California Plant Pest & Disease Report

Plant Pest Diagnostics Branch
3294 Meadowview Road
Sacramento, California 95832, USA

2005 – Volume 22, Number 1

Covering period from July 2002 through July 2005

California Plant Pest & Disease Report

Editor:
Stephen Gaimari

NAPIS Coordinator:
Shaun Winterton

Contributors:

Charles Bellamy	Eric Fisher	Peter Kerr
John Chitambar	Stephen Gaimari	Rene Luna
Andrew Cline	Rosser Garrison	Ramona Randolph
Ke Dong	Ray Gill	Mary-Jean Sawyer
Marc Epstein	Robert Hackney	Timothy Tidwell
Casey Estep	Kevin Hoffman	Gillian Watson

Funding for this publication was provided through the
California Department of Food & Agriculture and USDA-APHIS-PPQ.

Address correspondence concerning the CPPDR,
including subscription requests and requests for back issues, to:

Editor, CPPDR
Plant Pest Diagnostics Branch
California Department of Food & Agriculture
3294 Meadowview Road
Sacramento, CA 95832-1448

Cover Photograph:
Ferrisia gilli Gullan (Insecta: Hemiptera: Pseudococcidae), Gill's mealybug.
Courtesy of David Haviland, UC Davis Cooperative Extension.

Dedication:

This issue of the California Plant Pest & Disease Report is dedicated to Ray Gill, retired Sternorrhyncha and Auchenorrhyncha taxonomist with the Plant Pest Diagnostics Branch, California Department of Food & Agriculture, for his many years of service to the State, the Branch, and the Entomology Laboratory, and in recognition of his having faithfully served as Editor for this annual report for nearly 20 years.

TABLE OF CONTENTS

Introduction....3
Significant Records in Entomology
- Coleoptera....3
- Diptera....6
- Hemiptera: Heteroptera....8
- Hemiptera: Sternorrhyncha....12
- Lepidoptera....19
- Thysanoptera....21

Insect Pest Sheets....24
Rating Changes in Entomology....30
Scientific Name Changes....32
Significant Records in Plant Pathology....34
Significant Records in Nematology....38
Detection Tables
- Plant Pathology
  - A & Q Rated Detections....42
- Nematology
  - A & Q Rated Detections....42
- Entomology
  - New Records (North American, National, State, County)....43
  - A, B, & Q Rated Detections from Border Stations....45
  - A & Q Rated Detections by County (Non-Border Stations)....50

INTRODUCTION

The California Plant Pest & Disease Report was last printed and issued as Volume 21, Numbers 1-3, in January, 2003, covering the period of January through June 2002. Since that time, there have been many significant pest finds in the State of California not published through this medium. The current issue (Volume 22, Number 1) represents an effort to "catch up" and return to providing this publication two times per year, as Numbers 1 and 2. This issue is unusual in that it covers the period from July 2002 through July 2005 (with some overlap into early August) – a period of slightly more than 3 years. The next issue of this volume will be decidedly thinner, covering the much shorter period of August through December 2005, but should then return (with Volume 23) to a regular publication schedule of July (Number 1 covering January through June) and January (Number 2 covering July through December) of each year.

SIGNIFICANT RECORDS IN ENTOMOLOGY

COLEOPTERA

***Aethina tumida* Murray** (Nitidulidae)
Small hive beetle

This species was intercepted twice in February 2005, once from Texas and another time from Florida. The species is a pest of honeybees and has decimated thousands of colonies in the eastern U.S. The beetle, in particular its larval stage, can be destructive to the comb, honey and pollen.

Figure. Small hive beetle, *Aethina tumida*, larvae in honey bee hive cells (left), adult (right). Photos ©Jeffrey W. Lotz, Florida Department of Agriculture and Consumer Services, from http://www.invasive.org/.

If the infestation is sufficiently large, the bees may abandon the hive. Originating from the Afrotropics, small hive beetle was first identified in the U.S. in Florida in 1998. Since its arrival it has spread throughout most of the eastern U.S.

SHB is a moderate-sized sap beetle with adults ranging between 5-10mm in length. Most individuals are brown to brownish/black in color and are not readily distinguished by the naked eye. Microscopic evaluation of specimens reveals several characters, when taken holistically, that adequately define the species including: pits along the base of the pygidium, flattened short rectangular femora, elytra and pronotum densely fimbriate, and eyes typically with elongate interfacetal setae. Males can be distinguished from females in possessing an additional sclerite, the so-called anal sclerite, at the end of the abdomen. Text, pictures and video of the small hive beetle are available at: http://www.cdfa.ca.gov/phpps/ppd/Entomology/Coleoptera/Aethina.htm.

***Anoplophora glabripennis* (Motschulsky)** (Cerambycidae)
Asian longhorn beetle

This species was intercepted in mid-June 2005 from a warehouse in Sacramento. Asian Longhorn beetle (ALB) is a pest of hardwood trees, especially horse chestnut, Ohio buckeye, green ash, rose of Sharon, birch, and box elder in the U.S.; though it also infests maple, plum, pear, chinaberry, mulberry, willow, black locust, elms, and a variety of poplars in the Orient. This species originates from China and was first identified in the U.S. in New York in 1996 and then Chicago in 1998.

Figure. Asian longhorn beetle, *Anoplophora glabripennis*, male.

ALB is a large robust longhorn with adults ranging between 20-40mm in length. Most individuals are black with scattered white markings on the elytra (see Figure). The species also has bright iridescent bluish pubescence on the tarsi, and white markings on the basal half, or less, of each antennal segment. Males can be distinguished from females by the more elongate antennae, which extend past the body by ≥5 antennal segments. Text, pictures and video of the ALB are available at: http://www.cdfa.ca.gov/phpps/ppd/Entomology/Coleoptera/Asian_Longhorn_Beetle.html

***Orthotomicus erosus* (Wollaston)** (Curculionidae: Scolytinae)
Mediterranean pine engraver

The Mediterranean pine engraver (MPE) was collected/identified in 2004 as part of the California Exotic Woodborer Survey. This bark beetle is a pest of pine trees. The species originates from Europe, North Africa and the Middle East. The beetle was first reported in May of 2004 by R. Penrose in the city of Fresno. This beetle may also be a potential vector of pathogenic fungi.

MPE is a minute beetle ranging between 2-3.5mm in length. The beetle is red-brown in color and can be distinguished from other bark beetles only by microscopic examination. The anterior portion of the pronotum has numerous tubercles and the elytral declivity is concave with lateral teeth. Four teeth are typical on the elytral declivity of this species – males can be separated from females by the third tooth largest and club-like in appearance. An upcoming publication of this and other species found as part of the Exotic Woodborer Survey will be available in *The Canadian Entomologist*.

Figure. Typical damage (left) and galleries (right) of Mediterranean pine engraver, *Orthotomicus erosus*. Photos ©William M. Ciesla, Forest Health Management International, from http://www.invasive.org/.

***Popillia japonica* Newman** (Scarabaeidae)
Japanese beetle

The Japanese beetle (JB) was identified in mid-June 2005 from Santa Clara County. JB is a pest of more than 50 plants species. This beetle can defoliate a wide variety of trees and shrubs as well as attack roots of many garden crops and turf grasses. The species originates from Japan and was first

identified in the U.S. in New Jersey in 1916. Since its arrival the Japanese beetle has spread throughout the U.S. east of the Mississippi River as well as Iowa and Missouri.

Figure. Japanese beetle, *Popillia japonica*.

JB is a medium-sized scarab beetle with adults ranging between 12-18mm in length. Most individuals are metallic green in color, with the elytra copper-brown. The species also has 5 tufts of white hairs derived from the dorsal surface of the abdomen which are visible under the lateral margin of the elytra. There are also two larger patches of white hairs at the apex of the abdomen (see Figure). The males have a sharp apical spine on the foreleg tibia whereas the female has a longer more rounded apex. Text and pictures of the Japanese beetle are available at: (http://www.cdfa.ca.gov/phpps/ppd/Entomology/Coleoptera/Japanese_Beetle.html)

DIPTERA

***Paradiplosis tumifex* Gagné** (Cecidomyiidae)
Balsam gall midge

The known California range of this cecidomyiid gall midge fly has been expanded considerably in the last several years. Previously, this insect – which can cause significant damage to balsam fir foliage in the Northeastern parts of the U.S. and is especially bothersome to the Christmas wreath industry based there – was considered to be exotic to California and was Q-rated.

Figure. Damaged needles of *Abies* firs, caused by *Paradiplosis tumifex* (larva at tip of pin). Inset, close-up showing characteristic swelling at the base of a damaged needle.

The balsam gall midge has been confirmed from at least four species of fir (balsam, white, Fraser, grand). The galls (see Figure) are initiated on the fir needles by *P. tumifex*, and usually also contain a second species of midge (*Dasineura balsamicola* (Lintner)), which is an inquiline and is not considered to be economically important.

***Tipula oleracea* Linnaeus** (Tipulidae)
Common crane fly

This crane fly, native to Europe, was first detected in California in August, 2003, when specimens were found in Humboldt County. Within a month, the species was also found in both Siskiyou and Del Norte Counties, and the following year in Monterey and Yolo Counties. Common crane fly is very similar to its close relative *Tipula paludosa* (European crane fly) – also first detected in Humboldt County (April, 1999) and currently B-rated. Both of these species belong to the subgenus *Tipula*, a group of crane flies restricted to Europe and Asia; the numerous additional species of this subgenus are considered to be significant pests of grasses and other field crops, attacking roots and shoots of plants in a variety of soil types. While European crane fly has slowly spread westward across southern Canada and the northern U.S. (it was first detected in Newfoundland in the late 1800's), common crane fly seems to be expanding its North American range much more rapidly.

Figure. Common crane fly, *Tipula oleracea*. Photo © Janco Tanis, jancology.com, www.forestryimages.org.

Both of these crane fly species have moved into California from the north (through Oregon and Washington first); while *Tipula paludosa* is evidently still restricted to Del Norte and Humboldt Counties, *T. oleracea* has been found in these counties and in Yolo and Monterey Counties, plus "several San Francisco Bay area counties" (P. Arnaud, per. com.; CDFA does not have detection records for these latter finds). One factor relative to the dispersal of these crane fly species is that female European crane flies have relatively shorter wings than do female common crane flies – making the former a poorer flier. These two very similar crane flies can be distinguished from one another by the number of antennal segments (*T. oleracea* has 13 while *T. paludosa* has 14), the degree of separation of the eyes at the bottom of the head, and characters of the male genitalia.

HEMIPTERA: HETEROPTERA

NEW STATE RECORDS

***Halyomorpha halys* (Stål)** (Pentatomidae)
Brown marmorated stink bug

Responding to a call from a resident on March 16, 2005, staff from Pest Exclusion and Pest Detection/Emergency Projects, and Solano County agricultural commissioner's office, recovered over a dozen Brown marmorated stink bugs (mostly live adults) from a storage unit in Vallejo, Solano County. The resident had recently moved to California from Pennsylvania and it appears the stink bugs moved into the household items while they were in storage in Pennsylvania and then were subsequently shipped to California. A visual survey was conducted in the surrounding environment and no further specimens were found.

Figure 1. Dorsal view of the adult males for comparison of *Halymorpha halys* (left) and *Brochymena pilatei* (right).

This pest is from Asia and was first reported in the US in 2001, from Pennsylvania (Hoebeke, E. R. and M. E. Carter. *Halyomorpha halys* (Stål) (Heteroptera: Pentatomidae): a polyphagous plant pest from Asia newly detected in North America. Proceedings of the Entomological society of Washington 105(1): 225-237). It has since been found around Portland and Salem, Oregon (Hoebeke, personal communication). It is a generalist plant feeder and has the potential to become a serious pest in California. Adults overwinter in protected areas and thousands may invade buildings seeking shelter.

Brown marmorated stink bug is 12-17 mm long which can be confused with members of the stink bug genus *Brochymena* (see Figures for the following comparisons). However a small tooth is present on the outer margin of the juga in *Brochymena*; whereas no teeth are present on the outer margin of the juga in *Halyomorpha*. The anterior margin of the pronotum is dentate or crenulate in *Brochymena*, while it is entire in *Halyomorpha*.

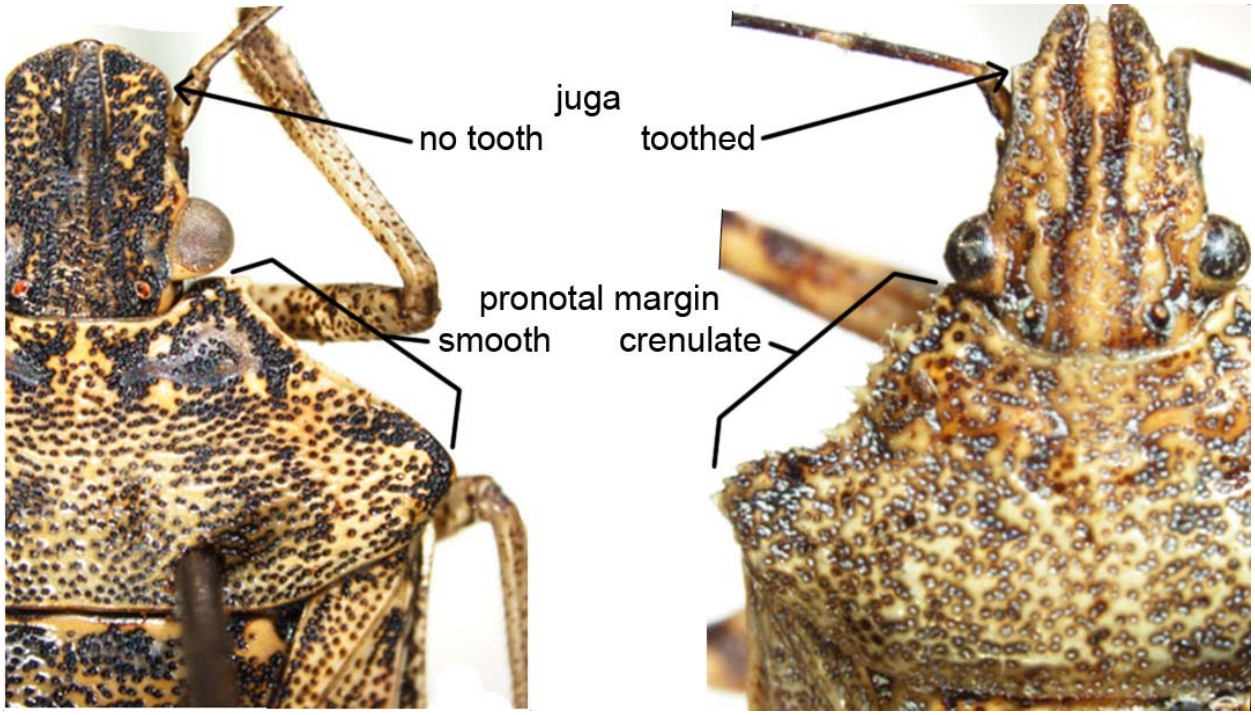


Figure 2. Dorsal view of the head, showing the margin of the pronotum and the condition of the juga for comparison of *Halyomorpha halys* (left), and of *Brochymena pilatei* (right).

***Metapoplax ditimoides* (Costa)** (Oxycarenidae)
A seed bug

This species was found in California for the first time in a residential area of Vernon, Sonoma County in July, 2002. The true bug was ultimately identified by Dr. Thomas Henry, Hemipterist at the Smithsonian Institution. The species has since been found in Solano, Marin, and Alameda Counties. In southern California, this species was first discovered in Valencia, Los Angeles County, within shrink-wrapped pallets originating from Seattle, Washington in May 2003. Its status is unknown but it is probably established on the West coast of California. The species was first detected in Monmouth, Oregon in August, 1998 (Lattin, J. D. 2002. Pan-Pacific Entomologist 78(1):

63-65). Subsequent finds in Oregon include Jasper, Lane County; Corvallis, Benton County; Gervais, Marion County; and Amity, Polk County. In Oregon, adults have been beaten from commercially-grown hazelnut trees (*Corylus avellana*); they have been known to swarm over cars, and in farmhouses.

This species is apparently native to the Mediterranean region, where it is common in southern Europe and northern Africa. The small (3-4 mm long) adult looks like a southern chinch bug (*Blissus insularis,* but the spatulate tylus in *Metapoplax ditimoides* is unique (see Figure). Related seed bugs in the family Oxycarenidae are known to cause damage to cotton and other crops in Africa. Other seed bugs, including the recently introduced *Oxychilus saturnius* (Rhyparochromidae) have similar habits of amassing very large populations certain times of the year and invading structures, where their nuisance value can be great.

Figure. Dorsal view of the adult of *Metapoplax ditimoides* (left) and a close-up of its characteristic spatulate tylus (middle), and a dorsal view of the superficially similar *Blissus insularis* (right) for comparison.

***Pseudacysta perseae* (Heidemann)** (Tingidae)
Avocado lace bug

This species was found for the first time in California infesting urban avocado trees in San Diego County (southeast San Diego and Chula Vista) in September 2004. This distinctive, small, orange-black species is a native of the southeastern United States (Florida, Georgia, Louisiana, Texas), Mexico and the Caribbean islands. Its feeding causes necrosis of parts of the leaves, resulting in patches of dead brown tissue accompanied by dark syrupy spots of honeydew, which later become blackened with sooty mold (see Figure 1). Surveys as of February, 2006 show that this species

attacks urban avocado trees at over 65 sites, within more than 200 square miles in Chula Vista, Imperial Beach, La Mesa, Lemon Grove, National City, San Diego, San Ysidro and Spring Valley.

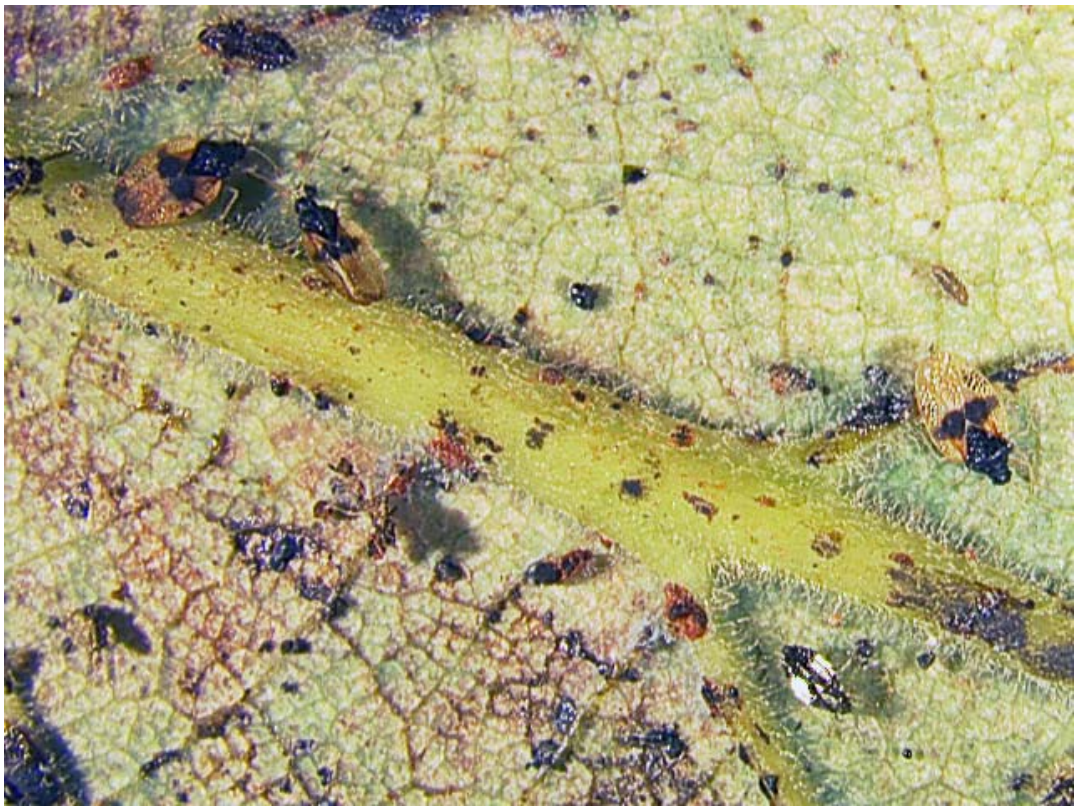


Figure 1. *Pseudacysta perseae,* adults and larvae in situ on the underside of an avocado leaf.

The avocado lace bug is easily recognized, being a small (*ca*. 2mm long), flat, black-and-white to orange tingid with pale yellow legs and antennae. The host range (avocado and camphor) and accompanying illustrations make this species easily recognizable (see Figure 2).

Figure 2. *Pseudacysta perseae*: larva (right), recently emerged adult (middle), adult (right).

***Raglius alboacuminatus* (Goeze)** (Rhyparochromidae)
A seed bug

This species was found in California for the first time in a residential area of San Jose, Santa Clara County in October, 2002, although it had previously been reported invading homes and schools in Ogden, Utah in 1999. The following is abstracted from Dr. Thomas Henry (Henry, T.J. 2004. *Raglius alboacuminatu*s and *Rhyparochromus vulgaris* (Schilling) (Lygaeoidea: Rhyparochromidae): two Palearctic bugs newly discovered in North America. Proceedings of the Entomological society of Washington 106: 513-522): The species was collected from a population of thousands of specimens invading homes and old fields where it was reported that one wall of a house was alive with the bugs. This nuisance pest has also been collected in Benton, Oregon. According to Henry (2004), *R. alboacuminatu*s occurs in Great Britain, throughout much of Europe, south through the Middle East and northern Africa.

The species, which is about 4.5 – 5.5 mm long, can be recognized by its overall dark coloration together with its whitish posterior pronotal lobe and pale anterior half of the corium (see Figure).

Figure. Adult, *Raglius alboacuminatus*.

HEMIPTERA: STERNORRHYNCHA

NEW NATIONAL RECORDS

***Bemisia tabaci* (Gennadius), Biotype Q** (Aleyrodidae)
Q-strain Sweet potato whitefly

In December, 2004, a strain of sweet potato whitefly, *Bemisia tabaci* Biotype Q, was detected on poinsettia plants from two markets in Tucson, Arizona. This was the first record of this whitefly strain in the USA. It was detected as part of ongoing program of monitoring for *B. tabaci* whitefly pesticide resistance, conducted by the Tim Dennehy lab at the University of Arizona. At that time, the Dennehy lab found that these whiteflies were extremely resistant to many pesticides used for whitefly control, unlike *B. tabaci* Biotype B, the sweet potato whitefly strain that is now predominant in Arizona, California, and the rest of the USA. In California, *B. tabaci* Biotype B is commonly referred to as the silverleaf whitefly or *B. argentifolii*. Judy Brown at the University of Arizona identified the new strain as *B. tabaci* Biotype Q using sequence homologies of the mitochondrial cytochrome oxidase I gene. This identification was confirmed by Frank Byrne, UC

Riverside, by examining non-specific esterase patterns via electrophoresis. The determination of biotype can only be done using molecular methods because the morphology is indistinguishable among the various strains of *Bemisia tabaci*.

Figure. *Bemisia tabaci* whitefly, adult (left), and adults and immatures (right).

This resulted in USDA APHIS PPQ convening a New Pest Advisory Group (NPAG, led by Brian Spears and Christina Devorshak) for information gathering and recommendations. An initial teleconference held April 6, 2005 involved representatives from PPQ in Arizona, California, and Texas; CPHST in Raleigh, North Carolina; University of Arizona, Tucson; CDFA in Sacramento, CA; USDA in Riverdale, MD; and Florida DPI. It was agreed that the first steps to address the problem would be to determine where the infestation originated, if the whitefly was already present domestically, and to what extent the whitefly has spread.

Trace backs conducted by PPQ Arizona State Plant Health Director and PPQ Smuggling Interdiction and Trade Compliance Program (SITC) in Arizona and California determined that the markets in Tucson had received their plants from nurseries in Nipomo (San Luis Obispo County) and Half Moon Bay (San Mateo County), California. Further trace backs revealed that both of these California nurseries had received unrooted poinsettia stock from a nursery in Encinitas (San Diego County), California and from sources originating in Guatemala.

Based on these findings, the CDFA and PPQ initiated sampling of suspected California nurseries and on April 12, 2005, *Bemisia tabaci* Biotype Q was confirmed by the CDFA Plant Pest Diagnostics Laboratory (PPD) to be present in one Nipomo greenhouse. Subsequently (April 19), *Bemisia tabaci* Biotype Q was also confirmed present in the Encinitas greenhouse facility.

Bemisia tabaci Biotype Q is known to occur primarily in the Mediterranean (e.g. Spain, Portugal, Italy) but has also been found in Israel, China, and Japan. In all areas where it occurs, it is a problematic pest. As with Biotype B, Biotype Q is a highly polyphagous insect that feeds on cotton, melons, tomato, squash, cucumber, eggplant, cabbage, and other economically important crops. It also attacks a large variety of ornamentals including poinsettia, hibiscus, and chrysanthemum. Adults and immatures suck plant sap and their feeding may cause plant breakdown, chlorotic spots, yellowing or blanching of vegetative structures, and/or leaf shedding. Feeding whiteflies excrete honeydew that promotes the growth of sooty mold, which may become so dense that it interferes with the photosynthesis of the host plant. In cotton, the honeydew can gum up the cotton lint,

making it more difficult to gin. Even more importantly, *B. tabaci* is a vector of an array of potentially devastating plant viruses that include various types of leaf curl, mottle viruses, and mosaic viruses, among many others. *Bemisia tabaci* is known to have biotype-specific guilds of viruses and endosymbionts. Therefore, with the introduction of a new *B. tabaci* biotype, host plants may be exposed to an entirely new suite of plant viruses. Aside from harboring a distinct set of endosymbionts and geminiviruses, the primary difference between Biotypes B and Q is that Biotype Q has elevated levels of resistance to most pesticides currently used for whitefly control (IGRs such as pyriproxefen and neonicotinoids such as imidacloprid and acetamaprid). It is expected that biocontrol agents imported to control Biotype B also attack Biotype Q, however biocontrol alone is considered insufficient for controlling the whitefly in the field due to the whitefly's capacity for rapid population increase.

Effective April 14, 2005, the Arizona Department of Agriculture issued a Directors Administrative Order that quarantined the entire state of California for *Bemisia tabaci* Biotype Q. The quarantine prohibited the shipment of all plant parts (except underground plant parts and seed) from any facility (nursery or other) in California known to be infested with *Bemisia tabaci* Biotype Q.

The introduction and establishment of Biotype Q and its host of geminiviruses poses a similar threat to California and Arizona agriculture as did the introduction of *B. tabaci* Biotype B into the region in the early 1990's. This introduction led to California and other southern US states suffering initial losses of vegetables surpassing $500 million and severely impacting the landscape of agriculture in Imperial, Yuma, and Palo Verde counties, in particular. Annual losses due to *B. tabaci* Biotype B are estimated to exceed $200 million nationwide. Other states likely to be economically impacted by the introduction of a new biotype of *B. tabaci* include Texas and Florida and possibly other states including North and South Carolina.

To help prevent the spread of Biotype Q, the CDFA granted an immediate Research Authorization for use of a new generation of pesticide, Safari (Valent U.S.A. Corporation) to spot treat the Q strain of sweet potato whitefly in greenhouse environments. Safari is a neonicotinoid (active ingredient dinotefuran) whose treatment for whitefly consists of both a foliar spray and soil drench. More information on Safari can be found at http://www.greenbook.net and http://www.valent.com. Greenhouses in Nipomo and Encinitas, where the Q strain was found, were treated with Safari and the populations of *B. tabaci* Biotype Q were eliminated. After treatment, repeated collections at Nipomo site yielded only *B. tabaci* Biotype B. No whiteflies were detected in the Encinitas facility after treatment.

During this period (April-May, 2005), the CDFA conducted field surveys for *Bemisia tabaci* in five counties. The surveys were conducted in non-nursery settings surrounding the two nurseries that tested positive for Biotype Q (Nipomo and Encinitas), the University of California, the Riverside bio-control research facility, and within susceptible crop production areas of the southeastern portion of the state. Eighty-one residential properties and forty production crop sites were surveyed. At this time of the year, whitefly populations are low and as a result of the survey, 41 whitefly samples were collected and submitted for testing. All of these samples were either *B. tabaci* Biotype B or unrelated whitefly species. No samples from the environment were determined to be Biotype Q.

On May 16, Biotype Q was detected in a greenhouse of a segregated range in Temecula (Riverside County), CA on dead nettle, *Lamium maculatum*. The *Lamium* plugs were destroyed and the remaining nursery stock was treated with Safari. Further Q strain whitefly samples (collected before the Safari treatment) were determined on May 31, but by this time, the regulatory landscape regarding the new pest had changed. On May 26, the Arizona Department of Agriculture (ADA) Director's Administrative Order that quarantined the entire state of California for *Bemisia tabaci* Biotype Q was rescinded and the CDFA changed the rating of *B. tabaci* Biotype Q (sweet potato whitefly, Q-strain) from a Q-rated to a C-rated pest. And on June 1, a NAPPO Phytosanitary Alert was issued to announce that, based on the recommendations of the NPAG, the USDA APHIS PPQ will apply the "non-reportable/non-actionable" policy to the Q strain of *Bemisia tabaci*. An ad hoc Whitefly Taskforce has now formed under PPQ leadership to facilitate communication and cooperation among representatives of the agricultural industry, the research community, and governmental regulatory agencies in order to address potential problems posed by *B. tabaci* Biotype Q. The CDFA Plant Pest Diagnostics Laboratory has now stopped determining *B. tabaci* to biotype, unless specifically requested.

For more information on the biology and history of *Bemisia tabaci* in California please see the 1991 June-September CPPDR report.

NEW STATE RECORDS

***Aleurotuberculatus aucubae* (Kuwana)** (Aleyrodidae)
Aucuba whitefly

This whitefly is occasionally found on plant material coming into California from Japan. The species is native to Japan. It was described by I. Kuwana in 1911, while he was a student at Stanford University. Collection of aucuba whitefly on Elm (*Ulmus*) and *Xylosma* at Fresno, Fresno County, by Agricultural / Standards Specialist Wayne Peregrin on 23 July 2002 constitutes new State, County and Western Hemisphere records. Aucuba whitefly has been found since at several locations around the Fresno area. More recently, it was collected in Sacramento County from Rancho Cordova, on *Xylosma congestum* by Juli Jensen on 6 June 2004 and from Sacramento, on *Morus alba* by Laura Dea on 16 August 2005.

In Japan, and on intercepted plants, aucuba whitefly has been collected from the following hosts:

Aphananthe aspera	*Ficus erecta*	*Neillia uekii*
Aucuba japonica	*Hedera japonica*	*Osmanthus fragrans*
Chaenomeles sp.	*Llex crenata*	*Paedeira* sp.
Citrus aurantifolia	*Juglans sieboldiana*	*Pittosporum tobira*
C. aurantium	*Kerria japonica*	*Pyracantha* sp.
C. medica	*Ligustrum japonica*	*P. angustifolia*
C. natsudaidai	*Litsea glauca*	*Rhaphiolepis umbellata*
C. reticulata	*Lonica gracilis*	*Zanthophyllum piperitum*
Cretaegus sp.	*Morus alba*	
Eurya japonica	*Myrozylon japonicum*	

Figure. *Aleurotuberculatus aucubae* pupa on leaf underside of *Morus alba*

The pupae of aucuba whitefly are black, with little or no white waxy fringing (unlike most other melanic whitefly pupae). Each pupa has some ridges (carinae) at the anterior end that roughly outline the position of the ventral anterior legs and antennae. These ridges are usually coated with wax that is whiter than that on the rest of the insect, giving it the appearance of having pale "eyebrows" (see Figure). The pupae occur in low numbers, only one or two per leaf, and do not produce much honeydew. Aucuba whitefly is apparently not a pest in Japan. In New Zealand, it is listed as an actionable regulated pest on imported nursery stock of citrus, *Fortunella* and *Poncirus*. The species is not easy to find in California; its future as an economic pest in California is difficult to predict under these circumstances. If biological control were to become necessary, hymenopteran parasitoids of this insect (*Aphelinus* sp. and *Prospaltella* sp.) have been recorded in Japan.

***Ferrisia gilli* Gullan** (Pseudococcidae)
Gill's mealybug

This species was described by Penny Gullan (University of California, Davis) in Gullan, P.J., Downie, D.A. and Steffan, S.A. (2003) [Annals of the Entomological Society of America, 96(6): 723-737]. The elongate-oval body of an adult female may be up to 5 mm long, coated with mealy white wax except for two longitudinal pink stripes on the dorsum where the body shows through the wax covering; two straight, white wax filaments (up to 4 mm long) project from the rear end, and fine glassy wax filaments are produced from around the margins (see Figure).

Gill's mealybug is probably native to the southeastern USA (it has been recorded from Alabama, Georgia and Louisiana and is not known to be of any economic importance there). It is thought to have been accidentally introduced to California in the early 1960s. The species description was partly based on specimens collected on pistachio, almond and barnyard grass from Tulare County, collected between May and November 2002 by S.A. Stephan. Other Californian records include: 11 July 1968 on *Catalpa* sp. at Redding, Shasta County, collected by T. Haig; 25 July 2003 on grapes at Placerville, El Dorado County, collected by Lance Johnson; 6 June 2004 on *Xylosma congestum* in Rancho Cordova, Sacramento County, collected by Juli Jensen; and 4 October 2004 on non-commercial pistachio in a resident's orchard in Red Bluff, Tehama County, collected by Stoffel.

Gill's mealybug was reported in Colusa County on pistachios (Anonymous, Orchard Notes, June/July 2005: 2), and was also found on walnuts in Sutter County just across the Sacramento River, but the infested walnut grove was destroyed without the species identity being confirmed. Unverified reports from growers indicate that Gill's mealybug is also present on pistachios in Madera County. Specimens from these localities have not been seen by the Entomology Laboratory in Sacramento. This species is likely more widespread in California than has been documented. The

record of *F. gilli* on *Areca* palm from San Mateo County, mentioned by Gullan *et al.* (2003, p. 728), referred to interceptions that originated from Florida.

Figure. Adult female *Ferrisia gilli.* Photo ©D. Haviland, University of California Cooperative Extension.

Gill's mealybug is polyphagous, though most of the host plants recorded are deciduous shrubs or trees. There are three generations per year (Gullan *et al*., 2003). Damaging infestations have been recorded in commercial orchards of pistachio, almond and persimmon in Tulare County (especially on nut clusters). It is also present in two vineyards in El Dorado County, which are currently under chemical eradication programs. It was recently found on azalea nursery stock in Fresno County, and other crops such as walnuts may be hosts also. In back yards and greenhouses, this mealybug has been found on areca palm, azalea, barnyard grass, Chickasaw plum, eastern dogwood, grapes, Japanese aralia, magnolia, mulberry, nectarine, persimmon, poison ivy and yaupon; although this list is probably incomplete.

In commercial orchards of pistachios and almonds, Gill's mealybug develops dense infestations on aerial parts of the trees; these foul the nuts and foliage with honeydew excretions on which sooty mold develops. Direct feeding on the rachis or nut of pistachio can interfere with formation of the kernel and proper shell split. Heavy infestations are also associated with promotion of fungal pathogens, especially *Botryosphaeria dothidea* (Gullan *et al*., 2003). There is concern that Gill's mealybug may attack commercial grapes, with the potential to cause similar damage to vine mealybug (*Planococcus ficus*); however, observations so far indicate that grapes may not be a preferred host for this insect (Kris Godfrey, CDFA Biological Control, personal communication). Commercial orchards of other fruit and nut crops, and growing nurseries, may also be at risk. Traditional nut-harvesting practices seem to facilitate spread of this pest, and changes in practices are likely to reduce this risk. As there are no species of *Ferrisia* native to California, and chemical control on nuts late in the growing season is undesirable, classical biological control against *F. gilli* may be an option. Two species of *Pseudaphycus* parasitoid wasps have been recovered from Gill's mealybug. The amount of mortality that these parasites impart is still being investigated.

NEW COUNTY RECORDS

Aleurodicus dugesii (Cockerell) (Aleyrodidae)
Giant whitefly

This large whitefly is native to Mexico. It was found for the first time in California in San Diego in 1992 (see CPPDR 11(5-6): 78, 81). In 2002, it was found in two new counties. Collections were

made at Riverside, Riverside County on July 22 by State Detection Entomologist Gene Drake, and a collection was made by a local resident on July 31 at Victorville, San Bernadino County. In 2004, on 28 July, giant whitefly was found in Sacramento County in a resident's garden in Orangevale by M. Hutnick on *Xylosma congestum*; and 14 August, A. Booth found it on *Xylosma* in a resident's garden in San José, Santa Clara County. David Haviland collected it on *Xylosma* from the roadside in Bakersfield, Kern County on 18 August, and on 24 August, Ron Inman and Jim Codoni found giant whitefly on *Xylosma* in an ornamental planning in a park in Windsor, Solano County. This insect now occurs in: Imperial, Kern, Los Angeles, Orange, Riverside, Sacramento, San Bernadino, San Diego, San Luis Obispo, Santa Barbara, Santa Clara, Solano and Ventura Counties.

***Planococcus ficus* Signoret** (Pseudococcidae)
Vine mealybug

Since its original detection in Riverside County in 1994, vine mealybug has spread to a large part of the vine-growing regions of California. The recognition, distribution and economic importance of this grape vine pest has been discussed previously in CPPDR [13(1-2): 8,9, 1994], and in California Agriculture, 53(1): 4, 1999. Pheromone trapping of adult male mealybugs continues to help detect new infestations and locate colonies requiring augmentative biological control.

Following are the new county records of vine mealybug colonies, all collected on grape vines: Santa Maria, Santa Barbara County, collected 31 July 2000; Sonoma, Sonoma County, collected 14 August 2004; Galt, Sacramento County, collected 12 August 2002; Angwin, Napa County, collected 3 September 2002; San Ardo, Monterey County, collected 20 November 2002; Placerville, El Dorado County, collected 26 November 2002; Livermore, Alameda County, collected 7 October 2003; Walnut Grove, Solano County, collected 23 June 2004; Gilroy, Santa Clara County, collected 9 July 2004; Visalia, Tulare County, collected 14 July 2004; Lodi, San Joaquin County, collected 10 August 2004; Portola Valley, San Mateo County, collected 21 July 2005; and Ione, Amador County, collected 26 July 2005. Previously reported vine mealybug records were from Riverside, Kern, Fresno and San Luis Obispo Counties.

Males of *Planococcus ficus* are almost indistinguishable from those of *P. citri*, so the possibility that nursery records of trapped males may be of *P. citri* rather than vine mealybug is significant. The following counties have records based solely on trapped males: Stanislaus and Lake Counties, from sites growing small fruit (trapped in 2004); and from nurseries in Merced, Madera and San Mateo Counties (trapped in 2004 and 2005).

***Pulvinaria mesembryanthemi* (Vallot)** (Coccidae)
Ice plant scale

This soft scale is distributed virtually state-wide; it was discussed and illustrated by Gill (The Scale Insects of California, Part 1, 1988, pp. 89, 99). The most recent new county record for this insect was from Ukiah, Mendocino County on *Xylosma congestum* by Juli Jensen on 6 June 2004.

***Shivaphis celti* Das** (Aphididae)
Asian woolly hackberry aphid

This species has been discussed in CPPDR previously [21(1-3): 8,9, 2002]. Since the initial find in Merced in April 2002, the aphid has become widespread; it has been recorded from Alameda, Butte, Colusa, Glenn, Madera, Mariposa, Napa, Sacramento, San Bernardino, San Joaquin, Shasta, Solano, Stanislaus and Yolo counties.

LEPIDOPTERA

***Lymantria dispar* (Linnaeus)** (Lymantriidae)
Asian gypsy moth

The Asian strain of the gypsy moth (AGM) (see Figure) is potentially one of California's most destructive pests of shade, fruit, and ornamental trees. The AGM differs from the North American or European strain (EGM) in that it prefers coniferous trees, has females with flight capabilities, and tolerates colder temperatures. These qualities allow the AGM to have a larger potential range and greater dispersal capabilities, and therefore, this strain poses a heightened threat to the State.

Figure. Asian gypsy moth, *Lymantria dispar*, caterpillar (left), adult (right). Photos ©John H. Ghent, USDA Forest Service, from http://www.invasive.org/.

The CDFA Plant Pest Diagnostics lab runs several DNA tests, based on mitochondrial and nuclear markers, to estimate if an intercepted specimen is descended from AGM or EGM populations. These tests were largely developed by Douglas Prasher et al. at the USDA Otis Plant Protection Center in Massachusetts and by Tom Pfeifer et al. at the University of British Columbia. The first test determines the mitochondrial haplotype of the specimen by using two restriction enzymes (*Bam* HI and *Nla* III) to detect differences in mitochondrial DNA sequence. Typically, EGM is negative for both *Bam* HI and *Nla* III whereas AGM is positive for these restriction sites. There is a third mitochondrial haplotype where *Bam* HI is negative and *Nla* III positive. This is known as the "Siberian" mitotype. The "Siberian" mitotype is thought to originate in Asia, although its behavior is less well known than EGM and AGM strains. A second test is based on the nuclear marker, FS1. At this locus, AGM and EGM tend to have different alleles that are fixed (homozygous) in their populations. In some cases, however, specimens may be FS1 heterozygous, where both "Asian" and

"North American" alleles co-occur. Approximately 2% of the North American population of GM is known to be heterozygous at this locus. It is important to note that these markers are not directly related to any particular behavior. Therefore, behaviors such as female flight, host preference, cold tolerance, etc., cannot necessarily be known from the molecular profiles using these markers.

Since 2003, two male AGM have been detected and identified by our lab. Both showed the typical AGM profile (i.e., AGM mitotype, homozygous for the "Asian" allele at FS1). The first moth of this strain was found in Wilmington (Los Angeles County), near Long Beach Harbor, on June 26, 2003. The second AGM was collected on July 27 in San Pedro (Los Angeles County) near the US Navy Fuel Depot. Other adult GM specimens worthy of note include a "Siberian" mitotype, FS1 heterozygous male collected in July 2005 from Santa Ana (Orange County) and an EGM mitotype, FS1 heterozygous male collected from Vallejo (Solano County). Since the "Asian" FS1 allele is known to occur at low frequency within North American GM populations, this latter specimen was determined to be within the EGM strain. So far in 2005, five other EGM adults (with the typical profile; EGM mitotype, homozygous for FS1 "North American" alleles) have been collected from three different California counties (Alameda, Los Angeles, and San Benito).

***Lineodes elcodes* Dyar** (Pyraloidea: Crambidae).
A crambid moth

This species is a pest on night jessamine (*Cestrum nocturnum*). The caterpillars were first discovered in the vicinity of Santa Barbara by Guy Tingos and Jerry Davidson in 2003. It is a new U.S. record in addition to being new for California. *Lineodes elcodes* has had a continued presence on the host plant in the Santa Barbara area ever since, with populations in backyards and in a local canyon near a nursery (J. Davidson, pers. comm.). This species was previously only known from Mexico and not known for its caterpillar or host plant. The species was identified from the adult stage by pyraloid specialist M. Alma Solis of the Systematic Entomology Laboratory (USDA).

Figure. *Lineodes elcodes*, live adult (left), caterpillar and feeding damage on night jasmine (center), rolled leaf (top right) with cocoon wrapped inside (bottom right).

***Duponchelia fovealis* Zeller** (Pyraloidea: Crambidae)
A crambid moth

This species was found on begonia at a nursery in San Marcus in the San Diego area in 2004 and has not been reported in 2005. *Duponchelia fovealis* has been intercepted by APHIS over the last two

years from Europe (especially The Netherlands) on a variety of ornamental and vegetable crops. The caterpillars were identified by pyraloid specialist M. Alma Solis of the Systematic Entomology Laboratory (USDA).

***Asciodes gordialis* Guenee** (Pyraloidea: Crambidae)
Bougainvillea caterpillar

This species of pyraustine moth is new to California, with the *Bougainvillea* feeding caterpillars found by Eric Natwick in Holtville (Imperial Co.) in June 2005. This species was previously known from French Guiana, Jamaica, Central America, Florida, and South Carolina.

***Darna pallivitta* (Moore)** (Limacodidae)
Nettle caterpillar

The stinging caterpillars and cocoons of this invasive Asian limacodid species were imported to California from Hawaii in 2003-2005. On the Big Island of Hawaii *Darna pallivitta* continues to expand its range from the Panaewa nursery near Hilo. At present, *D. pallivitta* has not been found on other Hawaiian islands, but the occurrence of the caterpillars on no fewer than 45 plant species in 22 families is cause for concern in Hawaii and California. In collaboration with Arnold Hara (U. Hawaii) and Walter Nagamine (Hawaii Dept. of Agriculture), M. Epstein observed the spiny caterpillars and adults of the species at the Quarantine facility of the Hawaii Department of Agriculture in Oahu and in the field on the Big Island. It was noted that the female moths come to lights early compared to the males, an observation first noted by U. Hawaii graduate student C. Kishimoto. Epstein noted that the flights of the females appear to be unusually strong and the unusually large numbers of female moths were observed at lights near the Panaewa nursery.

***Thaumatotibia leucotreta* (Meyrick)** (Tortricidae)
False codling moth

The larval stages of the False Codling moth were found in Spanish Clementine Oranges imported to California from South African in June 2005. They were first identified by R. Garrison (PPDC) and verified by J. Brown (SEL) and M. Epstein (PPDC) in late June 2005.

THYSANOPTERA

***Neohydatothrips* sp. (probably *N. burungae* (Hood))** (Thripidae)
A thrips

A single specimen was collected in Chula Vista, San Diego County, on avocado leaves on 19 November 2004 by Dr. Mark Hoddle of U.C. Riverside. This is the first record of this thrips in California and the United States. Dr. Hoddle identified it as a new introduction in May 2005, based on molecular and morphological characters. In San Diego County, additional specimens were collected from backyards in Chula Vista in mid-June, and a few more were subsequently found in the commercial avocado-growing area around Fallbrook in mid- to late June 2005; however, none

could be found in Chula Vista after the hot spell in July. In early August 2005, Dr. Hoddle surveyed for *N. ?burungae* in Ventura, Santa Barbara and San Luis Obispo Counties but did not find any.

The current distribution of *N. ?burungae* suggests that it may have been present for some time in San Diego County. The similarity of *N. ?burungae* to *Scirtothrips perseae* Nakahara is probably why it has remained unnoticed until now (see Figure 1). Specimens of *N. ?burungae* can easily be confused with *S. perseae* unless they are properly slide mounted and identified by an expert. *N. ?burungae* appears to be established on avocadoes, but comprised only about 5% of the thrips sampled from this host in the CDFA survey. The failure to find *N. ?burungae* after the hot spell in July 2005 suggests that it does not thrive in hot, dry conditions. This environmental constraint may limit its distribution in California to coastal counties.

Figure 1. Dorsal view of *N. ?burungae* (left) and *S. persicae* (right).

California specimens agree well with the original description of *N. burungae* (Hood J.D., 1935, Journal of the New York Entomological Society XLIII, 150-153) but they have not yet been compared with type material. *Neohydatothrips burungae* was described from Barro Colorado Island, Panama, on an unidentified plant. The species has also been collected on avocado and mango flush growth from Guatemala, Honduras, Nicaragua and Mexico by Dr. Hoddle. The economic importance of *N. burungae* is not known but it was found to be the second commonest thrips on avocado in Mexico after *S. perseae*, comprising 35% of the thrips population on avocado at low altitudes (~500m) (Hoddle, M.S., Nakahara, S. & Phillips, P.A., 2002, Biological Control 24: 251-265).

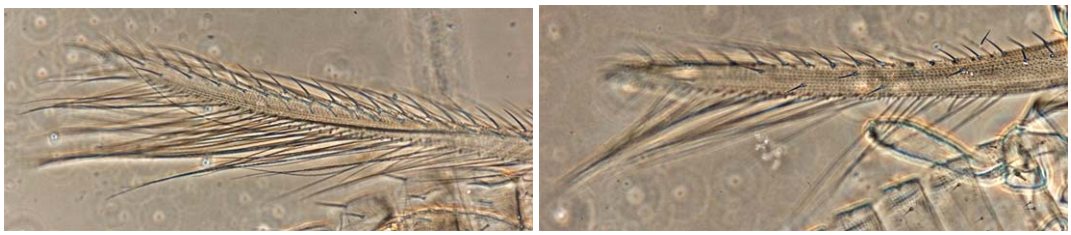


Figure 2. Left forewings of *N. ?burungae*(left) and *S. perseae* (right)

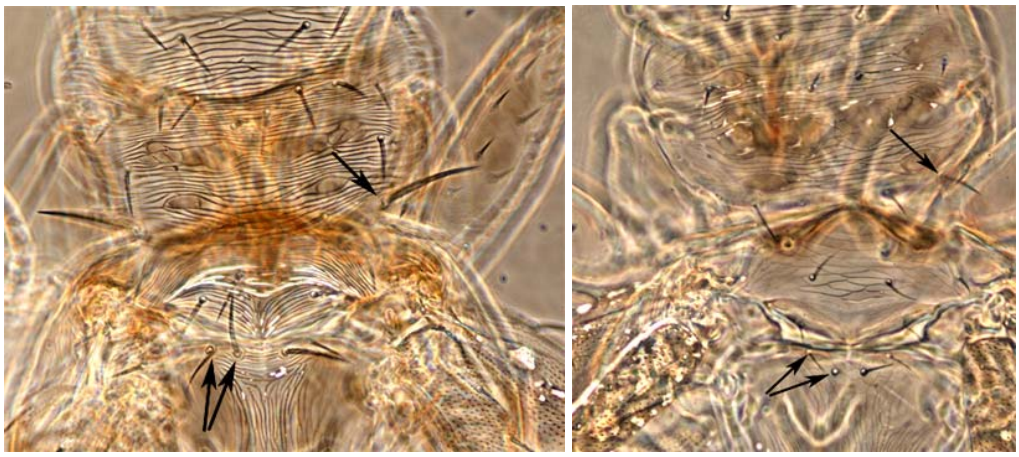


Figure 3. Thorax of *N. ?burungae* (left) and *S. perseae* (right)

On avocado in California, the commonest pest thrips is *S. perseae,* illustrated in CPPDR [16 (3-6): 33] and in Figures 1-3. *Scirtothrips perseae* has sizeable gaps in both rows of hairs on the forewing veins, whereas in *N. ?burungae* both these rows are complete. The relative sizes and positions of dorsal and marginal setae on the thorax also differ, and specimens of *N. ?burungae* are often more heavily pigmented than *S. perseae* (see Figures).

Pigmentation is highly variable in the genus *Neohydatothrips,* so this is not a reliable character to separate *N. ?burungae* from *S. perseae* (Mound and Marullo, 1996, Memoirs on Entomology, International, 6: 165-6).

In California, the most closely-related thrips species to *N. ?burungae* is the marigold thrips, *Hydatothrips samayunkur,* which was illustrated in CPPDR 14 (3-6): 30. It differs from *N. ?burungae* by having two dark bands across each forewing, and abdominal segments VII-X entirely dark brown. In *N. ?burungae*, the forewings are a relatively even yellowish grey and each abdominal segment is yellow with a brown stripe across the anterior edge (see Figure 1).

***Frankliniella hemerocallis* Crawford** (Thripidae)
Daylily thrips

This thrips was collected for the first time in California from Carpinteria, Santa Barbara County on daylilies at a nursery by County Agricultural Inspector Susan Bryant, 1 August 2002. The species probably occurs on daylilies all over California, but it is difficult to locate and collect because it lives down in the crown of the plant, in crevices between the leaf bases. Daylily thrips is dark brown except for the antennae, wings and the tips of the legs, which are yellow.

INSECT PEST SHEETS

The following are one-page color sheets documenting new or interesting pests relevant to California agriculture. We hope that these sheets will provide necessary information in recognizing these target pests. In this issue, we present sheets on a new eucalyptus leaf beetle (*Chrysophtharta m-fuscum*), citrus leaf miner (*Phyllocnistis citrella*), lesser snow scale (*Pinnaspis strachani*), Magnolia white scale (*Pseudalacaspis cockerelli*), and fern scale (*Pinnaspis aspidistrae*).

Leaf beetles - Chrysomelidae

Eucalyptus leaf beetle (*Chrysophtharta m-fuscum*)

- Recently (August 2003) found on landscape trees in N Tustin, Orange Co.; probably native to Australia.
- Host: Blue gum eucalyptus (*Eucalyptus globulus*).
- Field ID: Adults about 5-7 mm long, **gray** to **reddish brown**, hemispherical and flattened underneath. Legs with fourth tarsomere bilobed and covered ventrally with a thick set of bristles. Larvae **greenish-gray**, caterpillar-like, with head and thoracic legs black, and a pair of **fleshy eversible defense glands** on dorsum of abdominal segment 8; larvae feed on the young waxy growth of host plant. Elliptical, orange eggs laid in rows on the underside of leaves. Both adults and larvae are covered with a whitish pruinescence that helps camouflage them with the leaves on which they feed. Similar to Australian tortoise beetle (ATB), from which it can be distinguished by lighter color (both adult and larva of ATB are dark brown). Pupae **bright yellow**, probably in ground litter underneath the tree.

Prepared by Natalia von Ellenrieder, Research Associate, California State Collection of Arthropods, September 2003

Leafminer moths - Gracillariidae

Citrus leafminer (*Phyllocnistis citrella*)

- Introduced into FL, TX, LA, and S CA in Imperial and San Diego Co.
- Hosts: Lemon; Lime; Orange; Grapefruit; Pomelo (*Citrus* spp.)
- Field ID: Adult about 4 mm long, **white or silver with brown marks**. Larvae up to 3 mm long, **greenish yellow**, **maggot-like** lacking legs, with **marked intersegmental constrictions**; feed under epidermis on lower surface of newly emerging leaves, causing them to curl. Galleries diagnostic, transparent with a median reddish line of excrement, giving the leaves a silvery appearance underneath. Larva pupates within fold of leaf.

California Department of Food and Agriculture – Prepared by Natalia von Ellenrieder, November 2003

Armored scales - Diaspididae

Fern scale (*Pinnaspis aspidistrae*)

- Common in CA; intercepted in shipments from HI & FL.
- Hosts: Polyphagous; found on various palms and foliage.
  - Common hosts from HI: Bird of paradise (*Strelitzia*); Ti (*Cordyline terminalis*); *Monstera*; Lady palm (*Rhapis*); *Dracaena*; *Chamaedorea*; *Chrysalidocarpus*; Staghorn fern.
  - Common hosts from FL: *Ficus*; *Citrus*.
  - Common hosts from CA: Lily-turf (*Liriope* and *Ophiogon*); Mondo grass (*Mondo*); *Phoenix roebelenii*

- Field ID: Adult female 1.5-2.5 mm long, with oystershell-shape **brown** cover; body yellowish-brown, **without an apical cleft**. Immature male scale cover white, elongated and **tricarinate**. Indistinguishable from **Boxwood scale** in field, except when accompanied by males (males unknown in Boxwood scale).

Adult females with cover

Female body (cover removed)

Males (note tricarinate scales)

California Department of Food and Agriculture – Prepared by Natalia von Ellenrieder, August 2003

Armored scales - Diaspididae

Lesser snow scale (*Pinnaspis strachani*)

- Intercepted in shipments from HI & FL; occasionally found in LA nurseries.
- Hosts: Polyphagous; found on various palms and foliage.
  - Some common hosts are: Ti (*Cordyline terminalis*); Ginger; *Heliconia*; Curry; Bamboo; Queen palm (*Syagrus romanzoffianum*); Sago palm (*Cycas revoluta*); Bay leaves; *Anthurium*; Orchids; Coconut palm (*Cocos nucifera*); Areca palm (*Dypsis lutescens*); Kentia palm (*Howea*); Lady palm (*Rhapis*); *Ficus*; Taro; *Dracaena;* Lemon; Parlor palm (*Chamaedorea elegans*).

- Field ID: Adult female 2-3 mm long, with pyriform **opaque-white** cover; body yellowish-orange, **lacking apical cleft**. Immature male scale cover white, elongated and **tricarinate**.

Tricarinate immature male scale

Female body (cover removed)

California Department of Food and Agriculture - Prepared by Natalia von Ellenrieder, July 2003

Armored scales - Diaspididae

Magnolia white scale (*Pseudalacaspis cockerelli*)

- Intercepted in shipments from HI & FL; occasionally found in LA nurseries.
- Hosts: Polyphagous; found on various palms and foliage.
  - Some common hosts are: Bird of paradise (*Strelitzia*); Ti (*Cordyline terminalis*); Ginger; La Lot; Poke; *Protea*; Bamboo; Betel; Queen palm (*Syagrus romanzoffianum*); Sago palm (*Cycas revoluta*); Coconut palm (*Cocus nucifera*); Malongai; Bromeliads (*i.e.* Pineapple); Areca palm (*Dypsis lutescens*); Kentia palm (*Howea*); Lady palm (*Rhapis*); *Ficus*; Mango; Taro; *Gardenia*.

- Field ID: Adult female 2-3 mm long, with pyriform **snow-white** cover; body yellowish-orange, **with an apical cleft**. Immature male scale cover white, elongated and **slightly tricarinate**.

Slightly tricarinate immature male scale

Female body (cover removed)

California Department of Food and Agriculture – Prepared by Natalia von Ellenrieder, July 2003

RATING CHANGES IN ENTOMOLOGY, 2002-2005

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

Species	Order	Family	Rating Old	Rating New
Homaldera sabalella	Lepidoptera	Coleophoridae	Q	B
Homotoma ficus	Hemiptera	Psyllidae	B	C
Hyadaphis coriandri	Hemiptera	Aphididae	Q	C
Josephiella microcarpa	Hymenoptera	Agaonidae	Q	C
Lamellaxis clavulinas	Mollusca	Achatinidae	B	A
Lamellaxis gracilis	Mollusca	Achatinidae	B	A
Lamellaxis micra	Mollusca	Achatinidae	B	A
Lamellaxis spp.	Mollusca	Achatinidae	B	A
Lepidosaphes camelliae	Hemiptera	Diaspididae	B	C
Lepidosaphes destefanii	Hemiptera	Diaspididae	B	C
Lepidosaphes gloverii	Hemiptera	Diaspididae	B	C
Megaselia seticauda	Diptera	Phoridae	Q	B
Megastigmus pistaciae	Hymenoptera	Chalcidae	B	C
Melanaphis sacchari	Hemiptera	Aphididae	Q	C
Melanaphis spp.	Hemiptera	Aphididae	Q	C
Musca autumnalis	Diptera	Muscidae	B	C
Nasonovia ribisnigra	Hemiptera	Aphididae	Q	C
Neopinnaspis harperi	Hemiptera	Diaspididae	B	C
Nezara viridula	Hemiptera	Pentatomidae	B	C
Odontofroggatia galili	Hymenoptera	Agaonidae	Q	C
Odontofroggatia ishii	Hymenoptera	Agaonidae	Q	C
Opeas pumilum	Mollusca	Achatinidae	B	A
Opeas pyrgula	Mollusca	Achatinidae	B	A
Parlatoria oleae	Hemiptera	Coccidae	B	C
Parlatoria pittospori	Hemiptera	Diaspididae	B	C
Pheidole fervens	Hymenoptera	Formicidae	Q	C
Pheidole moerens	Hymenoptera	Formicidae	Q	C
Phereoeca praecox	Lepidoptera	Tineidae	Q	C
Phoracantha semipunctata	Coleoptera	Cerambycidae	B	C
Phyllocnistis citrella	Lepidoptera	Gracillariidae	Q	B
Podosesia syringae	Lepidoptera	Sesidae	B	C
Polistes dominulus	Hymenoptera	Vespidae	Q	C
Pollinia pollini	Hemiptera	Asterolecaniidae	B	C
Pomacea canaliculata	Mollusca	Ampullariidae	Q	A
Pseudanaphothrips achaetus	Thysanoptera	Thripidae	Q	C
Pseudantoninia arundinariae	Hemiptera	Pseudococcidae	B	C
Pseudococcus comstocki	Hemiptera	Pseudococcidae	B	C
Pseudococcus elisae	Hemiptera	Pseudococcidae	B	A
Pseudococcus microcirculus	Hemiptera	Pseudocccidae	B	C
Pyraustra volupialis	Lepidoptera	Pyralidae	Q	C
Rhizoecus arabicus	Hemiptera	Pseudococcidae	Q	C
Rhyparochromus saturnius	Hemiptera	Lygaeidae	Q	C
Scirtothrips perseae	Thysanoptera	Thripidae	Q	C
Siphanta acuta	Hemiptera	Flatidae	B	C

Species	Order	Family	Rating Old	Rating New
Sophonia rufofascia	Hemiptera	Cicadellidae	Q	C
Spectrobates ceratoniae	Lepidoptera	Pyralidae	B	C
Subulina octona	Mollusca	Subulinidae	B	A
Sycophila spp.	Hymenoptera	Eurytomidae	Q	C
Tetraleurodes perseae	Hemiptera	Aleyrodidae	B	C
Tildenia glochinella (formerly *Keiferia peniculo*)	Lepidoptera	Gelechiidae	B	C
Tinocallis ulmiparvifoliae	Hemiptera	Aphididae	Q	C
Tipula paludosa	Diptera	Tipulidae	A	B
Trachymela sloanei	Coleoptera	Chrysomelidae	Q	C
Vryburgia trionymoides	Hemiptera	Pseudococcidae	Q	C
Walkerella microcarpae	Hymenoptera	Agaonidae	Q	C
Xerotricha conspurata	Mollusca	Hygromiidae	Q	C

SCIENTIFIC NAME CHANGES

Since the scientific name changes noted and explained in CPPDR (2001) [20(4-6): 22-28], the following name changes have occurred.

Generic name changes

A European lygaeoid bug, *Rhyparochromus saturnius* (Hemiptera: Heteroptera: Rhyparochromidae), was recently reported to have been introduced into California (Henry, T. and D. Adamski, 1998, *Rhyparochromus saturnius* (Rossi) (Heteroptera: Lygaeoidea: Rhyparochromidae), a Palearctic seed bug newly discovered in North America. Journal of the New York Entomological Society 106: 132-140). Later, this species was transferred from the genus *Rhyparochromus* to *Xanthochilus*, making its correct name *Xanthochilus saturnius* (Henry, T.J. 2004. *Raglius alboacuminatu*s (Goeze) and *Rhyparochromus vulgaris* (Schilling) (Lygaeoidea: Rhyparochromidae): two Palearctic bugs newly discovered in North America. Proceedings of the Entomological society of Washington 106: 513-522). A photograph of this attractive insect is included (see Figure) to aid in its recognition.

Figure. Adult *Xanthochilus saturnius*.

Cottony maple scale (Hemiptera: Sternorrhyncha: Coccidae), previously known as *Pulvinaria innumerabilis*, is now placed as *Neopulvinaria innumerabilis* (see the catalogue entry at http://198.77.169.79/catalogs/coccidae/Neopulvinariainnumerabilis.htm).

Vanda orchid scale (Hemiptera: Sternorrhyncha: Diaspididae), previously known as *Genaparlatoria pseudaspidiotus*, has been restored to its original combination, *Parlatoria pseudaspidiotus* (see the catalogue entry at http://198.77.169.79/catalogs/diaspidi/Parlatoriapseudaspidiotus.htm). This species does not occur in California, but is frequently intercepted on mangoes at border stations.

The species of felted scales (Hemiptera: Sternorrhyncha: Eriococcidae) in California formerly in *Acanthococcus* are now placed in *Eriococcus* (Eriococcidae): this includes *E. araucariae, E. azaleae, E. coccineus, E. dubius, E. pittospori* and *E. quercus* (see the catalogue entry at http://198.77.169.79/catalogs/eriococc/Eriococcus.htm).

Species name changes and spelling corrections

The aphid (Hemiptera: Sternorrhyncha: Aphididae) previously known as *Greenidea formosana* has changed its name as a result of synonymy. It is now known as *Greenidea psidii* van der Goot (see Halbert, S.E., 2004. The genus *Greenidea* (Rhynchota: Aphididae) in the United States. Florida Entomologist, 87(2): 159-163). This species does not occur in California, but is sometimes intercepted on woody plants or cut foliage at plant quarantine inspection.

Masked scale (Hemiptera: Sternorrhyncha: Diaspididae), previously known as *Mycetaspis personatus*, should be spelled *Mycetaspis personata* (see the catalogue entry at http://198.77.169.79/catalogs/diaspidi/Mycetaspispersonata.htm). This species does not occur in California, but is frequently intercepted on mangoes at border stations.

Willow bark scale (Hemiptera: Sternorrhyncha: Eriococcidae), previously known as *Acanthococcus borealis*, has changed its name as a result of synonymy. It is now known as *Eriococcus azaleae* (see the catalogue entry at http://198.77.169.79/catalogs/eriococc/Eriococcusazaleae.htm).

The mealybug (Hemiptera: Sternorrhyncha: Pseudococcidae) previously known as *Dysmicoccus alazon* has changed its name as a result of synonymy. It is now known as *Dysmicoccus grassii* (see the catalogue entry at http://198.77.169.79/catalogs/pseudoco/Dysmicoccusgrassii.htm).

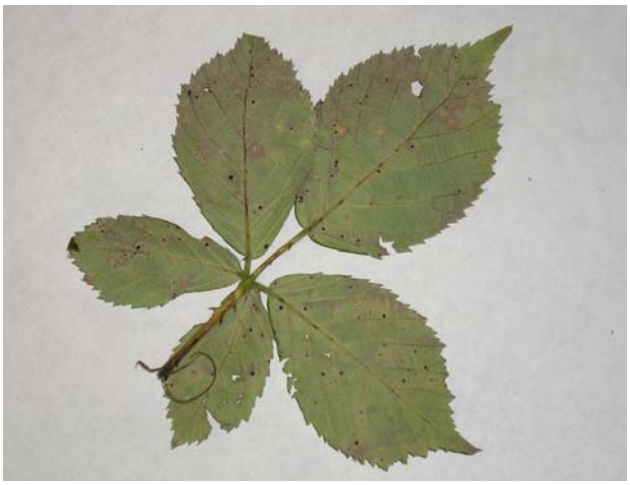
The malvastrum mealybug (Hemiptera: Sternorrhyncha: Pseudococcidae), previously known in Californian listings as *Ferrisia malvastrum*, should be spelled *Ferrisia malvastra* (see the catalogue entry at http://198.77.169.79/catalogs/pseudoco/Ferrisiamalvastra.htm).

SIGNIFICANT RECORDS IN PLANT PATHOLOGY

Blackberry rust

A species of rust fungus new to California was confirmed from weedy Himalayan blackberry in Del Norte and Humbolt counties on July 25, 2005. The rust had previously been found in southern Oregon in April 2005. Prior to the Oregon finds, the rust was not known in North America. The fungus, *Phragmidium violaceum*, can be quite virulent on certain species/varieties of blackberry. The rust has been used as a biological control of weedy blackberries in Australia, New Zealand and Chile. It is believed to be quite specific to blackberries as laboratory and field-testing overseas demonstrated that other plant species and even most commercial varieties are not susceptible.

The first detection in Oregon was on the weedy Himalayan blackberry near Gold Beach. Early survey found the rust spread along 100 square miles north of Cold Beach Oregon. Limited survey during June in Northern California did not detect the rust in Humboldt or Del Norte Counties. Subsequently the rust has spread rapidly across Oregon and has been found as far north as Washington state and south to California. The disease was initially confined to Himalayan blackberry but is now widespread and has now been found severely infecting several commercial plantings of Evergreen Blackberry in Oregon.



Figures*: Left – Black *Phragmidium violacearum* telial pustules on underside of Himalaya blackberry leaves, diagnostic for the rust disease on this host. Right – Circular "ringspot"-like symptoms typical of *Phragmidium violacearum* infection on upper surface of Himalayuan blackberry leaves. *additional photos, visit http://oregon.gov/ODA/PLANT/gallery_bbr.shtml

Symptoms include purple spots on the top of leaves with corresponding yellowish pustules on the under side of the leaf. As the rust matures, an additional spore type develops on the leaf. These black pustules help to distinguish the rust from other native blackberry rusts, including the endemic rust disease *Kuehneola uredinis* which has been quite severe this year. Severely infected plants have cupped leaves and Oregon infestations are experiencing premature dying of fruit.

The California samples were collected in Crescent City and Arcata by county Agriculture commissioner staff, and identified by Samatha Thomas.

Chrysanthemum white rust found in landscape in Napa County.

Chrysanthemum white rust (CWR) caused by Q-rated rust fungus, *Puccinia horiana*, was detected by Napa County Agriculture staff biologist, Vicki Kemmerer, in Napa, CA, in July 2005. What makes this detection so significant is that (1) it was detected for the first time in Napa County, and (2) rather than in a nursery, it was detected in a dooryard plant which had been growing in the landscape for many years (see Figure). Another plant, which the owner reportedly just purchased this season from a nursery outside the Napa area, also manifested symptoms and signs of the disease.

Circumstantial evidence suggests that the older landscape plant became infected as a result of the disease being recently introduced via the newly purchased plant. Surveys are in progress to determine the extent of the disease in the Napa area. The nursery from which the new plant was purportedly purchased is also being investigated to see if there might be an infestation at the nursery.

Figure. Dooryard specimen of *Chrysanthemum* collected by Napa County biologist Vicki Kemmerer, severely infected by CWR pathogen, *Puccinia horiana*.

Oak leaf spots cause public concern

Californians living in the Sierras and along the coast witnessed a severe outbreak of oak leaf spot diseases caused by fungi during this excessively wet spring. In some cases, entire hillsides of oaks exhibited masses of brown leaf canopies, and even premature defoliation, sending many residents into panic, thinking that the Sudden Oak Death (SOD) disease had suddenly appeared in their communities. Several samples were submitted to the PPD laboratory from various locations and counties, and three fungi were consistently detected: *Septoria quercicola, Cylindrosporium kelloggii*

(see Figure), and *Discula umbrinella.* The *Septoria* and *Cylindrosporium* cause leaf spot diseases, and the *Discula* causes a foliar disease usually referred to as "oak anthracnose."

While these pathogens are all normally present in low inoculum levels in any given year, doing a minimal to moderate amount of damage, this season was so excessively and consistently wet that these leaf spot pathogens had ample opportunity for infection, as well as production of abundant secondary inoculum for further spread and infection. The result was severe and widespread outbreaks of oak leaf diseases. Fortunately, additional damage is unlikely since the warmer, dryer weather is not conducive to these and other fungal leaf spot diseases. Thus, infected oak trees, if not abnormally weak due to other stress factors, should be able to put out a new crop of leaves to replace the diseased ones after they fall off. Reports on this phenomenon by UC Cooperative Extension as well as articles in local newspapers were published to explain the situation and to quell the public concern.

Figure. Leaf Spot fungi such as *Cylindrosporium kelloggii*, shown here infecting a black oak leaf, have resulted in severe cases of leaf spotting to outright defoliation of large oak trees throughout Northern California. The small black spots on the leaf are sites housing the fungal fruiting bodies, which produce numerous sticky, rain-splashed spores.

Sudden oak death update

Although sample collection and diagnosis for Sudden oak death (SOD) never completely ceased throughout 2005, the majority of SOD diagnostics activity ran from December 2004 through June 2005, during which time approximately 22,000 individual samples were processed by culturing and serological testing, and samples that yielded positive serological test results for the detection of *Phytophthora* spp. (including *P. ramorum*) led to several thousand follow-up DNA tests as well. The 2006 season promises to be equally as challenging as the 2005.season. This season, however, PPD will be using a different USDA-sanctioned technique for DNA testing, namely Real Time PCR. Some highlights of the 2005 SOD season included the following:

- PPD hired 17 Seasonal employees to process SOD laboratory samples, including one exclusively for molecular testing, and one for serological testing.
- An additional five permanent employees were temporarily assigned to the SOD project, including three exclusively for molecular testing, and one exclusively for serological testing.
- Nine laboratory rooms were temporarily dedicated to accommodate SOD project activities such as initial sample processing, molecular sample processing, molecular sample testing, serological testing, culture plate reading, data entry, and general office and meeting space.

Figure. Sudden oak death, *Phytophthora ramorum*, symptoms on rhododendron. Photo ©Joseph O'Brien, USDA Forest Service, www.forestryimages.org

- The first phase of expansion of the PPD molecular diagnostics laboratory was completed to accommodate USDA protocols for SOD testing, while still providing adequate space for other ongoing, mandated, PPD molecular diagnostics projects. The second phase for further expansion began in November in anticipation of expanded molecular diagnostics workloads.
- PPD Lab scientists gave numerous informational and training presentations to grower groups, nurseries, and county staff, *et al*. regarding SOD.
- PPD Lab scientists participated in various meetings, workshops, and training sessions with USDA to learn and implement new SOD protocols and techniques, as well as to prepare for Provisional Laboratory Accreditation of PPD by APHIS for SOD diagnostics.
- PPD lab staff was called upon routinely to consult with County staff on specific samples and nurseries, instructions for re-sampling, soil sampling, etc.
- PPD successfully performed and passed provisional laboratory tests as part of the APHIS Provisional Laboratory Accreditation process.
- PPD collaborated with, and gave laboratory support to, several SOD projects with other scientists and agencies outside of CDFA, including the following:
    - Identification and characterization of 4 new *Phytophthora* species, 2 of which can be mistaken for *P. ramorum* using the SOD molecular diagnostic protocol; Collaboration with University of Tennessee, Oregon Department of Agriculture, and University of California, Davis (UCD).
    - "SOD Busters" waste disposal research project in infested area.
    - Statewide Detection & Risk Modeling project with Sonoma State University.
    - Real-time PCR Ring Test with CPHST (APHIS).
    - Project with University of California Cooperative Extension (UCCE) involving seasonal timing of sampling activities for best chances of detection.
    - Project with UCD involving management and disposition of P. *ramorum*-infested soil in nurseries.
    - Forest Inventory Analysis (FIA) project with USFS.
    - Improved SOD diagnostics methods with USDA ARS.

SIGNIFICANT RECORDS IN NEMATOLOGY

California Statewide Nematode Survey Project

A statewide nematode survey project commenced in spring 2005. The project was cooperative with the US Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS) and funded by the National Cooperative Agricultural Pest Survey (CAPS) Program. The objective of this project was to obtain current information on the occurrence and distribution of economically harmful plant parasitic nematodes in the major cropping and nursery production areas of California. The target nematode species surveyed within California (the US western region) included 15 species (Table 2). Among these nematode species, some have never been detected in California's agricultural production sites, namely, the golden nematode (*Globodera rostochiensis*), potato cyst nematode (*G. pallida*), soybean cyst nematode (*Heterodera glycines*), false root-knot nematode (*Nacobbus aberrans*), pecan root-knot nematode (*Meloidogyne partityla*), reniform nematode (*Rotylenchulus reniformis*) and three species of dagger nematode (*Xiphinema bakeri, X. diversicaudatum* and *X. coxi*). These exotic nematode species could cause devastating losses to agricultural production and urban landscapes if they became established in California. Early detection of these pests is critical to the ability to eradicate incipient infestations. In addition, the survey also included economically important species, which are known to occur however, with a more or less limited distribution within California, namely, the potato rot nematode (*Ditylenchus destructor*), stem and bulb nematode (*Ditylenchus dipsaci*), and stubby root nematode (*Paratrichodorus spp*), and three species of root-knot nematodes (*Meloidogyne chitwoodi, M. hapla, M. javanica*). The survey will provide information on the occurrence and distribution of target exotic and non-exotic nematode species within the State. This information will enable 1) the implementation of appropriate eradication and regulatory management strategies, 2) California growers to export agricultural commodities, 3) alert states to new pathways of preventation/management, given the detection of exotic nematode species, and 4) expand and strength existing databases at CDFA and National Agricultural Pest Information Service (NAPIS)

Fig. 3. Symptoms, root-knot nematode, *Meloidogyne incognita* infestations on tomato roots.

Materials and Methods

Major Hosts

Six major plant hosts were selected for the survey based on the host ranges of the target nematode species (Table 1). Potato and tomato were surveyed as major hosts of the golden nematode, potato cyst nematode, Javanese root-knot nematode, northern root-knot nematode, Columbia root-knot nematode and false root-knot nematode. Grapevine was surveyed for the Javanese root-knot nematode, dagger nematodes, reniform nematode and stubby root nematodes. Pecans and walnuts were surveyed for pecan root-knot nematode. Alfalfa was surveyed for the stem and bulb nematode.

Table 1. Plant hosts, locations and sampling times to survey target nematode species in 2005.

Hosts	**Recommended sampling times**	**California counties with major production of survey host plants**
Alfalfa	Apr.-Sept.	Fresno, Glenn, Imperial, Santa Cruz, Sacramento, Yolo, Kings, Placer, Merced
Potatoes	May-Dec.	Kern, San Joaquin, Modoc, Imperial, Riverside, Marin, Contra Costa, San Mateo, San Francisco, Santa Cruz, Humboldt, San Diego, San Luis Obispo, Los Angeles
Tomato	May-Dec.	Fresno, Merced, San Joaquin, San Diego, Stanislaus, Yolo, Colusa
Grapevine	July-Oct.	Fresno, Madera, Tulare, Kern, Kings, Riverside, Napa, Sonoma, San Joaquin, Monterey, San Luis Obispo
Walnut	July-Oct.	San Joaquin, Tulare, Stanislaus, Butte, Tehama, Yolo

Sampling

Surveys were conducted statewide in the major production areas of hosts for each target nematode species. Table 1 lists the growing locations and sampling times for survey plant hosts based on California Agricultural Statistics published in October 2004, County Agricultural Commissioners records, and CDFA-PPD Nematology's Pest and Damage records. Composite samples were collected from different fields/nurseries for a given host within each county. A minimum of 20 composite samples per host per county was collected. For those counties with large production acreage, the collection of more samples (greater than 20 per host) was strongly encouraged. Sampling was also encouraged in those counties not listed but known to be minor producers of survey plants. Field samples from plant hosts that were not listed in the table, but existed as important crops in a given county, were also included in the statewide survey.

Fig. 1. Sampling for plant parasitic nematodes in grape vineyard (left) and a potato field (right).

Sampling was performed near crop maturity in late summer/fall or during harvest or post harvest, depending on the crop. Soil and root/tuber samples were collected from commercial fields, rows, and orchard plants. Samples were a composite of 15-20 cores per field (or partial field) of 1-5 acres. Composite samples were thoroughly mixed and a 600 cc (volume) sub-sample was collected for laboratory analyses. Nursery plants grown in containers, flats or fields, were sampled according to guidelines established in the Nursery Integrated Pest Manual (NIPM item 7.1).

Nematode Analyses

Nematode was extracted by gravity sieving/elutriation, sugar centrifugation, or mist extraction techniques for soil and plant tissue samples. Nematodes were identified using morphological and DNA analyses. For *Meloidogyne* species identification, nematode J2s were examined using a dissection microscope at a magnification of 250X that allow preliminary assignment to genus. *Meloidogyne* J2s were further identified by light microscopy on temporary glass slides. A minimum of 5 infective juveniles was analyzed from each sample. An individual J2 was placed in a 15µl drop of 0.1M Tris-HCl (pH8.0) on a slide and crushed with a dental file. The solution containing the crushed nematode was placed in individual PCR reaction tubes. A 10 µl portion of the solution serves as DNA template for PCR reaction. The PCR amplification is conducted with primer set C2F3/1108 (5' GGTCAATGTTCAGAAATTTGTGG 3' and 5'TACCTTTGACCAATCACGCT 3') located in the COII and 16S ribosomal mitochondrial genes respectively (Powers and Harris, JON25: 1-6). PCR reaction master mix consisted of 1.5 units of *Taq* Polymerase (Promega) in a 1x dilution of the 10x stock buffer, Mg^{+2} at 3.0mM final concentration, dNTPs each at 200µM final concentration, and each primer at 0.36µM final concentration. From the master mix, 15µl was aliquoted to a PCR tube containing 10µl nematode template and mixed thoroughly. Amplification conditions included an initial denaturation at 94ºC for 2 minutes, followed by 45 cycles of denaturation at 94ºC for 1 minute, annealed at 50ºC for 1 minute, and extension at 72ºC for 2 minutes. A final extension step was conducted for 2 minutes at 72ºC. The C2F3/1108 PCR amplification products (10µl of each mixed with 1.0µl loading buffer) were separated on a 1.0% agarose gel made with Agarose and 1.0x TAE buffer. The root-knot nematode species identifications were made by the size of amplification PCR (or PCR-RFLP) products. When root galls were available in some samples, *Meloidogyne* adult females were isolated for morphological and isozyme analyses as supplementary techniques for identification. All samples were analyzed at the CDFA, Plant Pest Diagnostics Nematology Lab.

Results

By the end of September 2005, a total of 200 soil and plant samples were processed and examined in the laboratory. Fifty-five samples were detected with *Meloidogyne* J2s. Among these root-knot nematode samples, four samples were identified as *M. arenaria* and two samples as *M. hapla*. *Meloidogyne incognita* was found in 36 samples, and 11 samples were positive detections of *M. javanica*. In addition, three samples produced novel PCR products, which were not identical to the available published information on the common *Meloidogyne* species. These nematode isolates have been inoculated on tomato var. Rutgers in the Nematology laboratory for further investigation. Other nematode species found included *Xiphinema americanum, Ditylenchus dipsaci, Pratylenchus thornei. P. scribneri, P. neglectus, P. penetrans, P. vulnus, and Macroposthonia (=Mesocriconema) xenoplax.* In addition, information of nematode species found in regulatory samples of California origin, within quarantine , nursery and commercial regulatory programs, will be included in the final survey results.

With the exception of the white-tip of rice nematode, *Aphelenchoides besseyi*, found in California grown paddy rice for export, no A and Q rated nematode pest species (Table 2) were found in the survey and in regulatory samples of California origin in 2005.

Table 2. List and previous detections of surveyed target nematode species in California

Common Name	Scientific Name	Counties where nematodes have been detected	Pest Rating
Golden Nematode	*Globodera rostochiensis*	Not detected	A
Potato Cyst Nematode	*Globodera pallida*	Not detected	A
Potato Rot Nematode	*Ditylenchus destructor*	Marin, Contra Costa, San Mateo, San Francisco, Santa Cruz, Humboldt, San Diego, San Luis Obispo, Los Angeles	B
Stem and Bulb Nematode	*Ditylenchus dipsaci*	Humboldt, Siskiyou, Del Norte, Modoc, Lassen, Plumas, Glenn, Mendocino, Sonoma, Napa, Marin, Contra Costa, Sacramento, San Joaquin, Calaveras, Alpine, San Mateo, Santa Cruz, Alameda, Santa Clara, Stanislaus, Merced, Madera, Fresno, San Benito, Monterey, Kings, San Luis Obispo, Kern, San Bernardino, Orange, Riverside, San Diego, Imperial	C
Northern Root-Knot Nematode	*Meloidogyne hapla*	Tehama, Colusa, Yolo, Sutter, Solano, Marin, Alameda, Contra Costa, Santa Clara, Santa Cruz, San Francisco, Monterey, San Joaquin, Stanislaus, Fresno, Kern, Santa Barbara, Ventura, Los Angeles, Riverside, San Bernardino, Imperial, Orange, San Diego	C
Javanese Root-Knot Nematode	*Meloidogyne javanica*	Glenn, Sutter, Napa, Yolo, San Joaquin, Contra Costa, Stanilaus, Merced, Madera, Fresno, Kings, Tulare, Kern, Ventura, Los Angeles, Orange, Riverside, San Bernardino, San Diego, Imperial	C
Columbia Root-Knot Nematode	*Meloidogyne chitwoodi*	Siskiyou, Modesto, Shasta, Tuolumne, Tulare, Monterey	B
Pecan Root-Knot Nematode	*Meloidogyne partityla*	Not detected	Q
False Root-Knot Nematode	*Nacobbus aberrans*	Not detected	A
Soybean Cyst Nematode	*Heterodera glycines*	Not detected	A
Dagger Nematodes	*Xiphinema bakeri* *X. diversicaudatum* *X. coxi*	Not detected in agricultural production sites	C A C
Reniform Nematode	*Rotylenchulus reniformis*	Not detected	A
Stubby Root Nematode	*Paratrichodorus* spp.	Widespread throughout State	D

DETECTION TABLES

PLANT PATHOLOGY

A & Q RATED DETECTIONS

Scientific Name		2002	2003	2004	2005	**Total**
Alternaria panax	Q			3	2	**5**
Botryotinia sphaerosperma	Q	3	1			**4**
Cercospora destructiva	Q			1		**1**
Cercosporidium bougainvilleae	Q	1	8			**9**
Coleosporium plumierae	Q		1	6		**7**
Colletotrichum capsici	Q		1			**1**
Kuehneola malvicola	Q	9	35	15	12	**71**
Phragmidium violacearum	Q				2	**2**
*Phytophthora ramorum***	Q	numerous	numerous	numerous	numerous	**numerous**
*Puccinia horiana***	Q	numerous	numerous	numerous	numerous	**numerous**
Sclerotinia sphaerosperma	Q	1				**1**
Tilletia indica	A	1	1	1		**3**
Totals		**15**	**47**	**26**	**14**	**104**

** not included in totals

NEMATOLOGY

A & Q RATED DETECTIONS

Scientific Name		2002	2003	2004	2005	**Total**
Aphelenchoides besseyi	A	1			11	**12**
Aphelenchoides sp.	Q				10	**10**
Meloidogyne sp.	Q	47				**47**
Pratylenchus sp.	Q	4				**4**
Radopholus similis	A	1		2		**3**
Rotylenchulus reniformis	A	2			1	**3**
Rotylenchulus sp.	Q		1	1	1	**3**
Xiphinema chambersi	Q	1	1	1		**3**
Xiphinema sp.	Q	1				**1**
Total		**57**	**2**	**4**	**23**	**86**

ENTOMOLOGY

NEW RECORDS (NORTH AMERICAN, NATIONAL, STATE, COUNTY)

Date	County	Scientific Name		Common Name	New To
6/5/2002	Orange	*Acizzia hakeae*	Q	a psyllid	County
7/22/2002	Riverside	*Aleurodicus dugesii*	C	Giant whitefly	County
7/31/2002	San Bernadino	*Aleurodicus dugesii*	C	Giant whitefly	County
7/28/2004	Sacramento	*Aleurodicus dugesii*	C	Giant whitefly	County
8/14/2004	Santa Clara	*Aleurodicus dugesii*	C	Giant whitefly	County
8/18/2004	Kern	*Aleurodicus dugesii*	C	Giant whitefly	County
8/24/2004	Solano	*Aleurodicus dugesii*	C	Giant whitefly	County
7/23/2002	Fresno	*Aleurotuberculatus aucubae*	Q	Aucuba whitefly	North America
6/6/2004	Sacramento	*Aleurotuberculatus aucubae*	Q	Aucuba whitefly	County
4/2/2004	Madera	*Apis mellifera* 'Africanized'	B	Africanized honey bee	County
10/23/2004	Yolo	*Arcitalitrus sylvaticus*	C	an introduced landhopper	County
9/6/2002	San Mateo	*Eucalyptolyma maideni*	C	Lemon gum lerp psyllid	County
10/6/2003	Santa Clara	*Eucalyptolyma maideni*	C	a psyllid	County
5/20/2004	Imperial	*Eucalyptolyma maideni*	C	a psyllid	County
7/25/03	El Dorado	*Ferrisia gilli*	B	Gill's mealybug	County
6/6/2004	Sacramento	*Ferrisia gilli*	B	Gill's mealybug	County
10/4/2004	Tehama	*Ferrisia gilli*	B	Gill's mealybug	County
8/1/2002	Santa Barbara	*Frankliniella hemerocallis*	Q	Daylily thrips	State
7/24/2003	Los Angeles	*Glyphodes* sp.	Q	a crambine pyralid moth	County
2/5/2003	Orange	*Graphocephala versuta*	Q	a leafhopper	State
7/11/2005	San Diego	*Neohydatothrips ?burungae*	Q	a thrips	National
5/25/2004	Fresno	*Orthotomicus erosus*	Q	a scolytid beetle	North America
8/23/2004	Merced	*Orthotomicus erosus*	Q	a scolytid beetle	County
8/24/2004	Tulare	*Orthotomicus erosus*	Q	a scolytid beetle	County
8/30/2004	Madera	*Orthotomicus erosus*	Q	a scolytid beetle	County
10/22/2003	Nevada	*Paradiplosis tumifex*	B	Balsam gall midge	County
10/22/2003	Plumas	*Paradiplosis tumifex*	B	Balsam gall midge	County
10/30/2003	Placer	*Paradiplosis tumifex*	B	Balsam gall midge	County
10/30/2003	Sierra	*Paradiplosis tumifex*	B	Balsam gall midge	County
11/19/2003	Amador	*Paradiplosis tumifex*	B	Balsam gall midge	County
8/25/2004	Tulare	*Paradiplosis tumifex*	B	Balsam gall midge	County
11/15/2004	Trinity	*Paradiplosis tumifex*	B	Balsam gall midge	County
11/23/2004	Tehama	*Paradiplosis tumifex*	B	Balsam gall midge	County
11/23/2004	Glenn	*Paradiplosis tumifex*	B	Balsam gall midge	County
12/7/2004	Lake	*Paradiplosis tumifex*	B	Balsam gall midge	County
10/14/2003	San Diego	*Phyllocnistis citrella*	A	Citrus leafminer	County
11/5/2003	Orange	*Phyllocnistis citrella*	A	Citrus leafminer	County
8/12/2002	Sacramento	*Planococcus ficus*	B	Vine mealybug	County

Date	County	Scientific Name		Common Name	New To
8/14/2002	Sonoma	*Planococcus ficus*	B	Vine mealybug	County
9/3/2002	Napa	*Planococcus ficus*	B	Vine mealybug	County
9/10/2002	Yolo	*Planococcus ficus*	B	Vine mealybug	County
11/20/2002	Monterey	*Planococcus ficus*	B	Vine mealybug	County
11/26/2002	El Dorado	*Planococcus ficus*	B	Vine mealybug	County
10/7/2003	Alameda	*Planococcus ficus*	B	Vine mealybug	County
6/23/2004	Solano	*Planococcus ficus*	B	Vine mealybug	County
7/9/2004	Santa Clara	*Planococcus ficus*	B	Vine mealybug	County
7/14/2005	Tulare	*Planococcus ficus*	B	Vine mealybug	County
8.10/2005	San Joaquin	*Planococcus ficus*	B	Vine mealybug	County
7/26/2005	Amador	*Planococcus ficus*	B	Vine mealybug	County
11/6/2004	San Diego	*Polygyra* sp.	C	a snail	State
10/7/2003	Mendocino	*Pulvinaria mesembryanthemi*	C	Ice plant scale	County
4/12/2002	Merced	*Shivaphis celti*	Q	an aphid	State
5/17/2002	Madera	*Shivaphis celti*	Q	an aphid	County
6/3/2002	Sacramento	*Shivaphis celti*	Q	an aphid	County
6/25/2002	San Joaquin	*Shivaphis celti*	Q	an aphid	County
7/3/2002	Fresno	*Shivaphis celti*	Q	an aphid	County
9/17/2002	Glenn	*Shivaphis celti*	Q	an aphid	County
9/19/2002	Mariposa	*Shivaphis celti*	Q	an aphid	County
9/20/2002	Colusa	*Shivaphis celti*	Q	an aphid	County
10/28/2002	San Bernadino	*Shivaphis celti*	Q	an aphid	County
6/3/2003	Napa	*Shivaphis celti*	Q	an aphid	County
8/14/2004	Alameda	*Shivaphis celti*	Q	an aphid	County
8/24/2004	Butte	*Shivaphis celti*	Q	an aphid	County
8/19/2004	Shasta	*Shivaphis celti*	Q	an aphid	County
10/18/2002	Solano	*Shivaphis celti*	Q	an aphid	County
4/18/2002	Stanislaus	*Shivaphis celti*	Q	an aphid	County
8/26/2002	Yolo	*Shivaphis celti*	Q	an aphid	County
6/20/2002	San Joaquin	*Sophonia rufofascia*	C	a leafhopper	County
4/30/2002	San Joaquin	*Thamnotettix zelleri*	C	a leafhopper	County
8/6/2003	Humboldt	*Tipula oleracea*	Q	Common crane fly	State
9/16/2003	Del Norte	*Tipula oleracea*	Q	Common crane fly	County
7/13/2004	Monterey	*Tipula oleracea*	Q	Common crane fly	County
7/27/2004	Yolo	*Tipula oleracea*	Q	Common crane fly	County
3/15/2002	Imperial	*Trialeurodes variabilis*	Q	Papaya whitefly	State

ENTOMOLOGY

A, B & Q RATED DETECTIONS FROM BORDER STATIONS

Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Coleoptera	Buprestidae	*Chalcophora virginiensis*	Q			1		**1**
Coleoptera	Cerambycidae	*Monochamus clamator*	Q			1		**1**
Coleoptera	Cerambycidae	*Monochamus* sp.	Q			1		**1**
Coleoptera	Chrysomelidae	*Cerotoma trifurcata*	A			1		**1**
Coleoptera	Chrysomelidae	*Diabrotica punctata howardi*	A		1			**1**
Coleoptera	Chrysomelidae	*Phyllotreta* sp.	Q	1				**1**
Coleoptera	Cucujidae	*Cathartus quadricollis*	Q		1			**1**
Coleoptera	Curculionidae	*Conotrachelus* sp.	Q			1		**1**
Coleoptera	Curculionidae	*Curculio caryae*	A	1				**1**
Coleoptera	Curculionidae	*Cylas formicarius*	A			1	1	**2**
Coleoptera	Curculionidae	*Sphenophorus* sp.	Q				1	**1**
Coleoptera	Nitidulidae	*Aethina tumida*	Q				1	**1**
Coleoptera	Scarabaeidae	*Anomala luteipennis*	A			1		**1**
Coleoptera	Scarabaeidae	*Anomala* sp.	Q			2		**2**
Coleoptera	Scarabaeidae	*Cyclocephala* sp.	Q	2				**2**
Coleoptera	Scarabaeidae	*Diplotaxis* sp.	Q			1		**1**
Coleoptera	Scarabaeidae	*Eutheola* sp.	Q	1				**1**
Coleoptera	Scarabaeidae	*Phyllophaga* sp.	Q	4	4		5	**13**
Coleoptera	Scarabaeidae	*Popillia japonica*	A	10		1		**11**
Coleoptera	Scarabaeidae	*Serica* sp.	Q	1				**1**
Coleoptera	Scolytidae	*Ips* sp.	Q			1		**1**
Diptera	Cecidomyiidae	*Dasineura mali*	Q	53		4		**57**
Diptera	Cecidomyiidae	*Dasineura* sp.	Q				1	**1**
Diptera	Phoridae	*Megaselia seticauda*	B	4	40	10	119	**173**
Diptera	Phoridae	*Megaselia* sp.	Q	2	1			**3**
Diptera	Tephritidae	*Anastrepha ludens*	A		3	4	7	**14**
Diptera	Tephritidae	*Anastrepha* sp.	A		9	7	6	**22**
Diptera	Tephritidae	*Ceratitis capitata*	A	3			1	**4**
Diptera	Tephritidae	*Rhagoletis indifferens*	A	120	12	2	2	**136**
Diptera	Tephritidae	*Rhagoletis pomonella*	B	21	1	4		**26**
Diptera	Tephritidae	*Rhagoletis* sp.	Q	1	5	1		**7**
Diptera	Tephritidae	*Rhagoletis suavis*	A	2				**2**
Diptera	Tephritidae	*Tetraeuaresta sp*	Q			1		**1**
Gastropoda	Bradybaenidae	*Bradybaena similaris*	B	2	12	7	8	**29**
Gastropoda	Bulimulidae	*Orthalicus floridensis*	Q	1				**1**
Gastropoda	Camaenidae	*Zachrysia provisoria*	Q	2			2	**4**
Gastropoda	Helicidae	*Cepaea* sp.	Q			1		**1**

Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Gastropoda	Neritidae	*Nerita* sp.	Q	1				**1**
Gastropoda	Polygyridae	*Polygyra* sp.	Q	3	2			**5**
Gastropoda	Succineidae	*Succinea* sp.	Q	5				**5**
Gastropoda	Zonitidae	*Oxychilus* sp.	Q	1				**1**
Hemiptera	Aleyrodidae	*Aleurocerus* sp.	Q			1		**1**
Hemiptera	Aleyrodidae	*Aleurotrachelus* sp.	Q				1	**1**
Hemiptera	Aleyrodidae	*Aleurotulus* sp.	Q			1		**1**
Hemiptera	Aleyrodidae	*Dialeurodes kirkaldyi*	Q			1		**1**
Hemiptera	Alydidae	*Alydus* sp.	Q			1		**1**
Hemiptera	Asterolecaniidae	*Asterolecanium* sp.	Q				2	**2**
Hemiptera	Cercopidae	*Lepyronia sp*	Q			1		**1**
Hemiptera	Cercopidae	*Prosapia bicincta*	Q		2	1	2	**5**
Hemiptera	Cicadellidae	*Draeculacephala portola*	Q	1				**1**
Hemiptera	Cicadellidae	*Empoasca* sp.	Q		1			**1**
Hemiptera	Cicadellidae	*Homalodisca coagulata*	B	1	1			**2**
Hemiptera	Cicadellidae	*Paraphlepsius continuus*	Q		1			**1**
Hemiptera	Cicadellidae	*Paraphlepsius fuscipennis*	Q	1				**1**
Hemiptera	Cicadidae	*Magicicada* sp.	Q	1				**1**
Hemiptera	Coccidae	*Ceroplastes floridensis*	A		1			**1**
Hemiptera	Coccidae	*Ceroplastes* sp.	Q			1	1	**2**
Hemiptera	Coccidae	*Coccus acutissimus*	Q	1				**1**
Hemiptera	Coccidae	*Coccus formicarii*	Q	1				**1**
Hemiptera	Coccidae	*Milviscutulus mangiferae*	Q				2	**2**
Hemiptera	Coccidae	*Pulvinaria psidii*	B	1				**1**
Hemiptera	Coreidae	*Acanthocephala declivis*	Q			1		**1**
Hemiptera	Cydnidae	*Dallasiellus* sp.	Q	1				**1**
Hemiptera	Cydnidae	*Melanaethus* sp.	Q			1		**1**
Hemiptera	Diaspididae	*Acutaspis scutiformis*	Q			2		**2**
Hemiptera	Diaspididae	*Acutaspis* sp.	Q				2	**2**
Hemiptera	Diaspididae	*Aonidiella aurantii*	B	35	3	21	19	**78**
Hemiptera	Diaspididae	*Aonidiella orientalis*	A	1			1	**2**
Hemiptera	Diaspididae	*Aspidiotus destructor*	A				1	**1**
Hemiptera	Diaspididae	*Aulacaspis tubercularis*	Q	1	19	63	146	**229**
Hemiptera	Diaspididae	*Aulacaspis yasumatsui*	Q				1	**1**
Hemiptera	Diaspididae	*Diaspidiotus* sp.	Q				1	**1**
Hemiptera	Diaspididae	*Hemiberlesia diffinis*	Q				1	**1**
Hemiptera	Diaspididae	*Howardia biclavis*	A	1				**1**
Hemiptera	Diaspididae	*Ischnaspis longirostris*	A		2		16	**18**
Hemiptera	Diaspididae	*Lepidosaphes beckii*	B	15	3	27	13	**58**
Hemiptera	Diaspididae	*Mycetaspis personata*	Q		4	1	53	**58**

Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Hemiptera	Diaspididae	*Parlatoria citri*	Q			1		**1**
Hemiptera	Diaspididae	*Parlatoria pergandii*	B	17	4	66	55	**142**
Hemiptera	Diaspididae	*Parlatoria proteus*	A				1	**1**
Hemiptera	Diaspididae	*Parlatoria pseudaspidiotus*	A	31	40	100	21	**192**
Hemiptera	Diaspididae	*Pinnaspis* sp.	Q				3	**3**
Hemiptera	Diaspididae	*Pinnaspis strachani*	A		1	13	6	**20**
Hemiptera	Diaspididae	*Pseudaonidia trilobitiformis*	Q	2	5	4	8	**19**
Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	2		1		**3**
Hemiptera	Diaspididae	*Pseudoparlatoria parlatorioides*	A				1	**1**
Hemiptera	Diaspididae	*Radionaspis indica*	Q		1		4	**5**
Hemiptera	Diaspididae	*Selenaspidus articulatus*	A			1	1	**2**
Hemiptera	Diaspididae	*Thysanofiorinia nephelii*	Q	1	2			**3**
Hemiptera	Diaspididae	*Unaspis citri*	A			6	8	**14**
Hemiptera	Diaspididae	*Unaspis yanonensis*	Q	2				**2**
Hemiptera	Dictyopharidae	*Nersia florens*	Q	1				**1**
Hemiptera	Lygaeidae	*Eremocoris* sp.	Q				1	**1**
Hemiptera	Lygaeidae	*Myodocha* sp.	Q	2		1		**3**
Hemiptera	Lygaeidae	*Nysius* sp.	Q	1	1		3	**5**
Hemiptera	Lygaeidae	*Ozophora sp*	Q			1		**1**
Hemiptera	Lygaeidae	*Ozophora* sp.	Q				1	**1**
Hemiptera	Lygaeidae	*Pseudopamera* sp.	Q	2	1			**3**
Hemiptera	Miridae	*Dicrooscytus* sp.	Q				1	**1**
Hemiptera	Miridae	*Psallus* sp.	Q	1				**1**
Hemiptera	Phylloxeridae	*Phylloxera* sp.	Q	1				**1**
Hemiptera	Pseudococcidae	*Dysmicoccus grassii*	Q				3	**3**
Hemiptera	Pseudococcidae	*Dysmicoccus hurdi*	Q				1	**1**
Hemiptera	Pseudococcidae	*Dysmicoccus* sp.	Q				2	**2**
Hemiptera	Pseudococcidae	*Dysmicoccus texensis*	Q				1	**1**
Hemiptera	Pseudococcidae	*Ferrisia* sp.	Q				1	**1**
Hemiptera	Pseudococcidae	*Ferrisia virgata*	B			3		**3**
Hemiptera	Pseudococcidae	*Maconellicoccus hirsutus*	A			2		**2**
Hemiptera	Pseudococcidae	*Paracoccus marginatus*	Q				1	**1**
Hemiptera	Pseudococcidae	*Paracoccus* sp.	Q				1	**1**
Hemiptera	Pseudococcidae	*Planococcus* sp.	Q				1	**1**
Hemiptera	Pseudococcidae	*Pseudococcus jackbeardsleyi*	Q				1	**1**
Hemiptera	Pseudococcidae	*Pseudococcus obscurus*	Q			1		**1**
Hemiptera	Pseudococcidae	*Pseudococcus odermatti*	Q			1		**1**
Hemiptera	Pseudococcidae	*Pseudococcus* sp.	Q	1		1	5	**7**

Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Hemiptera	Pseudococcidae	*Rhizoecus hibisci*	Q		1			**1**
Hemiptera	Psyllidae	*Pachypsylla* sp.	Q	1				**1**
Hemiptera	Tingidae	*Corythucha* sp.	Q			1		**1**
Hymenoptera	Apidae	*Apis mellifera* 'Africanized'	B		1		1	**2**
Hymenoptera	Cynipidae	*Andricus* sp.	Q	1				**1**
Hymenoptera	Cynipidae	*Callirhytis batatoides*	Q	1				**1**
Hymenoptera	Formicidae	*Anoplolepis longipes*	Q	1				**1**
Hymenoptera	Formicidae	*Brachymyrmex* sp.	Q		1			**1**
Hymenoptera	Formicidae	*Camponotus abdominalis*	Q		2	3		**5**
Hymenoptera	Formicidae	*Camponotus floridanus*	Q		1			**1**
Hymenoptera	Formicidae	*Camponotus* sp.	Q	16	25	21	16	**78**
Hymenoptera	Formicidae	*Colobopsis* sp.	Q				1	**1**
Hymenoptera	Formicidae	*Crematogaster* sp.	Q	1	3			**4**
Hymenoptera	Formicidae	*Hypoponera* sp.	Q			1	4	**5**
Hymenoptera	Formicidae	*Monomorium floricola*	Q	1		1		**2**
Hymenoptera	Formicidae	*Monomorium* sp.	Q	2	2	1		**5**
Hymenoptera	Formicidae	*Myrmicini* sp.	Q				2	**2**
Hymenoptera	Formicidae	*Ochetomyrmex* sp.	Q			1		**1**
Hymenoptera	Formicidae	*Odontomachus* sp.	Q	2		1	1	**4**
Hymenoptera	Formicidae	*Paratrechina* sp.	Q		1			**1**
Hymenoptera	Formicidae	*Pheidole megacephala*	Q	1	3	9	2	**15**
Hymenoptera	Formicidae	*Pheidole* sp.	Q	16	33	12	19	**80**
Hymenoptera	Formicidae	*Ponera* sp.	Q	4	2			**6**
Hymenoptera	Formicidae	*Pseudomyrmex* sp.	Q		1			**1**
Hymenoptera	Formicidae	*Solenopsis geminata*	A			1		**1**
Hymenoptera	Formicidae	*Solenopsis invicta*	A	117	111	115	46	**389**
Hymenoptera	Formicidae	*Solenopsis* sp.	Q	16	65	18	11	**110**
Hymenoptera	Formicidae	*Tapinoma* sp.	Q		1			**1**
Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	7	18	7	1	**33**
Hymenoptera	Formicidae	*Technomyrmex* sp.	Q	1				**1**
Hymenoptera	Formicidae	*Wasmannia* sp.	Q			1		**1**
Isopoda	Armadillidiidae	*Armadillidium* sp.	Q	1				**1**
Lepidoptera	Coleophoridae	*Coleophora* sp.	Q	4				**4**
Lepidoptera	Gracillariidae	*Conopomorpha litchiella*	A	6	1			**7**
Lepidoptera	Gracillariidae	*Conopomorpha* sp.	Q	1				**1**
Lepidoptera	Gracillariidae	*Marmara* sp.	Q		1	1	1	**3**
Lepidoptera	Lasiocampidae	*Malacosoma americanum*	A	1	3	1	1	**6**
Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	21	9			**30**
Lepidoptera	Lymantriidae	*Lymantria dispar*	A	14	6	2	2	**24**
Lepidoptera	Lymantriidae	*Orgyia leucostigma*	A	3				**3**

Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Lepidoptera	Lymantriidae	*Orgyia* sp.	Q	7	3			**10**
Lepidoptera	Lyonetiidae	*Bucculatrix* sp.	Q	1				**1**
Lepidoptera	Noctuidae	*Euxoa* sp.	Q	2	1	1		**4**
Lepidoptera	Noctuidae	*Rachiplusia ou*	Q	1				**1**
Lepidoptera	Noctuidae	*Spodoptera* sp.	Q		1	1		**2**
Lepidoptera	Psychidae	*Apterona helix*	B		1			**1**
Lepidoptera	Psychidae	*Thyridopteryx ephemeraeformis*	A		1			**1**
Lepidoptera	Pyralidae	*Diaphania nitidalis*	B	1		2	2	**5**
Lepidoptera	Pyralidae	*Diatraea crambioides*	A	1				**1**
Lepidoptera	Pyralidae	*Diatraea saccharalis*	A	1				**1**
Lepidoptera	Pyralidae	*Leucinodes* sp.	Q	1				**1**
Lepidoptera	Pyralidae	*Ostrinia nubialis*	A	5	1	1		**7**
Lepidoptera	Tortricidae	*Cydia caryana*	A	5	3	3	3	**14**
Lepidoptera	Tortricidae	*Cydia* sp.	Q	2	3	1		**6**
Lepidoptera	Tortricidae	*Grapholita* sp.	Q		1			**1**
Lepidoptera	Tortricidae	*Thaumatotibia leucotreta*	Q				6	**6**
Orthoptera	Acrididae	*Melanoplus* sp.	Q	1				**1**
Orthoptera	Blattidae	*Periplaneta* sp.	Q	3				**3**
Orthoptera	Phasmatidae	*Carausius morosus*	Q		1			**1**
Orthoptera	Tettigoniidae	*Montezumina modesta*	Q				1	**1**
Pelecypoda	Dreisseniidae	*Dreissena polymorpha*	Q	5	2	3	7	**17**
Thysanoptera	Thripidae	*Frankliniella* sp.	Q				1	**1**
Totals				**676**	**523**	**687**	**675**	**2561**

ENTOMOLOGY

A & Q RATED DETECTIONS BY COUNTY (NON-BORDER STATIONS)

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Alameda	Acari	Eriophyidae	*Aceria litchii*	Q		1			**1**
San Mateo	Acari	Tetranychidae	*Eotetranychus* sp.	Q		1			**1**
San Mateo	Acari	Tetranychidae	*Oligonychus* sp.	Q			1		**1**
San Mateo	Acari	Tetranychidae	*Tetranychus* sp.	Q		1	2		**3**
San Mateo	Coleoptera	Anthribididae	*Araecerus fasciculatus*	A		2			**2**
San Mateo	Coleoptera	Anthribididae	*Araecerus* sp.	Q	3				**3**
San Mateo	Coleoptera	Anthribididae	*Exillis lepidus*	Q		1			**1**
Los Angeles	Coleoptera	Bostrichidae	*Amphicerus* sp.	Q	1				**1**
San Mateo	Coleoptera	Bostrichidae	*Rhyzopertha* sp.	Q		1			**1**
Humboldt	Coleoptera	Bostrichidae	*Sinoxylon* sp.	Q		1			**1**
Los Angeles	Coleoptera	Bostrichidae	*Sinoxylon* sp.	Q		1			**1**
Yolo	Coleoptera	Cerambycidae	*Axestinus obscurus*	Q	1				**1**
San Bernadino	Coleoptera	Cerambycidae	*Batocera* sp.	Q		1			**1**
San Luis Obispo	Coleoptera	Cerambycidae	*Chlorophorus* sp.	Q		1			**1**
Alameda	Coleoptera	Cerambycidae	*Chlorophorus strobilicola*	Q			2		**2**
Fresno	Coleoptera	Cerambycidae	*Chlorophorus strobilicola*	Q		1			**1**
San Diego	Coleoptera	Cerambycidae	*Euburia* sp.	Q	1				**1**
San Diego	Coleoptera	Cerambycidae	*Neoclytus* sp.	Q	1				**1**
Alameda	Coleoptera	Cerambycidae	*Sybra alternans*	A		1		1	**2**
San Joaquin	Coleoptera	Cerambycidae	*Sybra alternans*	A			1		**1**
San Luis Obispo	Coleoptera	Cerambycidae	*Sybra alternans*	A		1			**1**
San Mateo	Coleoptera	Cerambycidae	*Sybra alternans*	A	3	17	6		**26**
Tulare	Coleoptera	Chyrsomelidae	*Cerotoma trifurcata*	A	1				**1**
San Diego	Coleoptera	Chyrsomelidae	*Leptinotarsa decemlineata*	A		1			**1**
Ventura	Coleoptera	Chyrsomelidae	*Leptinotarsa decemlineata*	A			1		**1**
Sonoma	Coleoptera	Coccinellidae	*Platyomus lividigaster*	Q	1				**1**
San Mateo	Coleoptera	Colydiidae	*Colobicus parilis*	Q		1			**1**
San Mateo	Coleoptera	Cucurlionidae	*Dryophthorus homoeorhynchus*	Q			1		**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Coleoptera	Curculionidae	*Caulophilus* sp.	Q		2			**2**
San Mateo	Coleoptera	Curculionidae	*Cosmopolites sordidus*	Q		1			**1**
San Mateo	Coleoptera	Curculionidae	*Curculio* sp.	Q	2				**2**
San Mateo	Coleoptera	Curculionidae	*Cylas formicarius*	A			1		**1**
San Mateo	Coleoptera	Curculionidae	*Cylas formicarius elegantulus*	A	3				**3**
San Diego	Coleoptera	Curculionidae	*Diaprepes abbreviatus*	A	1				**1**
Humboldt	Coleoptera	Curculionidae	*Diocalandra taitensis*	A	1	1			**2**
Sacramento	Coleoptera	Curculionidae	*Dysticheus* sp.	Q		1			**1**
San Joaquin	Coleoptera	Curculionidae	*Myllocerus* sp.	Q	1				**1**
San Mateo	Coleoptera	Curculionidae	*Myllocerus* sp.	Q		1			**1**
San Mateo	Coleoptera	Curculionidae	*Orchidophilus* sp.	Q		1			**1**
Alameda	Coleoptera	Curculionidae	*Oxydema longula*	Q			1		**1**
San Mateo	Coleoptera	Curculionidae	*Oxydema longula*	Q	1		1		**2**
San Mateo	Coleoptera	Curculionidae	*Oxydema tongulim*	Q		1			**1**
San Mateo	Coleoptera	Curculionidae	*Pantomorus* sp.	Q	1				**1**
San Mateo	Coleoptera	Curculionidae	*Sitophilus* sp.	Q		1			**1**
Los Angeles	Coleoptera	Curculionidae	*Sphenophorus* sp.	Q	1				**1**
San Mateo	Coleoptera	Elateridae	*Conoderus* sp.	Q	1				**1**
San Mateo	Coleoptera	Elateridae	*Melanoxanthus melanocephalus*	Q	1				**1**
Fresno	Coleoptera	Nitidulidae	*Aethina tumida*	Q				1	**1**
San Mateo	Coleoptera	Oedemeridae	*Ananca bicolor*	Q	1				**1**
San Mateo	Coleoptera	Scarabaeidae	*Adoretus sinicus*	A	2	3			**5**
San Mateo	Coleoptera	Scarabaeidae	*Adoretus* sp.	Q		1	1		**2**
San Diego	Coleoptera	Scarabaeidae	*Anomala orientalis*	A	1	1			**2**
Los Angeles	Coleoptera	Scarabaeidae	*Anomala* sp.	Q			1	1	**2**
Orange	Coleoptera	Scarabaeidae	*Anomala* sp.	Q			1		**1**
Sacramento	Coleoptera	Scarabaeidae	*Anomala* sp.	Q	1				**1**
San Diego	Coleoptera	Scarabaeidae	*Anomala* sp.	Q	3				**3**
San Mateo	Coleoptera	Scarabaeidae	*Anomala* sp.	Q	1	1			**2**
Solano	Coleoptera	Scarabaeidae	*Anomala* sp.	Q	1				**1**
San Diego	Coleoptera	Scarabaeidae	*Cyclocephala* sp.	Q	3				**3**
San Bernadino	Coleoptera	Scarabaeidae	*Euphoria* sp.	Q	1				**1**
Sacramento	Coleoptera	Scarabaeidae	*Eutheola* sp.	Q	1				**1**
San Diego	Coleoptera	Scarabaeidae	*Ligyrus* sp.	Q	1				**1**
Solano	Coleoptera	Scarabaeidae	*Maladera castanea*	A	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Alameda	Coleoptera	Scarabaeidae	*Phyllophaga* sp.	Q	1				**1**
Los Angeles	Coleoptera	Scarabaeidae	*Phyllophaga* sp.	Q			2		**2**
San Diego	Coleoptera	Scarabaeidae	*Phyllophaga* sp.	Q	5	1	1	1	**8**
Yolo	Coleoptera	Scarabaeidae	*Phyllophaga* sp.	Q	1				**1**
Alameda	Coleoptera	Scarabaeidae	*Popillia japonica*	A	68	8	2		**78**
Butte	Coleoptera	Scarabaeidae	*Popillia japonica*	A	1				**1**
Fresno	Coleoptera	Scarabaeidae	*Popillia japonica*	A	8	1			**9**
Kern	Coleoptera	Scarabaeidae	*Popillia japonica*	A	1				**1**
Kings	Coleoptera	Scarabaeidae	*Popillia japonica*	A			1		**1**
Los Angeles	Coleoptera	Scarabaeidae	*Popillia japonica*	A	218	2	45	5	**270**
Orange	Coleoptera	Scarabaeidae	*Popillia japonica*	A	11	2	7		**20**
Riverside	Coleoptera	Scarabaeidae	*Popillia japonica*	A		1			**1**
Sacramento	Coleoptera	Scarabaeidae	*Popillia japonica*	A	31		14	1	**46**
San Bernadino	Coleoptera	Scarabaeidae	*Popillia japonica*	A	18	2	7	2	**29**
San Diego	Coleoptera	Scarabaeidae	*Popillia japonica*	A	88	24	40	7	**159**
San Francisco	Coleoptera	Scarabaeidae	*Popillia japonica*	A	2				**2**
San Mateo	Coleoptera	Scarabaeidae	*Popillia japonica*	A	4				**4**
Santa Clara	Coleoptera	Scarabaeidae	*Popillia japonica*	A	29	6			**35**
Solano	Coleoptera	Scarabaeidae	*Popillia japonica*	A	1				**1**
Ventura	Coleoptera	Scarabaeidae	*Popillia japonica*	A	1				**1**
San Mateo	Coleoptera	Scarabaeidae	*Protaetia fusca*	A	4	4			**8**
San Mateo	Coleoptera	Scarabaeidae	*Protaetia orientalis*	A		1			**1**
San Mateo	Coleoptera	Scarabaeidae	*Protaetia* sp.	Q		1	1		**2**
San Diego	Coleoptera	Scarabaeidae	*Serica* sp.	Q	2				**2**
Fresno	Coleoptera	Scolytidae	*Pityophthorus* sp.	Q		1			**1**
San Mateo	Coleoptera	Scolytidae	*Xyleborus similis*	Q			1		**1**
Monterey	Coleoptera	Scolytidae	*Xyloborus* sp.	Q			1		**1**
Orange	Coleoptera	Scolytidae	*Xylosandrus crassiusculus*	Q			1		**1**
Orange	Coleoptera	Scolytidae	*Xylosandrus sp*	Q			1		**1**
San Mateo	Coleoptera	Tenebrionidae	*Amarygmus* sp.	Q		1			**1**
San Mateo	Coleoptera	Tenebrionidae	*Blapstinus dilatatus*	Q		1			**1**
San Mateo	Dermaptera	Carcinophoridae	*Euborellia* sp.	Q	2	3			**5**
Santa Cruz	Diptera	Agromyzidae	*Liriomyza bryoniae*	Q	1				**1**
Sacramento	Diptera	Agromyzidae	*Liriomyza* sp.	Q		1			**1**
Santa Cruz	Diptera	Agromyzidae	*Liriomyza* sp.	Q	1				**1**
San Mateo	Diptera	Phoridae	*Megaselia* sp.	Q		1			**1**
Los Angeles	Diptera	Tephritidae	*Anastrepha ludens*	A	7	2			**9**
Merced	Diptera	Tephritidae	*Anastrepha ludens*	A	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Riverside	Diptera	Tephritidae	*Anastrepha ludens*	A	1				**1**
San Bernadino	Diptera	Tephritidae	*Anastrepha ludens*	A	1				**1**
San Diego	Diptera	Tephritidae	*Anastrepha ludens*	A	81	45			**126**
Alameda	Diptera	Tephritidae	*Bactrocera correcta*	A			1		**1**
Los Angeles	Diptera	Tephritidae	*Bactrocera correcta*	A	4		1		**5**
San Diego	Diptera	Tephritidae	*Bactrocera correcta*	A			1		**1**
Riverside	Diptera	Tephritidae	*Bactrocera correcta*	A	1				**1**
San Diego	Diptera	Tephritidae	*Bactrocera correcta*	A	1				**1**
Santa Clara	Diptera	Tephritidae	*Bactrocera correcta*	A	3				**3**
San Mateo	Diptera	Tephritidae	*Bactrocera cucurbitae*	A		1			**1**
Alameda	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A			1		**1**
Los Angeles	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A	14	1			**15**
Orange	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A			4		**4**
Riverside	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A		1			**1**
San Bernadino	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A	11		1		**12**
San Diego	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A	1		1		**2**
San Mateo	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A		1			**1**
Santa Clara	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A	1				**1**
San Bernadino	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A				1	**1**
San Diego	Diptera	Tephritidae	*Bactrocera dorsalis*-complex	A				1	**1**
Alameda	Diptera	Tephritidae	*Bactrocera oleae*	A	19		1		**20**
Amador	Diptera	Tephritidae	*Bactrocera oleae*	A	5				**5**
El Dorado	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
Kern	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Merced	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
Orange	Diptera	Tephritidae	*Bactrocera oleae*	A		1			**1**
Placer	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
Sacramento	Diptera	Tephritidae	*Bactrocera oleae*	A	3				**3**
San Benito	Diptera	Tephritidae	*Bactrocera oleae*	A	2				**2**
San Francisco	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
San Luis Obispo	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
San Mateo	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
Santa Clara	Diptera	Tephritidae	*Bactrocera oleae*	A		1			**1**
Shasta	Diptera	Tephritidae	*Bactrocera oleae*	A	4				**4**
Solano	Diptera	Tephritidae	*Bactrocera oleae*	A	2	4			**6**
Sonoma	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
Stanislaus	Diptera	Tephritidae	*Bactrocera oleae*	A	2	2			**4**
Tuolumne	Diptera	Tephritidae	*Bactrocera oleae*	A	3				**3**
Yolo	Diptera	Tephritidae	*Bactrocera oleae*	A	2	1			**3**
Yuba	Diptera	Tephritidae	*Bactrocera oleae*	A	1				**1**
San Bernadino	Diptera	Tephritidae	*Ceratitis capitata*	A	1				**1**
Sonoma	Diptera	Tephritidae	*Rhagoletis indifferens*	A	1				**1**
San Diego	Diptera	Tephritidae	*Rhagoletis mendax*	A	1				**1**
Humboldt	Diptera	Tipulidae	*Tipula oleracea*	Q		3	3	1	**7**
Orange	Gastropoda	Achatinidae	*Lamellaxis* sp.	A		1			**1**
Alameda	Gastropoda	Ampullariidae	*Cipangopaladina* sp.	Q	1				**1**
Contra Costa	Gastropoda	Ampullariidae	*Cipangopaladina* sp.	Q	1				**1**
Riverside	Gastropoda	Ampullariidae	*Cipangopaladina* sp.	Q	1				**1**
Marin	Gastropoda	Ampullariidae	*Marisa comuarletis*	Q	1				**1**
Alameda	Gastropoda	Ampullariidae	*Marisa* sp.	Q	3				**3**
Alameda	Gastropoda	Ampullariidae	*Pomacea canaliculata*	A	13				**13**
Madera	Gastropoda	Ampullariidae	*Pomacea canaliculata*	A	1				**1**
Marin	Gastropoda	Ampullariidae	*Pomacea canaliculata*	A	1				**1**
San Francisco	Gastropoda	Ampullariidae	*Pomacea canaliculata*	A	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Gastropoda	Ampullariidae	*Pomacea canaliculata*	A			1		**1**
Santa Clara	Gastropoda	Ampullariidae	*Pomacea canaliculata*	A	1				**1**
Alameda	Gastropoda	Ampullariidae	*Pomacea* sp.	Q	15				**15**
Marin	Gastropoda	Ampullariidae	*Pomacea* sp.	Q	1				**1**
San Francisco	Gastropoda	Ampullariidae	*Pomacea* sp.	Q	1				**1**
Santa Clara	Gastropoda	Ampullariidae	*Pomacea* sp.	Q	7				**7**
Shasta	Gastropoda	Ampullariidae	*Pomacea* sp.	Q	5				**5**
Sonoma	Gastropoda	Ampullariidae	*Pomacea* sp.	Q	3				**3**
Sacramento	Gastropoda	Arionidae	*Arion* sp.	Q	1				**1**
San Joaquin	Gastropoda	Arionidae	*Arion* sp.	Q	1				**1**
San Mateo	Gastropoda	Arionidae	*Arion* sp.	Q		1			**1**
Orange	Gastropoda	Camaenidae	*Zachrysia provisoria*	Q		2	1	2	**5**
San Diego	Gastropoda	Camaenidae	*Zachrysia provisoria*	Q	1		1	1	**3**
San Joaquin	Gastropoda	Camaenidae	*Zachrysia provisoria*	Q	1	2			**3**
San Mateo	Gastropoda	Camaenidae	*Zachrysia provisoria*	Q	2	4	3	2	**11**
San Mateo	Gastropoda	Limacidae	*Agriolimax reticulatus*	Q		1			**1**
San Mateo	Gastropoda	Limacidae	*Lehmannia sp*	Q			1		**1**
Alameda	Gastropoda	Lymnaeidae	*Lymnaea* sp.	Q	1				**1**
Shasta	Gastropoda	Lymnaeidae	*Pseudosuccinea* sp.	Q	1				**1**
Orange	Gastropoda	Philomycidae	*Meghimatium striatum*	Q			1		**1**
Alameda	Gastropoda	Physidae	*Physa* sp.	Q	3	2			**5**
Merced	Gastropoda	Physidae	*Physa* sp.	Q		1			**1**
San Mateo	Gastropoda	Physidae	*Physella* sp.	Q		1			**1**
Shasta	Gastropoda	Physidae	*Physella* sp.	Q	1				**1**
Alameda	Gastropoda	Planorbidae	*Helisoma* sp.	Q	1	1			**2**
Shasta	Gastropoda	Planorbidae	*Planorbella* sp.	Q	1				**1**
San Luis Obispo	Gastropoda	Pleuroceridae	*Elimia* sp.	Q	1				**1**
San Mateo	Gastropoda	Pleuroceridae	*Elimia* sp.	Q		1			**1**
Merced	Gastropoda	Polygyridae	*Mesodon* sp.	Q		1			**1**
San Mateo	Gastropoda	Polygyridae	*Mesodon* sp.	Q			1		**1**
Alameda	Gastropoda	Polygyridae	*Polygyra* sp.	Q	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Orange	Gastropoda	Polygyridae	*Polygyra* sp.	Q	1				**1**
San Mateo	Gastropoda	Polygyridae	*Polygyra* sp.	Q	2				**2**
Glenn	Gastropoda	Succineidae	*Succinea* sp.	Q	1				**1**
Sacramento	Gastropoda	Succineidae	*Succinea* sp.	Q	1				**1**
San Diego	Gastropoda	Succineidae	*Succinea* sp.	Q	3				**3**
San Luis Obispo	Gastropoda	Succineidae	*Succinea* sp.	Q	2				**2**
San Mateo	Gastropoda	Succineidae	*Succinea* sp.	Q		8			**8**
Santa Clara	Gastropoda	Succineidae	*Succinea* sp.	Q	1				**1**
Sonoma	Gastropoda	Succineidae	*Succinea* sp.	Q	1				**1**
Tulare	Gastropoda	Succineidae	*Succinea* sp.	Q		1			**1**
Alameda	Gastropoda	Veronicellidae	*Veronicella* sp.	Q		1	1		**2**
Los Angeles	Gastropoda	Veronicellidae	*Veronicella* sp.	Q		1			**1**
Orange	Gastropoda	Veronicellidae	*Veronicella* sp.	Q	1	2	1		**4**
San Diego	Gastropoda	Veronicellidae	*Veronicella* sp.	Q	1				**1**
San Luis Obispo	Gastropoda	Veronicellidae	*Veronicella* sp.	Q		1			**1**
San Mateo	Gastropoda	Veronicellidae	*Veronicella* sp.	Q	9	17	11		**37**
Santa Barbara	Gastropoda	Veronicellidae	*Veronicella* sp.	Q			1		**1**
Sonoma	Gastropoda	Veronicellidae	*Veronicella* sp.	Q		1			**1**
Stanislaus	Gastropoda	Veronicellidae	*Veronicella* sp.	Q			1		**1**
Alameda	Gastropoda	Viviparidae	*Cipangopaludina* sp.	Q	1				**1**
San Diego	Gastropoda	Zonitidae	*Oxychilus* sp.	Q	1				**1**
San Mateo	Gastropoda	Zonitidae	*Oxychilus* sp.	Q	3				**3**
Fresno	Hemiptera	Aleyrodidae	*Aleurocanthus woglumi*	Q	2				**2**
Sacramento	Hemiptera	Aleyrodidae	*Aleurocerus palmae*	Q		2			**2**
San Bernadino	Hemiptera	Aleyrodidae	*Aleurocerus palmae*	Q	1	1		1	**3**
Alameda	Hemiptera	Aleyrodidae	*Aleurocerus* sp.	Q			1		**1**
San Bernadino	Hemiptera	Aleyrodidae	*Aleurocerus* sp.	Q			2		**2**
Alameda	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q	1	2	1		**4**
Los Angeles	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q		2			**2**
Orange	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q	5	6	2	4	**17**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Riverside	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q		1	1		**2**
San Bernadino	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q	1				**1**
San Joaquin	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q	4	2	2	1	**9**
San Mateo	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q	89	128	29	1	**247**
Shasta	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q	1				**1**
Sonoma	Hemiptera	Aleyrodidae	*Aleurodicus dispersus*	Q		1	1		**2**
Orange	Hemiptera	Aleyrodidae	*Aleurodicus* sp.	Q				1	**1**
San Mateo	Hemiptera	Aleyrodidae	*Aleurodicus* sp.	Q		3			**3**
Sacramento	Hemiptera	Aleyrodidae	*Aleurothrixus* sp.	Q	1				**1**
Orange	Hemiptera	Aleyrodidae	*Aleurotrachelus* sp.	Q	1	4		2	**7**
San Mateo	Hemiptera	Aleyrodidae	*Aleurotrachelus* sp.	Q	2	3	1		**6**
Contra Costa	Hemiptera	Aleyrodidae	*Aleurotulus anthuricola*	Q	1				**1**
Orange	Hemiptera	Aleyrodidae	*Aleurotulus* sp.	Q				1	**1**
San Mateo	Hemiptera	Aleyrodidae	*Bemisia* sp.	Q				1	**1**
San Luis Obispo	Hemiptera	Aleyrodidae	*Bemisia tabaci*	Q				1	**1**
San Mateo	Hemiptera	Aleyrodidae	*Bemisia tabaci* biotype Q	Q				1	**1**
Orange	Hemiptera	Aleyrodidae	*Ceraleurodicus sp*	Q			1		**1**
Orange	Hemiptera	Aleyrodidae	*Crenidorsum aroidephagus*	Q	6	4			**10**
San Mateo	Hemiptera	Aleyrodidae	*Crenidorsum aroidephagus*	Q	2	1			**3**
San Mateo	Hemiptera	Aleyrodidae	*Crenidorsum* sp.	Q	9				**9**
Orange	Hemiptera	Aleyrodidae	*Dialeurodes* sp.	Q		2			**2**
San Diego	Hemiptera	Aleyrodidae	*Dialeurodes* sp.	Q	1				**1**
Alameda	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q		1			**1**
Marin	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q	1				**1**
Monterey	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q	1				**1**
Orange	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q	2	5			**7**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q		2			**2**
Santa Clara	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q	3				**3**
Sonoma	Hemiptera	Aleyrodidae	*Orchamoplatus mammaeferus*	Q	1				**1**
San Mateo	Hemiptera	Aleyrodidae	*Paraleyrodes perseae*	Q		1			**1**
San Mateo	Hemiptera	Aleyrodidae	*Paraleyrodes* sp.	Q			1		**1**
Riverside	Hemiptera	Aleyrodidae	*Tetraleurodes pseudacaciae*	Q	1	6			**7**
San Mateo	Hemiptera	Aphididae	*Acyrthosiphon* sp.	Q	1				**1**
San Luis Obispo	Hemiptera	Aphididae	*Aphis* sp.	Q	1				**1**
San Mateo	Hemiptera	Aphididae	*Aphis* sp.	Q	2				**2**
Orange	Hemiptera	Aphididae	*Cinara* sp.	Q	1	2	1		**4**
Alameda	Hemiptera	Aphididae	*Greenidea formosana*	Q	1				**1**
San Diego	Hemiptera	Aphididae	*Greenidea formosana*	Q	1				**1**
Shasta	Hemiptera	Aphididae	*Greenidea formosana*	Q	2				**2**
San Mateo	Hemiptera	Aphididae	*Macrosiphum* sp.	Q			1		**1**
Colusa	Hemiptera	Aphididae	*Shivaphis celti*	Q	1				**1**
Glenn	Hemiptera	Aphididae	*Shivaphis celti*	Q	2				**2**
Mariposa	Hemiptera	Aphididae	*Shivaphis celti*	Q	2				**2**
Sacramento	Hemiptera	Aphididae	*Shivaphis celti*	Q	1				**1**
San Joaquin	Hemiptera	Aphididae	*Shivaphis celti*	Q	3				**3**
Solano	Hemiptera	Aphididae	*Shivaphis celti*	Q	1				**1**
San Mateo	Hemiptera	Aphididae	*Uroleucon* sp.	Q		2			**2**
Sacramento	Hemiptera	Asterolecaniidae	*Asterolecanium inlabefactum*	Q	1				**1**
Santa Barbara	Hemiptera	Asterolecaniidae	*Asterolecanium* sp.	Q	1				**1**
Orange	Hemiptera	Asterolecaniidae	*Bambusaspis miliaris*	Q				1	**1**
Orange	Hemiptera	Cercopidae	*Prosapia bicincta*	Q			1		**1**
San Diego	Hemiptera	Cercopidae	*Prosapia bicincta*	Q	1				**1**
San Mateo	Hemiptera	Cicadellidae	*Agallia lingula*	Q	1	2	2		**5**
Los Angeles	Hemiptera	Cicadellidae	*Agallia* sp.	Q		1			**1**
Orange	Hemiptera	Cicadellidae	*Agallia* sp.	Q		1			**1**
San Mateo	Hemiptera	Cicadellidae	*Agallia* sp.	Q	7	21	35		**63**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Hemiptera	Cicadellidae	*Draeculacephala* sp.	Q			2		**2**
Orange	Hemiptera	Cicadellidae	*Empoasca* sp.	Q		1			**1**
Sacramento	Hemiptera	Cicadellidae	*Empoasca* sp.	Q		1			**1**
San Joaquin	Hemiptera	Cicadellidae	*Empoasca* sp.	Q		1			**1**
San Luis Obispo	Hemiptera	Cicadellidae	*Empoasca* sp.	Q		1			**1**
San Mateo	Hemiptera	Cicadellidae	*Empoasca* sp.	Q	4	53	19		**76**
Sonoma	Hemiptera	Cicadellidae	*Empoasca* sp.	Q		1			**1**
San Mateo	Hemiptera	Cicadellidae	*Eupteryx* sp.	Q				1	**1**
Orange	Hemiptera	Cicadellidae	*Graphocephala versuta*	Q		1			**1**
San Mateo	Hemiptera	Cicadellidae	*Gypona* sp.	Q	1				**1**
Los Angeles	Hemiptera	Cicadellidae	*Gyponana germari*	Q		2			**2**
Orange	Hemiptera	Cicadellidae	*Gyponana germari*	Q		2			**2**
San Joaquin	Hemiptera	Cicadellidae	*Gyponana germari*	Q	1	1			**2**
San Mateo	Hemiptera	Cicadellidae	*Gyponana germari*	Q	8	31	6		**45**
Orange	Hemiptera	Cicadellidae	*Gyponana* sp.	Q	1		1		**2**
San Joaquin	Hemiptera	Cicadellidae	*Gyponana* sp.	Q	1				**1**
San Luis Obispo	Hemiptera	Cicadellidae	*Gyponana* sp.	Q	1				**1**
San Mateo	Hemiptera	Cicadellidae	*Gyponana* sp.	Q	2	19	14		**35**
Sonoma	Hemiptera	Cicadellidae	*Gyponana* sp.	Q	1				**1**
Tuolumne	Hemiptera	Cicadellidae	*Gyponana* sp.	Q	1				**1**
Orange	Hemiptera	Cicadellidae	*Homalodisca lacerta*	Q	1				**1**
Imperial	Hemiptera	Cicadellidae	*Homalodisca* sp.	Q	1				**1**
Santa Clara	Hemiptera	Cicadellidae	*Homalodisca* sp.	Q	1				**1**
San Mateo	Hemiptera	Cicadellidae	*Kallitaxa granulata*	Q	1				**1**
San Joaquin	Hemiptera	Cicadellidae	*Oncometopia* sp.	Q	6	5			**11**
Humboldt	Hemiptera	Cicadellidae	*Orientus ishidae*	Q		1			**1**
Napa	Hemiptera	Cicadellidae	*Paraphlepsius fuscipennis*	Q	1				**1**
San Diego	Hemiptera	Cicadellidae	*Paraulacizes irrorata*	Q	1				**1**
San Mateo	Hemiptera	Cicadellidae	*Planicephalus flavicosta*	Q			1		**1**
San Mateo	Hemiptera	Cicadellidae	*Protalebrella brasiliensis*	Q	1	1	1		**3**
San Mateo	Hemiptera	Cicadellidae	*Sophonia rufofascia*	Q		3			**3**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Shasta	Hemiptera	Coccidae	*Ceroplastes ceriferus*	A	1				**1**
Ventura	Hemiptera	Coccidae	*Ceroplastes floridensis*	A			1		**1**
Alameda	Hemiptera	Coccidae	*Ceroplastes rubens*	A				1	**1**
Orange	Hemiptera	Coccidae	*Ceroplastes rubens*	A	1	4	2	1	**8**
San Mateo	Hemiptera	Coccidae	*Ceroplastes rubens*	A		1		1	**2**
Orange	Hemiptera	Coccidae	*Ceroplastes rusci*	A	1				**1**
San Mateo	Hemiptera	Coccidae	*Ceroplastes rusci*	A		1	2		**3**
Sacramento	Hemiptera	Coccidae	*Ceroplastes* sp.	Q	1				**1**
San Mateo	Hemiptera	Coccidae	*Ceroplastes* sp.	Q	2	2	1		**5**
Alameda	Hemiptera	Coccidae	*Coccus acutissimus*	Q			1	1	**2**
Orange	Hemiptera	Coccidae	*Coccus acutissimus*	Q			1		**1**
Alameda	Hemiptera	Coccidae	*Coccus* sp.	Q			1		**1**
San Mateo	Hemiptera	Coccidae	*Coccus* sp.	Q	5	4			**9**
Sonoma	Hemiptera	Coccidae	*Coccus* sp.	Q		1			**1**
Orange	Hemiptera	Coccidae	*Coccus viridis*	A		1	1	2	**4**
San Mateo	Hemiptera	Coccidae	*Coccus viridis*	A	4	1	3	1	**9**
Sonoma	Hemiptera	Coccidae	*Coccus viridis*	A				1	**1**
San Mateo	Hemiptera	Coccidae	*Inglisia vitrea*	Q		1			**1**
Humboldt	Hemiptera	Coccidae	*Kilifia acuminatus*	A		1			**1**
Alameda	Hemiptera	Coccidae	*Milviscutulus mangiferae*	Q		1		2	**3**
Orange	Hemiptera	Coccidae	*Milviscutulus mangiferae*	Q		3	1	1	**5**
San Diego	Hemiptera	Coccidae	*Milviscutulus mangiferae*	Q				1	**1**
San Mateo	Hemiptera	Coccidae	*Milviscutulus mangiferae*	Q	1				**1**
Sonoma	Hemiptera	Coccidae	*Neolecanium cornuparvum*	Q			1		**1**
San Joaquin	Hemiptera	Coccidae	*Philephedra tuberculosa*	Q	3	1	1		**5**
San Mateo	Hemiptera	Coccidae	*Philephedra tuberculosa*	Q		1			**1**
Contra Costa	Hemiptera	Coccidae	*Vinsonia stellifera*	Q	1				**1**
Los Angeles	Hemiptera	Coccidae	*Vinsonia stellifera*	Q		1			**1**
Orange	Hemiptera	Coccidae	*Vinsonia stellifera*	Q	1	2			**3**
San Mateo	Hemiptera	Coccidae	*Vinsonia stellifera*	Q	1	1			**2**
San Mateo	Hemiptera	Cydnidae	*Geotomus pygmaeus*	Q		1	1		**2**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Sonoma	Hemiptera	Cydnidae	*Geotomus pygmaeus*	Q			1		**1**
Ventura	Hemiptera	Cydnidae	*Geotomus pygmaeus*	Q	1				**1**
San Mateo	Hemiptera	Delphacidae	*Delphacodes* sp.	Q			1		**1**
San Mateo	Hemiptera	Delphacidae	*Peregrinus maidis*	Q		5	1		**6**
San Mateo	Hemiptera	Delphacidae	*Tarophagus colocasiae*	Q		20	5		**25**
San Mateo	Hemiptera	Delphacidae	*Tarophagus proserpina*	Q		2			**2**
Orange	Hemiptera	Diaspididae	*Abgrallaspis ithacae*	Q		3	2		**5**
Riverside	Hemiptera	Diaspididae	*Abgrallaspis* sp.	Q				1	**1**
Orange	Hemiptera	Diaspididae	*Acutaspis aliena*	A			1		**1**
San Mateo	Hemiptera	Diaspididae	*Acutaspis aliena*	A			1		**1**
San Mateo	Hemiptera	Diaspididae	*Acutaspis scutiformis*	Q		1			**1**
San Mateo	Hemiptera	Diaspididae	*Acutaspis* sp.	Q		1			**1**
Yuba	Hemiptera	Diaspididae	*Acutaspis* sp.	Q	2				**2**
San Mateo	Hemiptera	Diaspididae	*Andaspis punicae*	Q		1			**1**
Riverside	Hemiptera	Diaspididae	*Aonidiella inornata*	Q				1	**1**
San Mateo	Hemiptera	Diaspididae	*Aonidiella inornata*	Q	8	44	37		**89**
Contra Costa	Hemiptera	Diaspididae	*Aonidiella orientalis*	A	1				**1**
Humboldt	Hemiptera	Diaspididae	*Aonidiella orientalis*	A		1			**1**
Orange	Hemiptera	Diaspididae	*Aonidiella orientalis*	A	1		1		**2**
Sacramento	Hemiptera	Diaspididae	*Aonidiella orientalis*	A	1				**1**
Shasta	Hemiptera	Diaspididae	*Aonidiella orientalis*	A	1				**1**
Sonoma	Hemiptera	Diaspididae	*Aonidiella orientalis*	A	5			1	**6**
San Mateo	Hemiptera	Diaspididae	*Aspidiella sacchari*	Q			1		**1**
Orange	Hemiptera	Diaspididae	*Aspidiotus destructor*	A		2	1	3	**6**
Riverside	Hemiptera	Diaspididae	*Aspidiotus destructor*	A		1	1		**2**
San Joaquin	Hemiptera	Diaspididae	*Aspidiotus destructor*	A	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Hemiptera	Diaspididae	*Aspidiotus destructor*	A	19	7	8		**34**
Shasta	Hemiptera	Diaspididae	*Aspidiotus destructor*	A	2				**2**
Orange	Hemiptera	Diaspididae	*Aspidiotus excisus*	Q				1	**1**
Riverside	Hemiptera	Diaspididae	*Aspidiotus excisus*	Q				1	**1**
Alameda	Hemiptera	Diaspididae	*Aulacaspis* sp.	Q				1	**1**
Orange	Hemiptera	Diaspididae	*Aulacaspis yasumatsui*	Q			4	4	**8**
San Mateo	Hemiptera	Diaspididae	*Aulacaspis yasumatsui*	Q		1		5	**6**
Orange	Hemiptera	Diaspididae	*Chionaspis heterophyllae*	Q	1	2			**3**
Orange	Hemiptera	Diaspididae	*Clavaspis herculeana*	A			4		**4**
San Mateo	Hemiptera	Diaspididae	*Clavaspis herculeana*	A		2			**2**
Orange	Hemiptera	Diaspididae	*Fiorinia externa*	Q			1		**1**
Sacramento	Hemiptera	Diaspididae	*Fiorinia theae*	A	1				**1**
Orange	Hemiptera	Diaspididae	*Hemiberlesia diffinis*	Q			1		**1**
Contra Costa	Hemiptera	Diaspididae	*Hemiberlesia palmae*	A		1			**1**
Monterey	Hemiptera	Diaspididae	*Hemiberlesia palmae*	A			1		**1**
Orange	Hemiptera	Diaspididae	*Hemiberlesia palmae*	A		2			**2**
San Diego	Hemiptera	Diaspididae	*Hemiberlesia palmae*	A	1				**1**
San Mateo	Hemiptera	Diaspididae	*Hemiberlesia palmae*	A	4	7	3		**14**
Fresno	Hemiptera	Diaspididae	*Howardia biclavis*	A		1			**1**
Orange	Hemiptera	Diaspididae	*Howardia biclavis*	A		2	6		**8**
San Diego	Hemiptera	Diaspididae	*Howardia biclavis*	A	1				**1**
San Mateo	Hemiptera	Diaspididae	*Howardia biclavis*	A	1	4			**5**
Sonoma	Hemiptera	Diaspididae	*Howardia biclavis*	A		1			**1**
Alameda	Hemiptera	Diaspididae	*Ischnaspis longirostris*	A	1	1			**2**
Orange	Hemiptera	Diaspididae	*Ischnaspis longirostris*	A	1				**1**
San Bernadino	Hemiptera	Diaspididae	*Ischnaspis longirostris*	A				1	**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Luis Obispo	Hemiptera	Diaspididae	*Ischnaspis longirostris*	A		1			**1**
San Mateo	Hemiptera	Diaspididae	*Ischnaspis longirostris*	A	2				**2**
Orange	Hemiptera	Diaspididae	*Lepidosaphes tokionis*	Q		2			**2**
Orange	Hemiptera	Diaspididae	*Lopholeucaspis cockerelli*	A	1	4			**5**
San Joaquin	Hemiptera	Diaspididae	*Lopholeucaspis cockerelli*	A			1		**1**
San Mateo	Hemiptera	Diaspididae	*Lopholeucaspis cockerelli*	A		1	1		**2**
Orange	Hemiptera	Diaspididae	*Melanaspis aliena*	Q			1		**1**
Santa Barbara	Hemiptera	Diaspididae	*Niveaspis* sp.	Q	1				**1**
San Mateo	Hemiptera	Diaspididae	*Odonaspis greeni*	Q		1			**1**
Orange	Hemiptera	Diaspididae	*Parlatoria proteus*	A		1			**1**
Alameda	Hemiptera	Diaspididae	*Pinnaspis buxi*	A				1	**1**
Orange	Hemiptera	Diaspididae	*Pinnaspis buxi*	A	5	12	9	6	**32**
San Mateo	Hemiptera	Diaspididae	*Pinnaspis buxi*	A	60	62	39	1	**162**
Orange	Hemiptera	Diaspididae	*Pinnaspis* sp.	Q				1	**1**
Sacramento	Hemiptera	Diaspididae	*Pinnaspis* sp.	Q	2				**2**
San Diego	Hemiptera	Diaspididae	*Pinnaspis* sp.	Q				2	**2**
San Joaquin	Hemiptera	Diaspididae	*Pinnaspis* sp.	Q	5				**5**
San Mateo	Hemiptera	Diaspididae	*Pinnaspis* sp.	Q	5	7	1		**13**
Alameda	Hemiptera	Diaspididae	*Pinnaspis strachani*	A	5				**5**
Orange	Hemiptera	Diaspididae	*Pinnaspis strachani*	A	4	8	9	8	**29**
Sacramento	Hemiptera	Diaspididae	*Pinnaspis strachani*	A		1		1	**2**
San Diego	Hemiptera	Diaspididae	*Pinnaspis strachani*	A	2			1	**3**
San Joaquin	Hemiptera	Diaspididae	*Pinnaspis strachani*	A	51	6	14	1	**72**
San Luis Obispo	Hemiptera	Diaspididae	*Pinnaspis strachani*	A		2	1		**3**
San Mateo	Hemiptera	Diaspididae	*Pinnaspis strachani*	A	22	42	12	2	**78**
Alameda	Hemiptera	Diaspididae	*Pinnaspis uniloba*	Q		1		1	**2**
Merced	Hemiptera	Diaspididae	*Pinnaspis uniloba*	Q		1			**1**
Orange	Hemiptera	Diaspididae	*Pinnaspis uniloba*	Q		1			**1**
Sonoma	Hemiptera	Diaspididae	*Pinnaspis uniloba*	Q		1			**1**
Orange	Hemiptera	Diaspididae	*Poliaspis cycadis*	Q				1	**1**
San Mateo	Hemiptera	Diaspididae	*Poliaspoides formosana*	Q		2			**2**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Joaquin	Hemiptera	Diaspididae	*Pseudaonidia trilobitiformis*	Q	1				**1**
Alameda	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	1	1	1	2	**5**
Fresno	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	1	2		1	**4**
Los Angeles	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A		1			**1**
Merced	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A		1			**1**
Orange	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	9	21	26	14	**70**
Riverside	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A		2	6	3	**11**
Sacramento	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	2	1			**3**
San Bernadino	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A		1			**1**
San Diego	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	9	3	1	13	**26**
San Francisco	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	1		1		**2**
San Joaquin	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	4	4	2		**10**
San Luis Obispo	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	1	1	1		**3**
San Mateo	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	92	90	70	8	**260**
Santa Barbara	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	1				**1**
Santa Clara	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A		2			**2**
Shasta	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	4				**4**
Sonoma	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	3				**3**
Tulare	Hemiptera	Diaspididae	*Pseudaulacaspis cockerelli*	A	2				**2**
Contra Costa	Hemiptera	Diaspididae	*Pseudaulacaspis pentagona*	A	2				**2**
Orange	Hemiptera	Diaspididae	*Pseudaulacaspis pentagona*	A				1	**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Hemiptera	Diaspididae	*Pseudaulacaspis pentagona*	A	2	2			**4**
Orange	Hemiptera	Diaspididae	*Pseudaulacaspis* sp.	Q			1		**1**
San Mateo	Hemiptera	Diaspididae	*Pseudaulacaspis* sp.	Q				1	**1**
Alameda	Hemiptera	Diaspididae	*Pseudoparlatoria* sp.	Q		1			**1**
San Joaquin	Hemiptera	Diaspididae	*Pseudoparlatoria* sp.	Q	1				**1**
Orange	Hemiptera	Diaspididae	*Selenaspidus articulatus*	A		1			**1**
San Joaquin	Hemiptera	Diaspididae	*Selenaspidus articulatus*	A	1	1			**2**
San Mateo	Hemiptera	Diaspididae	*Selenaspidus articulatus*	A		1	1		**2**
Santa Barbara	Hemiptera	Diaspididae	*Situlaspis* sp.	Q	2				**2**
Alameda	Hemiptera	Diaspididae	*Thysanofiorinia nephelii*	Q		2			**2**
Fresno	Hemiptera	Diaspididae	*Thysanofiorinia nephelii*	Q			2		**2**
Orange	Hemiptera	Diaspididae	*Thysanofiorinia nephelii*	Q		1			**1**
San Mateo	Hemiptera	Diaspididae	*Thysanofiorinia nephelii*	Q	1	5			**6**
Riverside	Hemiptera	Diaspididae	*Unaspis atricolor*	Q	1				**1**
San Mateo	Hemiptera	Diaspididae	*Unaspis citri*	A		1			**1**
San Mateo	Hemiptera	Flatidae	*Melormenis antillarum*	Q		2			**2**
San Mateo	Hemiptera	Flatidae	*Metcalfa pruinosa*	Q		1			**1**
San Mateo	Hemiptera	Flatidae	*Ormenaria rufofascia*	Q		1			**1**
Yuba	Hemiptera	Flatidae	*Ormenaria rufofascia*	Q	1				**1**
Orange	Hemiptera	Halimococcidae	*Thysanococcus pandani*	Q			1		**1**
San Mateo	Hemiptera	Lygaeidae	*Geocoris* sp.	Q	1	1			**2**
Orange	Hemiptera	Lygaeidae	*Graptostethus manillensis*	Q			1		**1**
San Mateo	Hemiptera	Lygaeidae	*Graptostethus manillensis*	Q		2			**2**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Bernadino	Hemiptera	Lygaeidae	*Heterogaster* sp.	Q				1	**1**
San Mateo	Hemiptera	Lygaeidae	*Nesocymus* sp.	Q	1				**1**
San Mateo	Hemiptera	Lygaeidae	*Nysius ericae*	Q			1		**1**
Alameda	Hemiptera	Lygaeidae	*Nysius* sp.	Q			1		**1**
Contra Costa	Hemiptera	Lygaeidae	*Nysius* sp.	Q	2				**2**
Los Angeles	Hemiptera	Lygaeidae	*Nysius* sp.	Q		1			**1**
Marin	Hemiptera	Lygaeidae	*Nysius* sp.	Q		1			**1**
Orange	Hemiptera	Lygaeidae	*Nysius* sp.	Q	1				**1**
San Luis Obispo	Hemiptera	Lygaeidae	*Nysius* sp.	Q		1			**1**
San Mateo	Hemiptera	Lygaeidae	*Nysius* sp.	Q	9	16	12	6	**43**
San Mateo	Hemiptera	Lygaeidae	*Oceanides* sp.	Q		1			**1**
Los Angeles	Hemiptera	Lygaeidae	*Pachybrachius nigriceps*	Q		1			**1**
San Mateo	Hemiptera	Lygaeidae	*Remaudiereana nigriceps*	Q		4	2		**6**
Sacramento	Hemiptera	Margarodidae	*Icerya* sp.	Q	2				**2**
San Mateo	Hemiptera	Miridae	*Ballus* sp.	Q	1				**1**
San Mateo	Hemiptera	Miridae	*Dicyphus* sp.	Q	1				**1**
Placer	Hemiptera	Miridae	*Lygus* sp.	Q	1				**1**
San Mateo	Hemiptera	Miridae	*Lygus* sp.	Q	4	3			**7**
Shasta	Hemiptera	Miridae	*Lygus* sp.	Q	1				**1**
San Mateo	Hemiptera	Miridae	*Orthotylus* sp.	Q	1				**1**
San Mateo	Hemiptera	Miridae	*Plagiognathus* sp.	Q		1			**1**
San Mateo	Hemiptera	Miridae	*Psallus* sp.	Q		1	1		**2**
San Mateo	Hemiptera	Miridae	*Spanagonicus* sp.	Q			1		**1**
San Mateo	Hemiptera	Nabidae	*Nabis* sp.	Q		1			**1**
San Mateo	Hemiptera	Pentatomidae	*Banasa* sp.	Q	1				**1**
Alameda	Hemiptera	Pentatomidae	*Brochymena* sp.	Q	1				**1**
San Mateo	Hemiptera	Pentatomidae	*Brochymena* sp.	Q	1				**1**
San Mateo	Hemiptera	Pentatomidae	*Dolycoris baccarum*	Q			1		**1**
Fresno	Hemiptera	Pentatomidae	*Euschistus* sp.	Q	1				**1**
San Mateo	Hemiptera	Pentatomidae	*Loxa* sp.	Q			1		**1**
San Mateo	Hemiptera	Pentatomidae	*Plautia stali*	Q		1			**1**
San Mateo	Hemiptera	Pentatomidae	*Thyanta* sp.	Q		1			**1**
San Mateo	Hemiptera	Plataspidae	*Coptosoma* sp.	Q	1				**1**
San Mateo	Hemiptera	Plataspidae	*Coptosoma xanthogramma*	Q	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Hemiptera	Pseudococcidae	*Chaetococcus bambusae*	Q		3			**3**
Orange	Hemiptera	Pseudococcidae	*Delottococcus* nr. *proteae*	Q				1	**1**
Orange	Hemiptera	Pseudococcidae	*Dysmicoccus alazon*	A			1		**1**
Ventura	Hemiptera	Pseudococcidae	*Dysmicoccus alazon*	A	1				**1**
Orange	Hemiptera	Pseudococcidae	*Dysmicoccus grassii*	A				2	**2**
San Mateo	Hemiptera	Pseudococcidae	*Dysmicoccus grassii*	A		3			**3**
Madera	Hemiptera	Pseudococcidae	*Dysmicoccus mackenziei*	Q	1				**1**
San Mateo	Hemiptera	Pseudococcidae	*Dysmicoccus* sp.	Q	1	5			**6**
Ventura	Hemiptera	Pseudococcidae	*Dysmicoccus* sp.	Q	2				**2**
Orange	Hemiptera	Pseudococcidae	*Geococcus coffeae*	Q		2			**2**
San Diego	Hemiptera	Pseudococcidae	*Geococcus coffeae*	Q	2				**2**
San Luis Obispo	Hemiptera	Pseudococcidae	*Hypogeococcus pungens*	Q	1				**1**
San Mateo	Hemiptera	Pseudococcidae	*Laminicoccus pandani*	Q	5	6	4		**15**
Contra Costa	Hemiptera	Pseudococcidae	*Maconellicoccus hirsutus*	A	1				**1**
Orange	Hemiptera	Pseudococcidae	*Maconellicoccus hirsutus*	A	2				**2**
Madera	Hemiptera	Pseudococcidae	*Nipaecoccus* sp.	Q	1				**1**
Riverside	Hemiptera	Pseudococcidae	*Nipaecoccus* sp.	Q		1			**1**
Sonoma	Hemiptera	Pseudococcidae	*Palmicultor palmarum*	Q				1	**1**
Orange	Hemiptera	Pseudococcidae	*Palmicultor* sp.	Q				1	**1**
San Diego	Hemiptera	Pseudococcidae	*Palmicultor* sp.	Q				1	**1**
San Mateo	Hemiptera	Pseudococcidae	*Phenacoccus* sp.	Q		3			**3**
Alameda	Hemiptera	Pseudococcidae	*Planococcus minor*	Q				2	**2**
San Joaquin	Hemiptera	Pseudococcidae	*Planococcus* sp.	Q	2				**2**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus cryptus*	A				1	**1**
San Joaquin	Hemiptera	Pseudococcidae	*Pseudococcus cryptus*	A	1				**1**
San Mateo	Hemiptera	Pseudococcidae	*Pseudococcus cryptus*	A	3	2			**5**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus dasyliriae*	Q			1		**1**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus dolichomelos*	Q				1	**1**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus elisae*	A	2	3			**5**
San Mateo	Hemiptera	Pseudococcidae	*Pseudococcus elisae*	A	4	3			**7**
Contra Costa	Hemiptera	Pseudococcidae	*Pseudococcus jackbeardsleyi*	Q	2				**2**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus jackbeardsleyi*	Q		1	1		**2**
San Joaquin	Hemiptera	Pseudococcidae	*Pseudococcus jackbeardsleyi*	Q		1			**1**
San Mateo	Hemiptera	Pseudococcidae	*Pseudococcus jackbeardsleyi*	Q	4	14	9	2	**29**
Sonoma	Hemiptera	Pseudococcidae	*Pseudococcus jackbeardsleyi*	Q	1				**1**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus lycopodii*	Q			1		**1**
Fresno	Hemiptera	Pseudococcidae	*Pseudococcus odermatti*	Q		1			**1**
San Mateo	Hemiptera	Pseudococcidae	*Pseudococcus odermatti*	Q		2			**2**
Tulare	Hemiptera	Pseudococcidae	*Pseudococcus odermatti*	Q		1			**1**
Orange	Hemiptera	Pseudococcidae	*Pseudococcus* sp.	Q	1				**1**
San Diego	Hemiptera	Pseudococcidae	*Pseudococcus* sp.	Q				1	**1**
San Luis Obispo	Hemiptera	Pseudococcidae	*Pseudococcus* sp.	Q		1			**1**
San Mateo	Hemiptera	Pseudococcidae	*Pseudococcus* sp.	Q	3	7	1		**11**
Madera	Hemiptera	Pseudococcidae	*Pseudococcus bryberia*	Q	1				**1**
Orange	Hemiptera	Pseudococcidae	*Rhizoecus americanus*	Q				1	**1**
Riverside	Hemiptera	Pseudococcidae	*Rhizoecus americanus*	Q				2	**2**
San Diego	Hemiptera	Pseudococcidae	*Rhizoecus americanus*	Q	2				**2**
San Mateo	Hemiptera	Pseudococcidae	*Rhizoecus americanus*	Q	1	2		2	**5**
Riverside	Hemiptera	Pseudococcidae	*Rhizoecus floridanus*	Q				5	**5**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Diego	Hemiptera	Pseudococcidae	*Rhizoecus floridanus*	Q				2	**2**
Orange	Hemiptera	Pseudococcidae	*Rhizoecus hibisci*	Q			4	3	**7**
Riverside	Hemiptera	Pseudococcidae	*Rhizoecus hibisci*	Q			3	8	**11**
San Diego	Hemiptera	Pseudococcidae	*Rhizoecus hibisci*	Q	4			8	**12**
San Joaquin	Hemiptera	Pseudococcidae	*Rhizoecus hibisci*	Q		1			**1**
San Mateo	Hemiptera	Pseudococcidae	*Rhizoecus hibisci*	Q			1	3	**4**
Riverside	Hemiptera	Pseudococcidae	*Rhizoecus* sp.	Q		1	2	1	**4**
San Diego	Hemiptera	Pseudococcidae	*Rhizoecus* sp.	Q	2		2	2	**6**
San Mateo	Hemiptera	Pseudococcidae	*Rhizoecus* sp.	Q				1	**1**
San Mateo	Hemiptera	Pseudococcidae	*Rhizoecus* sp.	Q	3	15	9		**27**
San Joaquin	Hemiptera	Psyllidae	*Pachypsylla* sp.	Q	1				**1**
Orange	Hemiptera	Psyllidae	*Trioza* sp.	Q		1			**1**
San Mateo	Hemiptera	Psyllidae	*Trioza* sp.	Q		1			**1**
San Mateo	Hemiptera	Scutellaridae	*Eurygaster integriceps*	Q			1		**1**
San Mateo	Hemiptera	Tingidae	*Corythucha* sp.	Q	3	1	3		**7**
San Diego	Hemiptera	Tingidae	*Pseudacysta persea*	Q				4	**4**
San Mateo	Hemiptera	Tingidae	*Teleonemia* sp.	Q			1		**1**
Alameda	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q		1	2		**3**
Marin	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q		1			**1**
Orange	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q	5	4	4	2	**15**
San Bernadino	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q			1		**1**
San Diego	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q	1				**1**
San Joaquin	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q	3	2		1	**6**
San Luis Obispo	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q		2			**2**
San Mateo	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q	76	175	47		**298**
Santa Clara	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q		1			**1**
Shasta	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q	2				**2**
Sonoma	Hemiptera	Tropiduchidae	*Kallitaxila granulata*	Q		1			**1**
Orange	Hemiptera	Tropiduchidae	*Kallitaxila* sp.	Q		1			**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Orange	Hemiptera	Tropiduchidae	*Pelitropis rotulata*	Q	1				**1**
San Francisco	Hymenoptera	Agaontidae	*Josephiella* sp.	Q	1				**1**
Alameda	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		3			**3**
Kern	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		1			**1**
Orange	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		3			**3**
Sacramento	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		1			**1**
San Diego	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		3			**3**
San Joaquin	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		1			**1**
San Mateo	Hymenoptera	Cynipidae	*Diastrophus radicum*	A	4	4	3		**11**
Stanislaus	Hymenoptera	Cynipidae	*Diastrophus radicum*	A		1			**1**
San Mateo	Hymenoptera	Cynipidae	*Diastrophus* sp.	Q		1			**1**
Alameda	Hymenoptera	Formicidae	*Anoplolepis longipes*	Q		1	1		**2**
Orange	Hymenoptera	Formicidae	*Anoplolepis longipes*	Q	1	2		1	**4**
San Mateo	Hymenoptera	Formicidae	*Anoplolepis longipes*	Q	3				**3**
Santa Clara	Hymenoptera	Formicidae	*Anoplolepis longipes*	Q		1			**1**
Shasta	Hymenoptera	Formicidae	*Anoplolepis longipes*	Q	1				**1**
Sonoma	Hymenoptera	Formicidae	*Anoplolepis longipes*	Q			1		**1**
San Diego	Hymenoptera	Formicidae	*Camponotus floridanus*	Q		1			**1**
Fresno	Hymenoptera	Formicidae	*Camponotus* sp.	Q		1			**1**
San Mateo	Hymenoptera	Formicidae	*Camponotus* sp.	Q	1	3			**4**
Shasta	Hymenoptera	Formicidae	*Camponotus* sp.	Q	1				**1**
San Mateo	Hymenoptera	Formicidae	*Crematogaster* sp.	Q		2			**2**
San Mateo	Hymenoptera	Formicidae	*Hypoponera* sp.	Q		3			**3**
Alameda	Hymenoptera	Formicidae	*Monomorium floricola*	Q			1		**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Hymenoptera	Formicidae	*Monomorium floricola*	Q	6	1	1		**8**
San Mateo	Hymenoptera	Formicidae	*Monomorium* sp.	Q	3	14	4		**21**
Tulare	Hymenoptera	Formicidae	*Monomorium* sp.	Q		1			**1**
San Mateo	Hymenoptera	Formicidae	*Ochetellus glaber*	Q	6	21	8		**35**
Shasta	Hymenoptera	Formicidae	*Ochetellus glaber*	Q	1				**1**
Orange	Hymenoptera	Formicidae	*Odontomachus ruginodis*	Q			1	1	**2**
San Mateo	Hymenoptera	Formicidae	*Paratrechina* sp.	Q		3			**3**
Alameda	Hymenoptera	Formicidae	*Pheidole megacephala*	Q			6	2	**8**
Contra Costa	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	7				**7**
Fresno	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	1				**1**
Los Angeles	Hymenoptera	Formicidae	*Pheidole megacephala*	Q		1			**1**
Marin	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	3		4		**7**
Orange	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	7	8	11		**26**
Sacramento	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	2	1			**3**
San Diego	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	1			1	**2**
San Joaquin	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	1				**1**
San Luis Obispo	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	1	1			**2**
San Mateo	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	110	118	57	5	**290**
Santa Barbara	Hymenoptera	Formicidae	*Pheidole megacephala*	Q		1			**1**
Santa Clara	Hymenoptera	Formicidae	*Pheidole megacephala*	Q	2	1			**3**
Santa Cruz	Hymenoptera	Formicidae	*Pheidole megacephala*	Q			1		**1**
Sonoma	Hymenoptera	Formicidae	*Pheidole megacephala*	Q		1	2		**3**
Alameda	Hymenoptera	Formicidae	*Pheidole* sp.	Q		2			**2**
Contra Costa	Hymenoptera	Formicidae	*Pheidole* sp.	Q	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Marin	Hymenoptera	Formicidae	*Pheidole* sp.	Q		1		1	**2**
Orange	Hymenoptera	Formicidae	*Pheidole* sp.	Q		2		6	**8**
Sacramento	Hymenoptera	Formicidae	*Pheidole* sp.	Q	1				**1**
San Luis Obispo	Hymenoptera	Formicidae	*Pheidole* sp.	Q		2			**2**
San Mateo	Hymenoptera	Formicidae	*Pheidole* sp.	Q	63	113	13	2	**191**
Santa Barbara	Hymenoptera	Formicidae	*Pheidole* sp.	Q	1				**1**
Sonoma	Hymenoptera	Formicidae	*Pheidole* sp.	Q		1	1		**2**
San Mateo	Hymenoptera	Formicidae	*Ponera* sp.	Q	1	2			**3**
San Mateo	Hymenoptera	Formicidae	*Pseudomyrmex* sp.	Q	1	2			**3**
Del Norte	Hymenoptera	Formicidae	*Solenopsis invicta*	A	1				**1**
Fresno	Hymenoptera	Formicidae	*Solenopsis invicta*	A	3	7	4	4	**18**
Los Angeles	Hymenoptera	Formicidae	*Solenopsis invicta*	A	164				**164**
Madera	Hymenoptera	Formicidae	*Solenopsis invicta*	A	3	4	9		**16**
Merced	Hymenoptera	Formicidae	*Solenopsis invicta*	A	6	7	3		**16**
Orange	Hymenoptera	Formicidae	*Solenopsis invicta*	A	902	170	1	1	**1074**
Riverside	Hymenoptera	Formicidae	*Solenopsis invicta*	A	759	90			**849**
San Bernadino	Hymenoptera	Formicidae	*Solenopsis invicta*	A	22				**22**
San Diego	Hymenoptera	Formicidae	*Solenopsis invicta*	A	8	1			**9**
San Joaquin	Hymenoptera	Formicidae	*Solenopsis invicta*	A	3				**3**
San Luis Obispo	Hymenoptera	Formicidae	*Solenopsis invicta*	A	1				**1**
San Mateo	Hymenoptera	Formicidae	*Solenopsis invicta*	A	2	2			**4**
Shasta	Hymenoptera	Formicidae	*Solenopsis invicta*	A	1				**1**
Stanislaus	Hymenoptera	Formicidae	*Solenopsis invicta*	A	5				**5**
Yolo	Hymenoptera	Formicidae	*Solenopsis invicta*	A	2				**2**
Orange	Hymenoptera	Formicidae	*Solenopsis* sp.	Q		1			**1**
San Mateo	Hymenoptera	Formicidae	*Solenopsis* sp.	Q	4	25	1		**30**
San Mateo	Hymenoptera	Formicidae	*Tapinoma* sp.	Q			1	1	**2**
Alameda	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	2	8	14	7	**31**
Contra Costa	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	6				**6**
Fresno	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q		1			**1**
Los Angeles	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q		4			**4**
Marin	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q		2	1	1	**4**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Orange	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	10	14	15	14	**53**
Sacramento	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	7	1			**8**
San Bernadino	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q			1		**1**
San Diego	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	1				**1**
San Luis Obispo	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q		2			**2**
San Mateo	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	87	236	60	13	**396**
Santa Barbara	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	1				**1**
Santa Clara	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	2	1			**3**
Sonoma	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q	1		1	2	**4**
San Joaquin	Hymenoptera	Formicidae	*Technomyrmex albipes*	Q		1			**1**
Alameda	Hymenoptera	Formicidae	*Technomyrmex* sp.	Q			1		**1**
San Mateo	Isopoda	Porcellionidae	*Porcellio* sp.	Q	1				**1**
San Mateo	Isoptera	Kalotermitidae	*Cryptotermes brevis*	Q			1		**1**
Ventura	Isoptera	Kalotermitidae	*Incisitermes* sp.	Q	1				**1**
San Mateo	Isoptera	Rhinotermitidae	*Coptotermes formosanus*	Q		2			**2**
San Joaquin	Lepidoptera	Arctiidae	*Leucanopsis* sp.	Q				1	**1**
Orange	Lepidoptera	Arctiidae	*Lymire edwardsii*	Q		1			**1**
San Joaquin	Lepidoptera	Gracillariidae	*Conopomorpha litchiella*	A	1				**1**
Orange	Lepidoptera	Gracillariidae	*Phyllocnistis citrella*	A		1			**1**
Riverside	Lepidoptera	Gracillariidae	*Phyllocnistis citrella*	A	26	2			**28**
Contra Costa	Lepidoptera	Lasiocampidae	*Malacosoma americanum*	A	1				**1**
Stanislaus	Lepidoptera	Lasiocampidae	*Malacosoma americanum*	A		1			**1**
Alameda	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	1	1	2		**4**
Contra Costa	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	5				**5**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Orange	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q		1			**1**
Placer	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	1				**1**
Santa Clara	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	1				**1**
Shasta	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	4				**4**
Sonoma	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	1				**1**
Yolo	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	2				**2**
Yuba	Lepidoptera	Lasiocampidae	*Malacosoma* sp.	Q	4				**4**
Alameda	Lepidoptera	Limacodidae	*Darna pallivitta*	Q		1			**1**
Los Angeles	Lepidoptera	Limacodidae	*Darna pallivitta*	Q			1		**1**
Orange	Lepidoptera	Limacodidae	*Darna pallivitta*	Q			2	1	**3**
Alameda	Lepidoptera	Lymantriidae	*Lymantria dispar*	A			4		**4**
Contra Costa	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	1	1			**2**
Fresno	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	1				**1**
Lake	Lepidoptera	Lymantriidae	*Lymantria dispar*	A				1	**1**
Los Angeles	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	2	2			**4**
Marin	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	1		2		**3**
Napa	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	1				**1**
Nevada	Lepidoptera	Lymantriidae	*Lymantria dispar*	A			1		**1**
Riverside	Lepidoptera	Lymantriidae	*Lymantria dispar*	A		1			**1**
San Bernadino	Lepidoptera	Lymantriidae	*Lymantria dispar*	A		1			**1**
San Diego	Lepidoptera	Lymantriidae	*Lymantria dispar*	A			1		**1**
San Mateo	Lepidoptera	Lymantriidae	*Lymantria dispar*	A		1			**1**
Santa Barbara	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	1				**1**
Santa Cruz	Lepidoptera	Lymantriidae	*Lymantria dispar*	A	1	1			**2**
Sonoma	Lepidoptera	Lymantriidae	*Lymantria dispar*	A			1		**1**
Los Angeles	Lepidoptera	Lymantriidae	*Lymantria dispar* "Asian"	A		1		1	**2**
Alameda	Lepidoptera	Lymantriidae	*Orgyia* sp.	Q		1			**1**
Humboldt	Lepidoptera	Lymantriidae	*Orgyia* sp.	Q			1		**1**
Lake	Lepidoptera	Lymantriidae	*Orgyia* sp.	Q				1	**1**
Sacramento	Lepidoptera	Lymantriidae	*Orgyia* sp.	Q	1	1			**2**
Santa Clara	Lepidoptera	Lymantriidae	*Orgyia* sp.	Q	1				**1**
Sacramento	Lepidoptera	Lyonetiidae	*Bucculatrix* sp.	Q	1				**1**
San Mateo	Lepidoptera	Noctuidae	*Agrotis* sp.	Q		1			**1**
Alameda	Lepidoptera	Noctuidae	*Caenurgina* sp.	Q		1			**1**
San Mateo	Lepidoptera	Noctuidae	*Chrysodeixis chalcites*	Q		2			**2**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
Los Angeles	Lepidoptera	Noctuidae	*Chrysodeixis eriosoma*	A		1			**1**
Orange	Lepidoptera	Noctuidae	*Chrysodeixis eriosoma*	A		1		1	**2**
San Luis Obispo	Lepidoptera	Noctuidae	*Chrysodeixis eriosoma*	A		1			**1**
San Mateo	Lepidoptera	Noctuidae	*Chrysodeixis eriosoma*	A	8	28	28		**64**
Los Angeles	Lepidoptera	Noctuidae	*Chrysodeixis* sp.	Q		1			**1**
San Mateo	Lepidoptera	Noctuidae	*Chrysodeixis* sp.	Q	4	10			**14**
Shasta	Lepidoptera	Noctuidae	*Chrysodeixis* sp.	Q	1				**1**
San Mateo	Lepidoptera	Noctuidae	*Elydna nonagrica*	Q			1		**1**
San Mateo	Lepidoptera	Noctuidae	*Euxoa* sp.	Q	2				**2**
San Mateo	Lepidoptera	Noctuidae	*Helicoverpa* sp.	Q				2	**2**
San Mateo	Lepidoptera	Noctuidae	*Spodoptera* sp.	Q	1	3			**4**
San Mateo	Lepidoptera	Psychidae	*Brachycyttarus griseus*	Q	1		1		**2**
Orange	Lepidoptera	Psychidae	*Thyridopteryx* sp.	Q				1	**1**
Imperial	Lepidoptera	Pyralidae	*Asciodes gordialis*	Q				1	**1**
San Diego	Lepidoptera	Pyralidae	*Duponcheilia fovealis*	Q			1		**1**
Los Angeles	Lepidoptera	Pyralidae	*Glyphodes* sp.	Q	1				**1**
Santa Barbara	Lepidoptera	Pyralidae	*Lineodes elcodes*	Q			4		**4**
San Mateo	Lepidoptera	Pyralidae	*Ostrinia nubilalis*	A			1		**1**
San Mateo	Lepidoptera	Pyralidae	*Pyrausta* sp.	Q		2			**2**
Sonoma	Lepidoptera	Tortricidae	*Amorbia* sp.	Q		1			**1**
Yolo	Lepidoptera	Tortricidae	*Cydia caryana*	A	1	1			**2**
Yolo	Lepidoptera	Tortricidae	*Cydia* sp.	Q	1				**1**
San Mateo	Lepidoptera	Tortricidae	*Pararrhaptica* sp.	Q				1	**1**
Solano	Lepidoptera	Tortricidae	*Thaumatotibia leucotreta*	Q				1	**1**
San Mateo	Orthoptera	Acrididae	*Atractomorpha ambigua*	Q	2	4	1		**7**
San Mateo	Orthoptera	Acrididae	*Oxya chinensis*	Q		1			**1**
San Mateo	Orthoptera	Acrididae	*Schistocerca nitens*	Q	1				**1**
San Mateo	Orthoptera	Acrididae	*Schistocerca* sp.	Q		2			**2**
San Mateo	Orthoptera	Blattidae	*Lupparia* sp.	Q	1				**1**
San Mateo	Orthoptera	Blattidae	*Periplaneta* sp.	Q	1				**1**
San Diego	Orthoptera	Diplopteridae	*Diploptera punctata*	Q	1				**1**

County	Order	Family	Scientific Name		2002	2003	2004	2005	**Total**
San Mateo	Orthoptera	Diplopteridae	*Diploptera punctata*	Q	1	3			**4**
Stanislaus	Orthoptera	Diplopteridae	*Diploptera punctata*	Q			1		**1**
San Mateo	Orthoptera	Gryllidae	*Acheta oceanica*	Q	1				**1**
Marin	Orthoptera	Gryllidae	*Acheta* sp.	Q		1			**1**
San Mateo	Orthoptera	Gryllidae	*Metioche* sp.	Q			1		**1**
Alameda	Orthoptera	Phasmatidae	*Carausius morosus*	Q		1			**1**
Humboldt	Orthoptera	Phasmidae	*Extatosome tiaratum*	Q	2				**2**
San Mateo	Orthoptera	Tettigoniidae	*Conocephaloides* sp.	Q		1			**1**
San Mateo	Orthoptera	Tettigoniidae	*Conocephalus saltator*	Q			2		**2**
Santa Clara	Orthoptera	Tettigoniidae	*Conocephalus saltator*	Q				1	**1**
San Mateo	Orthoptera	Tettigoniidae	*Elimaea punctifera*	Q		1	1		**2**
San Mateo	Orthoptera	Tettigoniidae	*Elimaea sp*	Q		1			**1**
San Mateo	Orthoptera	Tettigoniidae	*Scudderia* sp.	Q	2	1			**3**
Humboldt	Pelecypoda	Dreisseniidae	*Dreissena polymorpha*	Q	1				**1**
Riverside	Thysanoptera	Phlaeothripidae	*Androthrips ramachandrai*	Q	1				**1**
Riverside	Thysanoptera	Phlaeothripidae	*Gigantothrips elegans*	Q	1				**1**
Riverside	Thysanoptera	Phlaeothripidae	*Gynaikothrips malabaricus*	Q	1				**1**
San Mateo	Thysanoptera	Phlaeothripidae	*Gynaikothrips uzeli*	Q			3		**3**
Shasta	Thysanoptera	Phlaeothripidae	*Liothrips* sp.	Q	1				**1**
Kern	Thysanoptera	Thripidae	*Dichromothrips corbetti*	Q		1			**1**
San Luis Obispo	Thysanoptera	Thripidae	*Dichromothrips corbetti*	Q	1				**1**
Santa Barbara	Thysanoptera	Thripidae	*Frankliniella hemerocallis*	Q	1				**1**
San Mateo	Thysanoptera	Thripidae	*Frankliniella tritici*	A			1		**1**
Sonoma	Thysanoptera	Thripidae	*Selenothrips rubrocinctus*	A	1				**1**
Orange	Thysanoptera	Thripidae	*Thrips florum*	A		1			**1**
Totals					**3913**	**2300**	**1015**	**283**	**7511**