Partially purified squash mosaic virus, one of the common cucurbit viruses found in California. Inset, symptoms of a watermelon strain of squash mosaic virus.

(Virus preparation by M. Rose Wilkerson, photos by Dr. D. Mayhew.)
The age of computer accessed data retrieval is dawning in the CDFA Plant Pathology Laboratory. This new and useful diagnostic tool is being implemented in the area of plant virology.

The California Plant Virus Data Base is the computer operated, extended version of the California Plant Virus Index which was first published in 1978. All of the viruses that have been reported in California are contained in the data base.

In the CDFA virology laboratory, the usual criteria for tentatively identifying a plant virus are virus particle morphology, the identity of the host, and the disease symptoms. The next step in diagnosis is usually the experimental transmission of the virus to a "host range", i.e. a variety of plants in the greenhouse. It may be important for the investigator to know the mode of transmission, vectors involved, the diagnostic host range and symptoms to expect, or whether a virus is seedborne. As one can see, the number of facts to be considered multiply very rapidly, even at this simple stage. Add to this the abundance of synonyms encountered in plant virus literature, and the subtle biochemical diagnosis variations that exist between closely related viruses, and a routine diagnosis may suddenly turn into a costly, time-consuming research effort.

The Plant Virus Data Base allows the user to make rapid, tentative determinations using any of the 20 diagnostic characteristics available. This reduces determination time by simultaneously eliminating redundant, synonymous citations and retrieving rare or easily overlooked possibilities. The categories and characteristics included in the data base may be grouped as follows:

- **Taxonomy** - virus name, virus group, synonyms
- **Microscopy** - Particle morphology, particle dimensions, location and type of inclusion bodies
- **Biophysical** - no. of component particles, nucleic acid, molecular wt., absorbance ratio, extinction coefficient
- **Biochemical** - coefficient, temperature inactivation point, dilution end point
- **Transmission** - Mode of transmission, vectors
- **Distribution** - California, USA, world-wide
- **Host Range** - diagnostic hosts and symptoms, reported California hosts, world-wide hosts

We believe that the data base will find many applications and we welcome the participation of interested individuals who desire to use the data as an information resource. Of course, a data base is only as good as its data. The addition and revision of the existing data will be a continuous process. We welcome any advice, criticism, or contributions which will improve the quality of the data base as a tool.

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M. Rose Wilkerson is a Pest Management Specialist with the CDFA Integrated Pest Management Unit.
An example of a data base research, a cucumber showing symptoms of a virus disease was submitted to the laboratory. Election microscopy revealed the presence of isometric particles in the sap. Further investigation at the greenhouse demonstrated that the disease was mechanically transmissible. The investigator is interested in finding out what viruses have been reported with these characteristics in cucumber, Cucurbita, and Cucumis species. cont'd on p. 40.
Kathleen Casanave of Environmental Monitoring and Pest Management made a first California find, when she collected mites on greenhouse specimens of Centaurea diffusa, diffuse knapweed. The mite was identified by T. Kono (CDFA) and confirmed by Dr. E. W. Baker (USDA) as Tyrophagus neiswanderi Johnston and Bruce.*

Tyrophagus neiswanderi is a mite that belongs to the family Acaridae. It belongs to genus Tyrophagus, which consists of very closely related mites that are both ubiquitous and cosmopolitan. In Ohio, its existence was known since 1956 when it was found feeding on cucumber plants in a greenhouse. It was described finally in 1956 by D. A. Johnston and W. A. Bruce (Ohio Agricultural Research and Development Center Research Bulletin 977.)

Most likely, this mite has been in California for a long time. It remained undetected for two obvious reasons. First, it never was collected. Second, if it had been collected it was misidentified as Tyrophagus putrescentiae, the mold mite, which is a very commonly encountered member of the genus and which is very closely related to T. neiswanderi.

According to Kathleen, "the mites were found at the soil line level of potted diffuse knapweed appearing wilted and generally exhibiting loss of vigor. Such plants pulled right out of the pots. The roots were rotted, mushy and foul smelling."

Subsequently, Kathleen collected the mite on roots of healthy Chondrilla juncea, skeletonweed, in the same greenhouse.*

The description of T. neiswanderi was based on specimens from Ohio and New York.

In the future, it is hoped that access to the Plant Virus Data Base will be facilitated by the development of conventional data communication channels. At present, interested individuals may address correspondence to:

Virology Laboratory
California Department of Food and Agriculture
1220 N Street, Room 340
Sacramento, California 95814
(916) 445-4521

REFERENCES

1. Mayhew, Dennis E., California Plant Virus Index (Revised), 1982, CDFA

2. C.M.I. / A.A.B., Descriptions of Plant Viruses


*I.D. No. 82C24-3
**I.D. No. 82DB-23
The only known disease infestation of Uromyces aloes in North America is in a private exotic garden in Santa Barbara County. Previously, the only report of this disease was made in 1978 by Kenneth Sims in a San Diego County Nursery (3). At that time, all the infected aloe plants were destroyed. Detection surveys by CDFA and county agricultural personnel are being conducted to determine the disease distribution in California. Rust of aloe is a regulatory disease which has a CDFA "A" rating.*

The geographical distribution of this disease (2,4) includes the following areas: Africa (Ethiopia, Kenya, Lesotho, Madagascar, Malawi, Rhodesia, Tanzania and Uganda); Europe (United Kingdom); and Asia (India and Japan).

Early states of infection are marked by a single, circular arrangement of pustules or "sori", eventually developing into concentric arrangements of sori up to 5 cm in diameter (Fig. 1a, b). The sorus contains numerous teliospores (Fig. 1c). Teliospores are generally globose to ovoid (20-35 x 22-55 μ), with walls 4-7 μ thick and hyaline pedicels (Fig. 1d).

References

**SORGHUM RUST**

T. E. Tidwell

Sorghum infected with "sorghum rust" was intercepted at the Yermo border inspection station this winter by Agricultural Services Biologist Donna Cameron. This disease has occasionally appeared in California, but only in seasons of higher than normal humidity. Sorghum rust, caused by *Puccinia purpurea* Cke. (Fig. 1), occurs primarily in subtropical regions of both hemispheres. The rust is generally distributed wherever sorghum (*S. bicolor*) is grown, but is most severe in areas of high humidity or rainfall.

Most varieties of sorghum exhibit some degree of susceptibility to the rust. Johnson grass (*Sorghum halepense*) and Sudan grass (*Sorghum sudanense*) are also susceptible. The fungus probably overwinters as urediospores and mycelium in crop residue or on Johnson grass. Several species of *Oxalis* serve as alternate (aecial) hosts. *Oxalis corniculata*, a common lawn and garden weed, is a particularly favorable host for the production of the aecial stage.

The early symptoms of the disease are small reddish to tan leaf spots which eventually enlarge to cover much of the leaf surface (Fig. 2). Small raised pustules (uredia) develop within the leafspots on both sides of the leaf. The pustules eventually break open to expose numerous reddish-brown urediospores which are capable of starting new infections. Eventually, telia (Fig. 3.) develop in and adjacent to the uredial pustules and produce 2-celled teliospores (Fig. 1) on the mature leaves.

Since the disease usually appears as plants near maturity, and infection is confined primarily to the mature leaves, grain yield losses are usually not seriously affected by the rust. Forage sorghum types, however, are usually more severely affected. Heavily infected leaves may become dry and break off, reducing the forage value of the crop.

Planting the more resistant varieties of sorghum is the only economically feasible control of this disease.

Reference


**EDITOR RETIRING**—As of April 30, 1982 the senior editor of CPPDR, and Division of Plant Industry Entomologist, Dr. Charles S. Papp will be leaving State Service. He began state service at UCR-Entomology in 1958 and came to the CDFA in 1971. Dr. Papp's accumulated service and extra sickleave credit him with 25 years toward retirement.

Charlie is author of many publications, including 23 books, some of which have become college texts and, along with other works of his, are presently major references on biological illustration and entomology. He, along with his wife Magda, Biological Technician, Entomology, and their two children, arrived in the USA on Christmas of 1950, after fleeing their native land, Hungary, during World War II. Charlie will be going into business with his daughter, Marge, here in Sacramento, where she already has a well-established company in the publishing business. Their son, Charlie, Jr., lives with his family in Alaska. Soon after Charlie's retirement he and Magda are hoping to visit them again.
Fig. 1. Teliospores of *Puccinia purpurea*. Bar represents 50 microns.

Fig. 2. Leaf spots caused by sorghum rust on sorghum leaf.

Fig. 3. Telial pustule containing teliospores.


POWDERY MILDEW OF TOMATOES IN SAN DIEGO COUNTY
K. Sims and J. Esparza

The powdery mildew fungus Leveillula taurica (Lev.) Arn. exists worldwide but is most commonly found in the Mediterranean region, Central Europe and the near East (1). The conidial stage is referred to as Oidiopsis taurica (Lev.) Salm; it was found on Mimulus auranticus by Salman (2) in 1906 near Berkeley, California, and also in Marin, Alameda and Monterey Counties by Yarwood (3). The fungus was reported on tomato for the first time in California in 1978 in the Imperial Valley by D.G. Kontaxis (4). R. Nesbitt also reported the disease on tomatoes in Orange County in 1978. In 1979, the disease was reported on tomatoes from Merced and San Diego Counties. In San Diego County the disease was severe in a number of fields in the fall plantings of 1980 and 1981.

L. taurica differs from other powdery mildews in its endoparasitic habits. The mycelium is not limited to the epidermis, but penetrates through the stomata, extends into and through the mesophyll, and may involve both leaf surfaces at the point of infection. Conidiophores, each bearing a single conidium, protrude through the stomata and can be seen with the aid of a 10X hand lens. The disease is characterized by the appearance of light yellow to bright orange spots about 1/4 inch (5mm) in diameter initially on the lower (oldest) leaves of tomato plants. In later stages and when the disease is severe as the plants mature, diseased leaves may be seen throughout the plants. As the disease progresses, the centers of the spots become necrotic and are surrounded by yellow halos (6). The lesions enlarge, coalesce and eventually the entire leaf dies. In San Diego and Orange Counties, symptoms on tomatoes are most obvious from August to the end of the growing season—generally December. The disease appears to be especially damaging under warm, dry conditions.

Of the many plants reported as hosts (7), only three infected weed species were found during a detailed examination in infected tomato fields and environs in San Diego County, and these are apparently new reports for California. The weeds were common sow thistle (Sonchus oleraceus), wild artichoke (Cynara cardunculus), and white stem filaree (Erodium moschatum). Bell peppers and other reported hosts of Oidiopsis were not found infected in San Diego County when growing in close proximity to heavily infected tomato fields. It appears there are strains of the powdery mildew fungus which attack only selected hosts among the many reported.

REFERENCES

Kenneth Sims is a plant pathologist with the San Diego County Department of Agriculture. Jose Esparza is a plant pathologist with the Exclusion and Detection Unit of CDFA.
AN "A" RATED ARMORED SCALE FOUND IN CALIFORNIA
Ray Gill

Sansevieria Scale, Parlatoria proteus, has recently been found infesting lady slipper (Cypripedium) orchids in a Northern California nursery. This scale, also commonly called proteus scale, is a pest of palms and orchids in many tropical and subtropical regions of the world. It is especially troublesome on orchids in Florida.

This scale has been found many times in California, but successful eradication efforts have so far prevented it from becoming permanently established. The current infestation is undergoing eradication treatment under the direction of Nursery Services and the Agricultural Commissioner.

Little is known about the life history of the species except that there are apparently overlapping multiple annual generations. This is indicated by the fact that samples usually contain all life stages.

This species is known to feed on the bark, leaves and fruits of the host. It is a polyphagous, but it prefers orchids and palms. Its polyphagous nature is exemplified by the fact that the host list in Dekle's "Florida Armored Scale Insects" has well over 300 entries - everything from Achras (Sapodilla) to Yucca.

The species is easily recognized on palms and orchids. The male scales are numerous and have elongate white or tan scale covers with yellowish terminal exuviae. The exuviae of the males usually have a diffuse dark green median longitudinal band. The female scale covers are usually distinctly oval or ellipsoid, not circular or elongate like other scales on palms and orchids.

The exuviae of the females are tan colored and marginal (terminal). The body of the adult female is white to pinkish or reddish. Boisduval scale, Diaspis boisduvalii, is perhaps the most similar scale on orchids and palms. However, the male scale covers of boisduvalii lacks the green blotch on the exuviae. In the females of boisduvalii the scale cover has central exuviae and the body color is lemon yellow.

(cont'd from p. 44)


INSECTS

- LYMANTRIA DISPAR - Eight collections from the following locations:
- SAN BERNARDINO CO., Lake Arrowhead, February 18 (by George Nash) eggmass found on wood swing set (from New Jersey).
- CONTRA COSTA CO., Concord, March 1 (by W. Kean) eggmass found on patio bench (New Jersey) all dets. by R. Somerby).
- ORANGE CO., Anaheim, February 19 (by J. Clodt) eggmass and pieces of pupal case found on mailbox (New Jersey).
- KERN Co., Bakersfield, March 11 (by J. F. Sampson) eggmass found on walls of a wooden dog house (New York); on February 16 (also by Sampson) eggmass found on a plastic mailbox (New York).
- SANTA BARBARA CO., two collections in Montecito: February 28 (by L. R. Bronson) live larva found under jade and oak tree (location: 1355 East Mountain Drive); on March 22 March 10 (by A. V. Castro), egg masses, pupal and larval skins found on patio furniture shipped from Massachusetts (all dets. by T. D. Eichlin).

- A dead pupa found (by R. Wyatt) on March 4 in Orange Co., Stanton, on an outside barbecue (det. by R. Somerby).

- LYMIRE EDWARDII - Los Angeles Co., Pomona, February 18 one larva per leaf found (by J. Shimada) on Ficus benjamina recently shipped from Florida (det. by T. D. Eichlin).

- EUROPEAN CORN BORER (Ostrinia nubilalis) - (A) - Live larva found on February 19 (by J. DeHoop) in a sand box (from Connecticut) in Solano Co., Vallejo (det. by T. D. Eichlin).

- A WEEVIL (Hylobius sp.) - (Q) - and

- MECHEINTHISTATUS SP. - Los Angeles Co., Los Angeles, March 8, an average of two adults found per rot (by Candice McDaniel) in moss (from Washington) (det. by F. g. Andrews).

- POPILIA JAPONICA - (A) - February 24, Los Angeles Co., La Verne, one dead adult specimen found (by Olson) in a truck grill, from Eastern states (det. by F. G. Andres).

- BRADYBAENA SIMILARIS - Alameda Co., Hayward, March 15 (by John Guavaia) specimens found on Ficus benjamina, of Florida origin (det. by T. Kono).

- ACULOPS FUCHSIAE - Two collection. Alameda Co., Castro Valley, February 23 (by John Guavaia) found live nymphs and adult on Fuchsia. San Mateo Co., Colma, March 5 (by H. Struffenegger), specimens found on buds, growing tips and leaves of Fuchsia (dets. by T. Kono).

- TECHNOMYRMEX ALBIPES - March 15, San Joaquin Co., Stockton, live adult specimens found (by C. Davenport) on miscellaneous cut flower from Hawaii (det. by M. Wasbauer).

- PARATRECHINA VIVIDULA - Another Hawaiian emigrant found on Dracaena marginata on March 12 (by Johnston) in Santa Barbara Co., Carpinteria (det. by M. Wasbauer).

- Pheidole megacephala - (Q) - live adult specimens found in San Joaquin Co., Manteca on February 11 (by S. K. Barnes) on cut flowers (Red ginger) from Hawaii (det. by M. Wasbauer).
WOOLLY WHITEFLY (Aleurothrixus floccosus). -(A)- Two collections in San Diego Co.: Escondido (by Sixtus and C. Kennedy) on February 27, pupae found on Citrus reticulata. San Diego (by J. E. Berrian) one pupa found (host not given) on March 1 (dets. by R. Gill).

LESSEER SNOW SCALE (Pinnaspis strachani). -(A)- Four collections. San Diego Co.: Fallbrook (by S. Desserich and R. Vasquez) an average of 5 nymphs and adults per leaf of Areca palm on March 10. - Placer Co., Auburn, live and dead adults found (by J. Jensen) on March 11 on Cocos nucifera. - Sacramento Co., Sacramento, adults found (by Mr. Otsuji) March 4, on Dracaena Warneckei. - Los Angeles Co., Lawndale, an average of 5 adult per leaf found (by Nancy Kellam) on March 4 also on Dracaena Warneckei. - All hosts are imported recently from Hawaii (dets. by R. Gill).


A MEALYBUG (Pseudococcus sp., apparently undescribed). -(Q)- San Bernardino Co., Chino, February 24 Mike Cohen found specimens on Croton sp. of Florida origin (det. by R. Gill).

A WAX SCALE (Ceroplastes, probably sinensis). -(B)- San Mateo Co., Redwood City, on March 11 adults found (by Mr. Giusti) on Citrus sp. (Det. by R. Gill).

COCONUT SCALE (Aspidiotus destructor). -(A)- and

MAGNOLIA WHITE SCALE (Pseudaulacaspis cockerelli). -(A)- Infestation of these two scales found on February 23 (by D. Popilli) in Los Angeles Co., Whittier on Cissus mandarina from Hawaii. He counted an average of 15 nymphs, pupae and adults per leaves (det. by R. Gill).

MINING SCALE (Howardia biclavis). -(A)- Los Angeles Co., Inglewood, March 10, adults found (by Nancy Kellam) on Draceana sp. and Ficus benjamina, shipped from Florida. An average of 3 adults per stem reported (det. by R. Gill).

A SOIL MEALBUG (Rhizoecus americanus). -(Q)- Found in Los Angeles Co., Los Angeles on March 8 (by N. Kellam and Murphy) on Chrysalidocarpus lutescens recently received from Florida. An average of 8 adults per root reported (det. by R. Gill).

AN IRIS MEALBUG (Phenococcus sp., undescribed). -(Q)- One collection in Monterey Co., Castroville on March 8 (by K. Young and B. Oliver) in Iris shipped from Holland. Eggs, nymphs and adults found on bulbs (det. by R. Gill).

A BUG (Anasa armigera). -(Q)- Los Angeles Co., La Puente, March 9, adult specimen found (by Chester Olson) on Sago shipped from Georgia (det. by A. R. Hardy).

SOUTHERN GREEN STINK BUG (Nezara viridula). -(Q)- One collection in Los Angeles Co., Los Angeles on February 24 (by Mr. Shimada) on Tillandsia sp. in a wholesale cactus nursery host shipped from Texas (det. by A. R. Hardy).

A THANK YOU NOTE. - In the occasion of my retirement from state service, I would like to express my most sincere appreciation to those, who so generously helped me during the years in editing and producing the old CPPR and the new CPPDR.

Charles S. Papp
BORDER STATION INTERCEPTIONS

Insects

BLYTHE:

PINK BOLLWORM (Pectinophora gossypiella). -(A)- No date of interception given by the collector, G. T. Andersen. Live larvae found in cotton bolls in an automobile of Oregon registry, enroute from Arizona to San Diego (det. by R. Somerby).

MT. SHASTA:

JAPANESE MEALYBUG (Planococcus Kraunhiae?). -(Q)- Two interceptions, both in passenger automobiles from British Columbia. January 8, early instar nymphs found by D. Bienenfeld on Unshu orange; on January 10 M. Stirling collected nymphs on Japanese mandarin (det. by R. Gill).

YANON SCALE (Unaspis Yanonensis). -(Q)- Ten interceptions. January 4, W. O. Nelson spotted this species on Unshu oranges from Japan in an automobile of British Columbia registry enroute to Los Angeles. - On the 6th R. C. Barbour found Unshu oranges infested by this species in a Washington automobile destined also to Los Angeles. - On the 7th he intercepted Chinese mandarines in a B. C. automobile bound for Riverside, and D. Armstrong found Unshu oranges infested from the same origin traveling to Los Angeles. - On the 8th D. M. Bienenfeld found Japanese Unshu oranges with this scale purchased in Oregon and carried by a returning automobile with destination Burlingame. On January 9, M. Stirling spotted Japanese oranges infested by this species in a B. C. automobile enroute to Brawley. - On the 18th he again detected the same, destined to San Diego. - On the 21st, R. C. Barbour intercepted a Canadian (B. C.) automobile carrying Unshu oranges purchased in Canada, traveling to Anaheim. - on February 2, a Washington automobile carrying mandarines (of unknown origin, purchased in Washington state) to Visalia, and R. C. Barbour found them infested with this scale. - Another Washington traveler to San Diego produced Unshu oranges on the 7th, and found by R. C. Barbour infested (all dets. by R. Gill).


NEEDLES:

HICKORY SHUCKWORM (Laspeyresia caryana). -(A)- Live larvae found in pecans on January 5 by K. Powell in an automobile returning to California (Fresno). The Pecans were purchased in Texas (det. R. Somerby). - March 1, J. Kirby intercepted infested pecans in a New Mexico automobile (larvae) enroute to San Francisco (det. by R. Somerby).

TULE LAKE:


YERMO:

EUROPEAN CORN BORER (Ostrinia nubilalis). -(A)- Live larvae found by D. Cameron in corn on December 31 (sample arrived at lab on January 26) in an Iowa automobile headed to Pasadena (Rose Bowl) (det. by T. Eichlin).
MT. SHASTA:  

**Vertebrates**

FERRET. - One specimen found by D. M. Bienenfeld on February 2 in an Oregon automobile with destination to Modesto. - E. Tracy, Inspector, located another specimen also in an automobile of Oregon registry on March 3, on route to Lake Tahoe.

GERBILS. - Two specimens intercepted on February 9 by M. Stirling in an automobile of New Jersey registry on the way to Santa Monica. - March 2, N. Rosenbalm found one specimen in an automobile from Washington State destined to Santa Ana. - J. Lambirth located another specimen on March 6 in a Washington vehicle with California destination unknown. - 2 specimens located by H. E. Loving in an Oregon automobile on the way to San Jose.

MONK PARAKEET. - One specimen intercepted on February 8 by R. C. Barton in an automobile destined to Orinda.

MT. SHASTA:  

**Weeds**

DIFFUSED Knapweed (Centaurea diffusa). - (A) - All the following finds are from bee hives (pallet boards). January 13 from Washington (to Delhi) (det. by J. Chesi). - January 9, Mr. Anderson located specimens (with mature shells) on pallets in a trailer from Washington state destined to Bella Vista (det. by D. Barbe.) - On January 9 two interceptions from Idaho (to Bella Vista); January 14 one, and 15th two interceptions from Washington (en route to Bakersfield and Snelling, respectively). On January 26 specimens found in floral arrangement from Washington, destined to Palm Springs. - March 7, R. C. Barbour found it in a fish net in an automobile returning to California from Oregon. March 7, seeds found on a fishing net by R. C. Barbour in an automobile returning to Redding from Oregon (det. by B. Hass).


**Miscellaneous News**

MED FLY CONTRACTS. - The following is a list of the Medfly Contracts with a brief description of each. Managed by Bob Dowell at the IPM Program:


### Not in California

Verticillium wilt of alfalfa caused by the fungus *Verticillium albo-atrum* alfalfa pathotype, has been a serious problem in alfalfa fields of northern Europe but not southern Europe. The pathogen can be transported inside the seed coat as an extremely low percentage of infection, yet enough to establish the fungus in the soil in new locations provided the ecological conditions are favorable.

Verticillium wilt of alfalfa has been introduced into Washington, northern Oregon and western Idaho, where it causes reductions in yield and shortens the profitable life of alfalfa fields. It has been found in New York, Pennsylvania, Wisconsin, Minnesota, and Montana but is yet to be evaluated in these areas. Alfalfa breeding in the Northwest has been directed toward producing adaptable resistant alfalfa varieties.

To date, the disease has not been found in California. Several specialists have predicted that the alfalfa pathotype of *V. albo-atrum* will not become a problem in the hot climate of the central valley. This is based on the situations reported in northern Europe and in the Mediterranean area.

In a Detection Advisory, released March 22, 1982, Quintin Holdeman presented a forecast of the probability of introduction and predicted seriousness of the disease in the different climatic regions of California (see map). He predicted that the disease will appear and become serious in alfalfa fields along the fog belt of the northern coast (Del Norte, Humboldt, and northern Mendocino Counties) but will be a minor problem in the fog belt along the remainder of the coast (mid Mendocino to Ventura County).

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Manuscripts are welcome. Address correspondence to Ray Gill or T. E. Tidwell: Division of Plant Industry, R. 340 Sacramento, CA 95814 Phone (916) 445-4521
PEST RATING LIST
Insects, Miscellaneous Arthropods and Mollusks

Part II: Arranged by Common Names

acarine mite (A)
Acarapis woodi
acuminate scale (A)
Kilifia acuminatus
aechmea scale (A)
Gymnaspis aechnaeae
albopicta scale (A)
Acutaspis albopicta
alfalfa seed chalcid (C)
Bruchophagus roddi
alfalfa weevil (C)
Hypera postica
almond moth (C)
Cadra cautella
apple maggot (A)
Rhagoletis pomonella
apple mealybug (A)
Phenacoccus aceris
aralia psyllid (C)
Psylla fatsiae
argus tortoise beetle (B)
Chelymorpha cassidea
arundinaria mealybug (A)
Pseudantonina arundinariae
Asiatic garden beetle (Q)
Maladera castanea
Asiatic rice borer (Q)
Chilo suppressalis
Australian sod fly (B)
Inopis rubriceps
avocado seed moth (Q)
Stenoma catenifera
avocado whitefly (Q)
Trialeurodes floridensis
azalea bark scale (B)
Eriococcus azaleae
azalea mealybug (B)
Criscococcus azaleae

bean pod borer (Q)
Maruca testulalis
bigheaded ant (Q)
Pheidole megacephala
black cherry fruit fly (A)
Rhagoletis fausta
black earwig (C)
Chelisoches morio
black imported fire ant (A)
Solenopsis richteri
black parlatoria scale (Q)
Parlatoria sizyphus
black pecan aphid (C)
Tinocallis caryaeofila
black thread scale (A)
Ischnaspis longirostris
black vine weevil (C)
Otiorhynchus sultatus
black walnut curculio (A)
Conotrachelus retentus
blackheaded ant (Q)
Tapinoma melanocephalum
blueberry maggot (A)
Rhagoletis mendax
bluegrass mealybug (B)
Heterococcus pulverarius
boll weevil (A)
Anthonomus grandis
boxwood leafminer (C)
Monarthropalpus buxi
boxwood scale (Q)
Pinnaspis buxi
brown citrus aphid (Q)
Toxoptera citricida
brown soft scale (C)
Coccus hesperidum
brown wheat mite (C)
Petrobia latens
brown tail moth (A)
Nygmia phaeorrhoea
cabbage moth (Q)
Mamestra brassicae
cabbage seedpod weevil (C)
Ceutorhynchus assimilis
cabbage thrips (Q)
Thrips angusticeps
California red scale (B)
Aonidiella aurantii
camellia parlatoria scale (C)
Parlatoria camelliae
camellia scale (B)
Lepidosaphes camelliae
camphor scale (Q)
Pseudonidia duplex
Caribbean fruit fly (A)
Anastrepha suspensa
carmine spider mite (C)
Tetranychus cinnabarinus
carrot rust fly (B)
Psila rosae
cattleya fly (C)
Eurytomma orchidearum
cereal leaf beetle (A)
Oulema melanopus
chaff scale (B)
Parlatoria pergandii
chestnut moth (A)
Laspeyresia splendana
chinch bug (Q)
Blissus leucopterus
Chinese rose beetle (Q)
Adoretus sinicus
Chinese wax scale (B)
Ceroplastes sinensis
citricola scale (C)
Coccus pseudomagnoliarum
citrillus mealybug (C)
Pseudococcus calceolariae
citrus blackfly (A)
Aleurocanthus woglumi
citrus flat mite (C)
Brevipalpus lewisi
citrus mealybug (C)
Planococcus citri
citrus snow scale (Q)
Unaspis citri

citrus whitefly (C)
Dialeurodes citri
clearwinged grasshopper (C)
Camnula pellucida
cloudy wing whitefly (A)
Dialeurodes citrifolii
clover casebearer (C)
Coleophora spissicorns
clover root borer (B)
Hylastinus obscurus
clover seed chalcid (C)
Bruchophagus platytera
clover seed midge (Q)
Dasyneura leguminicola
clover stem borer (C)
Languira mozardi
Cockerell scale (A)
Lopholeucaspsis cockerelli
coconut scale (A)
Aspidiotus destructor
coffee bean weevil (Q)
Areacerus fasciculatus
Colorado potato beetle (A)
Leptinotarsa decemlineata
Comstock mealybug (A)
Pseudococcus comstocki
conchuela (C)
Chlorochroa ligata
confused flour beetle (C)
Tribolium confusum
corn earworm (C)
Heliotris zeae
corn silk beetle (Q)
Luperodes bruneus
cotton fleahtopper (C)
Atomoscelis seriatus
cotton leafworm (Q)
Alabama argillacea
cotton square borer (C)
Strymon melinus
cotton stainer (Q)
Dysdercus suturellus (ssp.)
Cowilea scale (C)
Clavaspis covilleae
cowpea curculio (Q)
Chalcedopus aeneus
cowpea weevil (C)
Callosobruchus maculatus

crazy ant (B)
Paratrechina longicornis
croton parlatoria scale (Q)
Parlatoria crotonis
croton scale (Q)
Lepidosaphes tokionis
croton whitefly (Q)
Orchemoplasimus mammaefetus
crusty waxed whitefly (Q)
Paraleyrodes natajae
Cuban cockroach (C)
Panchlora nivea
Cuban laurel thrips (C)
Gynaikothrips ficorum
cyanophyllum scale (C)
Abgrallaspis cyanophyllicos

cymbidium scale (C)
Lepidosaphes machili
dark mealworm (C)
Tenebrio obscurus
day lily aphid (C)
Myzus hemerocallis
De Stephan scale (B)
Lepidosaphes destefanii
decollate snail (B)
Rumina decollata
decorated cricket (C)
Gryllodes sigillatus
degenerate scale (C)
Abgrallaspis degeneratus
dentate scale (A)
Valataspis dentata
deodor weevil (Q)
Pissodes nemorensis
devastating grasshopper (C)
Melanoplus devastator
disclose scale (C)
Clavaspis disclosa
Douglas fir bud mite (C)
Trietacaps pseudotsugae
durra stalk borer (Q)
Sesamia cretica
duskyveined walnut aphid (C)
Panaphis juglandis

eastern cherry fruit fly (A)
Rhagoletis cingulata
eggplant fruit borer (Q)  
Leucinodes orbonalis  
eggplant pinworm (B)  
Keiferia penicula  
Egyptian alfalfa weevil (C)  
Hypera brunneipennis  
Egyptian cottonworm (Q)  
Spodoptera littoralis  
elm leaf beetle (C)  
Pyrrhalta luteola  
elm scurfy scale (B)  
Chionaspis americana  
uonymous scale (B)  
Unaspis euonymi  
European chafer (A)  
Rhizotrogus majalis  
European cherry fruit fly (A)  
Rhogetis cerasi  
European clover leafhopper (C)  
Mirificarma formosella  
European corn borer (A)  
Ostrinia nubilalis  
European crane fly (Q)  
Tipula paludosa  
European fruit lecanium (C)  
Lecanium corni  
European fruit scale (Q)  
Quadraspodiotus ostreaeforaeis  
European pine shoot moth (A)  
Rhyacionia buoliana  
face fly (B)  
Musca autumnalis  
false parlatoria scale (A)  
Pseudoparlatoria parlatorioides  
fern scale (C)  
Pinnaspis aspidistrae  
fig wax scale (Q)  
Ceroplastes rusci  
fire ant (Q)  
Solenopsis geminata  
Fletcher scale (C)  
Lecanium fletcheri  
Florida carpenter ant (Q)  
Samponotus abdominall floridanus  
Florida stinking roach (Q)  
Euryctis floridana  
Florida wax scale (Q)  
Ceroplastes floridensis  
Forbes scale (C)  
Quadraspidiotus forbesi  
Formosan subterranean termite (Q)  
Coptotermes formosanus  
fruittree leafroller (C)  
Archips argyrospilus  
Fuller rose beetle (C)  
Pantomorus cervinus  
garden bagworm (B)  
Apterona crenulella  
garden flea hopper (Q)  
Halticus bracteatus  
giant African snail (A)  
Achatina fulica  
globose scale (Q)  
Lecanium prunastrri  
Glover scale (B)  
Lepidosaphes gloverii  
granary weevil (C)  
Sitophilus granarius  
grape berry moth (Q)  
Paralobesia viteana  
grape blossom midge (Q)  
Contarinia johnsoni  
grape leaf folder (C)  
Desmia funeralis  
grape leaf folder (C)  
Harrisia skeletonizer (Q)  
Grass sawfly (B)  
Pachynematus extensicornis  
green burrowing snail (C)  
Helix aperta  
green cloverworm (Q)  
Plathyphema scabra  
green peach aphid (C)  
Myzus persicae  
green scale (Q)  
Coccus viridis  
green shield scale (A)  
Pulvinaria psidii  
greenbug (C)  
Schizaphis graminum  
groundnut seed beetle (Q)  
Caryedon serratus  
gypsy moth (A)  
Lymantria dispar  
Hall scale (A)  
Nilotaspis halli  
harlequin bug (C)  
Murgantia histrionica  
harlequin cockroach (C)  
Neostylopyga rhombiformis  
Harper scale (B)  
Neopinnaspis harperi  
hemispherical scale (C)  
Saissetia coffeae  
herculeana scale (A)  
Clavaspis herculeana  
Hessian fly (C)  
Mayetiola destructor  
hickory shuckworm (A)  
Laspeyresa caryana  
holly leafminer (A)  
Phytomyza illicis  
holly scale (B)  
Dyaspis alni  
hollyhock weevil (C)  
Apion longirostre  
horsechestnut rust mite (C)  
Oxypleurites carinatus  
house cricket (C)  
Acheta domestica  
Howard scale (B)  
Aabralaspis howardi  
hunting bill bug (C)  
Sphenophorus venatus vestitus  


imported cabbageworm (C)
  Pieris rapae
imported mealybug (A)
  Pseudococcus importatus
Indian meal moth (C)
  Plodia interpunctella
Indian wax scale (A)
  Ceroplastes ceriferus
Italian pear scale (C)
  Epidiaspis leperi
Japanese beetle (A)
  Popillia japonica
juniper mealy bug (C)
  Spilococcus juniperi
juniper twig girdler (C)
  Periploca nigra
juniper webworm (Q)
  Dichomeris marginella
Khapra beetle (A)
  Trogoderma granarium
Kirkaldy's whitefly (Q)
  Dialleurodes kirkaldyi
Kuno scale (B)
  Lecanium kunoensis
Kuwana pine mealybug (C)
  Crisicoccus pini
larger black flour beetle (C)
  Cynaeus angustus
laurel scale (Q)
  Aonidia lauri
lawn armyworm (Q)
  Spodoptera mauritia
leek moth (Q)
  Acrolepia assectella
lesser clover leaf weevil (C)
  Hypera nigrirrostris
lesser cornstalk borer (C)
  Elasmopalpus lignosellus
lesser snow scale (A)
  Pinnaspis strachani
lily weevil (C)
  Agasphaerops nigra
linear earwig (C)
  Doru lineare
little fire ant (Q)
  Wasmannia auropunctata
long soft scale (C)
  Coccus longulus
lotus borer (C)
  Ostrinia penitalis
magnolia white scale (A)
  Pseudaulacaspis cockerelli
maize billbug (Q)
  Sphenophorus maidis
mango shield scale (Q)
  Protopulvinaria mangiferae
maple bladdergall mite (A)
  Vasates quadripedes
maple red spider mite (C)
  Oligonychus aceris
masked scale (Q)
  Mycetaspis
Maskell scale (B)
  Lepidosaphes maskelli
Maunaloa bean beetle (Q)
  Araecorynus cummyi
May beetles (Q)
  Phyllophaga spp. (except errans-C)
Mediterranean black scale (C)
  Saisssetia oleae
Mediterranean flour moth (C)
  Anagasta kuehniella
Mediterranean fruit fly (A)
  Ceratitis capitata
melon fly (A)
  Dacus cucurbitae
melonworm (A)
  Diaphania hyalinata
Mexican bean beetle (A)
  Epilachna varivestis
Mexican bean weevil (Q)
  Zabrotes subfasciatus
Mexican fruit fly (A)
  Anastrepha ludens
milk snail (C)
  Otala lactea
mimosa webworm (B)
  Homadaula anisocentra
mining scale (A)
  Howardia biclavis
native holly leafminer (B)
  Phytomyza ilicicola complex
navel orangeworm (C)
  Paramyelois transitella
Norway maple leafhopper (C)
  Alebra albostricella
noxious scale (Q)
  Lepidosaphes noxia
obscure scale (A)
  Melanaspis obscura
odorous house ant (C)
  Tapinoma sessile
oleander scale (C)
  Aspidiotus nerii
olive fruit fly (A)
  Dacus oleae
olive pollinia scale (B)
  Pollinia pollini
olive scale (B)
  Parlatoria oleae
olive thrips (Q)
  Liothrips oleae
olive whitefly (Q)
  Aleurocanthus spiniferus
orange spiny whitefly (Q)
  Aleurocanthus spiniferus
orangedog (C)
  Papilio cresphontes
orchid asterolecanium scale (A)
Asterolecanium epidendri
orchid mealybug (B)
Pseudococcus microcirculus
orchid weevil (C)
Diorymerellus laevimargo
Oriental fruit fly (A)
Dacus dorsalis
oriental fruit moth (C)
Grapholitha molesta
oriental scale (Q)
Aonidiella orientalis
Pacific flatheaded borer (C)
Chrysobothris mali
palm mealybug (Q)
Palmicul tor palmarum
palmetto scale (B)
Comstockiella sabilis
pea leaf weevil (C)
Sitona lineata
pea leafminer (C)
Liriomyza huidobrensis
peach mosaic vector mite (C)
Phytoptus insidiosus
peachtree borer (C)
Synan therdon exitiosa
pear psylla (C)
Psylla pyricola
pear rust mite (C)
Epitimerus pyri
pecan leaf casebearer (A)
Acrobasis juglandis
pecan weevil (C)
Curculio caryae
peony scale (Q)
Pseudonidia paeneiae
pepper flower bud moth (Q)
Gnorimoschema gudmannella
pepper maggot (Q)
Zonosemata electa
pepper weevil (C)
Anthonomus eugenii
persimmon borer (A)
Sannina uroceriformis
phormium mealybug (C)
Trionymus diminutus
pickleworm (A)
Diaphania nitidalis
pine needle scale (C)
Chionaspis pinifoliae
pine scale (Q)
Chionaspis heterophyllae
pineapple scale (C)
Diaspis bromeliae
pink bollworm (A)
Pectinophora gossypiella
pink sugarcane mealybug (Q)
Saccharicoccus sacchari
pistachio seed hæchid (B)
Megastigmus pistacii
pitmaking pittosporum scale (B)
Asterolecanium arabidis
pittosporum diaspidid (B)
Parlatoria pittospori
pittosporum etiococcin scale (B)
Eriococcus pittospori
plum curculio (A)
Conotrachelus nenuphar
plumose scale (Q)
Morganella longispina
podocarpus leucaspis scale (C)
Leucaspis portaeareae
potato flea hæspis (Q)
Epitrix cucumeris
powderpost termite (Q)
Cryptotermes brevis
privet mite (C)
Brevipalpus obovatus
privet thrips (B)
Dendrothrips ornatus
psyllids (Q)
Pachypsylla spp.
purple scale (B)
Lepidosaphes beckii
pustule scale (Q)
Asterolecanium pustulans
Putnam scale (C)
Diaspidiotus ancyclus
pyriform scale (B)
Protopulvinaria pyriformis
Queensland fruit fly (A)
Dacus tryoni
raisin moth (C)
Cadra figulilella
rapid plant bug (Q)
Adelphocoris rapidus
raspberry root gall wasp (Q)
Diastrophus radicum
red flour beetle (C)
Tribolium castaneum
red imported fire ant (A)
Solenopsis invicta
red turpentine beetle (C)
Dendroctonus valens
red orchid scale (A)
Puccasips biformis
red wax scale (A)
Ceroplastes rubens
redhanded thrips (Q)
Selenothrips rubrocinctus
redhumped caterpillar (C)
Schizura concinna
rednecked cane borer (Q)
Agrihas ruficollis
Rhodesgrass scale (B)
Antonina graminis
rhododendron rust mite (C)
Phyllocoptes davisi
rhododendron whitefly (Q)
Dialeurodes chittendeni
rice delphacid (Q)
Sogatodes oricola
rice pentatomid (Q)
Scotinophara lurida
rice stall borer (Q)
Chilo plejadellus
walnut leafminer (c)
Nepticula juglandifoliella
western Indian fruit fly (A)
Anastrepha mominaeoptans
western cherry fruit fly (A)
Rhagoletis indifferens
western grapeleaf skeletonizer (B)
Harrisina brilliana
western peachtree borer (C)
Sanninoida exitiosa "graeini"
western pine tip moth (B)
Rhyacionia bushellii
wheat curl mite (C)
Eriophyes tulipae
wheat midge (Q)
Sitodiplosis mosellana
wheat sawfly (C)

Life Cycle
The gypsy moth goes through four stages of development—egg, larva (caterpillar), pupa (chrysalis), and adult moth. It has one generation a year; overwintering in egg masses attached to trees, shrubs, vines, logs, and other outdoor objects. Each gypsy moth egg mass contains up to 1,000 eggs and is covered by tuft of floss or yellowish hair from the abdomen of the female. The velvety egg mass averages about 1.5 inches long and about 1/4 of an inch wide.

The eggs begin hatching in late April or early May. The brownish-grey caterpillars are easy to identify when abundant: grown up, they are purplish-red and blue-striped on their backs. Mature caterpillars are from 1 to 2 inches long.

Caterpillars enter the "cocoon" stage later in June or early in July, emerging from their dark brown pupal cases in 10 to 14 days as moths. Males have dark-brown forewings and a 1-inch wingspread. Female moths are white with a wingspread of about 2 inches.

The sexes do not feed in the moth stage, but only mate and lay eggs. Depending on weather and location, eggs are laid between July and September.

Hosts:
1. Preferred hosts of the gypsy moth are oak, apple, elder, aspen, birch, willow, and hickory. The caterpillars also attack broom, cherry, black gum, hickory, linden, larch, maple, pine, sassafras, and spruce.
2. Flying insects indicate the following insects can be hosts: REDWOOD, APRICOT, MAMMOTH, PHOTINA, MONTENRY PINE, CALIFORNIA OAKS, PYRACANTHA, DOUGLAS FIR, INDIAN HAWTHORN, SUGAR BUSH, AND WESTERN RED CEDAR.
3. Species not favored by the gypsy moth include ash, basswood, butternut, black walnut, catalpa, red cedar, dogwood, holly, beech, sugar maple, and tulip poplar.

What is the gypsy moth?
It is a serious insect pest of trees and shrubs, and it causes damage in the caterpillar (larval) stage when it can eat as much as 1 pound of foliage daily. When there are many caterpillars, they defoliate trees, weakening and sometimes killing them. A disturbed watershed increases both fire and erosion potential.

How did it get to the U.S.?
This pest was brought to New England in 1869 by a naturalist moving for a way to develop a disease-resistant lilac tree. To achieve this, he undertook to introduce the asparagus with the gypsy moth. A seminaturalized infestation spread, and eventually it is now found in Maine, New Hampshire, and Massachusetts.

How did it come to California?
The gypsy moth is a notorious hitchhiker. The female lays her eggs during the late summer and fall on just about anything—trees, outdoor furniture, automobiles, tractors, campers, etc. If eggs are placed on something that is re-introduced, a gypsy moth can be transported just about anywhere. Egg masses are not always visible. For example, the female can place them underneath a vehicle in places nobody would suspect.

Why did it survive?
Without its natural enemies, gypsy moths can flourish in a new environment. In Europe, natural enemies help keep gypsy moths in check. Here, gypsy moths have plenty to eat and nothing to stop them from expanding their numbers.

A two-folded color brochure (8.5"x11") recently published by the Department depicting the life stages of the Gypsy Moth. Available free of charge.
## CALIFORNIA BLACK LIGHT TRAP REPORT

For the week ending

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### PESTS

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81-033 (EN 6-77)
CALIFORNIA BLACK LIGHT TRAP REPORT

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<td>ALFALFA LOOPER (Autographa californica)</td>
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<td>ARMYWORM (Pseudol trauma unipuncta)</td>
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<td>BEET ARMYWORM (Spodoptera exigua)</td>
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<td>BLACK CUTWORM (Agrotis ipsilon)</td>
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<td>CABBAGE LOOPER (Trichoplusia ni)</td>
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<td>CLOVER CUTWORM (Scotogramma trifolii)</td>
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<td>CODLING MOTH (Laspeyresia pomonella)</td>
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<td>FEBRUARY MOTH (Feralia februalis)</td>
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<td>FALSE CELERY LEAF TIER (Udea profundalis)</td>
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<td>SALTMARSH CATERPILLAR (Euglyptodes acre)</td>
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<td>SUGARBEET WEBWORM (Loxostege strictalis)</td>
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<td>TOBACCO BUDWORM (Helicidula virescens)</td>
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<td>W. YELLOWSTRIPED ARMYWORM (Spodoptera prasina)</td>
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<td>A NOCTUID MOTH (Dargida procincta)</td>
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<td>A NOCTUID MOTH (Xylomyges hiemalis)</td>
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<td>GREEN FRUITWORM (Orthosia hibisci)</td>
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<td>GRAPE LEAF FOLDER (Desmia funeralis)</td>
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Reorganization in Plant Industry

THE CONTROL AND ERADICATION UNIT of the Division of Plant Industry now includes the Pink Bollworm Program, the Curly Top Virus Program, the Apiary Program, the Tristeza Program, the Weed Programs, the Vertebrate Programs, the Hydrilla Program, and the Comstock Mealybug Program.

The unit is headed by Bob Roberson with three Program Supervisors and eight Project Leaders. The following list outlines briefly these assignments in the Control and Eradication Unit.

Bob Roberson, Unit Chief (916) 445-0984

Dick Fehlman, Program Supervisor (916) 445-0984
Arnie Morrison, Project Leader, CTV (209) 445-5472
Dave Cordas, Project Leader, Tristeza (209) 688-2650
Leo Vanderpool, Project Leader, Comstock Mealybug (916) 445-0984
Len Foote, Program Supervisor (916) 445-0984
Pat Paswater, Project Leader, Apiary (916) 445-0981
Jerry Smith, Program Supervisor (916) 445-0984
Jim Jensen, Project Leader, Skeletonweed (916) 985-4718


IN THE LAST EDITION we reported the name change from "Laboratory Services" to "Analysis and Identification". - "Identification" is obvious but what does "Analysis" mean? - We hope, in response to a recent task force recommendation to add a staff of specialist whose duties will be to develop and analyze informations on exotic plant pests to determine additional informations (research) needed and actions that should be taken if one or more of these pests were found in the State.

PEST EXCLUSION. - Ouch! you can always tell a persons age by the amount of pain associated with change. We have changed. First, our name is now Pest Exclusion, instead of Exclusion and Detection. The commodity treatment work has also been transferred to the ESP unit. In summary our unit is in charge of the interior exclusion, exterior exclusion (border) and work in Permits and Regulations.

RESIGNED. - Frank Stegmiller resigned his position as Program Supervisor, Pest Prevention, ESP, as of March 30th. Til June 30th he will be Program Supervisor, Special Projects, (Med Fly Avereness) with the Exclusion unit.

PEST DETECTION AND EMERGENCY PROJECTS. - Effective March 1, 1982, Pest Detection was moved from Exclusion and Detection to Emergency and Special Projects (ESP) Unit. Previously, the ESP Unit was responsible for the eradication of all plants pests, i.e. Medfly, Oriental fruit fly, khapra bettle and gypsy moth (just to name a few pest eradication projects during the last two years). In addition, the Unit was assigned a special project to explore the feasibility to guayule commercialization in California. The three-year guayule demonstration and development project has just been completed.

In view of the recent addition of pest detection responsibilities, the Unit's mission has been expanded to pest detection and eradication. Consequently, the Unit has been renamed PEST DETECTION AND EMERGENCY PROJECTS. In addition to the overall responsibilities of pest detection and eradication in California, the Unit is also responsible for commodity treatment activities. This organization in the Division of Plant Industry will improve the detection and eradication of major agricultural pests, according to Isi Siddiqui, Chief of Pest Detection and Emergency Projects.