CALIFORNIA PLANT PEST and DISEASE REPORT

Volume 1 Number 4

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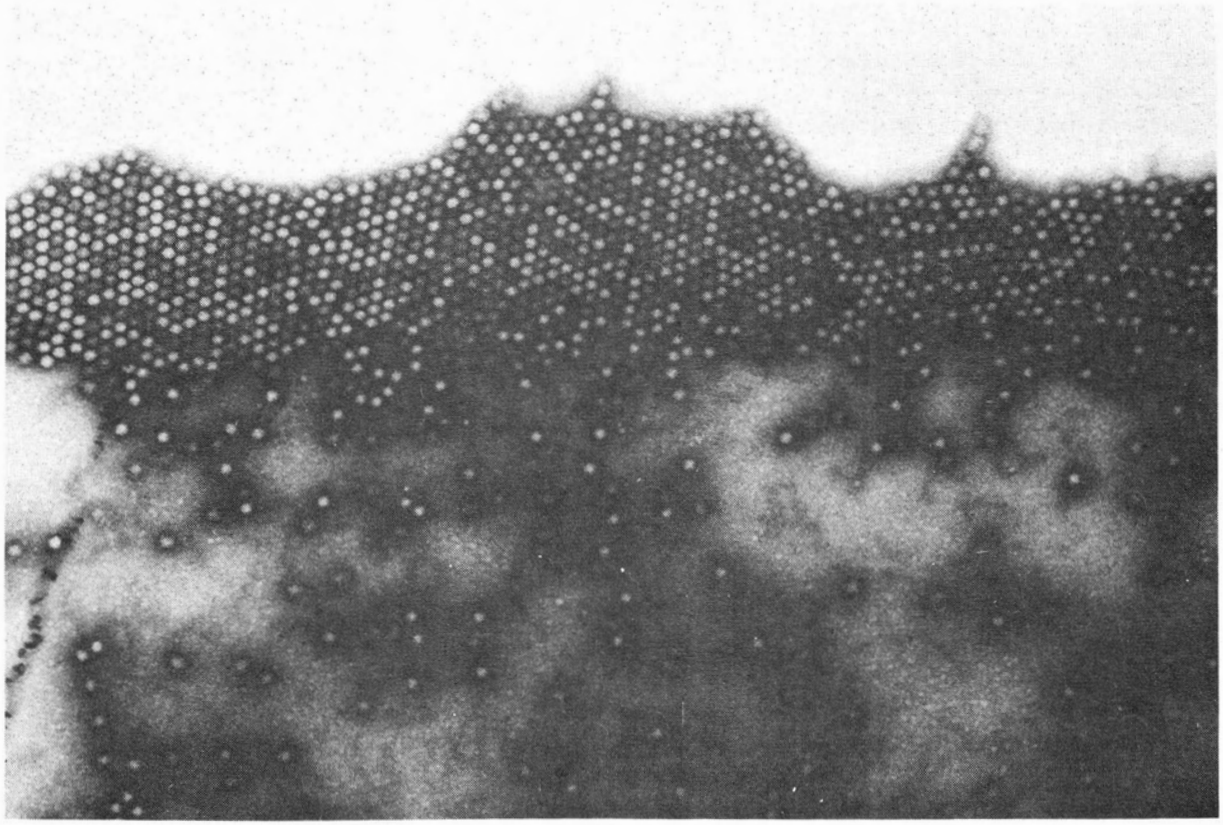
California Department of Food and Agriculture 1220 N Street Sacramento California 95814



Negatively stained preparation of partially purified squash mosaic virus. Squash mosaic virus is a common cucurbit virus found in California. The virus is seed-borne and also transmitted by cucumber beetles. Squash mosaic virus causes a mottle of leaves and may cause malformation of fruit. Each isometric virus particle measures about 30 nanometers. (Photo by Dr. D. Mayhew)

CALIFORNIA PLANT VIRUS DATA BASE

M. Rose Wilkerson

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 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 - & Biochemical	no. of component particles, nucleic acid, molecular wt., absorbance ratio, extinction coefficient, temperature inactivation point, dilution end point
Transmission -	mode of transmission, vectors
Distribution -	within California, within 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 base 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.

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 & Agriculture
1220 N Street, Room 340
Sacramento, CA 95814
(916) 445-4521

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CHARACTERISTICS SEARCHED:  MORPHOLOGY - ISO
                           TRANSMISSION - MECHANICAL
                           CALIFORNIA HOST - 'CUC'

Note: The word root CUC will be searched regardless of where it occurs
      within the name.

SEARCH RESULTS:

VIRUS NAME - CUCUMBER MOSAIC
SYNONYMS - CUCUMBER VIRUS 1,CUCUMIS VIRUS 1,MARMOR CUCUMERIS*
VIRUS GROUP - CUCUMOVIRUS
MORF - ISO
DIMENSIONS - 28
INCLUSIONS - AGR
#C - 3
NUCLEIC ACID - SSRNA
MOLECULAR WEIGHT - P=24.5, V=5-6.7
ABSORBANCE - 260/280= 1.7
EXT. COEFF - 5 @ 260
TIP - 10M @ 70C
DEP -
SB - Y
TRANSMISSION - MECH,INSECT,DODDER
VECTORS - APHIDS
DIAGNOSTIC HOST-SYMPTOM - CH. Q,AMAR=CLL,NLL; CUCUMIS SATIVUS=SM; L. ESCULENTUM=
SM,DIS; N. GLUTINOSA=SM,VCL; V. UNGUICULATA=NLL,SM     HR/40 FAMILIES
DISTRIBUTION - WS WORLD WIDE
REFERNCES/COMMENTS - * SPINACH BLIGHT, TOMATO FERN LEAF    REF/C.M.I. 213
CALIFORNIA HOSTS - APIUM, AQUILEGIA, BETA, CAPSICUM, CARTHAMUS, CITRULLUS, CUCUM
IS, CUCURBITA, DICHONDRA, GLADIOLUS, IRIS, LACTUCA, LILIUM, LYCOPERSICON, SONCHU
S, SPINACIA, VIBURNUM, VIGNA, ZEA

VIRUS NAME - SQUASH MOSAIC
SYNONYMS - CUCURBITAVIRUS MACULANS,CUCURBIT RING MOSAIC *
VIRUS GROUP - COMOVIRUS
MORF - ISO
DIMENSIONS - 30
INCLUSIONS -
#C - 3
NUCLEIC ACID - SSRNA
MOLECULAR WEIGHT - V=4.5(T),6.1(M),6.9(B)
ABSORBANCE - 260=6.8
EXT. COEFF -
TIP - 10M @ 70C
DEP - 4
SB - Y
TRANSMISSION - MECHANICAL, INSECT
VECTORS - CHRYSOMELID BEETLES
DIAGNOSTIC HOST-SYMPTOM - CUCURBITA PEPO=SM,DIS,RS; CITRULLUS LANATUS=IM,NLL; CU
CUMIS SATIVUS=VCL,VB   HR/42
DISTRIBUTION - WS WORLD WIDE
REFERNCES/COMMENTS - * MUSKMELON MOSAIC, MARMOR MELONIS, WATERMELON STUNT   REF/
C.M.I. 43
CALIFORNIA HOSTS - CITRULLUS VULGARIS, CUCUMIS MELO,C. MELO VAR CANTALU,INODORUS
,RETICULATUS, C. SATIVUS, CUCURBITA MAXIMA, C. MOSCHATA, C. PEPO, C. PEPO VAR ME
DULLOSA,MELOPEPO
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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.

RUST OF ALOE, *UROMYCES ALOES*

T. T. Matsumoto, W. Gillette, D. Supkoff
and C. Fukushima

The only known 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, Losotho, Madagascar, Malowi, Rhodesia, Tanzania and Uganda); Europe (United Kingdom); and Asia (India and Japan).

Early stages 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. a, b). The sorus contains numerous teliospores (Fig. c). Teliospores are generally globoid to ovoid (20-35 x 22-55 u), with walls 4-7 u thick and hyaline pedicels (Fig. d).

T.T. Matsumoto is a plant pathologist and C. Fukushima is an Agricultural Inspector with the CDFA Analysis and Identification Unit, Sacramento. W. Gillette is a plant pathologist for the County of Santa Barbara; David Supkoff is a Pest Management Specialist with the CDFA Biocontrol Unit, Sacramento.

*"A" - An organism of known economic importance subject to state (or Commissioner when acting as a state agent) enforced action involving: eradication, quarantine, regulation, containment, rejection or other holding action.

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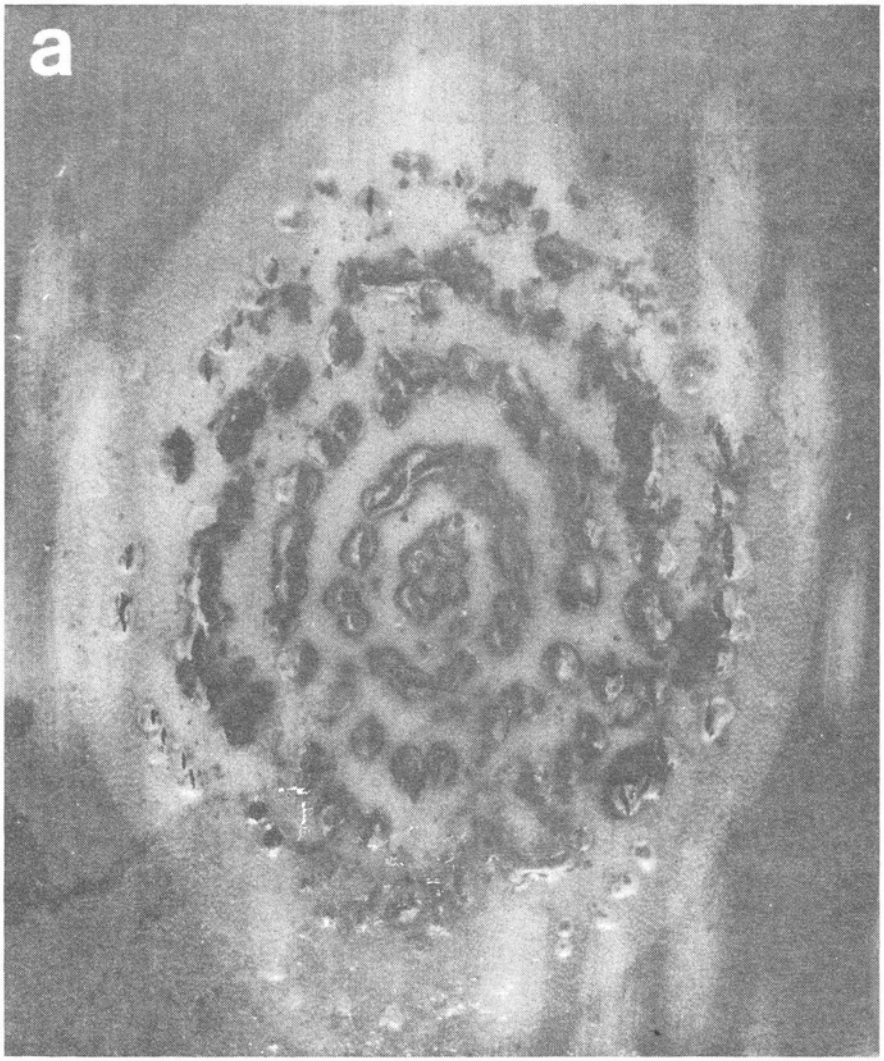
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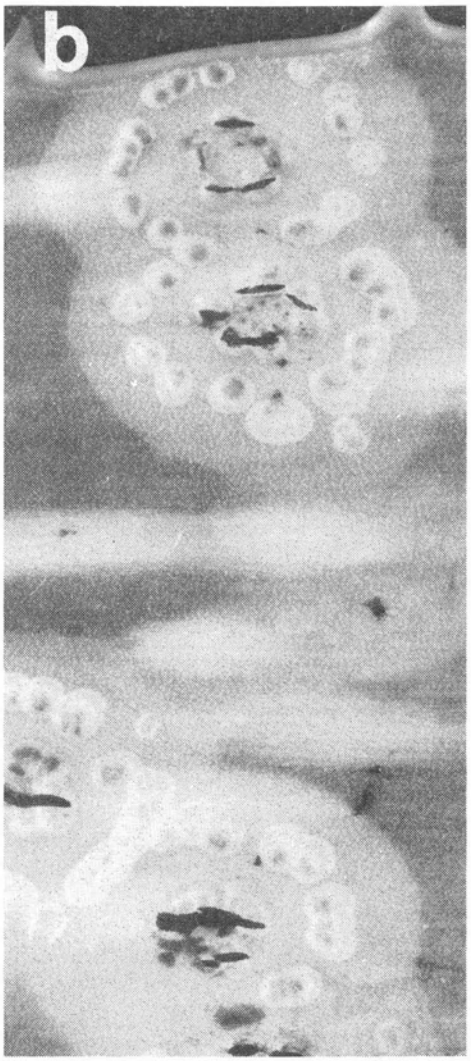
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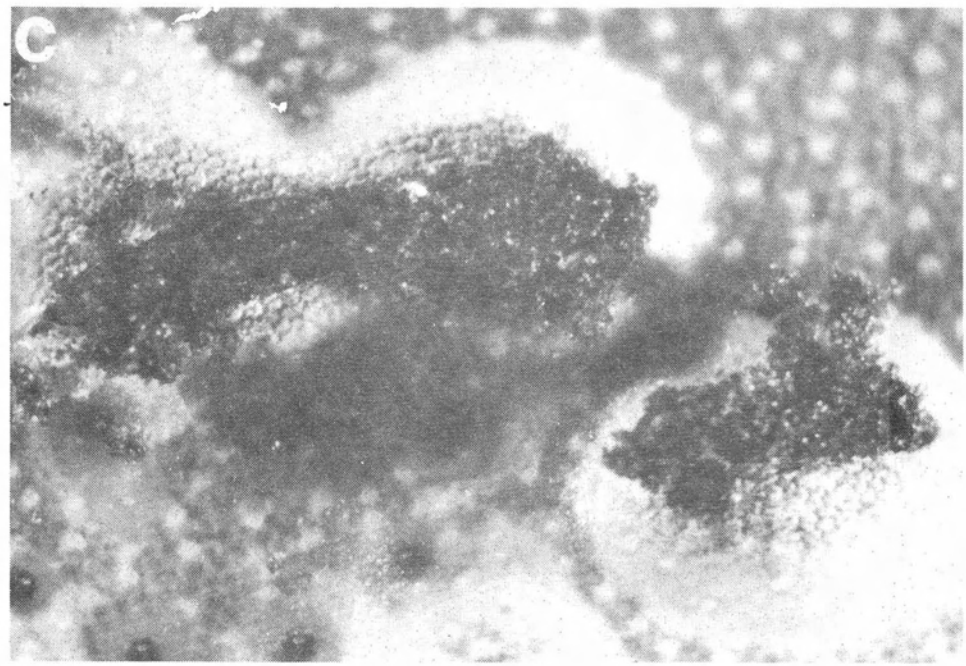
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d

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.

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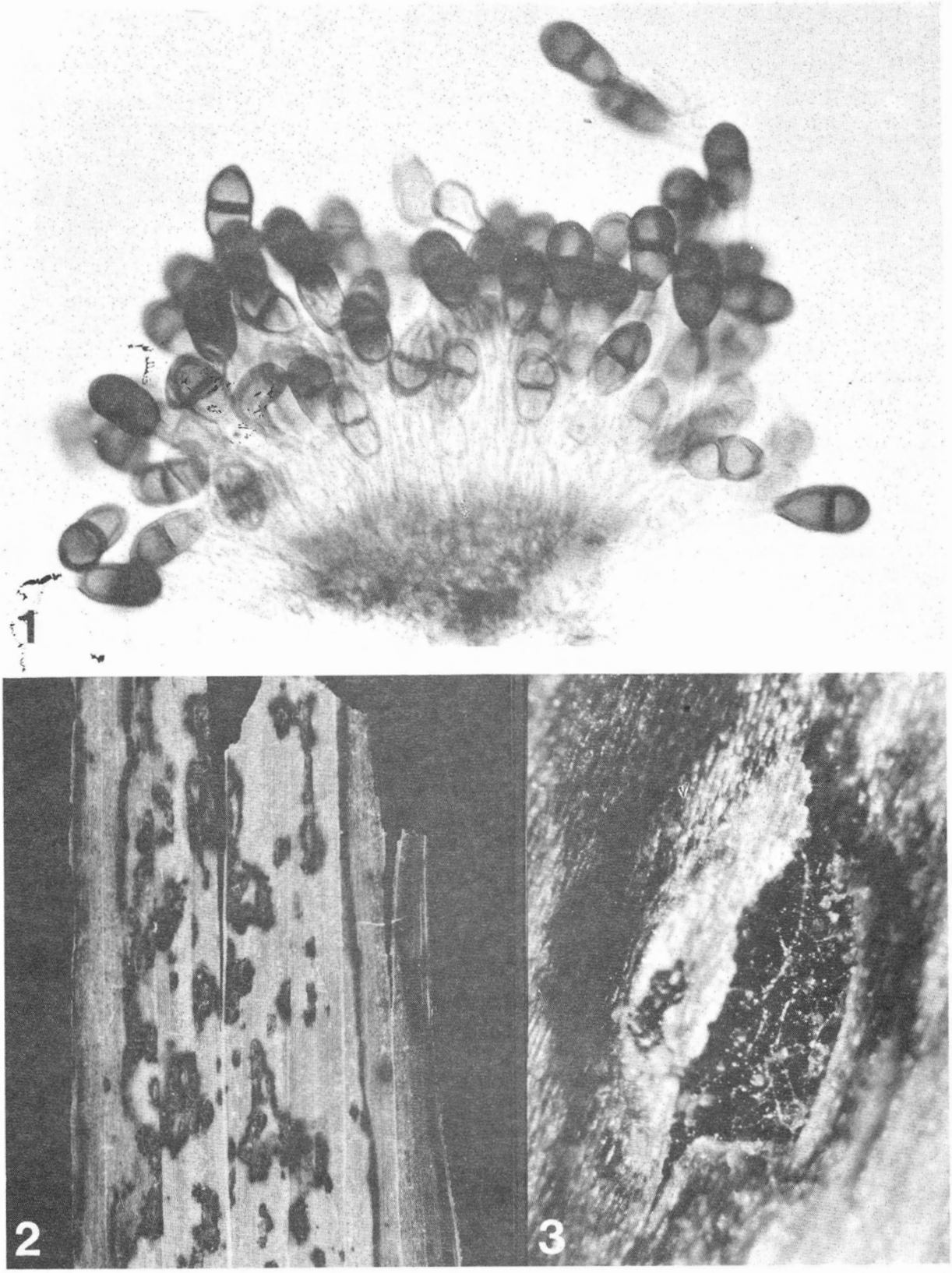

Fig. 1. Teliospores of *Puccinia purpurea*. Fig. 2. Leaf spots caused by sorghum rust on sorghum leaf. Fig. 3. Telial pustule containing teliospores.

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 eradicative 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 polyphagous, but 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* lack the green blotch on the exuviae. In the females of *boisduvalii* the scale cover has central exuviae and the body color is lemon yellow.

Ray Gill is a systematic entomologist with the Analysis and Identification Unit, Sacramento. His specialty is insects of the order Homoptera.

HIGHLIGHTS

Insects

GYPSY MOTH (Lymantria dispar).
-(A)- 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, Februrary 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 Massachussets (all dets. by T. D. Eichlin).

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

A MOTH (Lymire edwardsii). -(Q)- Los Angeles Co., Pomona, February 18 one larva per leaf found (by J. Shimada) on Ficus banjamina 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

A LONGHORN BEETLE (Mesechthistatus sp.) -(Q)- 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).

JAPANESE BEETLE (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).

A SNAIL (Bradybaena similaris). -(Q)- Los Angeles Co., Inglewood, live adults and juveniles found on March 10 (by Nancy Kellam) on the folloiwng hosts: Dracaena fragrans, Warneckeii and Ficus benjamina. Alameda Co., Hayward, March 15 (by John Gouvaia) specimens found on Ficus benjamina, of Florida origin (det. by T. Kono).

A MITE (Aculops fuchsiae). -(Q)- 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).

An ANT (Technomyrmex albipes).
-(Q)- March 15, San Joaquin Co., Stockton, live adult specimens found (by C. Davenport) on miscellaneous cut flower from Hawaii (det. by M. Wasbauer).

AN ANT (Paratrechina vividula).
-(Q)- Another Hawaiian emigrant found on Dracaena marginata on March 12 (by Johnston) in Santa Barbara Co., Carpinteria (det. by M. Wasbauer).

BIGHEADED ANT (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).

LESSER 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 Warneckeii. - Los Angeles Co., Lawndale, an average of 5 adult per leaf found (by Nancy Kellam) on March 4 also on Draceana Warneckeii. - All hosts are imported recently from Hawaii (dets. by R. Gill).

SANSEVIERIA SCALE (Parlatoria proteus). -(A)- Specimens collected on Lady Slipper (Orchidaceae) by T. Tidwell on March 17 in Sacramento (Det. by R. Gill).

A MEALYBUG (Pseudococcus elisae). -(Q)- Two collections, both in San Diego Co., Encinitas. On February 25 and March 11 P. Boch found live adults on Aglaonema commutatum (det. 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 passanger 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 purchsed 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).

HOLLY LEAFMINER (Phytomyza ilicis). -(A)- January 23, D. W. Middleton intercepted holly in an Oregon automobile enroute to Palm Springs (det. by K. Corwin).

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:

APPLE MAGGOT (Rhagoletis pomonella). -(A)- February 17 M. Spooner detected live and dead larvae in an automobile of Oregon registry, destined to Kings Beach, in Oregon apples (det. by K. Corwin). - March 4, live and dead larvae found in apples by M. Spooner enroute from Oregon to Alturas (det. by K. Corwin).

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, en route to Lake Tahoe.

GERBILS. - Two speciemens 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 schenes) 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 arrangment 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).

SPOTTED KNAPWEED (Centaurea maculosa). -(A)- March 23, W. Leslie found specimens in a floral arrangement carried in a U-Haul trailer of Washington origin enroute to Fresno. On March 23, seeds found in a floral arrangement in a Florida automobile by Wayne Leslie, destined to Fresno, via Washington State (det. by J. Chesi).

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:

1. Trap Development - Dick Rice - Investigate the possibility of improving Medfly trap catch by using colored traps and/or new trap designs, (UCD) - 2. Honey bee - Norm Gary and Eric Mussen - Evaluate the impact of Malathion-bait sprays on honey bee mortality rates, (UCD). - 3. Ice Plant Scale - Ken Hagen and Gordon Frankie - Evaluate impact of Malathion-bait sprays on ice plant scale and its biological control agents, (UCB). - 4. Predatory mites and Lacewings - Marjorie Hoy - Evaluate whether lacewing adults or larvae and pesticide resistant predatory mite adults or nymphs will eat the Malathion-bait, (UCB). - 5. Argentine ant - Tom Baker - Evaluate impact of Malathion-bait on workers and colonies of argentine ants, (UCR). - 6. Lady Bird Beetles Jeff Granett - Evaluate impact of Malathion-bait on lady bird bettles, (UCD). - 7. Simulation Model - Jim qarey (2 contracts) - To develop an interregional model of Medfly dispersal and gather the data to valid input variables, (UCD). -

8. Spray Impact - Native Trees - Don Dahlsten - Evaluate the impact of Malathion-bait sprays on the major pests and their associated natural enemies on native trees in the urban setting, (UCB). - 9. Spray Impact-Commercial Trees - Les Ehler - Evaluate the impact of Malathion-bait sprays on scales and aphids and their natural enemies on commercial trees in the urban setting, (UCD). - 10. Gamma Radiation - James Moy - Evaluate gamma radiation exposure on Medfly larvae and fruit quality, (University of Hawaii). - 11. Community Survey - Glenn Hakes, Mark Pilisuk and Martha Stiles - To analyze a questionaire dealing with community views on the Medfly Program, (UCD).

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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 aechmeae
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)
  Crisicoccus azaleae

bagworm (A)
  Thyridopteryx ephemeraeformis
balsam fir gall midge (B)
  Dasyneura balsamicola
banana aphid (C)
  Pentalonia nigronervosa
barnacle scale (C)
  Ceroplastes cirripediformis
bean aphid (C)
  Aphis fabae
bean butterfly (Q)
  Lampides boeticus
bean fly (Q)
  Ophiomyia phaseoli
bean leaf beetle (Q)
  Cerotoma trifurcata
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 caryaefoliae
black thread scale (A)
  Ischnaspis longirostris
black vine weevil (C)
  Otiorhynchus sulcatus
black walnut curculio (A)
  Conotrachelus retentus
blackheaded ant (Q)
  Tapinoma melancoephalum
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
browntail 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)
  Pseudaonidia duplex

Caribbean fruit fly (A)
  Anastrepha suspensa
carmine spider mite (C)
  Tetranychus cinnabarinus
carrot rust fly (B)
  Psila rosae
cattleya fly (C)
  Eurytoma 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
citrophilus 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 spissicornis
clover root borer (B)
  Hylastinus obscurus
clover seed chalcid (C)
  Bruchophagus platyptera
clover seed midge (Q)
  Dasyneura leguminicola
clover stem borer (C)
  Languira mozardi
Cockerell scale (A)
  Lopholeucaspis 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)
  Heliothis zea
corn silk beetle (Q)
  Luperodes brunneus
cotton fleahopper (C)
  Atomoscelis seriatus
cotton leafworm (Q)
  Alabama argillacea
cotton square borer (C)
  Strymon melinus
cotton stainer (Q)
  Dysdercus suturellus (& ssp.)
Covillea scale (C)
  Clavaspis covilleae
cowpea curculio (Q)
  Chalcodermus 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)
  Orchamoplatus mammaefetus
crustywaxed whitefly (Q)
  Paraleyrodes natanjae
Cuban cockroach (C)
  Panchlora nivea
Cuban laurel thrips (C)
  Gynaikothrips ficorum
cyanophyllum scale (C)
  Abgrallaspis cyanophylli
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
deodar weevil (Q)
  Pissodes nemorensis
devastating grasshopper (C)
  Melanoplus devastator
discluse scale (C)
  Clavaspis disclusa
Douglas fir bud mite (C)
  Trisetacus 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 peniculo
Egyptian alfalfa weevil (C)
  Hypera brunneipennis
Egyptian cottonworm (Q)
  Spodoptera littoralis
elm leaf beetle (C)
  Pyrrhalta luteola
elm scurfy scale (B)
  Chionaspis americana
euonymous scale (B)
  Unaspis euonymi
European chafer (A)
  Rhizotrogus majalis
European cherry fruit fly (A)
  Rhagoletis cerasi
European clover leaftier (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)
  Quadraspidiotus ostreaeformis
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 abdominali floridanus
Florida stinking roach (Q)
  Eurycotis 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 fleahopper (Q)
  Halticus bracteatus
giant African snail (A)
  Achatina fulica

globose scale (Q)
  Lecanium prunastri
Glover scale (B)
  Lepidosaphes gloverii
granary weevil (C)
  Sitophilus granarius
grape berry moth (Q)
  Paralobesia viteana
grape blossom midge (Q)
  Contarinia johnsoni
grape leaffolder (C)
  Desmia funeralis
grapeleaf skeletonizer (Q)
  Harrisina americana
grass sawfly (B)
  Pachynematus extensicornis
green burrowing snail (C)
  Helix aperta
green cloverworm (Q)
  Plathypena 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 rhombifolia
Harper scale (B)
  Neopinnaspis harperi
hemispherical scale (C)
  Saissetia coffeae
herculeana scale (A)
  Clavaspis herculeana
Hessian fly (C)
  Mayetiola destructor
hickory shuckworm (A)
  Laspeyresia caryana
holly leafminer (A)
  Phytomyza illicis
holly scale (B)
  Dynaspidiotus britannicus
hollyhock weevil (C)
  Apion longirostre
horsechestnut rust mite (C)
  Oxypleurites carinatus
house cricket (C)
  Acheta domestica
Howard scale (B)
  Abgrallaspis howardi
hunting billbug (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 leperii

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)
  Dialeurodes 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 nigrirostris
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)
  Araeocorynus cumingi
May beetles (Q)
  Phyllophaga spp. (except errans-C)
Mediterranean black scale (C)
  Saissetia 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 albostriella
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 tinea (Q)
  Prays oleallus
omnivorous leaftier (C)
  Cnephasia longana
onion thrips (C)
  Thrips tabaci
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)
  Palmicultor 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)
  Synanthedon exitiosa
pear psylla (C)
  Psylla pyricola
pear rust mite (C)
  Epitrimerus pyri
pecan leaf casebearer (A)
  Acrobasis juglandis
pecan weevil (C)
  Curculio caryae
peony scale (Q)
  Pseudaonidia paeoniae
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 chalcid (B)
  Megastigmus pistaciae
pitmaking pittosporum scale (B)
  Asterolecanium arabidis
pittosporum diaspidid (B)
  Parlatoria pittospori
pittosporum eriococcin scale (B)
  Eriococcus pittospori
plum curculio (A)
  Conotrachelus nenuphar
plumose scale (Q)
  Morganella longispina
podocarpus leucaspis scale (C)
  Leucaspis portaeaureae
potato flea beetle (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 ancylus
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)
  Futcaspis biformis
red wax scale (A)
  Ceroplastes rubens
redbanded thrips (Q)
  Selenothrips rubrocinctus
redhumped caterpillar (C)
  Schizura concinna
rednecked cane borer (Q)
  Agrilus ruficollis
Rhodesgrass scale (B)
  Antonina graminis
rhododendron rust mite (C)
  Phyllocoptes davisi
rhododendron whitefly (Q)
  Dialeurodes chittendeni
rice delphacid (Q)
  Sogatodes orizicola
rice pentatomid (Q)
  Scotinophara lurida
rice stalk borer (Q)
  Chilo plejadellus

walnut leafminer (C)
  Nepticula juglandifoliella
West Indian fruit fly (A)
  Anastrepha mombinpraeoptans
western cherry fruit fly (A)
  Rhagoletis indifferens
western grapeleaf skeletonizer (B)
  Harrisina brillians
western peachtree borer (C)
  Sanninoidea exitiosa "graefi"
western pine tip moth (B)
  Rhyzcionia bushnelli
wheat curl mite (C)
  Eriophyes tulipae
wheat midge (Q)
  Sitodiplosis mosellana
wheat sawfly (C)
  Pachynematus sporax
wheat stem maggot (C)
  Meromyza americana
wheat strawworm (C)
  Harmolita grandis

white garden snail (A)
  Theba pisana
white peach scale (Q)
  Pseudaulacaspis pentagona
whiteflies (Q)
  Aleurocerus spp.
whitefringed beetles (A)
  Graphognathus spp.
willow bark scale (C)
  Ericoccus borealis
woolly whitefly (A)
  Aleurothrixus floccosus

yanagicola scale (Q)
  Lepidosaphes yanagicola
yellow mealworm (C)
  Tenebrio molitor
yellow scale (B)
  Aonidiella citrina
yucca mealybug (B)
  Cataenococcus olivaceus

CALIFORNIA BLACK LIGHT TRAP REPORT

DATE	4-1-82	4-4-82	4-4-82	4-12-82	4-12-82
LOCATION	Manteca	Manteca	Bellota	Manteca	Bellota
TEMPERATURE	Negative			48-70	
ALFALFA LOOPER *Autographa californica*					2
ARMYWORM *Pseudaletia unipuncta*		6		21	3
BEET ARMYWORM *Spodoptera exigua*					
BLACK CUTWORM *Argrotis ipsilon*				1	1
CABBAGE LOOPER *Trichoplusia ni*					
CLOVER CUTWORM *Scotogramme trifolii*				1	
CODLING MOTH *Laspeyresia pomonella*					
CORN EARWORM, (ETC.) *Heliothis zea*					
FALSE CELERY LEAFTIER *Udea profundalis*				1	2
GRANULATE CUTWORM *Feltia subterranea*					
SALTMARSH CATERPILLAR *Estigmene acrea*				1	
SPOTTED CUTWORM *Amathes c-nigrum*		1	1	2	1
SUGARBEET WEBWORM *Loxostege sticticalis*					
TOBACCO BUDWORM *Heliothis virescens*					
W. YELLOWSTRIPED ARMYWORM *Spodoptera praefica*					
NAVEL ORANGE WORM Amyelois transitella				2	
A NOCTUID MOTH Feralia februalis			1		
A NOCTUID MOTH Xylomyges hiemalis					1
ROUGH SKINNED CUTWORM Proxenus mindara					1
VARIEGATED CUTWORM Peridroma saucia				2	4

61-033 (Ext. 5-77)

CALIFORNIA BLACK LIGHT TRAP REPORT

DATE	2-28-82	3-9-82	3-15-82	3-19-82	3-25-82
LOCATION	Bellota	Manteca	Bellota	Manteca	Manteca
TEMPERATURE		44-65			
ALFALFA LOOPER *Autographa californica*	4		1		
ARMYWORM *Pseudaletia unipuncta*	3			3	7
BEET ARMYWORM *Spodoptera exigua*					
BLACK CUTWORM *Argrotis ipsilon*	1				
CABBAGE LOOPER *Trichoplusia ni*					
CLOVER CUTWORM *Scotogramme trifolii*					
CODLING MOTH *Laspeyresia pomonella*					
FEBRUARY MOTH *Peralia februalis*			5		
FALSE CELERY LEAFTIER *Udea profundalis*					
GRANULATE CUTWORM *Feltia subterranea*		1			
SALTMARSH CATERPILLAR *Estigmene acrea*					
SPOTTED CUTWORM *Amathes c-nigrum*					1
SUGARBEET WEBWORM *Loxostege sticticalis*					
TOBACCO BUDWORM *Heliothis virescens*					
W. YELLOWSTRIPED ARMYWORM *Spodoptera praefica*					
A NOCTUID MOTH *Dargida procincta*	2	1	2		
VARIEGATED CUTWORM *Peridroma saucia*	3			1	1
A NOCTUID MOTH *Xylomyges hiemalis*	3	2			
GREEN FRUITWORM *Orthosia hibisci*	3				
GRAPE LEAF FOLDER *Desmia funeralis*					1

81-033 (Est. 6-77)