

PROCEEDINGS
of the
HAWAIIAN
ENTOMOLOGICAL
SOCIETY
for 1976

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PROCEEDINGS
of the
Hawaiian Entomological Society

VOL. XXIII, NO. 1 FOR THE YEAR 1976 APRIL 1979

JANUARY

The 841st meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:00 pm, January 12, 1976, in room 221, National Marine Fisheries Building, Honolulu, Hawaii.

Members Present: Beardsley, Brennan, Chang, Goff, Hara, Haramoto, Hardy, Harris, Howarth, Ito, Joyce, Lin, Look, Mitchell, Montgomery, Ota, Radovsky, Sprenger, Steffan, Su, Sugerman, Tenorio, Tsuda, Wong.

Visitors: Mr. Mario Maffi (Bishop Museum) and Mr. Cheng-Shing Lin (U. H. graduate student).

Finance Committee: Dr. Frank Chang read the Treasurer's report for fiscal 1975. The report was approved.

Executive Committee: President Beardsley announced the names of newly appointed officers and members of standing committees. Dr. Ron Mau has accepted position of Business Manager. Dr. Samuelson will share the position of editor with Dr. Beardsley and will serve on committees on which the editor is required to serve. A complete list of committees and members will be transmitted to the membership when all spots have been filled.

Membership Committee: UH graduate students Robin Rice and Lawrence Pinter were elected to membership in the Society.

Unfinished Business: Mr. Tsuda announced that the Society has donated a set of the Proceedings to the Wau Ecology Institute, Wau, Papua—New Guinea.

New Business: The President announced appointment of an ad hoc committee to investigate and formulate the Society's role in the ESA meeting in Honolulu in December. The committee members are Frank Radovsky, chairman; D. E. Hardy; Ernest Harris; Wallace Mitchell; and members of the Liaison Committee.

Program: Drs. Beardsley, Brennan, Chang, Hardy, Ota, Mitchell and Steffan gave reports on the ESA meeting in New Orleans.

NOTES AND EXHIBITIONS

Pantomorus cervinus (Boheman): On December 26, 1975, Mr. Ed Petteys, of the State Forestry Division, observed marginal foliar damage on Iliau, *Wilkesia gymnoxiphium* Gray, growing at 3,000 feet elevation along the rim of Waimea Canyon at Kukui, Kauai. The plant was carefully examined by pulling back the leaf sheath where numerous Fuller rose beetle adults were found. The beetles were the apparent cause of the observed leaf damage. **J. K. Fujii.**

Schistocerca nitens nitens (Thunberg): In a revision of the genus *Schistocerca* Stål (Orthoptera: Acrididae: Cyrtacanthacridinae), V. M. Dirsh (Genus *Schistocerca* W. Junk, The Hague, 1974) has synonymized *Schistocerca vaga* (Scudder) under the name *Schistocerca nitens nitens* (Thunberg, 1815). This species has been

known in Hawaii under the name *S. vaga* since it first appeared here in 1964. **G. M. Nishida.**

Symphorobius barberi Banks: On September 3, 1975, U. S. Forest Service researcher, Jerry Walters, brought in a sample of a back yard planting of pine infested with the Eurasian pine aphid, *Pineus pini* Kock, from a Kaneohe address. I observed neuropteran larvae feeding on *P. pini*, and on the week of September 22 one adult hemerobiid emerged. The adult was identified by Mr. Stanley Higa, Hawaii State Department of Agriculture entomologist, as *Symphorobius barberi*. This hemerobiid was purposely introduced from Cuernavaca, Mexico in 1929 and has been recorded preying upon *Pseudococcus adonidum* (L.) and certain other mealybugs (Insects of Hawaii, Vol. 6). This constitutes a new host record for *S. barberi*. **J. K. Fujii.**

Sathrobrotia badia Hodges: On January 15, 1975 I collected twigs from cluster pine, *Pinus pinaster*, that were infested with needle cast disease, *Lophodermium* sp., from Kapaakea, Molokai. The male cones on the twigs were also being attacked by lepidoptera larvae. Adult moths which emerged were identified by Mr. Stanley Higa, as *Sathrobrotia badia* (Family Cosmopterygidae). Based on specimens deposited in the State Dept. of Agriculture collection, this moth was previously collected in 1964 Kamiloloa, Molokai, on *P. pinaster* male cones by C. J. Davis. However, this record apparently was not published. This is a new state record. **J. K. Fujii.**

Eusphyrus rectus Schaeffer: A larvae of this anthribid beetle was found boring into a dead twig of *Pinus pinaster* collected on January 15, 1975 from Kapaakea, Molokai. The larva was held in the laboratory and the adult that emerged was identified by Mr. Stanley Higa. This is a new island record. **J. K. Fujii.**

Stator pruininus (Horn): This bruchid beetle was found heavily attacking seeds collected from the arar tree, *Tetraclines articulata* (Vahl) Masters, (Cupressaceae) in September 1975. The arar trees were planted at Lualualei, Oahu for a species trail experiment by the U. S. Forest Service, Institute of Pacific Islands Forestry. This is a new host record for *S. pruininus* in Hawaii. **J. K. Fujii.**

Xylosandrus compactus Eichhoff: Mr. R. E. Nelson of the Institute of Pacific Islands Forestry brought in a dead branch of *Liquidamber formosana* Hance (Hamamelidaceae) from his yard in Kailua, Oahu. The branch, which was 13 inches long, had four emergence holes of the black twig borer, and contained two active galleries with six and seven larvae respectively. This is a new host record for *X. compactus*. **J. K. Fujii.**

Platypus externedentatus (Fairmaire): On November 19, 1975, forester Patrick Costales and I examined dead and dying swamp mahogany, *Eucalyptus robusta*, on Tantalus, Oahu. Pole size trees were debarked, and small holes of *P. externedentatus* (Platypodidae) were observed. Eggs and larvae of this pin-hole borer were also found in the galleries, which extended deep into the heartwood. This appears to be a new host record for this beetle in Hawaii. Other hosts include *Albizia*, avocado, *Cassia nodosa*, *Elaeocarpus*, *Eugenia*, *Eucalyptus citriodora*, *Maba* and monkeypod (Proc. Hawaii. Entomol. Soc. 7(2): 205; 8(3): 364; 19(3): 337-338, 339). **J. K. Fujii.**

New Records of Chiggers from Hawaii: Examination of ectoparasites from specimens of golden plovers, *Pluvialis dominica fulvus*, taken by Ben Okimoto at Kahuku, Oahu on 7.IX.1973 (three specimens) and 15.I.1974 (one specimen)

yielded three species of chiggers; *Neoschoengastia ewingi* Wharton and Hardcastle, 1946, *Neoschoengastia namrui* Wharton and Handcastle, 1946, and *Neoschoengastia archaea* (Tauflieb, 1960). This represents the first recovery of these species from any of the main Hawaiian Islands. Brennan and Amerson (1971) reported these species from the Northwestern Hawaiian Islands and other areas in the Central Pacific. In the same publication, Brennan and Amerson (1971), there is a record of *Neoschoengastia atollensis* Wharton and Hardcastle, 1946, attacking man on "East Island." Examination of the slide in the U.S.N.M. collection shows that the locality actually should be "East Island, French Frigate Shoals, Northwestern Hawaiian Islands." This represents the only record of a chigger species attacking man in the Hawaiian Islands. **M. L. Goff.**

FEBRUARY

The 842nd meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:05 pm, February 9, 1976, in room 221, National Marine Fisheries Buidling, Honolulu.

Members Present: Beardsley, Bess, Bianchi, Brennan, Furumizo, Gagné, Goff, Haramoto, Hardy, Higa, Howarth, Ikeda, Joyce, Kitaguchi, Komatsu, Look, Mau, Radovsky, Rice, Sakimura, Sprenger, Tenorio (J.M.), Tenorio (J.A.).

Visitors: James M. Brennan, Marlene Furumizo, Florante M. Gatiraitan.

Announcements: Dr. Beardsley announced that Dr. Jim Eschle would be giving a summary report on the Molokai Hornfly Project in conjunction with the Hawaii Cattleman's Assoc. meeting at Airport Holiday Inn, February 13, 12:30 pm.

Program: Dr. Roy Furumizo gave a talk illustrated with slides on the "7-year itch of the house-dust mite."

NOTES AND EXHIBITIONS

Trioxys complanatus Quilis: This braconid parasite was recently introduced to control the spotted alfalfa ahid, *Therioaphis maculata* (Buckton). Stock cultures were sent by Dr. Ken Hagen, University of California at Albany, to the Entomology Branch of the Hawaii State Department of Agriculture in October and November 1975 for propagation. The parasites have been successfully reared on *T. maculata* stock cultures in the quarantine insectary. To date, over 10,000 parasites have been released, mostly in Hickam Air Force Base (MAC Terminal area) where host aphid populations have been building up on alfalfa. Mr. Ken Teramoto of the Insectary staff has already made recoveries of small numbers of parasites from mummified aphids he collected in the field on two occasions in January 1976. Mr. Teramoto further reports that large host populations are currently building up on bur clover, *Medicago hispida* Gaertn., in areas around Waipahu and Ewa and that parasites will be released in these areas soon.

T. complanatus, which is also known under the name *T. utilis* Muesebeck, a synonym, is an old world species and one of several parasites introduced into California from the Middle East to control the spotted alfalfa aphid. It is a lowland species, adapted to hot, humid climatic conditions. *T. complanatus* is a solitary internal parasite; normally only one egg is deposited per insertion of the ovipositor. It is multivoltine, having possibly as many as 24 generations per year. A complete life cycle of the parasite takes about 10 days. Morphologically, the antennae usually consist of 11 segments in the female and 13 segments in the male. The legs of the female are usually yellowish brown, whereas the legs of the male are darker. In

attacking its host the female parasite exhibits a unique feature of grasping and holding the aphid by means of a three-pronged "clamp" formed by the two caudal abdominal spines and the ovipositor. The "clamping" is apparently an adaptation which has evolved to prevent saltatorial aphids such as *Therioaphis* spp. from leaping away from the parasite when attacked. References: Schlinger, E. I. and J. C. Hall; 1960; A Synopsis of the Biologies of Three Imported Parasites of the Spotted Alfalfa Aphid; J. Econ. Entomol., 52(1): 154-157; and Schlinger, E. I. and J. C. Hall; 1961; The Biology, Behavior and Morphology of *Trioxys utilis*, an Internal Parasite of the Spotted Alfalfa Aphid, *Therioaphis maculata* (Hymenoptera: Braconidae, Aphidiinae); Ann. Entomol. Soc. America, 54(1):34-45. **S. Y. Higa.**

Diarthronomyia chrysanthemi Ahlberg: Numerous galls of the chrysanthemum midge were found on potted chrysanthemum plants at Kealahou, Hawaii in December 1975. There were approximately three to five galls per leaf on infested plants. This insect was first reported in Hawaii (at Hilo) in May 1948. **R. Mau.**

Lorita abornana Busck: A light but persistent infestation of this phaloniid moth was reported by D. Sugawa in potted chrysanthemums at Kapaa, Kauai during December 1975. Larvae were collected from damaged blossoms and reared to adults for determination. This is a new island record. The chrysanthemum flower borer is now known from Oahu and Kauai. **R. Mau.**

Therioaphis maculata (Buckton): Surveys conducted in late January showed that the spotted alfalfa aphid is now established on bur clover, *Medicago hispida*, at Pearl City, Waipahu, Kunia, Ewa, and Ewa Beach, Oahu. Releases of the parasite *Trioxys complanatus* Quilis will be made in these areas. A few parasite adults have already been reared out of field collected mummified aphids; however, it is too soon to say whether the parasite is permanently established. **R. Mau.**

Dactynotus sonchi (Geoffroy): Numerous nymphs and apterous females of this immigrant aphid were collected from *Sonchus oleraceus* at Kunia, Oahu on January 28, 1976. This is the first report of the aphid being collected since its discovery at Hickam AFB in May 1975. **R. Mau.**

Erionota thrax (Linnaeus)¹ Larvae and adults of the banana skipper were discovered on Lanai in December 1975 by S. Kahoohalahala. This is a new island record. This pest is now established on all major islands from Kauai through Hawaii. **R. Mau.**

Haematobia serrata Desvoidy: Mr. Bianchi exhibited a small black fly which had stung his balding scalp several times over a period of four or five minutes while he sat on the beach at the end of Coconut Avenue, Honolulu. This happened on January 3, late in the afternoon, and it was the second occurrence of the find in the same place and circumstances. About two weeks earlier, a similar fly had followed Mr. Bianchi from the beach for about two hundred yards, biting his head repeatedly until another person slapped the fly and it was lost on the ground. The specimen exhibited has been determined by Dr. Elmo Hardy as a male, probably of *Haematobia serrata* Desvoidy, the horn fly, which does not usually bite man and whose presence on a beach distant from animal dung, on which the fly breeds, is difficult to explain. **F. A. Bianchi.**

¹The presently accepted scientific name of the banana skipper is *Pelopidas thrax* (L.) (Bul. Entomol. Soc. America 23:131, 1977) (cd.).

Ligyrocoris litigiousus (Stål): This is a new state record. Slater (*Catalog of Lygaeidae of the World*, 1964) gives the distribution of this rhyparochromine generally as across the southern United States, and south to northern South America. Adults and nymphs were collected on Oahu, Waianae Mts., Waianae Kai For. Res., Kamaileunu Ridge, 787m, Oct. 19, 1975, under *Bidens* sp. at night. W. C. Gagné, collector, and were determined by Dr. P. D. Ashlock, University of Kansas. *L. litigiousus* is suspected to be feeding on the fallen seeds of the *Bidens*. Most closely resembling it among the fauna in Hawaii is the immigrant species *Pachybrachius nigriceps* (Dallas), but *L. litigiousus* is considerably more elongate-narrow and, according to Ashlock (*Ann. Entomol. Soc. America* 56:697, 1963), the genus *Ligyrocoris* has a stridulatory structure on the abdomen which species of *Pachybrachius* lack. **W. C. Gagné.**

Appolonius sp.: This rhyparochromine lygaeid of the tribe Drymini is a new state record. Slater (*Catalog of Lygaeidae of the World*, 1964) gives the world distribution of the nine known species of *Appolonius* as Africa east to the Philippines, north to Japan and south to Queensland, Australia. A single adult was taken on Oahu, Honolulu, Bishop Museum Grounds, Oct. 1975, W. C. Gagné, collector and was determined by Dr. P. D. Ashlock, University of Kansas. Slater (*Biotropica* 4(3):145 & 147, 1972) reported that two members of this genus were found to be arboreal seed predators of *Ficus* spp. Ashlock, in correspondence to Gagné (Nov. 4, 1975), suggested that a search be made for it on fruiting branches of banyan (*Ficus benghalensis*) which grow on the Bishop Museum Grounds, but this proved negative.¹ The bug is a ca. 3mm long, greyish with substylate eyes. **W. C. Gagné.**

Rhytidoporus indentatus Uhler: Adults and nymphs of this comparatively recent immigrant cydnid bug were collected on Oahu, Koolau Mts., Waikane Trail, 650m elevation, Oct. 20, 1974, sifted from leaf litter under *Clidemia hirta*, W. C. Gagné, collector. The area had been recently dug up by foraging feral pigs. Wolcott (*J. Agr. Univ. Puerto Rico*:20, 1936 & *Ibid.*:32, 1948) reported that this species fed on dung in humid localities on the coast and mountains of Puerto Rico. This habit may account for its abundance in this pig-disturbed area of Waikane Trail. **W. C. Gagné.**

Nocturnal habits of Hawaiian emesine Reduviidae: Adults and nymphs of the thread-legged bug genera *Empicoris*, *Nesidiolestes*, and *Saicella* were found to be active on the trunks of trees in the mesic, primarily native forest of Oahu, Waianae Mts., Waianae Kai For. Res., Kamaileunu Ridge, 720-787m elevation, Oct. 19, 1975, W. C. Gagné, F.G. Howarth, S. L. Montgomery, G. Nishida, and R. Rice, collectors. The species represented were *E. rubromaculatus* (Blackburn), *E. whitei* (Blackburn), *N. insularis* Kirkaldy and *Saicella* sp. The latter two species are apterous and were until recently poorly represented in collections. The *Saicella* sp. is a new record for this genus from Oahu; other species are now known from Kauai, Maui, and Hawaii. The habitat was protected from prevailing winds. Nymphs of one of the *Empicoris* were then also found foraging in spider webs. **W. C. Gagné.**

Forficula auricularia Linnaeus: Recently, while working through a collection of insects which was made last summer as part of a "Resources Basic Inventory" study for Haleakala National Park, Maui, I discovered three specimens, two adult

¹Additional specimens of this *Appolonius* were taken on Oahu during 1977 (ed.).

females and a nymph, of an unfamiliar earwig. These proved to be the European earwig, *Forficula auricularia* L. a well known pest species which has not been reported previously in Hawaii. The specimens were collected on July 13, 1975, at about 6,000 feet elevation, below Hosmer's Grove in ranchlands outside the national park, by Mr. H. Eddie Smith.

The European earwig is widely distributed in Europe and western Asia, and has been spread by commerce to North America, New Zealand, Australia, and parts of Africa. The species is an omnivorous feeder, often preying on other arthropods, but also has, at times, caused economic damage to various field crops, fruits and ornamentals. In parts of western North America (e.g.: the San Francisco area) it has often been a severe nuisance due to its habit of invading buildings. The European earwig appears to be primarily a temperate climate species and seems to be restricted largely to areas of fairly high humidity. It apparently does not thrive in dry areas or in the humid tropics. Therefore, there appears to be little possibility of its becoming a pest at lower elevations in Hawaii. Because of its habit of entering packing cases and similar dark places, it probably has been brought into Hawaii accidentally many times.

The specimens were identified by me through reference to published literature and comparison with determined specimens in the State Dept. of Agriculture Collection. For a detailed treatment of this species see Crumb, S. W., P. M. Eide, and A. E. Bonn, 1941, The European Earwig, USDA Teach. Bul. 766. **J. W. Beardsley.**

Scirtes sp.: Several specimens of a small beetle belonging to the family Helodidae were found in light trap catches from Hickam Air Force Base and Ewa, Oahu, during December 1975 and January 1976. These have been determined by Dr. J. M. Kingsolver of the U.S.D.A. Insect Identification Laboratory, Beltsville, Maryland as *Scirtes* sp. This is a new state record, and the first species of Helodidae known to be present in Hawaii. This family of beetles are generally called "marsh beetles." The adults occur on vegetation in swampy places, and larvae are said to be aquatic in both fresh and stagnant water. No information on the biology of our species is yet available. **J. W. Beardsley.**

MARCH

The 843rd meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:02 pm, March 8, 1976, in room 221, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bess, Bianchi, Goff, Haramoto, Hardy, Harris, Higa, Joyce, Look, Mau, Napompeth, Ota, Rice, Sakimura, Sprenger, Tenorio (J.M.), Tsuda.

Membership Committee: Mr. Tsuda nominated for membership Dr. Wilfred Schnizler, Philippine Packing Corporation, and Dr. R. Muniappan, College of Guam. These gentlemen were unanimously elected to membership in the Society.

Program: Dr. Frank Haramoto presented a talk, illustrated with colored slides, on rice pests which he studied during his recent sabbatical leave at the International Rice Research Institute at Los Banos, Philippines.

NOTES AND EXHIBITIONS

Brevennia rehi (Lindinger): A single specimen of a mealybug, determined by J.

W. Beardsley as *Brevennia rehi* (Lindinger), was collected in a Berlese funnel extraction from litter, from the margin of a sugarcane field at Waialua, Oahu, October 20, 1975 by Ms. Parry Donnalley. This is a new state record.¹ *B. rehi*, originally described in the genus *Ripersia* (1943; Arb. Morph. Taxon. Entomol. 10:152), has also been placed in the Genus *Heterococcus* Ferris (Williams; 1970; Bull. Entomol. Res. 51:141). It is a widely distributed grass-infesting species known from southeast Asia and North America (Southern California, Arizona, and Florida). It has been reported as a minor pest of rice in Asia and as a pest of Bermuda grass grown for seed in California. *Heterococcus tuttlei* Miller and McKenzie (1970; Ann. Entomol. Soc. America) described from California, is a synonym. For taxonomic information and illustration see Miller; 1975; USDA Tech. Bul. 1497:47-56. **J. W. Beardsley.**

Pantomorus cervinus (Boheman): Fuller rose beetle adults were observed causing considerably foliar damage on aalii, *Dodonaea* sp., and on Monterey pine needles, *Pinus radiata*, on Kamiloloa Ridge, Molokai. This beetle was also causing heavy foliar damage to a single cork oak, *Quercus suber*, on Kapaakea Ridge, Molokai (February 4, 1976). **J. K. Fujii.**

Procecidochares alani Steyskal: Light scattered galling on Hamakua pamakani, *Ageratina riparia* (Regel), K. & R. due to *P. alani* was observed at the 1,000 to 2,000 feet elevations along the old HSPA tree planting trail above the Lyon Arboretum which leads to Pauoa flats. Galls on Hamakua pamakani were also observed at the 1,000 feet elevation along the Puu Ohia trail leading to the Manoa Cliff trail (February 10, 1976). **J. K. Fujii.**

Atrichopogon jacobsoni (de Meijere): A heavy adult population of this ceratopogonid midge was observed on foliage of a passion fruit vine on Poipu Ranch, Poipu Beach, Kauai on February 19, 1976. This species was first reported in the State in 1959 by Dr. Ray Joyce. According to Eugene Drake, this is one of the most common ceratopogonids in the state. It deviates from the usual habit of this family of breeding in aquatic or semi-aquatic habitats, and appears to breed in rotting plant material instead. This is the first known record of this insect from Kauai and therefore constitutes a new island record. Reference: Drake, E. F.; 1971; Life Cycle and Laboratory Diet for *Atrichopogon jacobsoni* (de Meijere); Proc. Hawaii. Entomol. Soc. 21(1):63-66). **S. Y. Higa.**

Liriomyza huidobrensis (Blanchard): Twelve adults of this agromyzid were reared out of the chrysanthemum leaves from Ron Terry's Nursery in Omaopio, Maui. According to Dr. D. E. Hardy, this is the first record of this species having been reared in Hawaii. The previous Hawaiian record for this insect was based on specimens caught on the Waimano Home grounds in 1958. No further information is available regarding host range and habits of this species in Hawaii. According to Frick, this is a polyphagous feeder mining leaves of many plants, including garden peas, aster, celery and spinach in California. Therefore, this species is potentially a pest of many economic plants here. Determination was made by Dr. D. E. Hardy. Reference: Spencer, K. A.; 1973; Agromyzidae (Diptera) of Economic Importance; Dr. W. Junk B. V., Publ., The Hague. **S. Y. Higa.**

¹Subsequently, additional infestations of *Brevennia rehi* were found at several locations on Oahu on Bermuda grass (*Cynodon dactylon*) and wire grass (*Eleusine indica*) (ed.).

APRIL

The 844th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:00 pm, April 12, 1976, in room 221, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bianchi, Brennan, Hara, Haramoto, Hardy, Harris, Higa, Howarth, Joyce, Lauret, Kunishi, Lai, Look, Mau, Mitchell, Napompeth, Pinter, Radovsky, Rice, Samuelson, Sprenger, Su, Sugerman, Tenorio (J.S.), Tenorio (J.M.).

Visitors: Mr. P. Jackson, Ms. E. A. Perry, Father J.C.E. Riotte, Mr. Bob Winters and Mr. Wasana Wong Yai.

Report of Committee on ESA National Meeting: Dr. Radovsky reported on the meeting held that afternoon of the ESA Meeting Committee and the Liaison Committee. Recommendations were: (1) that there should be no prearranged formal collection tours; however, to provide information to visitors who wish to explore or collect specimens, a questionnaire will be sent out with next meeting announcements to elicit names of members who are willing to provide informal assistance to ESA members who wish to get out into the field; (2) that a joint meeting of HES and ESA in lieu of an annual dinner meeting is impractical and should not be attempted; and (3) that a regular HES meeting be scheduled in December sufficiently after ESA meetings to allow recovery. An additional recommendation of the Ad Hoc Committee was that an up-to-date version of the publication *Entomology in the State of Hawaii* be developed for the ESA meetings.

Membership Committee: Dr. Frank Chang nominated Mr. Cheng-Shing Lin, U.H. graduate student in Entomology, who was unanimously elected to membership.

New Business: Dr. Beardsley reviewed certain sections of a proposed policy for collection of specimens in state forest reserves received from Mr. Tom Tagawa, State Forester. Dr. Frank Howarth, who as chairman of Liaison Committee had been asked to prepare comments, read a draft letter of his response to the policy. Dr. Radovsky moved for approval of the letter with whatever minor adjustments might be felt necessary; its transmittal to Mr. Tagawa was unanimously approved.

Dr. Howarth read another letter prepared by the Liaison Committee addressed to Mr. John Farias, Chairman, Hawaii State Department of Agriculture, drawing attention to a potentially serious weed species, New Zealand tea, which is spreading in certain forest areas of the State. Need for expediency in working out a control program for this pest was pointed out. The letter also expressed desire of the Society to be kept informed on present status of *Clidemia hirta* on neighbor islands. Mr. Bianchi moved acceptance of the letter and motion was unanimously approved.

Program: Father J.C.E. Riotte spoke on patterns of Sphingidae distribution in the Pacific.

MAY

The 845th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:02 pm, May 10, 1976, in room 221, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bess, Bianchi, Chang, Hara, Haramoto, Hardy,

Higa, Howarth, Ikeda, Joyce, Krauss, Kunishi, Look, Nakagawa, Sanidad, Shrioma, Steffan, Su, Sugerman, Tenorio (J. A.), Tenorio (J.M.).

Science Fair Committee: Chairman Wally Steffan reported that \$25 cash had been awarded to Ms. Myra Kaichi for her science fair project entitled: Digestion of Toxic Substances in Crownflower Plants by *Danaus plexippus* (L.).

Membership Committee: Mr. Patrick Jackson, University of Hawaii graduate student, was unanimously elected to membership in the Society.

Unfinished Business: Dr. Beardsley read a letter from Mr. Tom Tagawa, State Forester, in response to the letter from the Society regarding proposed policy for collecting in State forest reserves. Mr. Tagawa thanked HES for its comments and indicated that the policy is in process of being redrafted.

Program: Mr. Pat Nakagawa gave a talk and slide presentation on the Maui mouse outbreak of 1974.

NOTES AND EXHIBITIONS

Parasites for the Control of Agromyzid Leafminers (*Liriomyza* spp.): Two eulophid parasites, *Diglyphus intermedius* (Girault) and *D. isaea* (Walker), were introduced from the USDA (ARS) Beneficial Insect Research Laboratory, Newark, Delaware in June, 1975, and were subsequently released in various Oahu localities in September, 1975 and periodically thereafter, for the control of *Liriomyza* spp. To date, over 5,000 insectary reared parasites of each species have been released into the field. Recovery attempts since February have been negative. However, the long established and morphologically similar species, *D. begini* is being recovered regularly. More recently, in April, two more parasites were introduced from the same (Delaware) laboratory for propagation and release. They are an eulophid, *Sympiesis* n. sp., and a braconid, *Opius dimidiatus* (Ashmead). On Oahu, first field releases of both species were made in May, 1976. Concurrently, shipments of these parasites were made to the neighbor islands, for field releases, for the first time as follows: *Diglyphus isaea* and *Sympiesis* n. sp. to Maui, *D. isaea* to Hawaii, and *Opius dimidiatus* to Kauai. **S. Y. Higa.**

***Deilephila nerii* (L.):** Two new hosts for oleander hawk moth, *Deilephila nerii*, in Hawaii were recorded recently, as follows: Two late instar larvae were found feeding on leaves of *Alstonia macrophylla* (Apocynaceae) in Hilo, Hawaii on March 30, 1976 by V. Kashiwamura (determination by E. Yoshioka, Resident Entomologist), and two late instar larvae were found feeding on leaves of lechoso, *Stemmadenia galeottiana* (Apocynaceae) at Salt Lake, Oahu, on April 24, 1976 by J. Kajiwara (determination by J. Kajiwara, Air Force Entomologist). **L. M. Nakahara.**

***Triatoma rubrofasciata* (DeGeer):** In early April Mr. Sean Mckeown of the Honolulu Zoo noted a large black triatomid bug infesting lizard cages at the zoo. These were determined tentatively as *T. rubrofasciata* by W. C. Gagné and specimens sent to Dr. P. Wygodzinsky at the American Museum of Natural History. Dr. Wygodzinsky confirmed their identification as a melanic form of *T. rubrofasciata*. He also stated that, as melanism is rare in the Triatominae, it would be interesting to establish the genetics of this case, if possible. **F. G. Howarth and M. L. Goff.**

JUNE

The 845th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:05 pm, June 14, 1976, in room 221, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Chang, Goff, Haramoto, Hardy, Howarth, Joyce, Lai, Look, Nakahara, Nishida, Pinter, Radovsky, Steffan, Sugerman.

Visitors: Father J.C.E. Riotte; Dr. Francisca C. do Val.

Science Fair Committee: Chairman Wally Steffan read a letter of appreciation from Ms. Myra Kaichi for a Science Fair Project award of \$25 presented to her by the Society.

Membership Committee: Mr. John Takara, U. H. graduate student in entomology, was nominated for and unanimously elected to membership in the Society.

Unfinished Business: A letter was received from Mr. John Farias, Chairman, State Department of Agriculture, in response to a letter from the Society expressing concern over the spread of New Zealand tea in certain forest areas of the State. Mr. Farias wrote that the State Dept. of Agriculture does not consider this species to be a serious pest.

A letter was received from Dr. J. L. Gressitt thanking the Society for donation of a set of Proceedings to the Wau Ecology Institute.

NOTES AND EXHIBITIONS

Geckobiella texana (Banks): A species of Ptergysomid mite of the genus *Geckobiella* has been recovered from the following lizard species in the desert exhibit at the Honolulu Zoo: *Sceloporus magister*; *Sceloporus orcutti* (two individuals); *Sceloporus occidentalis* (two individuals); *Sceloporus undulatus*; *Streptosaurus mearnsi* (three individuals); *Phrynosoma coronatum*; and *Sceloporus jarrovi*. The species was determined as *Geckobiella texana* (Banks) which commonly infests these species of lizards in the Mojave Desert. This is the first record of this species from Hawaii. At present the infestation appears to be confined to the desert display as none of the other reptiles are infested. Infestation within the desert exhibit is quite severe and several lizards have died as a result of mite activity. **M. L. Goff.**

Xylosandrus compactus Eichhoff: A light infestation of the black twig borer was detected on May 24, 1976 attacking twigs and branches of lama, *Diospyros ferrea*. Infested twigs ranged from one to four per tree with one to two adults per twig. The lama trees were located at Wahaula and Kamoamo, Hawaii Volcanoes National Park, Hawaii. **C. J. Davis.**

Psylla uncatoides (Ferris & Klyver): A light to moderate build-up of the acacia psyllid was detected on May 25, 1976 on koa, *Acacia koa*, foliage. Approximately forty acres of koa were attacked along the Mauna Loa Strip Road, Hawaii Volcanoes National Park, Hawaii between 1,219 to 1,524 meters elevation. Damage to terminal growth was negligible but was expected to increase within the next two weeks. Predators were not observed. **C. J. Davis.**

Pineus pini Koch: The Eurasian pine aphid was detected on a single cluster pine, *Pinus pinaster*, located at Onini Gulch in the Molokai Forest Reserve (2,750 ft) on April 6, 1976 by Maui District Forester, Wesley Wong, Jr. This constitutes a new island record for this pine pest. *P. pini* was moderately infesting the trunk, branches, and twigs of the single tree. Pine trees in the immediate vicinity of the

infested tree were free of *P. pini*. The infested tree was felled. Samples of the infested tree were sent to me, and I observed several syrphid larvae on the pine needles. One syrphid larva was actively feeding on pine aphids. An attempt is being made to rear out the syrphid adults. **J. K. Fujii.**

JULY

The 847th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:07 pm, July 12, 1976, in room 221, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Haramoto, Hardy, Harris, Higa, Jackson, Look, Nakahara, Ota, Su, Sugerman, Takara, Tenorio (J.A.), Tenorio (J.M.), Wong.

Announcement: Dr. Beardsley read an obituary of Dr. Curtis B. Clausen which was published in the International Organization of Biological Control newsletter of April 30, 1976. Dr. Clausen, who died in March, had been an honorary member of HES for many years.

Program: Dr. Elmo Hardy, Mr. Bernard Sugerman, Dr. Ernie Harris, and Dr. Frank Haramoto gave overviews and impressions of the ESA Pacific Branch meetings which were held at Ventura, California during June. Dr. Haramoto also brought the Society up to date on arrangements for national ESA meetings which will be held in Honolulu in December.

NOTES AND EXHIBITIONS

Helix apersa Muller: A single specimen of the European brown snail was collected from a backyard garden at Koloa, Kauai on June 11, 1976 by B. Kunimura. Determination was made by Hawaii Dept. of Agriculture taxonomist S. Higa. This is a first record of the snail being recovered in Hawaii from an area other than at ports of entry by plant quarantine officials.¹ This European species is also found in the U. S. in South Carolina, Louisiana, and California often causing considerable damage to vegetable and flower gardens. The area was baited and repeated surveys by Hawaii Dept. of Agriculture personnel have revealed no other specimens. **L. Nakahara.**

Orchamoplatus mammaeferus (Quaintance and Baker): This whitefly was first recovered from croton (*Codiaeum variegatum*) on June 10, 1976 by R. Ito in the Palolo district of Honolulu, Oahu. Determination was made by M. B. Stoetzel of the Systematic Entomology Laboratory, ARS, USDA. This is a first record of the pest occurring in Hawaii. It has been reported on croton, citron (*Citrus medica*) and orange from the Pacific Basin (Australia, Fiji, Society Islands, Cook Islands, Marquesas, Malaya, and Java). To date, surveys have shown infestations to occur in light abundance in lower Palolo Valley, Kaimuki, and Kapahulu districts of Honolulu, Oahu, all on ornamental croton. **L. Nakahara.**

¹A specimen of this snail was reported as having been collected in the Kaimuki area of Honolulu in February, 1952 (Proc. Hawaii. Entomol. Soc. 15(1):13). A second specimen reportedly was collected in the upper Makiki district of Honolulu in April 1957 (P.H.E.S. 16(2):186) (ed).

Stephanitis pyrioides (Scott): This tingid bug was first collected from azalea by F. H. Haramoto on June 8, 1976 from Manoa district of Honolulu, Oahu. Determination was made by R. C. Froeschner of the Systematic Entomology Laboratory, ARS, USDA. This is a first record of the pest occurring in Hawaii. It is primarily a pest of azalea (*Rhododendron* spp.) but has also been recovered from *Kalmia latifolia* and *Pieris ovalifolia*. Its distribution includes eastern and southern states in the U. S., Japan, China, Korea, Taiwan, Germany, Netherlands, England, Argentina, Morocco, and Australia. To date, surveys have shown infestations to occur in upper and lower (U. H. Campus) Manoa Valley and Punahou districts of Honolulu, Oahu, all on azalea and in light abundance. **L. Nakahara.**

Bucculatrix thurberiella Busck: Two pupae of the cotton leaf perforator, parasitized by *Apanteles bedelliae* Vierick, were recovered from cotton by C. Ragasa at Kekaha, Kauai on March 21, 1976. Subsequently, three adults were reared out by C. Ragasa from cotton collected in the same area on May 12, 1976. This is a first record of this Lyonetiid moth from the island of Kauai (identification by S. Y. Higa). It has previously been reported only from Oahu where it was discovered in mid January, 1971, at Nanakuli by J. W. Beardsley. **L. Nakahara.**

Oedaleus abruptus (Thunberg): One adult of this small, banded-wing grasshopper was recovered from a lawn by D. Sugawa at Poipu, Kauai on May 30, 1976. This is a first record of this immigrant pest of grasses from the island of Kauai (identification by S. Higa). It has previously been reported only from Oahu where it was discovered in July 1968. **L. Nakahara.**

New records for Lanai: The following pests were recovered from backyard gardens at Lanai City, Lanai during an insect survey by P. Y. Lai and L. Nakahara on May 13, 1976. Identification was made by F. H. Haramoto and Hawaii Dept. of Agriculture staff members. These are new island records for the island of Lanai: *Eutetranychus banksi* McGregor, ex lablab bean leaves; *Bruchus phaseoli* Gyllenhal, ex lablab bean pods; *Aphis craccivora* Koch, ex lablab bean pod. **L. Nakahara.**

Leptobyrssa decora Drake: A single adult of this purposely introduced tingid bug was collected from *Verbena* sp. at 2,500 ft. elevation at Kaloko (Kona), Hawaii on May 26, 1976 by E. Yoshioka and L. Nakahara. This is a first recovery of this lantana biological control agent on the island of Hawaii since its release by Hawaii Dept. of Agriculture personnel during the period January 27-August 5, 1971, at Panaewa, South Kona, Puna, and Volcano. **L. Nakahara.**

Chrysocharis ainsliei Crawford: This eulophid parasite was introduced from the USDA (ARS) Beneficial Insect Research Laboratory, Newark, Delaware, on April 29, 1976, to aid in the biological control of agromyzid leafminers (*Liriomyza* spp.). Following insectary propagation, first field releases were made in June at Pearl City, Oahu. To date, about 1,000 parasites have been liberated in this farming area. Morphologically, *C. ainsliei* resembles the long established *C. parski* in having a metallic green body but can be differentiated in having its femora almost entirely black. **S. Y. Higa.**

Aneristus sp. Many individuals of an eulophid parasite emerged from hemispherical scales, *Saissetia coffeae* (Walker), on cycad (*Cycas revoluta* Thunb.) collected from the premises of Evergreen Restaurant, Honolulu, on May 17, 1976. These were identified by Dr. G. Gordh, Systematic Entomology Laboratory, USDA, Beltsville, Maryland, as *Aneristus* sp., not *ceroplastae* Howard. This appears to be a new state record. **S. Y. Higa.**

Leucopis (Neoleucopis) obscura Haliday: Pupae of a predacious chamaeyiid fly, *Leucopis obscura* Haliday, were introduced from the USDA, European Parasite Laboratory, Sevres, France on May 27, 1976, to combat the Eurasian pine aphid, *Pineus pini* Koch. Eighty of the adults which subsequently emerged were liberated at Polipoli, Maui on June 22. A small stock of flies was held in the state quarantine insectary for propagation, and further field releases at the same location are planned.

Mr. Po-yung Lai and Dr. Fujii obtained information on the biology of *Leucopis (Neoleucopis) obscura*. They found that larvae of the fly prey on all stages of the pine aphid. Under laboratory conditions, with a temperature of $76^{\circ} \pm 2^{\circ}$ F. and RH of 46% to 72%, the life cycle and measurements of the fly were as follows:

Stages	Life cycle (in days)	Measurements
Egg	6 to 7	0.38 mm by 0.14 mm
Larval	9 to 11	
Pupal	7 to 9	2 mm by 0.8 mm

Duration of life cycle (from egg to adult) was 22 to 27 days. **J. K. Fujii, S. Y. Higa, and P. Y. Lai.**

Vanessa tameamea Eschscholtz: Good weather conditions in early May 1976 apparently triggered the emergence of many Kamehameha butterflies during the month of June in Hawaii Volcanoes National Park, and in the Volcano residential areas on the Big Island. Foliar damage on *Pipturus* sp. by the larvae has been very noticeable, particularly in Kipuka Puauulu and Kipuka Ki, Hawaii Volcanoes National Park. **C. J. Davis.**

Priophorus morio (L.): The blackberry sawfly, *P. morio*, is now well established in Hawaii Volcanoes National Park, particularly in Kipuka Puauulu and the Mauna Loa Strip Road between 1219 and 1310 meters. This parthenogenic sawfly was first released on Wright Road, Volcano, Hawaii, on July 23, 1968 (Proc. Haw. Ent. Soc. 20(2):276). **C. J. Davis.**

AUGUST

The 848th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:03 pm, August 9, 1976, in room 221, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Chang, Goff, Higa, Howarth, Joyce, Lai, Lin, Look, Montgomery, Nakahara, Namba, Pinter, Sugerman, Tenorio (J.A.), Tenorio (J.M.).

Visitors: Dr. Sam R. Loschiavo, Mr. Dave Bishop, Mr. Trevor Crosby.

New Business: Dr. Beardsley read a letter from Dr. Keizo Yasumatsu asking for HES support for the efforts of the Entomological Society of Japan and the Japan Society for Applied Entomology and Zoology to have the 16th International Congress of Entomology, 1980, held in Japan. Dr. Beardsley then read his response to Dr. Yasumatsu recording the support of the HES executive committee for the proposal to hold the next Congress in Japan, and indicating that formal approval of the full membership would be sought at the August 9 meeting of the Society. Dr. Radvosky moved that the Society support this proposal and that approval be expressed to members of the Japan Entomological Society by letter. The motion was passed unanimously.

Dr. Radovsky, acting as liaison for the Bishop Museum Association, asked whether the members would approve use of the Society's mailing list so that the Museum could approach persons sharing disciplinary interests with museum staff members with information on Bishop Museum Association memberships. The members present voted to allow use of the Society's membership list for this purpose.

Program: Mr. Lawrence Pinter, Navy entomologist, talked about people and politics in Samoa.

NOTES AND EXHIBITIONS

Delta curvata (Saussure): A specimen of this large immigrant eumenine vespid wasp, first found established in Hawaii on Oahu during 1974, was recently collected at Kaunakakai, Molokai, by Mr. A. Oshiro. This is a new island record. **J. W. Beardsley.**

Hodegia apatela Walsingham: Since its original description in 1907 this flightless moth on Haleakala has been considered rare and its biology an enigma. From June 15 to 26, 1976, while on the Resources Basic Inventory survey of Haleakala for the National Park Service, I searched under rocks and debris on barren rock lands for possible representatives of an aeolian ecosystem. On June 16, on White Hill near the top of Sliding Sands Trail at 3000 m elevation, I collected five larval Lepidoptera under loose rocks. Each was in a loosely constructed tunnel of cinders and wind-blown organic material, mostly dried leaves of *Railliardia menziesii* Gray, tied together with silk and attached to the under surface of the rock. Subsequent search showed the typical larval webbing, but not the larvae, to be quite common throughout the "crater" under suitable loose rocks which "capture" wind blown debris. The larvae were kept alive and fed dried *Railliardia* leaves. A male pupated on July 4, 1976 and emerged on July 27, 1976, and a female pupated on July 5, 1976 and emerged on July 25, 1976.

Both the larvae and flightless adults appear admirably adapted to the aeolian zone. Adult *Hodegia apatela* were seen or captured in the "crater" from Holua Cabin nearly to Oili Puu and near Kalua Awa by Dr. J. W. Beardsley, Mr. R. C. A. Rice, and myself, always in relatively barren areas with suitable rocky substrate. A large native wolf spider, *Lycosa* sp., also occupies the same habitat and often usurps the old webbing of *Hodegia apatela*. **F. G. Howarth.**

Apanteles gelechiidivoris Marsh: This braconid parasite was introduced from the University of California, Riverside, in May, 1976, through the courtesy of Dr. E. Oatman, to aid in the control of the tomato pinworm, *Keiferia lycopersicella* (Walsingham). Following propagation of the stock culture in the Hawaii Dept. of Agriculture quarantine-insectary, field releases were initiated beginning July 13, 1976 on Oahu and Maui. **S. Y. Higa.**

Aneristus sp.: Adults of this aphelinid parasite were reared from *Saissetia coffeae* on cycad (*Cycas* sp.) collected from Lihue, Kauai on July 29, 1976 by D. Sugawa. Identification was made by S. Y. Higa of the State Department of Agriculture. This is a new island record for this apparently undescribed species which was first collected on Oahu on May 17, 1976. **L. Nakahara.**

Kurtomathrips morrilli Moulton: Moderate numbers and damage by all stages of this thrips were observed on eggplant leaves in a backyard planting at Ewa, Oahu on July 2, 1976. Only wingless adult forms were recovered. Identification was made

by K. Sakimura. Although it is an occasional pest of various hosts in California and Arizona, it has previously been recorded only from *Pluchea odorata* on Oahu, Maui, and Kauai. **L. Nakahara.**

SEPTEMBER

The 849th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:03 pm, September 13, 1976, in the Conference Room, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bianchi, Burkhart, Chang, Grady, Hardy, Higa, Joyce, Kaneshiro, Krauss, Look, Loschiavo, Mitchell, Montgomery, Nakahara, Nishida, Radovsky, Ralph, Rice, Steffan, Tenorio (J.A.), Tenorio (J.M.), Yoshioka.

Visitors: Dr. Klaus Sattler, Mr. Karl J. Carvalho, Mr. Donald H. Robinson, Dr. F. L. McEwen, Father Riotte, Ms. Elizabeth Perry, Mr. Claude Hebaru.

Membership Committee: Dr. Samuel R. Loschiavo and Dr. Carol P. Ralph were nominated for and unanimously elected to membership in the Society.

Unfinished Business: Dr. Beardsley read Dr. Yasumatsu's response of August 9 to Dr. Beardsley's letter of August 1. Dr. Yasumatsu thanked the Hawaiian Entomological Society for supporting Japan as the site for the 1980 International Congress of Entomology. He expressed confidence that the proposal would be accepted. Dr. Beardsley then read a second letter dated August 22 from Dr. Yasumatsu informing the Society that the Permanent Committee of the ICE had unanimously agreed that the Congress would be held in Japan in 1980.

Announcements: Dr. Beardsley read a notice from the Division of Entomology, University of California, Berkeley, announcing the death of Professor Powers S. Messenger. Professor Messenger had been chairman of the Department of Entomological Sciences at Berkeley since 1973, and had been a member of HES since 1950.

Dr. Beardsley read an announcement, sent to editors of journals of societies associated with biosystematics, regarding the Beltsville "Symposium II: Biosystematics in Agriculture," to be held in Beltsville, Maryland on May 9-11, 1977.

Dr. Steffan informed the membership that his project on biosystematics of the world *Toxorhynchites* mosquitoes has begun. Please contact Dr. Steffan if you have knowledge or information on existing collections.

Program: Dr. Klaus Sattler, Lepidoptera specialist from the British Museum, London, spoke and showed slides on the endemic Hawaiian Lepidoptera fauna.

NOTES AND EXHIBITIONS

Culex pipiens quinquefasciatus Say from Kure I., Leeward Hawaiian Islands: On September 1, 1976, Mr. Dallas Grady of the Preventive Medicine and Environmental Health, U. S. Coast Guard District 14, collected eight larvae and three pupae of this mosquito (det. J. A. Tenorio) in a small puddle of water formed by drippings from an air conditioner on Kure I. This is evidently the first record of this species from Kure I., but not the first from the Leeward Hawaiian Islands. It was reported in 1952 by Hu (P.H.E.S., 14:15) from Midway Is. **J. A. Tenorio.**

Hofmannophila pseudopretella (Stainton): Adults of this widespread oecophorid moth known as the brown house moth (ESA approved common name), were

first collected in April 1973 by K. and E. Sattler in a house at 3,800 feet elevation at Volcano, Hawaii. This is a new state record. Subsequently specimens of this moth were collected by K. and E. Sattler at light on Kumuwela Ridge (3,700 ft. elev.) at Kokee State Park, Kauai on August 25, 1973 and in a research cabin (7,000 ft. elev.) at Haleakala National Park, Maui on August 28, 1976. Specimens from all three collections were identified by K. Sattler of the British Museum of Natural History. **K. Sattler.**

Oinophila v-flava (Haworth): Adults of this widespread oinophilid moth were collected at Parker Ranch along the Saddle Road at 4,600 ft. elevation by K. and E. Sattler on July 7, 1973 on the island of Hawaii. Identification was made by K. Sattler of the British Museum of Natural History. This is a new state record. The larvae of this moth are normally associated with fungi found in wine cellars in other parts of the world where it is known to occur. **K. Sattler.**

Caloptilia azaleella (Brants): Specimens of this gracillariid moth were first collected at Volcano (4,800 ft. elev.), Hawaii by K. and E. Sattler and W. P. Mull in April 1973. This is a new state record. Subsequently, adults were collected from light trap material from Aiea, Oahu in February 1974, and at Ewa, Oahu in April 1975, by J. W. Beardsley. The larva produce a blotch mine on azalea leaves. Identification of all collections was made by K. Sattler of the British Museum of Natural History. **K. Sattler and J. W. Beardsley.**

Macroglossum pyrrhostictum (Butler): This sphingid moth, a new state record, was recently identified by Father J. C. E. Riotte of the Bishop Museum. Bell and Scott in Fauna of British India (1937) give a taxonomic description and list the host plants as *Paederia foetida* and *P. tomentosa*. One adult was first discovered at large by R. Rice in the Makiki district of Honolulu, Oahu on July 11, 1976. Since then more than a dozen adults have been sighted or collected on Oahu at Kahaluu, and in the Honolulu districts of Moanalua Valley, Makiki, Manoa, and Wilhelmina Rise. Larvae have also been collected from *P. foetida* (maile pilau) in the Manoa district, Oahu. Maile pilau is considered to be a weed in the islands. *P. tomentosa* is not known to occur in Hawaii. **L. Nakahara.**

New records for Molokai: The following insects and mites were collected during a routine survey on August 12, 1976, on the island of Molokai by L. Nakahara, and J. Ah Sam. Identifications were made by Dr. J. W. Beardsley, Dr. F. Haramoto, and Hawaii Dept. of Agriculture staff members. All are new island records for Molokai:

Species	Host	Location
<i>Coelophora pupillata</i>	<i>Toxoptera citricida</i>	Kaunakakai
<i>Dialeurodes citrifolii</i>	<i>Citrus</i> sp.	Kaunakakai
<i>Eutetranychus banksi</i>	goa, lima beans	Kaunakakai, Maunaloa
<i>Halictus</i> sp.	at large	Maunaloa
<i>Polyphagotarsonemus latus</i>	lima beans	Kaunakakai
<i>Toxoptera citricida</i>	<i>Citrus</i> sp.	Kaunakakai

L. Nakahara.

Cladius difformis (Panzer): During the August 25, 1976 survey by L. Nakahara and E. Yoshioka for the bristly roseslug, *Cladius difformis*, a light larval infestation

was found in a backyard rose planting at 1,100 feet elevation at Kaumana, Hawaii. Only one larva per plant was found in the 10-foot long planting. No infestations were observed on other rose plants in the near vicinity, at lower elevations closer to Hilo, at Mountain View (1,500 ft. elev.), at Holualoa (1,400 ft. elev.), or at Waimea (2,400 ft. elev.), Hawaii. A severe infestation (50-100 larvae/plant; 90% of leaves defoliated) was observed on two three-foot high shrubs at Volcano (4,000 ft. elev.), Hawaii. The sawfly had previously been reported only from Volcano since its first discovery in Hawaii during October 1973. **L. Nakahara** and **E. Yoshioka**.

Orchamoplatus mammaeferus (Quaintance and Baker): A recent delineating survey of this pest was carried out by Hawaii Dept. of Agriculture and USDA, APHIS, PP&Q personnel on August 23, 1976. Infestations were found to occur in a three square mile area of Honolulu, Oahu in the Palolo, Maunalani Heights, Kaimuki, Kapahulu, and Waikiki districts. All forms of the ornamental croton (*Codiaeum variegatum* var. *pictum*) that were found in the surveyed area were observed to be infested by the whitefly. Infestations were generally light in the survey area, usually with only several leaves in a hedge planting being colonized. At some locations, however, the incidence was much higher. In Palolo 31 per cent of 261 croton plants were infested, with as much as 30 per cent of the leaves of several plants being colonized. In all infestations, damage to the leaves was not apparent. No infestations were observed on citrus. **L. Nakahara**.

OCTOBER

The 850th meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:03 pm, October 12, 1976, in the conference Room, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bess, Bianchi, Burkhart, Hara, Hardy, Haramoto, Higa, Howarth, Joyce, Lai, Lind, Mitchell, Nakahara, Ralph, Rice, Sakimura, Sugerma, Tenorio (J.A.), Tenorio (J.M.).

Visitors: Mr. Charles J. Koover, Dr. F. L. McEwen.

Unfinished Business: Dr. Haramoto summarized progress to date on ESA meeting arrangements. He proposed that Society donate \$200-\$250 for small cost items, such as leis. Dr. Mitchell moved that HES appropriate \$250 to the Arrangements Chairman for incidental expenditures; unexpended funds would revert to treasury. This was approved unanimously by the members present.

Program: Dr. Freeman McEwen gave a talk illustrated with color slides concerning research on the control of the onion maggot, *Hylemia antiqua*, using the sterile male technique.

NOTES AND EXHIBITIONS

Paraleyrodes naranjae Dozier: All stages of this aleyrodid were first collected on lemon (*Citrus limon*) by G. Taniguchi and J. W. Beardsley at Moanalua, Oahu on September 30, 1976 (first reported in Hawaii Coop. Econ. Ins. Rept., week ending October 8, 1976). Identification was made by M. B. Stoetzel of the Systematic Entomology Laboratory, ARS, USDA. This is a new state record. A one-square block survey of citrus trees in the discovery area revealed four lemon trees, one lime tree, and one orange tree of a total of 47 citrus trees to be lightly infested. Further surveys in other localities showed single lemon trees at McCully and Hawaii Kai, Oahu, to be lightly infested. H. L. Dozier reported (J. Agric. Res. 34(9), 1927) that

this whitefly was not of economic importance in its native home in Puerto Rico but was of potential importance in other citrus areas. It was collected from sour orange (*Citrus aurantium*) in Puerto Rico, and an eulophid parasite, *Encarsia variegata*, was reared from the material. *E. variegata* has also been recovered from the infested material from Moanalua. **S. Y. Higa** and **L. Nakahara**.

Odontaleyrodes rhododendri (Takahashi): All stages of this whitefly (Aleyrodidae) were first collected from a single azalea plant at Hilo, Hawaii by R. Mau on August 22, 1976. Identification was made by M. B. Stoetzel of the Systematic Entomology Laboratory, ARS, USDA. This is a new state record. An infestation was later observed on an azalea hedge planting at Manoa, Oahu by S. Matayoshi and L. Nakahara on September 8, 1976. Identification was made by J. Beardsley of the University of Hawaii. *O. rhododendri* was described from Osaka, Japan as *Pealius rhododendri* (Kontyu 9:279, 1935) and was later placed in the genus *Odontaleyrodes* by the same author (Ins. Matsumurana 18:49, 1954). Damage to the azalea leaves from both collections was light to practically nil. In addition, M. B. Stoetzel writes that the USDA has "...slides of material collected in Alabama, Louisiana, Mississippi, Florida, Texas and Tennessee" and "...also have material from Colombia and San Salvador." Collections of this whitefly from Oahu were highly parasitized by an unidentified aphelinid wasp. **J. W. Beardsley**, **S. Matayoshi**, **R. Mau**, and **L. Nakahara**.

Paraleyrodes perseae (Quaintance): A heavy infestation of this whitefly was observed on a single lemon tree at Kaunakani, Kauai by D. Sugawa and L. Nakahara on September 16, 1976. Identification was made by J. Beardsley. This is a new island record. **D. Sugawa** and **L. Nakahara**.

Coccus capparidis (Green): A light infestation of this soft scale occurred on a single citrus tree at Kaunakani, Kauai on September 16, 1976. Specimens were collected by L. Nakahara and D. Sugawa and were identified by J. Beardsley. This is a new host and island record. The scale was previously known to occur only on Oahu where it was first recorded on *Clermontia* sp. during September 1972. Specimens had been intercepted earlier from the State in quarantine, however (Beardsley, 1972, Proc. Hawaii. Entomol. Soc. 21:142). **D. Sugawa** and **L. Nakahara**.

Macroglossum pyrrostictum (Butler): A single adult of this recently discovered immigrant sphingid moth was recovered at light in a residence at Hilo, Hawaii by L. Shimoda on October 4, 1976. Identification was made by S. Matayoshi of the Hawaii Department of Agriculture. This is a new island record. The moth is now known to occur on Hawaii and Oahu. In recent weeks single adult specimens have also been recovered from light traps at Hickam Air Force Base and Honolulu Harbor on Oahu. **S. Matayoshi**, **R. Kunishi** and **L. Nakahara**.

Aleurocanthus spiniferus (Quaintance): Light infestations of the orange spiny whitefly were observed on backyard rose plantings at Ewa Beach, Oahu during a September joint USDA, APHIS, PP&Q and Hawaii Dept. of Agriculture survey. An infestation was also recently observed on a single citrus tree at Waianae, Oahu by a State plant quarantine official. The pest, which was first reported from Waikiki, Oahu during July 1974, is now known to occur along the entire southern coast of Oahu. **L. Nakahara**.

Phthorimaea operculella (Zeller): Light infestations and damage by the potato tuberworm, (10-15% of leaves, terminals, and branches) occurred on poha, *Phytalis peruviana*, (1/4 acre) at Volcano, Hawaii during September. **L. Nakahara**.

Vespa vulgaris (L.): A single nest of this yellow jacket wasp was discovered in a forest area in early September, 1976, at Hosmer's Grove in Haleakala National Park, Maui at 6,200 feet elevation. The nest was about eight inches in diameter, had seven tiers, and contained a queen, 1,283 females, and 949 males. The nest was chemically destroyed. **N. Miyahira.**

Otiorynchus sulcatus (Fabricius): A single specimen of this phytophagous otiorynchine weevil, new to the state, was taken on *Gouldia* along the Kaluapuhi Trail, Kauai on March 26, 1976. Another was found on a native plant, probably *Gouldia* also, at 3800 ft. elevation along the first quarter mile of the Kumuwela Trail, Kauai on 16 April 1976. These trails are in the Kokee region in mesic to moderately wet climates and have a rich native flora. Both weevils were found on foliage several feet above ground after dark. Despite considerable searching along these trails no additional specimens were seen. This is a European species which is also widely distributed in North America where it is known as the black vine weevil. Identification was made by Dr. J. W. Beardsley and confirmed by D. R. Whitehead, U. S. National Museum. **R. C. A. Rice.**

Forficula auricularia L.: The European earwig, *Forficula auricularia*, previously was known in Hawaii only from three specimens taken near Hosmer's Grove, Haleakala, Maui during the summer of 1975. An adult of this species, determined by J. W. Beardsley, was found on September 21, 1976 at the Hawaii Meat Co. Ltd. feedlot, Campbell Industriail Park, Oahu. The specimen was hidden beneath loosely piled barley in an open-ended shed used for storing cattle feed. Despite the recovery of only four specimens so far, it seems likely that this earwig is established in Hawaii on both Oahu and Maui, and perhaps on other islands, where it has not yet been collected. **R. C. A. Rice.**

Coccinella septempunctata Mulsant, **Hippodamia convergens** Guerin, and **Harmonia conformis** (Boisduval): These three coccinellids, listed in order of abundance, were observed in great numbers at the University of Hawaii Telescope Building and vicinity, Mauna Kea, 4,189 meters elevation on August 21, 1976. There were estimated to be at least 10,000 beetles present, including both dead and alive. *H. conformis*, the 18-spotted ladybird, was observed only at the summit, although one specimen was subsequently collected at the Adz Quarry 3,648 m by a Bishop Museum worker. Heavy mortality was sustained by this species, suggesting intolerance to alpine conditions. A majority of the beetles were most likely wind-borne to the summit as there is nothing to support coccinellid populations down to 3,048 m elevation. However, *Hippodamia convergens* is known to seek high elevations for overwintering purposes.

In June, 1976 aphid populations were observed building up on an unidentified grass species at Puu Laau, 2,133 meters elevation on the south slope of Mauna Kea, and reliable reports a month later indicated that aphids there had reached explosive population levels. It is speculated this aphid build-up at various localities on Mauna Kea triggered large numbers of *C. septempunctata* and *H. convergens*. *Harmonia conformis* is believed to have originated largely from *Psylla uncatoides* populations in the Koa forests on the lower slopes of Mauna Kea. On July 21, 1976 both *C. septempunctata* and *H. convergens* were fairly common on *Dubautia* sp. and *Argyroxiphium sandwicense* at Haleakala, Maui between 2,743 m and 3,048 m elevation. While these were mostly perching records, one *C. septempunctata* appeared to be feeding on a *Nysius* nymph. No aphids were observed. On September 30, 1976 Dale Thomson and Robert Barbie, Park Naturalist and Park Superintendent,

respectively, brought seven live adults of the seven spot ladybug, *C. septempunctata*, from the summit crater of Mokuaweoweo, Mauna Loa, Hawaii Volcanoes National Park, 4,159 m elevation. This was the second record of this ladybird beetle at the summit, the first being a single specimen brought down by a hiker on August 19, 1976. Identifications of all three species were confirmed by Dr. J. W. Beardsley. C. J. Davis.

Vanessa cardui (Linnaeus): Twenty *V. cardui* caterpillars collected at Volcano, Hawaii, 1,188 m elevation ex globe artichoke, *Cynara scolymus*, developed into twenty chrysalis and of these, eighteen painted lady butterflies and one undertermined tachinid fly emerged. This is believed to be the first record of *V. cardui* from globe artichoke in Hawaii. C. J. Davis.

NOVEMBER

The 851st meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:03 pm, November 8, 1976, in the Conference Room, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bess, Chang, Goff, Haramoto, Hardy, Higa, Howarth, Ikeda, Komatsu, Lauret, Look, Loschiavo, Mitchell, Montgomery, Namba, Rice, Shiroma, Tamashiro, Tenorio (J.A.), Tenorio (J.M.).

Visitors: Mr. Charles J. Koover, Dr. F. L. McEwen, Mr. Roger Vargas, Mr. Patrick Conant, Mr. Florante Gatmaitan, Mr. Gilbert S. Masaki, Father J.C.E. Riotte, Ms. E. Perry.

Membership Committee: Six persons were nominated for HES membership: Dr. Freeman McEwen, Mr. Charles Koover, Mr. Glenn Taniguchi, Mr. Ken Teramoto, Mr. Samir Araman and Mr. Rober Vargas. All were unanimously elected to membership in the Society.

Program: Dr. Sam Loschiavo, Entomologist with the Canada Department of Agriculture and Visiting Colleague, spoke on stored products insects in Canada and Hawaii.

NOTES AND EXHIBITIONS

Chiggers on Introduced Lizards: Three species of chiggers (Acari: Trombiculidae) have been recovered from two species of lizards shipped to the Honolulu Zoo from the southwestern United States. Exact locality data was unavailable for the lizards. The infestation was noted before the lizards had been placed in the display at the zoo, thus making the establishment of the mites in Hawaii highly unlikely. *Eutrombicula belkini* (Gould, 1956) was recovered from the nuccal pocket of the Yarrow Spiny Lizard, *Sceloporus jarrovi*. *Hyponeocula sauricola* Tanagoshi and Loomis, 1974, was recovered from under the belly scales of *S. jarrovi*. An undescribed species of the *Acomatacarus arizonensis* complex was recovered from the nuccal pocket of the side-blotched lizard, *Uta stansburiana*. Both *Hyponeocula sauricola* and *Acomatacarus* sp. are reptile infesting chiggers. The *Acomatacarus* species involved has been reported by various authors under the name *Acomatacarus arizonensis* Ewing, 1942, which represents a complex of three morphologically similar but biologically distinct species. *Eutrombicula belkini* has been reported from a wide variety of hosts including reptiles, birds and mammals. This species was originally described from a human host and is considered a pest species in California and Mexico.

In the same shipment the lizard mite, *Geckobiella texana* (Banks) (Acari: Pterogysomidae), was recovered from under scales of *Sceloporus jarrovi*. This is the second instance in which this mite has been recovered from shipments to the Honolulu Zoo. This mite is a common ectoparasite of lizards in the southwestern United States. **M. L. Goff.**

Triatoma rubrofasciata (DeGeer): An additional specimen of the melanistic form of *Triatoma rubrofasciata* was recovered from a compost pile in Kaimuki by a student in the general entomology laboratory. The initial specimens of this form were recovered in association with monitor lizards at the Honolulu Zoo. **M. L. Goff.**

Polyphagotarsonemus latus (Banks): A student in general entomology laboratory submitted a sample of marijuana, *Cannabis sativa*, with heavy infestation of the broad mite, *Polyphagotarsonemus latus*. Exact collection data was unavailable for this sample, as was the name of the student. All stages of the mites were present in large numbers and the feeding damage was evident. This constitutes a new host record for this mite in Hawaii. **M. L. Goff.**

Polycaon stouti Leconte: A bostrichid beetle of the genus *Polycaon* was recovered flying inside of a house in Kalihi by a student in general entomology laboratory on Oct. 2, 1976. This genus is unusual in that the mandibles are well developed and visible from the dorsal view. The beetle is probably *Polycaon stouti* Leconte. This species has been reported to be injurious to cured hardwoods in California. It has been collected previously in Hawaii, but apparently is not established. **M. L. Goff.**

Sardia pluto (Kirkaldy): During the period September 21 to October 15, 1976, eight specimens of a delphacid planthopper new to Hawaii were found in material from a light trap operated at Honolulu International Airport. The species has now been determined by Dr. J. P. Kramer of the USDA Insect Identification Laboratory as *Sardia pluto* (Kirkaldy). *S. pluto* is widespread in the Pacific tropics. Described originally from Queensland, Australia (1906, Experiment Sta. HSPA, Ent. Div. Bul. 1(1): 410), it is known also from New Caledonia, Fiji, Samoa, Tahiti, Philippines, Formosa and Micronesia. Fennah (1971, Ins. Micronesia 6(8): 572) treats *S. pluto* as a subspecies of the southeast Asian *S. rostrata* Melichar. A cursory check of literature did not reveal any information on the hosts of *S. pluto*. Additional specimens are needed to confirm establishment of the species in Hawaii.¹ **J. W. Beardsley.**

Prodrasterius collaris (Candeze): Dr. T. J. Spilman, of the USDA Systematic Entomology Laboratory, wrote recently that specimens of a small elaterid beetle from Oahu had been determined by Dr. Hitoo Ohira in Japan as *Prodrasterius collaris* (Candeze). This beetle, which has been known here since 1962 (Proceedings 18(2): 216), had been determined previously as "*Conoderus* sp." Dr. Spilman stated that *P. collaris* is known to occur in eastern India, Burma, Laos, Thailand, and Vietnam. Nothing is known about its biology. **J. W. Beardsley.**

Gahaniella saissetiae Timberlake: Dr. Ron Mau recently submitted specimens of this encyrtid hyperparasite which he had reared from *Saissetia coffeae* (Walker) on "rosebay" at Hilo, Hawaii during July, 1976. This is a new island record. Dr.

¹Subsequently, numerous additional adults of *Sardia pluto* were taken in light traps located at Honolulu International Airport and Hickam A.F.B. (ed).

Mau's material also contained specimens of *Encyrtus infelix* (Embleton), a primary parasite which presumably was the host of *G. saissetiae*. *G. saissetiae* had been collected previously only on Oahu. **J. W. Beardsley.**

Pachybrachius sp.: Dr. J. L. Herring, USDA Insect Detection Laboratory, recently determined specimens of a lygaeid bug new to Hawaii as *Pachybrachius* sp. This species has been common in light trap collections from Barbers Point, Ewa, Waipahu, Hickam A.F.B. and Honolulu International Airport since March 1976. It is superficially similar to *P. nigriceps* (Dallas), a species which has been present in Hawaii for many years. **J. W. Beardsley.**

Endochus ? sp.:¹ Dr. Herring also determined a recently discovered immigrant reduviid bug of the subfamily Harpactorinae as *Endochus* ? sp. This species was first found in collections made by students of general entomology at the University of Hawaii in December of 1975. More than a dozen specimens have been collected, the oldest being a specimen from Manoa (Honolulu) collected by H. Francisco, Oct. 16, 1975. Other specimens are from Pearl City, Ewa and Kolekole, Oahu, and one from Kamalo, Molokai (April 19, 1976, J. Nakamura). **J. W. Beardsley.**

Elasmus sp.: A single female specimen of a chalcidoid wasp, determined by Dr. Beardsley as *Elasmus* sp., was collected at Honolulu International Airport on October 16, 1976. *Elasmus* is a large genus of Chalcidoidea, usually placed with several similar genera in a separate family, Elasmidae. Recently, *Elasmus* has been placed in the family Eulophidae by some workers. Species of this genus characteristically have enlarged, flattened hind femora. Most of the species for which host relationships are known are hyperparasites. Additional specimens are being sought to confirm establishment here.² **J. W. Beardsley.**

DECEMBER

The 852nd meeting of the Hawaiian Entomological Society was called to order by President J. W. Beardsley at 2:02 pm, December 13, 1976, in the Conference Room, National Marine Fisheries Building, Honolulu.

Members Present: Beardsley, Bianchi, Chang, Gressitt, Haramoto, Hardy, Higa, Howarth, Ikeda, Joyce, Kitaguchi, Koover, Lai, Lauret, Look, Loschiavo, McEwen, Montgomery, Mowry, Murai, Myles, Nakahara, Pang, Pinter, Radovsky, Ralph, Samuelson, Sugerman, Tamashiro, Tenorio (J.A.), Tenorio (J.M.), Tsuda.

Visitors: Mr. Hendrickson, Mr. Evenhuis, Mr. P. Conant, Ms. Perry, Father Riotte.

Nominations Committee: Mr. Higa announced the results of the election of officers for 1977 which were as follows: President-elect, Mr. James Ikeda; Secretary, Dr. JoAnn Tenorio; Treasurer, Dr. Franklin Chang; and Advisor, Dr. Ernest Harris.

Unfinished Business: Dr. Frank Haramoto thanked HES members and spouses

¹Subsequently specimens of this reduviid were determined as *Nagusta* sp., probably *singalensis* Distant by W. R. Dolling at the British Museum (Natural History), London. The type locality of *N. singalensis* is Ceylon. (ed.).

²Three additional specimens of this *Elasmus* were collected on Oahu during July and August, 1977. These specimens indicate establishment of the species here (ed.).

for their assistance before and during the National Entomol. Soc. America meeting. He indicated receipt of many letters complimentary of the organization and functioning of the meeting and expressed his belief that the meeting had been a success. Dr. Beardsley pointed out that Dr. Haramoto and all of his committees had done a tremendous job and expressed his belief that this had been one of the most efficiently run meetings of any he had attended. Dr. Haramoto and members of the ESA meeting committees were then given a round of applause.

Program: Prior to the program for the day, the outgoing president, Dr. J. W. Beardsley, handed the gavel to President-elect Dr. Frank J. Radovsky. Dr. Radovsky then said a few words of introduction before Dr. Beardsley presented his presidential address entitled "New Immigrant Insects in Hawaii, 1962 to 1976."

NOTES AND EXHIBITIONS

Gotra sp.: Dr. Beardsley exhibited specimens of a yellow and black ichneumonid wasp belonging to the large Indo-Papuan genus *Gotra* Cameron (subfamily Gelinae). More than a dozen specimens of this wasp have been collected in and around Honolulu, the oldest dating from October 1, 1974. According to Dr. R. W. Carlson, USDA Insect Identification Laboratory, who made the determination, our *Gotra* is the same as specimens in the U.S.N.M. collection from the Philippine Islands. However, because of the confused state of the taxonomy of the genus, he is unable to identify the species. Recorded hosts of *Gotra* species are mostly various macro- and microlepidoptera. The type species is recorded from two species of Pompilidae, but this needs confirmation. This is a new state record. **J. W. Beardsley.**

Pseudomyrmex gracilis mexicanus (Roger): Two specimens of this ant, both dealate females, were collected by Dr. J. W. Beardsley at his home in Kailua, Oahu, during September, 1976. A third specimen was seen but not captured. According to D. R. Smith, USDA Insect Identification Laboratory, who made the determination, this ant is known from Texas, south to Panama, and in Florida where it is presumed to be introduced. *Pseudomyrmex* is a small genus of relatively primitive ants confined mostly to tropical America. The genus is placed in a separate subfamily, the Pseudomyrmicinae, by most ant taxonomists. Members of this group live in small colonies and nest in hollow twigs and branches. Perhaps the females captured were part of a nuptial flight and failed to find mates or found colonies. No additional specimens have been found. However, it appears likely that this ant may be established in the Kailua area. Additional evidence of its presence here is being sought.¹ This is a new state record. **J. W. Beardsley.**

Pandesma anysa Guenée: Dr. Beardsley exhibited specimens of this noctuid moth which appears to be a newly established immigrant on Oahu. It was first collected here in a detection light trap at Hickam Air Force Base on November 30, 1975. To date over a dozen adults have been taken in light traps at Hickam AFB and Barbers Point Naval Air Station. Determination was made by Dr. E. L. Todd, USDA Systematic Entomology Laboratory, who has written that the species is

¹Approximately 20 adult males of this ant were collected in a light trap, operated at the site where the two dealate females were collected, during July and August, 1977. These captures indicate that the species is established in the Kailua area (ed.).

known from Africa, the Mediterranean region, east through southeast Asia to Indochina. Dr. Todd stated that there is some confusion concerning the name, and *P. anysa* may be a junior synonym of *P. quenavadi* Guenée, but an examination of the type specimens is needed to confirm this. Known larval hosts of *P. anysa* are *Acacia* and *Prosopis* **J. W. Beardsley.**

Helix aspersa Muller: A single specimen of the European brown snail, *Helix aspersa*, was reported by M. Nobriga from Waimea, Hawaii on October 20, 1976. Identification was made by J. W. Beardsley. This find represents a new state record. An earlier collection of a single specimen from a backyard garden at Koloa, Kauai on June 11, 1976 was reported as a new state record at the July 12, 1976 Hawaiian Entomological Society meeting. This earlier collection has since been interpreted as not representing an established population after numerous surveys over several months have revealed no additional specimens in the area where it was taken. Another apparently unrelated collection of a single specimen occurred at Kalaheo, Kauai on October 4, 1976. In this instance, evidence indicated that the snail probably arrived at a residence via cartons of air-freighted cactus plants. Delineation surveys and eradication measures are currently being carried out against the established infestation at Waimea by Hawaii Island Entomology Division and Weed/Pesticide Division personnel of the Hawaii Department of Agriculture. A total of 29.6 acres were surveyed in the immediate discovery area and 9.5 acres were found to be infested. About 4,060 snails, ranging from egg to adult stages, have been recovered as of December 9, 1976. Approximately 15 acres are being treated with Bug-Geta pellets and metaldehyde granules and another 20+ acres are being baited for survey purposes. Posters describing the pest are being distributed within the communities. Snails have been recovered from and around lily plants, jade (*Crassula*), *Aloe*, *Impatiens*, tomato, popo (*Solanum*), bird nest fern (*Asplenium*), *Epidendrum*, ti (*Cordyline*), oleander (*Nerium*), *Canna*, and castor bean (*Ricinus*). No extensive feeding damage was observed on any specific plant. Snails were frequently collected along the edge of houses or wooden fences, in rock walls, at the base of fence posts, in piled up rocks, associated with loose soil, and on certain plants. **L. Nakahara.**

Heterospilus baeticatus (Provancher): A single adult of this braconid parasite was first collected at large by L. Hirata at Mt. Tantalus, Oahu on March 28, 1969. On July 14, 1970 an adult was collected from Pahala (no island designation) by K. Smith. Between 1972 and 1976 five more specimens were recovered from Ewa, Manoa, and the State Dept. of Ag. Building on Oahu. Identification was made by P. M. Marsh of the Systematic Entomology Lab, USDA, ARS. This is a new state record. Marsh writes that this species occurs in the Northeastern part of the U. S. and is a parasite of the anobiid beetle, *Xyletinus peltatus* (Harr.). This anobiid is not known to occur in Hawaii. **L. Nakahara and J. W. Beardsley.**

New records of whiteflies from Lanai and Maui: Light infestations of four whitefly pests, *Paraleyrodes perseae* (Quaintance), *Paraleyrodes naranjiae* Dozier, *Bemisia giffardi* (Kotinsky) and *Dialeurodes citrifolii* (Morgan) were observed on various kinds of backyard citrus trees at Lanai City, Lanai. Specimens were collected by L. Nakahara on October 14, 1976 and identified by S. Higa and J. W. Beardsley. *P. naranjiae*, *B. giffardi*, and *D. citrifolii* are new island records for Lanai. *Paraleyrodes naranjiae* and *Dialeurodes citrifolii* were observed on backyard plantings of citrus at Wailuku, Maui by L. Nakahara and N. Miyahira on October 21, 1976. Identifications were made by S. Y. Higa, Hawaii Department of Ag-

riculture. Both species are new island records for Maui. *P. naranjae*, first reported from Oahu on October 8, 1976, apparently had been collected over a year ago from Oahu but was misidentified at that time. *D. citrifolii* is now known to occur on all the major islands: Kauai, Oahu, Molokai, Lanai, Maui, and Hawaii. N. Miyahira and L. Nakahara.

Aneristus sp.: Adults of this aphelinid parasite were reared from *Saissetia coffeae* (Walker) infesting rosebay (*Tabernaemontana pentastica*) collected by S. Matayoshi at Hilo, Hawaii on September 24, 1976. Identification was made by S. Y. Higa of the Hawaii Department of Agriculture. This is a new island record of this apparently undescribed species which has been reported previously from Oahu and Kauai. S. Y. Higa and S. Matayoshi.

Leucopis nigriluna McAlpine: A single adult of this chamaemyiid fly was recovered from *Pinus* spp. infested with Eurasian pine aphid, *Pineus pini* Koch, collected by W. Shishido from Kamuela Airport (2,600 ft. elev.), Hawaii on October 25, 1976. Identification was made by S. Y. Higa of the Hawaii Department of Agriculture. Since then more adult specimens have been collected. This is the first recovery of this predator, which was purposely introduced to control *P. pini*, since its release in Waimea, Hawaii between March 1972 and April 1973. S. Y. Higa and W. Shishido.

Aspidiotus destructor Signoret: Light infestations of the coconut scale, *A. destructor*, were found on plumeria and pandanus at Honolulu International Airport, Oahu on November 26, 1976 by J. Beardsley, R. Kunishi, S. Namiki, and L. Nakahara. Both are new host records for Hawaii. Identification by J. W. Beardsley. J. W. Beardsley, R. Kunishi and L. Nakahara.

Caloptilia azaleella (Brants): A heavy infestation (90% of leaves with one to five mines/leaf) of this immigrant gracillariid leafminer occurred on 15 azalea plants at Liliha, Oahu in early November 1976. This is the first report of this moth doing extensive foliar damage to azaleas in the state. Light mining has been observed on azalea leaves in the Moanalua, Makiki, Manoa, and Kaimuki district of Honolulu, Oahu within the past month. L. Nakahara.

Vespula vulgaris (L.): Another nest of this yellow jacket was destroyed in early November 1976 in a forest area at Hosmer's Grove in Haleakala National Park, Maui. The nest was oblong in shape (8 inches by 13 inches) and contained a queen. The position of the nest made further enumeration of the colony difficult. This nest was approximately 0.25 miles away from the one discovered in September, 1976. N. Miyahira.

Parasites for Control of Agromyzid Leafminers: The following two parasites were introduced from the USDA Beneficial Insect Research Laboratory, Newark, Delaware to combat *Liriomyza* leafminers. *Diglyphus pulchripes* (Crawford); three shipments of stock cultures of this eulophid parasite were introduced into our Honolulu quarantine insectary in August and September, 1976. Following partial success in propagation (low parasitism), field releases of about 170 parasites were made on Kauai on November 30 and December 7, 1976. *Chrysocharis* sp.; this eulophid parasite was introduced into our quarantine insectary in September, 1976. Following successful rearing, field releases on Maui of about 650 parasites were made on November 23 and 30, 1976.

An eulophid parasite, *Diglyphus* n. sp., was introduced by exploratory entomologist Robery Burkhart from Mexico. Following life history studies and successful laboratory rearing, adult parasites were released into sleeve cages covering

portions of *L. sativae* infested bean plants on the U. H. Experimental Farm, Waimanalo, Oahu in November, 1976. More conditional releases are scheduled in the coming months to assist this parasite in becoming established.

A braconid parasite, *Opius dimidiatus* (Ashmead), was introduced from the USDA Beneficial Insect Research Laboratory, Newark, Delaware, in April 1976, and initially released on Oahu and Kauai in May 1976. On November 16 and December 7, 1976 about 670 parasites were shipped to the Big Island for release. **S. Y. Higa.**

Scymnus (Pullus) suturalis Thunberg: Seventeen adults of this predaceous coccinellid beetle were received by our Honolulu Insectary staff from J. J. Drea, USDA, European Parasite Research Laboratory, France and shipped to the Big Island for release in the Waimea area in late November 1976. This predator was introduced to combat the European pine aphid, *Pineus pini* Koch. **S. Y. Higa.**

NAME CHANGES AND CORRECTIONS NOTED IN NOTES AND EXHIBITIONS SECTION

Previous name	Changed to	Reason*	Page
<i>Schistocerca vaga</i> (Scudder)	S. nitens nitens (Thunberg)	S	1
<i>Conoderus</i> sp.	Prodrasterius collaris (Candeze)	M	21

*S = synonym; M = misidentification.

NEW IMMIGRANT RECORDS FOR THE YEAR 1976

The following species were reported in the Hawaiian Islands for the first time during 1976 on the dates recorded in the text. Species marked with a dagger are considered doubtfully established as these records are based upon single collections, or collections made from captive animals. (Editor)

CHANCE IMMIGRANTS		Page
	<i>Sathrobrotia badia</i> Hodges (Cosmopterygidae)	2
	<i>Neoschoengastia ewingi</i> Wharton and Hardcastle (Acarina)	3
	<i>Neoschoengastia namrui</i> Wharton and Hardcastle (Acarina)	3
	<i>Neoschoengastia archaea</i> (Tauflieb) (Acarina)	3
†	<i>Neoschoengastia atollensis</i> Wharton and Hardcastle (Acarina)	3
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Dr. Edward P. Mumford, 1902-1977.

The death of Dr. Edward P. Mumford was announced to the Hawaiian Entomological Society at the October 1975 meeting, but he had died earlier that year in San Rafael, California. With his passing the Society lost an old and faithful friend, and the biological sciences of the Pacific lost a distinguished contributor. His association with the Society and the Pacific dates from 1927, when he was appointed Director of the Pacific Entomological Survey in succession to Dr. C. F. Baker, who had accepted the post earlier but had died in the Philippine Islands before being able to undertake his duties. The Pacific Entomological Survey was a cooperative project financed jointly by the Hawaiian Sugar Planters' Association, the Association of Hawaiian Pineapple Cannerys, and Bernice P. Bishop Museum. Headquarters of the Survey were in Honolulu, and records show that Mumford visited the city briefly in 1927 and was nominated for membership in the Hawaiian Entomological Society at the December meeting of that year. His name remained on the roster of the Society until 1963; but although he corresponded frequently with some of the members, there are few who knew him personally, as his life and career developed mostly in California. His only extended sojourn in Hawaii occurred during 1932 and early 1933, when he and Dr. Martin Adamson, who had been studying the fauna of the Marquesas Islands with him, worked on their accumulated collections for several months at the Bishop Museum. Unfortunately, Dr. Mumford's health had been undermined by the harsh climate and conditions of his field work and he was forced to seek recuperation in the cool climate of California, whence he did not return.

After his stint with the Pacific Entomological Survey, Mumford took up residence in Palo Alto and extended his studies, under the aegis of Ray Lyman Wilbur of Stanford University, to include the world distribution of pathogenic parasites of man. These studies led him to become the principal promoter of Stanford's Pacific Islands Research War Project and to contribute a number of publications to the project. One of these was a "Preliminary Report on Parasitic and Other Infectious Diseases of the Japanese Mandated Islands and Guam," written in collaboration with Dr. John Mohr and published in 1943 in *The American Journal of Tropical Medicine*. Another one, published in the same journal in the following year, was a "Manual on the Distribution of Communicable Diseases and their Vectors in the Tropical Pacific Islands." Although many other papers by Mumford on the distribution of parasitic diseases appeared later, mostly in the *British Journal of Tropical Medicine and Hygiene*, the "Manual" should probably be considered his most notable and useful publication, as it was a basic reference work for the Allied Forces during the second World War and is still in use in medical schools of the United States and Canada.

Mumford was born in Lancashire, England, in 1902, and before coming to the United States, had obtained a Bachelor of Science degree from Cambridge University in 1926 and a Master of Science degree from Victoria College, Toronto, Canada, in 1929. At the conclusion of the second World War, he returned to England and continued his studies on biogeography at Jesus College, Oxford University, where he was granted a Ph.D. in 1948. Later in the same year he joined the faculty of Dominican College, San Rafael, California, as Professor of Biology and Department Chairman, and he held that office until his retirement in 1971, when the

College honored him with a position as Research Scholar in Residence, a position in which he continued to contribute papers to the field of biogeography until his death in 1977.

Dr. Mumford was, for many years, Administrator of the William Bryant Mumford Memorial Fund, which was established in memory of Edward's brother, who was one of the founders of the United Nations Organization. The grants and honors which he received during his fruitful career were numerous, as were the societies and organizations in which he was active at one time or another. A partial list of the former would include grants from the Royal Society, Fund for Higher Studies at Oxford, National Academy of Sciences, Carnegie Corporation and Rockefeller Foundation; and among the latter would be the Oxford and Cambridge Union, of which Mumford was a Life Member, the Royal Entomological Society, of which he was a Fellow, the Royal Geographical Society, the London Zoological Society, the Royal Anthropological Institute of Great Britain and Ireland, the Societe de Biogeographie, the Sigma Xi Honorary Fraternity, the Faculty Club of the University of California, and the Palo Alto Medical Research Foundation, of which Mumford was Senior Research Associate from 1960 to 1971.

Dr. Mumford was married in Palo Alto in 1960, and he is survived by Mrs. Iris G. Mumford, who resides in San Rafael, California. **F.A. Bianchi.**