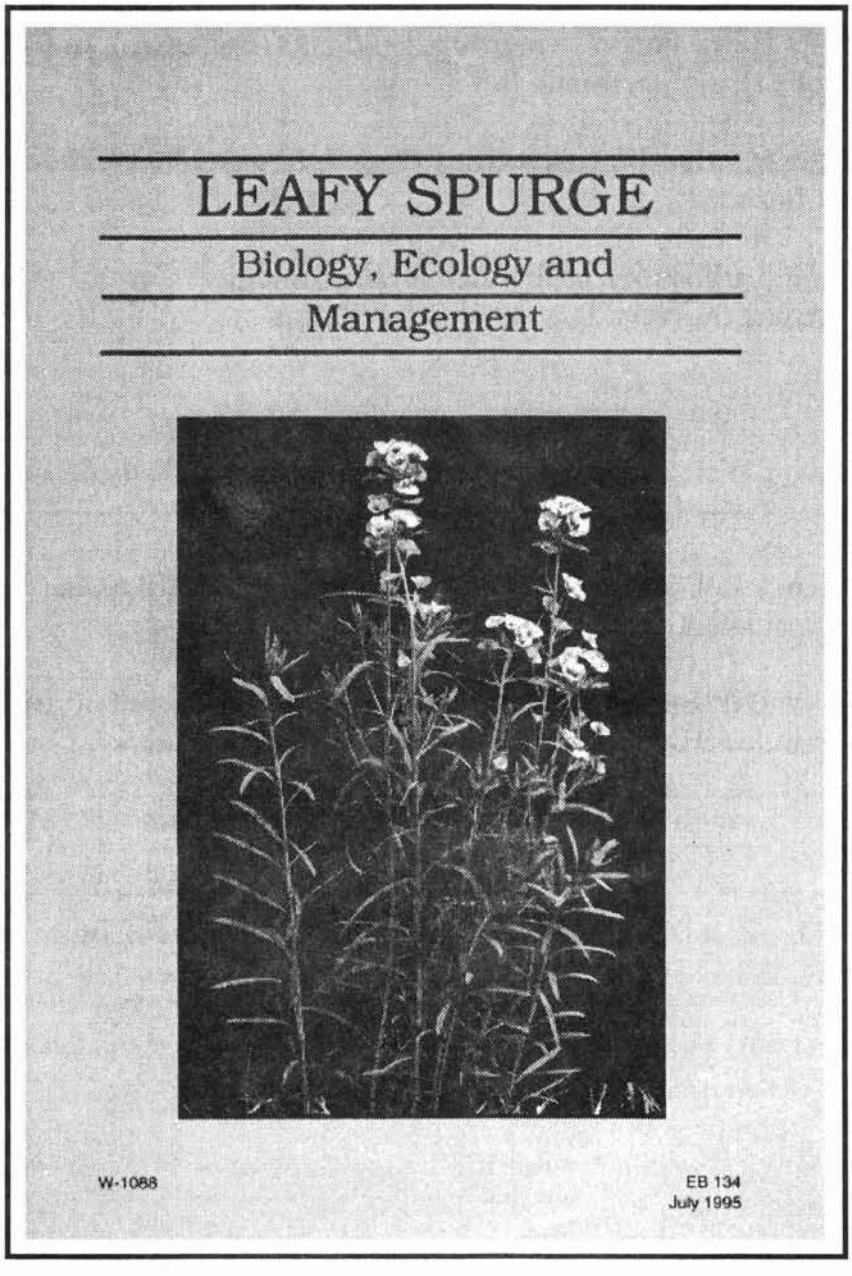
Weed Projects

Redistributions

New Agents

BOTANY HIGHLIGHTS

Once again we would like to share with you the latest bulletin from the Montana State University Extension Service, entitled "Leafy Spurge; Biology, Ecology and Management." Below is a reproduction of the cover of this new publication which includes excellent color photographs, a distribution map for the United States and Canada, and a list of "currently approved insect biocontrol agents." The paper is authored by Sherry Lajeunesse, Roger Sheley, Rodney Lym, Diana Cooksey, Celestine Duncan, John Lacey, Norman Rees, and Mark Ferrell. The bulletin is available through the Montana State University Agricultural Extension Office, Bozeman, MT 59717.



On the following pages are three updated weed distribution maps. These maps are included in the CPPDR when a new weed location or a correction to the map has been made.

STATE OF CALIFORNIA • DEPARTMENT OF FOOD AND AGRICULTURE

DIVISION OF PLANT INDUSTRY • PLANT PEST DIAGNOSTICS BRANCH • BOTANY

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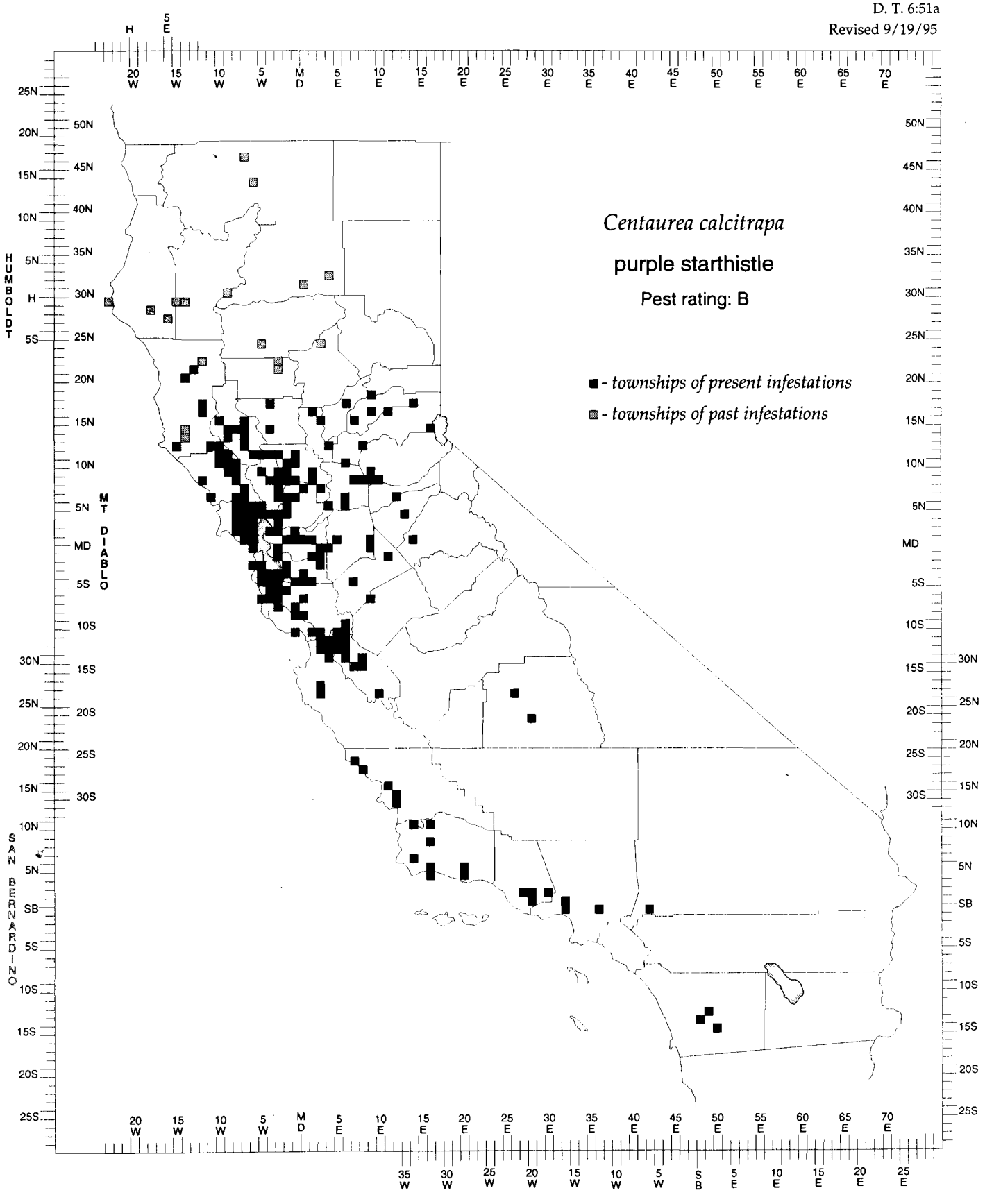
DETECTION MANUAL
D. T. 6:51a
Revised 9/19/95



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DIVISION OF PLANT INDUSTRY • PLANT PEST DIAGNOSTICS BRANCH • BOTANY

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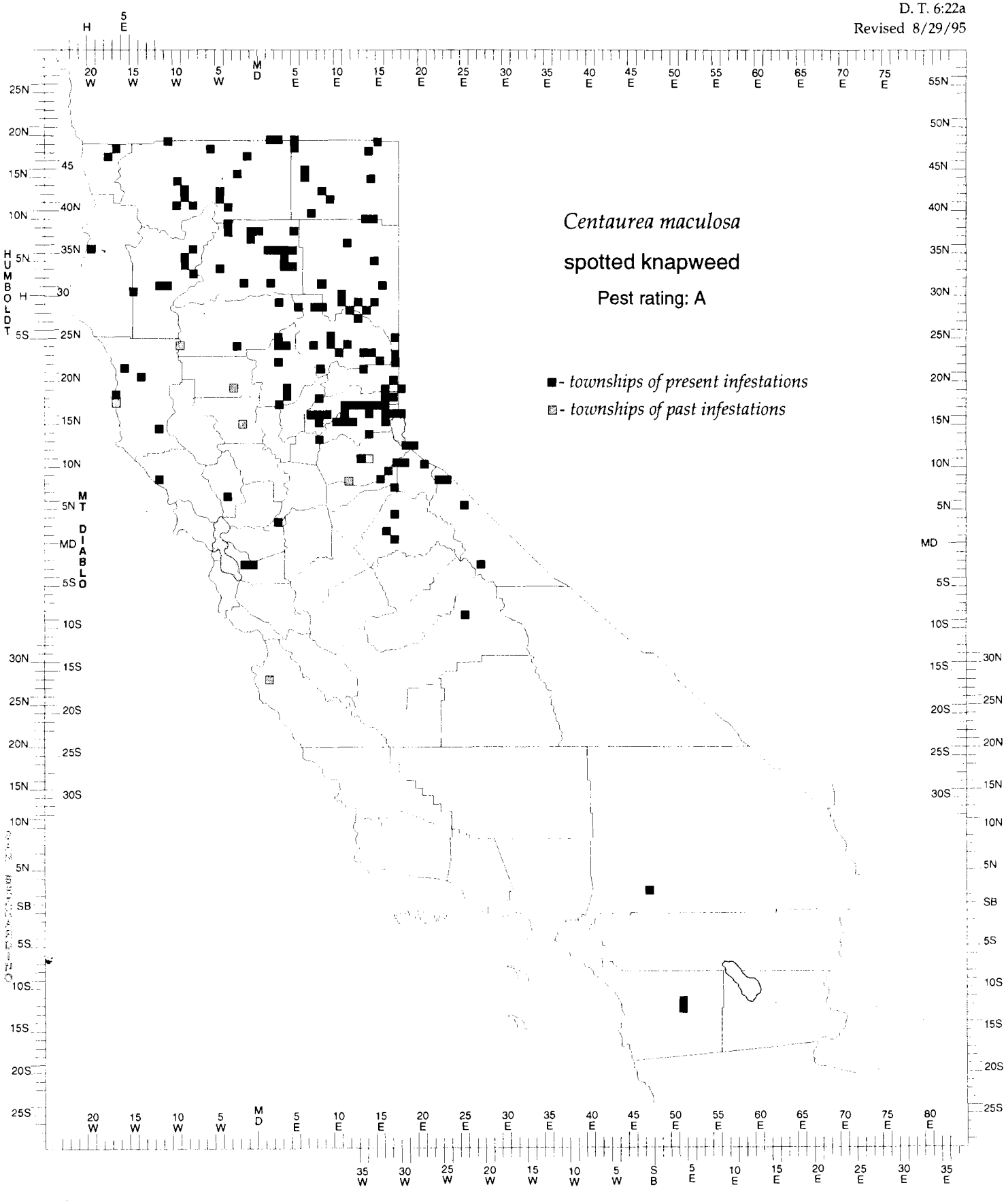
DETECTION MANUAL
D. T. 6:22a
Revised 8/29/95



STATE OF CALIFORNIA • DEPARTMENT OF FOOD AND AGRICULTURE

DIVISION OF PLANT INDUSTRY • PLANT PEST DIAGNOSTICS BRANCH • BOTANY

DETECTION MANUAL
D. T. 6:59a
Revised 9/18/95