

INSECTS AND OTHER TERRESTRIAL ARTHROPODS FROM THE LEEWARD HAWAIIAN ISLANDS¹

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INTRODUCTION

The Leeward Hawaiian Islands comprise a chain of small rocky islets, and coral atolls which extend west-northwest of Kauai. Nihoa, the nearest, is about 150 miles from Kauai, while Kure, the furthestmost, is some 1,150 miles away (see map, p. 158). All Leeward Islands except Midway and Kure are now a part of the Hawaiian Islands National Wildlife Refuge administered by the U.S. Fish and Wildlife Service.

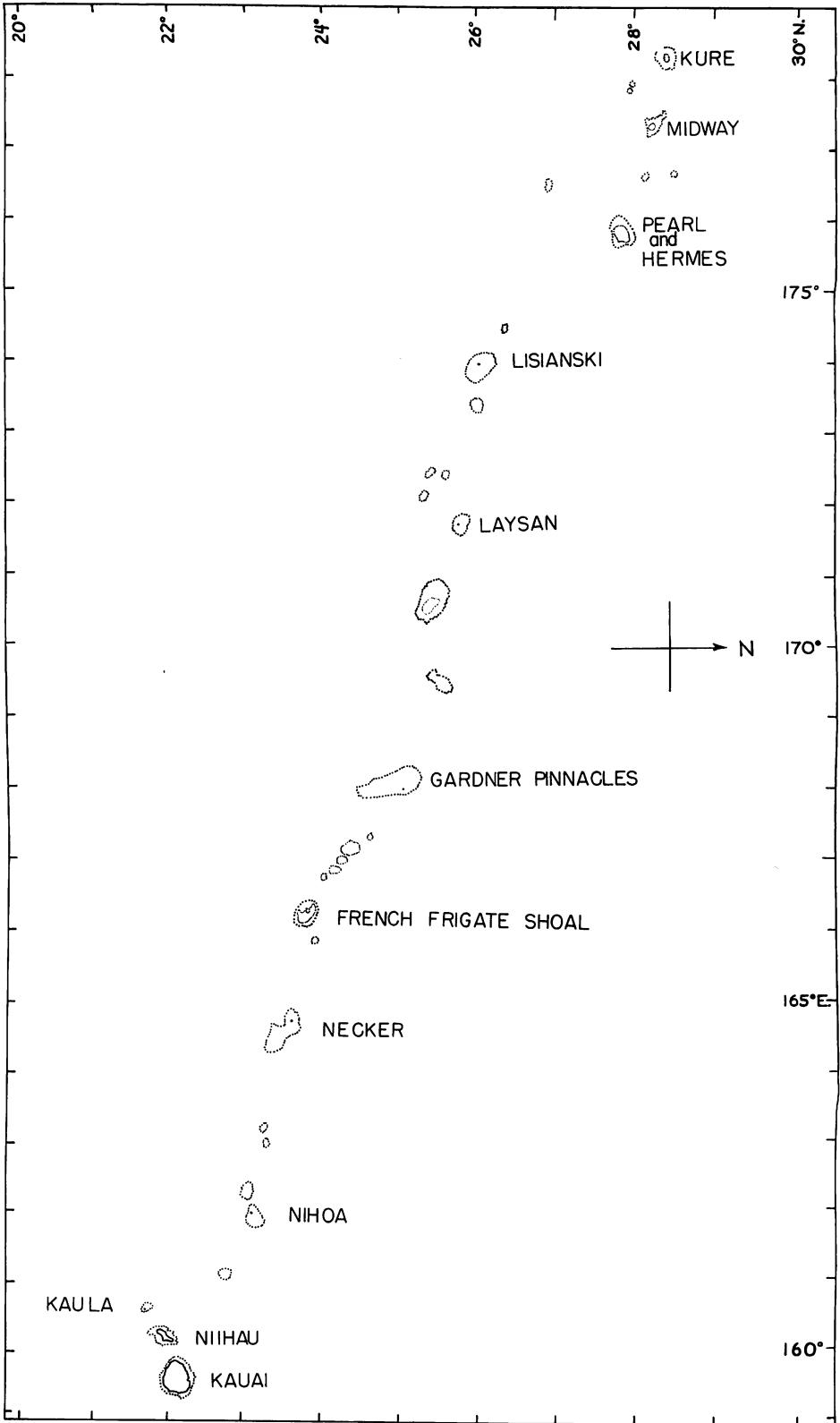
This paper summarizes results of recent entomological field work in these islands, and attempts to update the existing lists of insects and other terrestrial arthropods known.

The terrestrial arthropod fauna of these islands is a mixture of endemic or indigenous elements and recently, adventive forms. The numbers of endemic species are greatest on the two relatively undisturbed southeastern volcanic islands of Nihoa and Necker, and apparently have disappeared largely from the more northwesterly atolls where, in most cases, the original vegetation has changed drastically in the past 100 years or so. Extinction of native plants and endemic insects has been documented fairly well for Laysan (Christophersen & Caum, 1931, Butler & Usinger, 1963a). Unfortunately, less is known about the original biota of the other atolls.

Most recent immigrant insects now known from the Leeward Islands occur also on the larger inhabited islands of Hawaii; however, two species could become serious crop pests should they spread into agricultural areas of the state. The Egyptian cotton moth, *Spodoptera litura* (Fabricius), is established on Pearl and Hermes Atolls and may be present also on Kure Atoll and Midway. In addition to cotton, this insect is also a pest of many garden and truck crops throughout the tropical and subtropical areas of the Old World and on many south and western Pacific islands. A species of scarab beetle, *Anomala sulcatula* Burmeister, known as a pest of sugar cane in the Philippine and Mariana Islands, is present on Midway Island.

New immigrant arthropods are continuing to invade and spread within the Leeward Islands. Such immigrants may have profound effects upon the delicate ecosystems of these small islands. Therefore, it seems worthwhile to record the recently discovered additions to the known terrestrial faunas for the benefit of ornithologists, ecologists, and others concerned with the biota of these islands.

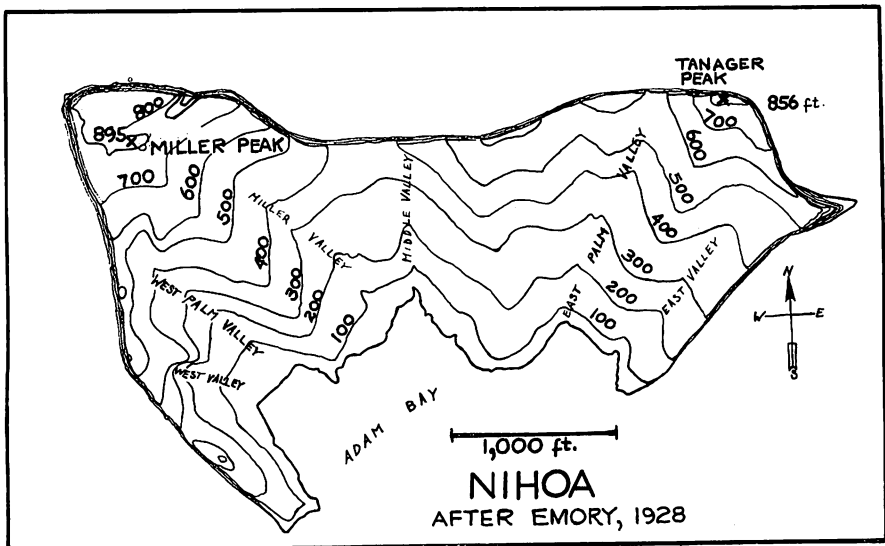
¹Published with the approval of the Director of the Hawaii Agricultural Experiment Station as Technical Paper No. 784.



The principal work on terrestrial arthropods of the Leeward Islands (Bryan et al. 1926) deals with material collected by the 1923 Tanager Expedition and other earlier collectors. This paper contains a nearly complete listing of the species then known from each of the islands. Several recent papers list arthropods known to be from the following islands: Laysan (Butler 1961, Butler & Usinger 1963 a), Midway (Suehiro 1960), and Kure (Butler & Usinger 1963b). No attempt is made here to duplicate lists for these islands, although a few new records from my own recent collecting are given. A relatively complete list is provided for each remaining island I visited. I have indicated also the collection dates (year), pertinent host and other ecological data, abundance, etc.

One group of insects, the Mallophaga, is not included since they are being worked on by others. Published records of Mallophaga from the Leeward Islands are principally from Laysan Island (Thompson 1948; Zimmerman 1948, Vol. 2; Butler & Usinger 1963a), although the species concerned probably will be found wherever their avian hosts occur.

I am indebted to the following persons for assistance in identifying specimens: P. D. Ashlock, F. A. Bianchi, E. A. Chapin, Mrs. D. Fellows, D. E. Hardy, D. F. Hardwick, Louise M. Russell, C. W. Sabrosky, T. W. Suman, E. L. Todd, N. Wilson, W. W. Wirth, C. M. Yoshimoto, and E. C. Zimmerman. Other identifications are from Bryan (1926) or were made by this writer. Most Tanager Expedition material is at the Bernice P. Bishop Museum in Honolulu, and where misidentifications in Bryan's list are indicated, I have examined the specimens. Specimens collected by me in 1962 and 1964 will be placed in the Bishop Museum with duplicates in the collection of the Entomology Department,



University of Hawaii.

New island records in the species lists which follow are indicated by an asterisk.

Thanks are due the U.S. Fish and Wildlife Service (particularly to E. Kridler of the Honolulu office), the State of Hawaii Division of Fish and Game, personnel of the U. S. Navy and U. S. Coast Guard for making possible my field work in the Leeward Islands during 1962 and 1964 and to E. H. Bryan, Jr. of the B. P. Bishop Museum who kindly supplied maps and other information used to prepare the figures.

NIHOA ISLAND

Nihoa Island, the nearest and highest of the Leeward Islands, is a steep rocky remnant of a former extensive volcanic dome. The island's area is about 156 acres; the highest point about 895 feet (Emory, 1928). Although Nihoa was the site of a prehistoric Hawaiian settlement, it remains in a relatively undisturbed condition. The island is covered sparsely with a scrubby growth of native plants, predominantly *Chenopodium oahuense*, *Sida cordifolia*, *Solanum nelsoni*, *Sesbania tomentosa* and *Portulaca lutea*, with native bunch grass *Eragrostis variabilis* along some of the higher ridges, *Euphorbia celastroides* as a prostrate shrub above 800 feet on Miller Peak (the highest point on the island), and an endemic fan palm *Pritchardia remota* in scattered groves in two of the larger gulches. Other less prominent plants include *Amaranthus brownii*, *Panicum torridum*, *Rumex giganteus*, *Sicyos microcarpus*, and *Tribulus cistoides*. A few others are recorded which I did not see (Christoffersen & Caum, 1931). All the plants are considered to be native, and, apparently, there are no recently established exotic weeds present.

I spent about 7 hours on Nihoa on 10, June 1962 and one night and most of two days in September, 1964. The vegetation was relatively green, indicating recent abundant rainfall in June, 1962, but was much drier in September, 1964. A total of 102 species of terrestrial arthropods was collected or observed during these two visits; 51 are new records. Of the 72 species listed by Bryan, 21 were not collected in 1962 or 1964. Of the 123 species listed below, at least 35 are restricted either to the island or are species endemic to the Hawaiian Archipelago.

In addition to the arthropods listed, a small gecko, *Lepidodactylus lugubris* Dumeril & Bibron (determined by Karl Frogner, University of Hawaii Department of Zoology) was taken in *Eragrostis* clumps in 1964, and appears to be a recently established immigrant.

CRUSTACEA (Det. by Mrs. D. Fellows)

ISOPODA

Armadilliidae

**Armadillidium* or *Spherillo* sp., 1964, in *Eragrostis* clumps.

Porcellionidae

**Porcellio* (?) sp., immature specimen; 1964, in *Eragrostis* clumps.

ARACHNIDA

PSEUDOSCORPIONIDA

*undetermined genus and species, 1964.

ARANEIDA (Det. by T. W. Suman)

Argiopidae

*unidentified genus and species (mature ♀); 1964.

Clubionidae

**Chiracanthium diversum* L. Koch; 1964.

Oonopidae

**Gamasomorpha* sp. (1 ♀); 1964.

Salticidae

*unidentified genus and species; 1964.

Thomisidae

*unidentified genus and species (immature ♂); 1964.

INSECTA

THYSANURA

Lepismatidae

Acrotelsella hawaiiensis (Silvestri); 1923. Listed by Bryan as an undetermined species (see Zimmerman 1948, 2 : 36).

COLLEMBOLA

*undetermined genus and species; 1964.

ORTHOPTERA

Blattidae

Cutilia soror (Brunner); 1923; 1964.

Periplaneta americana (L.); 1923.

Periplaneta australasiae (Fabricius); 1923; 1964.

Pycnoscelus surinamensis (L.); 1923; 1964.

Tettigoniidae

Banza nihoa Hebard; 1923; 1964, in *Eragrostis* clumps.

DERMAPTERA

Labiduridae

Euborellia annulipes (Lucas); 1923; 1964.

PSOCOPTERA

undetermined genus and species; 1923: 1964.

THYSANOPTERA (Det. by F. A. Bianchi)

Thripidae

**Frankliniella sulphurea* (Schmutz); 1962; 1964, in flowers of *Sesbania*, *Tribulus* & *Solanum*.

Phlaeothripidae

**Haplothrips gowdeyi* (Franklin); 1962; 1964, in flowers of above.

EMBIOPTERA

Oligotomidae

Oligotoma oecania Ross; 1923; 1962, in *Eragrostis* clumps, 1964 under *Chenopodium*; listed by Bryan as *O. insularis* McLachlan? (see Ross, 1951).

HEMIPTERA

Cydnidae

**Geotomus pygmaeus* (Dallas); 1964, at light.

Lygaeidae (Det. by P. D. Ashlock)

**Geocoris punctipes* (Say); 1964.

Nysius longicollis Blackburn; 1923.

Nysius nihoae Usinger; 1923; 1962; 1964, on *Chenopodium*.

Nysius suffusus Usinger; 1923; 1962; 1964, on *Chenopodium*, *Sida*.

The above *Nysius* species were listed by Bryan as "*Nysius* spp."

Reclada moesta (White); 1923; 1964, in *Eragrostis* clumps.

Corizidae

**Liorhysus hyalinus* (Stål); 1962, on *Chenopodium* and *Sida*.

Nabidae

Nabis capsiformis Germar; 1923; 1964.

Nabis sp. near *kahavalu* Kirkaldy; 1923; 1962, on *Chenopodium oahuense*.

Listed as *Reduviolus kahavalu* by Bryan, but apparently distinct (see Zimmerman 1948, 3:152).

Anthocoridae

Orius persequens (White); 1923; 1962; 1964.

Miridae

**Hyalopeplus pelucidus* (Stål); 1962, on *Sida* and *Chenopodium*.

**Oronomiris hawaiiensis* Kirkaldy; 1962, on *Eragrostis*.

**Rhinachloa forticornis* Reuter; 1964, on *Chenopodium*.

"unidentified species"; 1923, specimens not located.

HOMOPTERA

Cicadellidae

**Circulifer tenellus* (Baker); 1962; 1964, on *Chenopodium oahuense*.

**Empoasca solana* De Long; 1962; 1964, on *Chenopodium*.

**Deltocephalus sonorus* Ball; 1962, on *Eragrostis*.

"*Nesosteles* spp."; 1923, specimens not located.

**Scaphytopius loricatus* (Van Duzee); 1962; 1964, on *Chenopodium* and *Sida*.

Delphacidae

**Sogatella kolophron* (Kirkaldy); 1962, on *Eragrostis*.

Aphididae

**Aphis craccivora* Koch; 1962; 1964, on *Solanum nelsoni* and *Tribulus*.

Pseudococcidae

**Rhizoecus hawaiiensis* (Hambleton); 1964, on roots of *Chenopodium*.

Phoenicococcidae

**Platycoccus tylocephalus* Stickney; 1962; 1964, on leaves of *Pritchardia remota*.

Diaspididae

**Odonaspsis ruthae* Kotinsky; 1962; 1964, on *Eragrostis* stems.

LEPIDOPTERA

Lycaenidae

**Lampides boeticus* (L.); 1962, one larva in *Sesbania* flower.

Noctuidae

Agrotis bryani (Swezey); 1923, 1964, adults at light.

Helicoverpa pallida Hardwick (Det. by D. F. Hardwick); 1923; 1962; 1964; larvae on *Chenopodium*, adults at light. Listed by Bryan as *Chloridea obsoleta* (Fabricius) (see Hardwick, 1965:89).

Pyalidae

Hymenia recurvalis (Fabricius); 1923; 1962; 1964, larvae and adults on *Chenopodium*.

**Lineodes ochrea* Walsingham (?); 1964, adults at light.

Tamsica sp. (Det. by E. C. Zimmerman); 1923; 1962; 1964, adults at light. Listed by Bryan as *Talis hyacinthina* Meyrick.

Pterophoridae

Megalorhipida defectalis (Walker); 1923. Listed by Bryan as *Trichoptilus oxydactylus* (Walker) (see Zimmerman 1958, 8:397).

Tortricidae

**Crocidosema plebiana* Zeller (?); 1962; 1964, larva in *Sida* flower, adults at light.

Hyponomeutidae

Hyposmocoma spp. (Det. by E. C. Zimmerman); 1964, three species taken at light. Bryan lists *H. arenella* Walsingham, *H. quinque-maculata* Walsingham and *H.* sp. from Nihoa, collected in 1923, but the specific identifications may not be correct.

Tineidae

**Monopis meliorella* (Walker); 1962, one adult.

Gracillaridae

Parectopa marginestrigata Walsingham; 1923; 1962; 1964, larvae and adults on *Sida*, larvae mining in leaves.

Cygnodidae (Det. by E. C. Zimmerman)

Petrochroa dimorpha Busck; 1923; 1964, adults at light.

Xyloriectidae (Det. by E. C. Zimmerman)

**Thyrocopta* sp.; 1964, adults at light and reared from larva taken in litter under bushes.

COLEOPTERA

Staphylinidae

Atheta coriaria Kraatz; 1923.

Coccinellidae

Coelophora inaequalis (Fabricius); 1923, fragments (elytra) only.

**Scymnus debilis* Leconte; 1964, on *Eragrostis*.

Scymnus loewii Mulsant: 1923; 1962, feeding on *Platycoccus* on *Pritchardia*; 1964, on *Chenopodium* and *Euphorbia*. Listed by Bryan as *Pullus kinbergi* (Boheman).

"*Scymnus* sp., near *bipunctatus*"; 1923, specimens not located.

Nitidulidae

**Carpophilus dimidiatus* (Fabricius); 1964.

Cucujidae

Cryptomorpha desjardinsi Guenée; 1923.

Lathridiidae

**Lathridius* (?) sp.; 1962, ex *Eragrostis*, one.

Dermestidae

Dermestes ater De Geer; 1923; 1964, under dead birds. Listed by Bryan as *D. cadaverinus* Fabricius.

Dermestes frischii Kugelam; 1923; 1964, under dead birds. Misidentified in Bryan's list as *D. vulpinus* Fabricius.

Labrocerus sp.; 1923; 1964, on *Euphorbia celastroides*.

Tenebrionidae

Sciophagus pandanicola (Boisduval); 1923; 1964. Listed by Bryan as an undetermined species.

Histeridae

**Saprinus lugens* Erichson; 1964, under dead birds.

Anobiidae

**Xyletobius gossypii* Ford (?); 1964, at light.

Cioidae

Cis vagans Perkins; 1923; 1964, on *Euphorbia*.

Cleridae

Necrobia rufipes De Geer; 1923.

Cerambycidae

Plagithmysus nihoae Perkins; 1923, ex *Euphorbia* stems.

Chrysomelidae

Epitrix hirtipennis (Melsheimer); 1923; 1962; 1964, feeding on *Solanum nelsoni*. Misidentified in Bryan's list as *E. parvula* (Fabricius).

Anthribidae

Araecerus fasciculatus (De Geer); 1923; 1962; 1964, adults at light, on *Chenopodium* and on *Euphorbia*.

Curculionidae

Oodemus breviscapum Perkins; 1923; 1962; 1964, ex *Eragrostis*.

Oodemus erro Perkins; 1923; 1964.

Oodemus laysanenensis Fullaway; 1923; 1962; 1964, reared from larvae in

Chenopodium stems.

Pentharthrum pritchardiae Perkins; 1923, on *Pritchardia*.

Rhyncogonus exsul Perkins; 1923; 1962, adults abundant on *Chenopodium*; 1964, a few adults in *Eragrostis* clumps.

Proterhinidae

Proterhinus abundans Perkins; 1923; 1964, on *Euphorbia*.

Proterhinus bryani Perkins; 1923, on *Euphorbia*.

DIPTERA

Chironomidae (Det. by D. E. Hardy)

**Chironomus esakii* Tokunaga, 1962.

**Telmatogeton pacificus* Tokunaga; 1964.

Dolichopodidae

Paraphrosylus acrosticalis (Parent); 1923. Listed by Bryan as *P.* sp. (see Hardy, 1964:249).

Syrphidae

**Ischiodon grandicornis* Macquart (?); 1962, seen flying but not captured.

Ephydriidae

Neoscatella sexnotata (Cresson); 1923; 1962, 1964.

**Atissia antennalis* Aldrich (Det. by W. W. Wirth); 1962, one specimen.

Canaceidae

Canaceoides nudata (Cresson); 1923. Reported by Bryan in 1932.

Sphaeroceridae

**Leptocera hirtula* (Rondani) (?) 1962; 1964.

Asteiidae

Bryania bipunctata Aldrich; 1923; 1962; 1964. Listed by Bryan as an undetermined Asteinae.

*New genus and species (Det. by C. W. Sabrosky); 1962.

Drosophilidae (Det. by D. E. Hardy)

**Scaptomyza (Bunostoma)* sp.; possibly *hamata* Hardy; 1962 (one ♀)

**Scaptomyza (Parascaptomyza) pallida* Zetterstedt; 1962, one specimen.

Agromyzidae

Liriomyza sp.; 1923. Listed by Bryan as *Agromyza pusilla* Meigen.

**Pseudonapomyza spicata* (Malloch) (Det. by D. E. Hardy); 1962, one specimen.

Milichiidae

Milichiella orientalis Malloch; 1923. Listed by Bryan (1926) as an undetermined Milichiinae, and subsequently determined by Aldrich (Bryan, 1931).

**Leptometopa* n. sp. (Det. by C. W. Sabrosky); 1962; 1964, plentiful.

Chloropidae

Siphunculina signata (Wollaston); 1925; 1962; 1964, abundant.

Tachinidae

Achaetoneura archippivora (Williston); 1923.

Sarcophagidae

Goniphyto bryani Souza-Lopez; 1923; 1962; 1964. Listed by Bryan as an undetermined species.

Calliphoridae

Lucilia sericata Meigen (?); 1923; 1962; 1964.

Hippoboscidae

Olfersia spinifera Leach; 1923; 1962; 1964, adults at light.

HYMENOPTERA

Braconidae

**Apanteles marginiventris* Cresson; 1962, reared from *Hilicoverpa* larva; 1964.

**Chelonus blackburni* Cameron; 1962; 1964.

Doryctes pallidiceps (Perkins); 1923.

Ichneumonidae

Horogenes blackburni Cameron 1923; 1962; 1964.

Mymaridae (Det. by C. M. Yoshimoto)

**Lymaenon mexicanus* Perkins; 1964.

Eulophidae

Euderus metallicus Ashmead; 1923.

Hemiptarsenus semialbiclavus (Girault); 1923; 1964. Listed by Bryan as *Pseudopheliminus vagans* Timberlake, a synonym.

Eupelmidae

Eupelmus nihoaensis Timberlake; 1923.

Lepideupelmus bryani Timberlake; 1923.

Lepideupelmus robustus Timberlake; 1923; 1962; 1964.

Pteromalidae

**Spalangia drosophilae* Ashmead (Det. by C. M. Yoshimoto); 1962; 1964.

Diapriidae

*genus and species unidentified; 1964.

Bethylidae

Sclerodermus nihoaensis Timberlake; 1923.

Formicidae

Monomorium floricola (Jerdon); 1923; 1964.

Phrenolepis longicornis Fabricius; 1923; 1964.

Tapinoma melanocephalum (Fabricius); 1923; 1962; 1964.

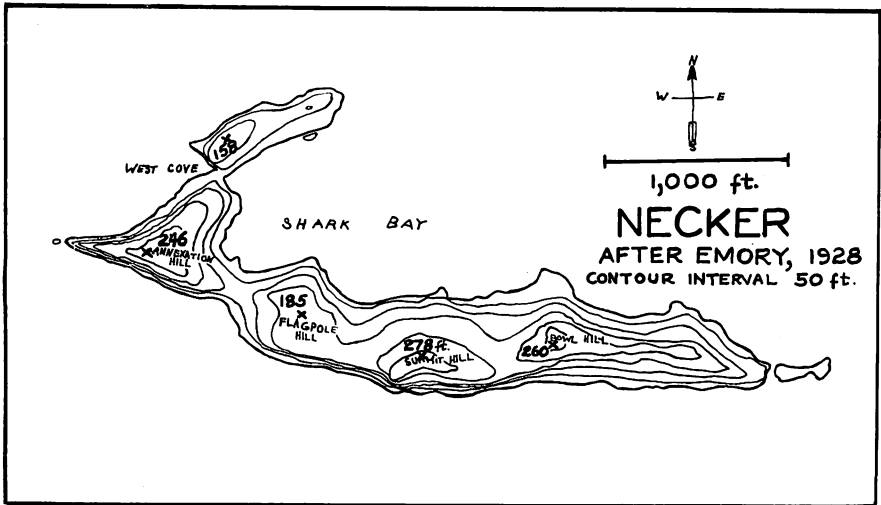
Tetramorium guineense (Fabricius); 1923; 1962; 1964.

Hylaeidae

Nesoprosope perkinsiana Timberlake; 1923; 1964.

NECKER ISLAND

Necker Island, 300 miles northwest of Kauai, is both smaller and lower than Nihoa and consists of a long, roughly hook-shaped ridge with steep sides and a fairly broad, easily traversable summit at 150–200 ft elevation. The highest elevation is 278 feet, and the land area is about 41 acres



(Emory, 1928). The surface is rocky and is partly clothed with sparse, scrubby vegetation. During June, 1962, I spent approximately three hours on the island, and during September, 1964, one night and most of two days.

The flora of Necker includes only five species of vascular plants: *Chenopodium oahuense*, *Panicum torridum*, *Portulaca lutea*, *Sesbania tomentosa*, and *Sesuvium portulacastrum* (Christophersen and Caum, 1931). Despite the simplicity of the flora, the terrestrial fauna includes a fair number of apparently endemic arthropods. Of the approximately 69 species here recorded, about 20 are known only from Necker, or from Necker and Nihoa. Twenty-eight of the species reported below are new records. Of the 41 species previously recorded, 10 were not re-collected in 1962 or 1964.

CRUSTACEA

ISOPODA (Det. by Mrs. D. Fellows)

Porcellionidae

Porcellio* sp., Prob. *laevis Latrielle; 1964, on rocks, 30 feet above sea level.

ARACHNIDA

ARANEIDA (Det. by T. W. Suman)

Lycosidae

**Lycosa* sp.; 1962; 1964.

Salticidae

*genus and species not identified; 1964.

Scytodidae

**Scytodes striatipes* (L. Koch); 1964.

Thomisidae

*genus and species not identified; 1962; 1964, common on *Chenopodium oahuense*.

AGARINA (Det. by N. Wilson)

Argasidae

**Ornithodoros* sp., *capensis* Neumann group; 1964.

CHILOPODA

Schendylidae

Nyctunguis bryanus Chamberlin; 1923.

Mecistocephalidae

Mecistocephalus spissus Wood; 1923.

INSECTA

ORTHOPTERA

Blattidae

Periplaneta americana (L.); 1923.

EMBIOPTERA

Oligotomidae

Oligotoma saundersii Westwood; 1923; 1964, ♂♂ at light. Listed by Bryan as *O. insularis* McLachlan?

DERMAPTERA

Labiduridae

Euborellia annulipes (Lucas); 1923; 1962; 1964.

PSOCOPTERA

unidentified genus and species; 1923; 1964.

THYSANOPTERA (Det. by F. A. Bianchi)

Phlaeothripidae

**Haplothrips gowdeyi* (Franklin); 1962; 1964.

Thripidae

**Frankliniella sulphurea* Schmutz; 1962; 1964.

HEMIPTERA

Lygaeidae (Det. by P. D. Ashlock)

Nysius chenopodii Usinger; 1923; 1962; 1964, on *Chenopodium*.

Nysius neckerensis Usinger; 1923; 1962; 1964, on *Chenopodium* and *Portulaca*. Apparently misidentified as *N. delectus* White in Bryan's list.

Miridae

**Rhinachloa forticornis* Reuter; 1964, on *Chenopodium*.

HOMOPTERA

Cicadellidae

**Circulifer tenellus* (Baker); 1962; 1964, plentiful on *Chenopodium*.

**Empoasca solana* De Long; 1962; 1964, plentiful on *Chenopodium*.
 “*Nesosteles* spp.”; 1923, specimens not located.

Pseudococcidae

**Ferrisia virgata* (Cockerell); 1964, on *Portulaca*.

**Pseudococcus* n. sp.; 1964, on *Chenopodium oahuense*.

**Rhizoecus hawaiiensis* (Hambleton); 1962; 1964, on roots of *Chenopodium* and *Portulaca*.

Diaspididae

**Hemiberlesia lataniae* (Signoret); 1962; 1964, on twigs and branches of *Chenopodium*.

LEPIDOPTERA

Lycaenidae

Lampides boeticus (L.); 1923; 1962; 1964, adults flying, larvae in *Sesbania* flowers.

Noctuidae

Helicoverpa pallida Hardwick (Det. by D. F. Hardwick); 1923; 1962; 1964, larvae on *Chenopodium*, adults at light. Misidentified in Bryan's list as *Chloridea obsoleta* (Fabricius).

Pyralidae

Hymenia recurvalis Fabricius; 1962; 1964; 1923, larvae and adults on *Chenopodium*.

Tortricidae

Crociosema plebiana Zeller (?); 1923; 1964.

Hypnometridae

Hypsmocoma spp. (Det. by E. C. Zimmerman). Two species taken at light in 1964 appear to be identical to two of the 3 species from Nihoa. Bryan lists *H. mimica* Walsingham, *H. quinque maculata* Walsingham, and *H. sp.* collected in 1923, but the specific determinations may not be correct.

Tineidae

Monopis meliorella (Walker); 1923.

Cygnodidae

Petrochroa dimorpha Busck (Det. by E. C. Zimmerman); 1923; 1964, at light.

Petrochroa neckerensis Swezey; 1923.

COLEOPTERA

Staphylinidae

*genus and species undetermined (minute); 1964, one.

Coccinellidae

Scymnus loewii Mulsant; 1923; 1962; 1964, on *Chenopodium*. Listed by Bryan as *Pullus kinbergi* (Boheman).

Nitidulidae

**Carpophilus dimidiatus* (Fabricius); 1964.

Dermestidae

Dermestes maculatus De Geer; 1923. Listed by Bryan as *D. vulpinus* Fabricius; specimen not located.

Dermestes ater De Geer; 1923; 1964. Listed by Bryan as *D. cadaverinus* Fabricius.

Labrocerus sp.; 1923.

Histeridae

**Acritus* sp.; 1962, ex ground litter.

Tenebrionidae

Sciophagus pandanicola (Boisduval); 1923; 1964. Listed by Bryan as an unidentified tenebrionid.

Elateridae

Itodactylus novicornis Van Zwaluwenburg; 1923; 1964, under rocks under *Chenopodium*.

**Itodactylus* sp.; 1964, under rocks under *Chenopodium*.

Anthribidae

Araecerus fasciculatus (De Geer); 1923; 1964.

Curculionidae

Rhyncogonus bififormis Perkins; 1923; 1964, plentiful under *Chenopodium* bushes.

Oodemus laysanensis Fullaway; 1923; 1964, ex *Chenopodium* twigs.

Oodemus neckerensis Perkins; 1923; 1964.

DIPTERA

Chironomidae (Det. by D. E. Hardy)

**Telmatogeton pacificus* Tokunaga; 1964, adults at light.

Ceratopogonidae

*genus and species not yet identified; 1964.

Dolichopodidae

Paraphrosylus acrosticalis (Parent); 1923. Listed by Bryan as *P.* sp.

Phoridae

**Diplonevra peregrina* (Wiedemann); 1964.

Ephydriidae

Neoscatella sexnotata (Cresson); 1923; 1962; 1964.

Atissia antennalis Aldrich; 1923. Not listed by Bryan (1926), but description based on specimens from Necker collected by Tanager Expedition (Aldrich, 1931).

Sphaeroceridae

**Leptocera hirtula* (Rondani) (?); 1964.

Asteiidae

*New genus and species (Det. by D. E. Hardy); 1964 (same as Nihoa species).

Chloropidae

Siphunculina signata Wollaston; 1923; 1962; 1964.

Milichiidae

Milichiella orientalis Malloch; 1923. Not listed by Bryan (1926), but a specimen from Necker was subsequently determined by Aldrich (Bryan, 1931).

**Leptometopa* n. sp. (Det. by C. W. Sabrosky); 1964.

Sarcophagidae

Goniophyto bryani Souza Lopez; 1923; 1962; 1964.

Hippoboscidae

Olfersia spinifera Leach; 1923; 1964, adults at light.

HYMENOPTERA

Encyrtidae

**Anagyrus* n. sp.; 1964, reared from *Pseudococcus* n. sp. on *Chenopodium*.

Eupelmidae

Lepideupelmus robustus Timberlake; 1923; 1964.

Signiphoridae

**Thysanus aspidioli* Ashmead; 1964, reared from *Hemiberlesia lataniae* on *Chenopodium*.

Pteromalidae (Det. by C. M. Yoshimoto)

**Spalangia drosophilae* Ashmead; 1964.

Formicidae

Cardiocondyla nuda minutior Forel; 1923; 1964.

Monomorium minutum Mayr; 1923; 1964.

Ponera kalakauae Forel; 1923.

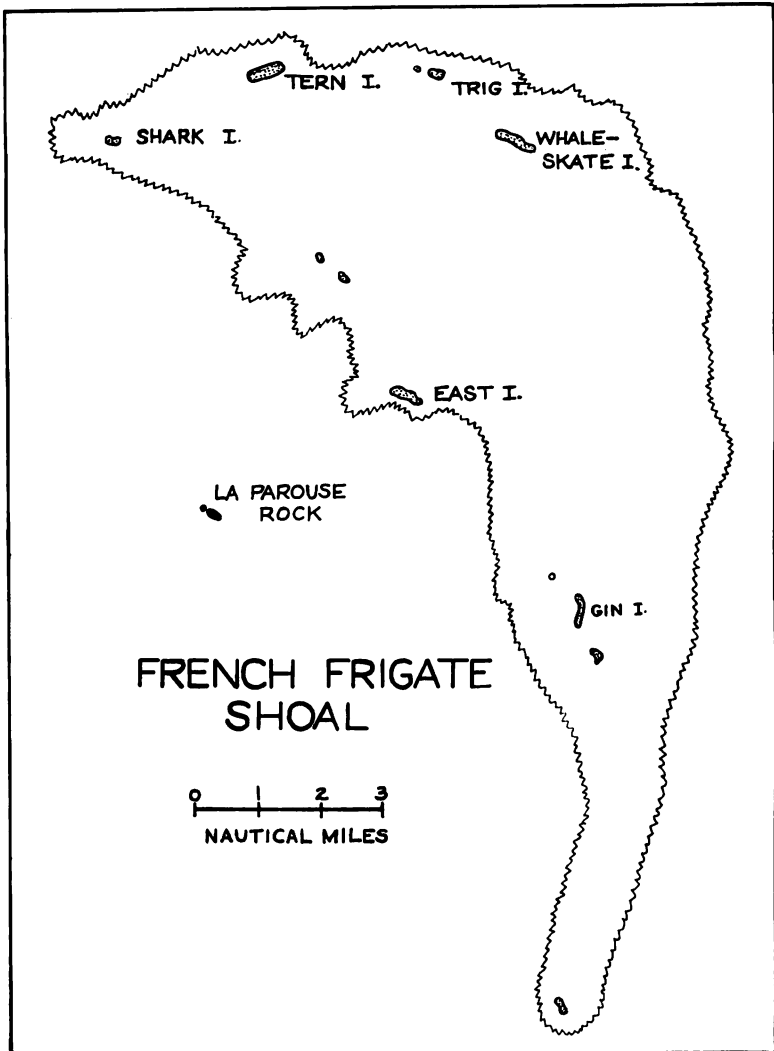
Tetramorium guineense (Fabricius); 1923; 1962; 1964.

FRENCH FRIGATE SHOAL

French Frigate Shoal, situated about 80 miles west of Necker, is a group of about a dozen small coralline islets with a total land area of some 50 acres enclosed within a large reef. The largest islet, Tern Island, is the site of a U.S. Coast Guard Station and is occupied now almost entirely by the airstrip, buildings, and other facilities associated with the station. Vegetation of a limited sort occurs on 6 or 7 of the islets. La Parouse Rock, a small remnant of the original volcanic dome, lies outside the fringing reef and, apparently, is void of higher plant life.

During the Tanager Expedition visit in 1923 only 6 species of vascular plants were found: *Boerhavia diffusa*, *Chenopodium oahuense*, *Ipomoea pes-caprae*, *Portulaca lutea* and *Tribulus cistoides*, (Christophersen & Caum, 1931). In addition to these, there are now several introduced weeds and a few ornamentals on Tern Island.

In June, 1962, I spent a few hours collecting on Tern Island, and in September, 1964, I made brief visits to Trig, Whale-Skate, and East Islets. Fifty-two species of terrestrial arthropods from the atoll are listed below, of which 25 are new records. Of the 27 species listed by Bryan (1926), 11 were not collected in 1962 or 1964.



Two species, *Agrotis kerri* Swezey and *Nysius frigatensis* Usinger are known only from French Frigate Shoal, and two or three others are forms known only from the Leeward group. The remainder are probably all relatively recent immigrants.

ARACHNIDA

ARANEIDA (Det. by T. W. Suman)

Argiopidae

* *Neoscona* sp.; 1964, Whale-Skate I.

* *Tetragnatha* sp.; 1964, Trig I.

Clubionidae

**Chiracanthium diversum* L. Koch; 1964, Whale-Skate I.

Salticidae

**Hasarius adansoni* (Audouin); 1964, Whale-Skate I.

INSECTA

ODONATA

Libellulidae

**Pantala flavescens* (Fabricius); 1962, Tern I., one adult flying.

ORTHOPTERA

Blattidae

Pycnoscelus surinamensis (L.); 1923; 1964, Trig I., Whale-Skate I., East I.

Periplaneta americana (L.); 1923.

Gryllidae

**Grylloides sigillatus* (Walker); 1962, Tern I., under boards.

Gryllus oceanicus Le Guillon; 1923.

**Metioche vittaticollis* (Stål); 1964, Trig. I.

DERMAPTERA

Labiduridae

Anisolabis eteronoma Borelli; 1923; 1964, Trig I., Whale-Skate I. Listed by Bryan as *Anisolabis maritima* (Gene) (see Zimmerman 1948, 2:201).

Euborellia annulipes (Lucas); 1923; 1962, Tern I.

THYSANOPTERA (Det. by F. A. Bianchi)

Thripidae

**Frankliniella sulphurea* Schmutz; 1964, East I., on *Tribulus* flowers.

HEMIPTERA

Lygaeidae (Det. by P. D. Ashlock)

Nysius frigateensis Usinger 1923; 1962, Tern I.; 1964, Trig I., Whale-Skate I., East I., on *Chenopodium*, *Boerhavia* and *Portulaca*.

Nysius coenosulus Stål; 1923. Listed by Usinger (1942) and Zimmerman (1948, 3:104) as *N. nigriscutellatus* Usinger, a synonym. The above were listed as *Nysius* spp. by Bryan (1926).

Nabidae

Nabis capsiformis Germar; 1923; 1962, Tern I.

HOMOPTERA

Cicadellidae

**Circulifer tenellus* (Baker); 1964, Trig I., Whale-Skate I., on *Chenopodium oahuense*.

Deltocephalus sonorus Ball; 1962, Tern I.; 1964, Trig I., on grass.

Aphididae

Aphis craccivora Koch; 1923; 1964, Whale-Skate I., East I., on *Chenopodium*, *Tribulus* and *Portulaca*. Listed by Bryan as *A. medicginis* Koch.

Pseudococcidae

**Ferrisia virgata* (Cockerell); 1964, Trig I., on *Portulaca* and *Boerhavia*.

Coccidae

**Saissetia oleae* (Bernard); 1962, Tern I., on *Coccoloba uvifera* twigs.

Diaspididae

**Hemiberlesia lataniae* (Signoret); 1964, Whale-Skate I., on twigs and branches of *Chenopodium oahuense*.

**Odonaspis ruthae* Kotinsky; 1962, Tern I., 1964 Trig I., on *Lepturus* stems.

LEPIDOPTERA

Noctuidae

Agrotis kerri Swezey; 1923.

**Chrysodeixis chalcites* (Esper); 1962, Tern I., one reared from larva on *Messerschmidia argentea* foliage.

Spodoptera exempta (Walker); 1923. Misidentified in Bryan's list as *S. mauritia* (Boisduval).

Pterophoridae

Megalorhipida defectoralis (Walker); 1923; 1964, Trig I., Whale-Skate I., East I., on *Boerhavia*. Listed by Bryan as *Trichoptilus oxydactylus* (Walker).

Pyralidae

Hymenia recurvalis (Fabricius); 1923.

Tineidae

Erunetis kerri Swezey; 1923; 1964, Trig I.

Tineola uterella Walsingham; 1923.

Tortricidae

Crociosema plebiana Zeller (?); 1923.

COLEOPTERA

Coccinellidae

Scymnus loweii Mulsant 1923; 1964, Trig I., Whale-Skate I. Listed by Bryan as *S. kinbergi* (Boheman).

Dermestidae

Dermestes ater De Geer; 1923; 1964, Trig I. Listed by Bryan as *D. cadaverinus* Fabricius.

Tenebrionidae

**Alphitobius laevigatus* Fabricius; 1964, Whale-Skate I., under boards.

Curculionidae

- Dryotribus mimeticus* Horn; 1923; 1964, Trig I., under driftwood.
Dryotribus wilderi Perkins; 1923.

DIPTERA

Syrphidae

- **Ischiodon grandicornis* (Macquart); 1962, Tern I.; 1964, Trig I.,
 Whale-Skate I., East I., adults flying, larvae preying on aphids.

Dolichopodidae

- Paraphrosylus acrosticalis* (Parent); 1923. Listed by Bryan as *P.* sp.

Ephydriidae

- **Hecamede persimilis* Hendel; 1962, Tern I.; 1964, Trig I., Whale-Skate I.

Agromyzidae

- **Liriomyza* sp., *hawaiiensis* group; 1964, Tern I., reared from mines in
Tribulus leaves, Trig I., Whale-Skate I.

Chloropidae

- Siphunculina signata* Wollaston; 1923; 1962, Tern I.; 1964, Trig I.,
 Whale-Skate I., East I.

Sphaeroceridae

- **Leptocera hirtula* (Rondani)?; 1962, Tern I.; 1964, Trig I.

Sarcophagidae

- Goniophyto bryani* Souza-Lopez; 1923; 1962, Tern I.; 1964, Trig I.,
 Whale-Skate I., East I. Listed by Bryan as an undetermined species.

Hippoboscidae

- Olfersia spinifera* Leach; 1923.

HYMENOPTERA

Eulophidae

- **Hemiptarsenus semialbiclavus* Girault; 1962, Tern I.; 1964, Tern I.,
 reared from *Liriomyza* larvae in *Tribulus* leaves.

Formicidae

- Cardiocondyla nuda* Mayr; 1923; 1964, Trig I.
 **Phrenolepis longicornis* (Latreille); 1962, Tern I.
Ponera kalakauae Forel; 1923.
 **Monomorium floricola* (Jerdon); 1962, Tern I.; 1964, Trig I.
Monomorium pharaonis (L.); 1923; 1964, Whale-Skate I.
 **Tetramorium guineense* (Fabricius); 1962, Tern I.
 **Tetramorium tonganum* Mayr; 1962, Tern I.

LISIANSKI ISLAND

Lisianski Island, about 360 miles WNW of French Frigate Shoal and 100 miles WNW of Laysan, is a single, roughly rectangular low coraline

islet approximately one-half square mile in area. The greatest elevation is about 40 feet.

Lisianski is now covered with low vegetation, although it was almost completely denuded by rabbits prior to the arrival of the Tanager Expedition in 1923. The vascular plants present include *Scaevola frutescens* (mostly along the beach margins), *Eragrostis variabilis*, *Portulaca lutea* (?), *Nama sandwicensis* and *Tribulus cistoides*. A few ironwood trees (*Casuarina* sp.) are present, also.

Approximately 7 hours were spent collecting insects on Lisianski on 18. IX. 64. Thirty-five species of terrestrial arthropods are known now from the island, 21 being new records. Bryan (1926) listed only 13 species, 7 of which were not re-collected in 1964. In addition, Hardwick (1964) recently has described an apparently endemic species of *Helicoverpa* from Lisianski, based on specimens apparently taken prior to 1923 by an unknown collector.

ARACHNIDA

ARANEIDA (DET. by T. W. Suman)

Argiopidae

**Neoscona* sp.; 1964.

**Tetragnatha* sp.; 1964.

Clubionidae

**Chiracanthium diversum* L. Koch; 1964, plentiful.

INSECTA

ORTHOPTERA

Blattidae

**Blatella germanica* (L.); 1964.

**Periplaneta americana* (L.); 1964.

DERMAPTERA

Labiduridae

Anisolabis eteronoma Borelli; 1923.

THYSANOPTERA (Det. by F. A. Bianchi)

Phlaeothripidae

**Karnyothrips melaleuca* (Bagnall); 1964, on *Eragrostis*.

HEMIPTERA

Lygaeidae (Det. by P. D. Ashlock)

Nysius fullawayi Usinger; 1923; 1964, on *Portulaca*. Listed by Bryan as *Nysius* spp.

Nabidae

Nabis capsiformis Germar; 1923.

HOMOPTERA

Aphididae

Aphis craccivora Koch; 1923; 1964, on *Tribulus*. Listed by Bryan as *A. medicaginis* Koch.

**Hysteroneura* sp. (Det. by Louise M. Russell); 1964, on *Eragrostis*.

Pseudococcidae

**Trionymus insularis* Ehrhorn; 1964, on *Eragrostis* stems, plentiful.

Coccidae

**Saissetia nigra* (Nietner); 1964, very heavy infestations on *Scaevola*, less abundant on *Eragrostis*.

Diaspididae

**Hemiberlesia lataniae* (Signoret); 1964, heavy infestation on twigs of *Scaevola*, also on *Portulaca*.

LEPIDOPTERA

Noctuidae

Helicoverpa minuta Hardwick; date unknown, presumably prior to 1923.

Pseudaletia unipuncta (Haworth); 1923.

Pterophoridae

**Megalorhipida defectalis* (Walker); 1964, plentiful on *Boerhavia*.

Tineidae (Det. by E. C. Zimmerman)

**Ereunetis kerri* Swezey; 1964, reared from larvae on *Eragrostis*.

Cygnodiidae (Det. by E. C. Zimmerman)

**Petrochroa dimorpha* Busck; 1964.

COLEOPTERA

Coccinellidae

**Scymnus loewii* Mulsant; 1964, preying on *Trionymus insularis*. Listed by Bryan as *S. kinbergi* (Boheman).

Dermestidae

Dermestes ater De Geer; 1923; 1964. Listed by Bryan as *D. cadaverinus* Fabricius.

DIPTERA

Dolichopodidae

Paraphrosylus acrosticalis (Parent); 1923; 1964, along rocky beach, preying on small flies. Listed by Bryan as *P.* sp.

Phoridae

Diplonevia peregrina (Wiedemann); 1923; 1964. Misidentified in Bryan's list as *Apiochaeta scalaris* (Loew).

Ephydriidae

**Hecamede persimilis* Hendel; 1964, along beach.

Canaceidae

Canaceoides nudata (Cresson); 1923; 1964, along beach.

Sphaeroceridae

Leptocera sp.; 1923.

Milichiidae

**Milichiella lactipennis* (Loew); 1964.

**Leptometopa* n. sp. (Det. by C. W. Sabrosky); 1964.

Chloropidae

Cadrema pallida Loew; 1923. Listed by Bryan as *Hippelatus nigricornis* var. *flavus* Thomson.

Siphunculina signata Wollaston; 1923; 1964.

Tethinidae (Det. by D. E. Hardy)

**Tethina albula* (Loew); 1964.

**Tethina insularis* Aldrich; 1964.

Calliphoridae

**Lucilia graphita* Shannon; 1964.

Muscidae

**Musca domestica* L.; 1964, very abundant and annoying.

Hippoboscidae

Olfersia spinifera Leach; 1923.

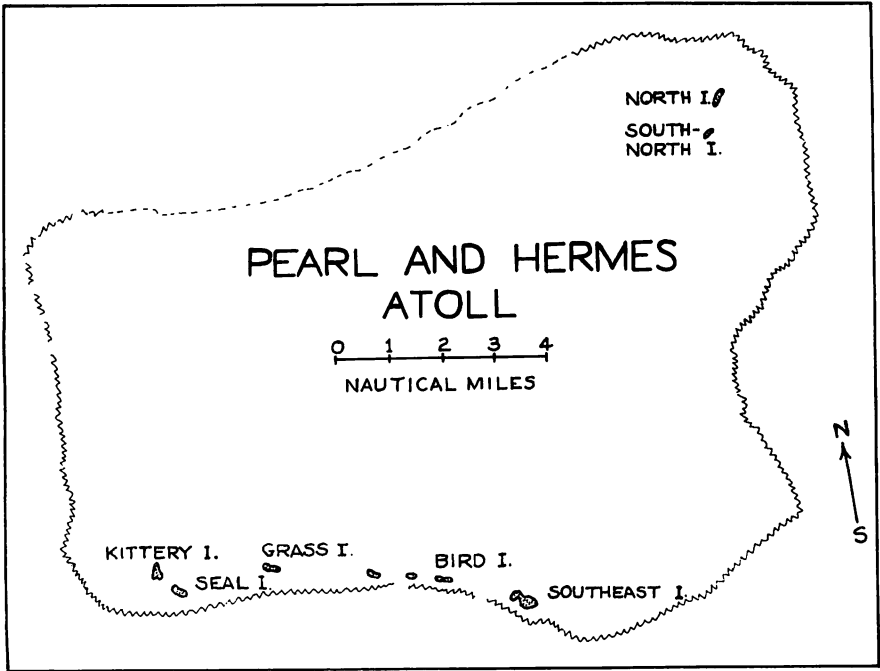
PEARL AND HERMES ATOLL

Pearl and Hermes Atoll is a large, shallow, reef-enclosed lagoon with about seven small islets along its south side and two near the northeast corner. The total land area probably amounts to one-half square mile. Several of the islets are large enough to support permanent vegetation.

Three of the Pearl and Hermes islets were visited in September, 1964. One night and several daylight hours were spent on Southeast Islet (the largest of the group), and about two hours on North Islet at the northeastern corner of the atoll including a few minutes on the nearby small "South-North" Islet. Records from two northeastern islets are cited together under North Islet in the list below.

The vascular plants observed were *Portulaca* sp., (Southeast I. only) *Sesuvium portulacastrum*, *Boerhavia diffusa*, *Tribulus cistoides*, *Eragrostis variabilis*, *Lepturus repens*, *Setaria* sp. (Southeast I. only), *Sicyos* sp., *Lepidium owaihuense* (North Islet), *Achyranthes splendens* (North Islet), *Solanum nelsoni*, and the dead stalks of an introduced mustard (on Southeast Islet). A few shrubs of *Scaevola frutescens* and *Messerschmidia argentea* were also seen along the beaches. In general, North Islet seemed to have suffered less disturbance from the activities of man than had Southeast Islet.

Fifty-one species of terrestrial arthropods from Pearl and Hermes Reef are recorded below; of these, 30 are new records. Of the 21 species listed by Bryan, 7 were not re-collected in 1964.



ARACHNIDA

ARANEIDA (Det. by T. W. Suman)

Argiopidae

- **Neoscona* sp.; 1964, North I., Southeast I.
- **Tetragnatha* sp.; 1964, North I., Southeast I.

Salticidae

- **Hasarius adansoni* (Audouin); 1964, Southeast I.

CHILOPODA

Geophilidae

- Honuaphilus alohanus* Chamberlin; 1923.

INSECTA

ORTHOPTERA

Blattidae

- **Periplaneta americana* (L.); 1964, Southeast I.
- Pycnoscelus surinamensis* (L.); 1923, 1964, Southeast I.

DERMAPTERA

Labiduridae

- Anisolabis eteronoma* Borelli; 1923; 1964, North I., Southeast I. Listed

by Bryan as *A. maritima* (Gene).
Euborellia annulipes (Lucas); 1923; 1964, North I., Southeast I.

PSOCOPTERA

*undetermined; 1964, Southeast I.

HEMIPTERA

Cydnidae

**Geotomus pygmaeus* (Dallas); 1964, Southeast I.

Lygaeidae (Det. by P. D. Ashlock)

Nysius fullawayi Usinger; 1923; 1964, North I., Southeast I., on
Boerhavia and *Eragrostis*. Listed by Bryan as *Nysius* spp.

**Nysius palor* Ashlock; 1964, Southeast I., on *Portulaca*.

Nabidae

**Nabis capsiformis* Germar; 1964, North I.

Anthocoridae

**Orius persequens* White; 1964, North I., Southeast I.

Miridae

**Cyrtopeltis modesta* (Distant); 1964, North I., Southeast I., on *Boerhavia*.

HOMOPTERA

Delphacidae

Sogatella paludum (Kirkaldy); 1923; 1964, North I., on *Eragrostis*.

Aphididae

**Aphis craccivora* Koch; 1964, Southeast I., on *Tribulus*.

Pseudococcidae

**Antonina graminis* (Maskell); 1964, North I., Southeast I., on *Eragrostis*
and *Lepturus* stems.

**Dysmicoccus brevipes* (Cockerell); 1964, Southeast I., on *Eragrostis*
stems.

**Trionymus insularis* Ehrhorn; 1964, North I., on *Eragrostis* stems.

Diaspididae

**Odonaspis ruthae* Kotinsky; 1964, Southeast I., on *Eragrostis* stems.

NEUROPTERA

Chrysopidae

Chrysopa carnea Stephens; 1923. Listed by Bryan as *Chrysopa* sp.

LEPIDOPTERA

Noctuidae

**Heliothis zea* (Boddie); 1964, North I., adult flying, several small
larvae on *Eragrostis*.

Spodoptera litura (Fabricius) (Det. by E. L. Todd); 1923; 1964, North I.,
Southeast I., several adults at light (Southeast) and one in flight
(North). Bryan listed this species as "*Prodenia litura* (Fabr.)?" on

basis of a single abraded specimen taken in 1923, and determined by Swezey.

Spodoptera exemplata (Walker); 1923. Misidentified in Bryan's list as *S. mauritia* (Boisduval).

Sphingidae

**Celerio lineata* (Fabricius); 1964, North I., Southeast I., several seen flying in daylight but not captured.

Pyralidae

**Hymenia recurvalis* (Fabricius); 1964, Southeast I., adults flying, larvae feeding on *Sesuvium*.

Tineidae

Ereunetis incerta Swezey; 1923; 1964, (North I.) on *Eragrostis*.

Cygnodiidae (Det. by E. C. Zimmerman)

**Petrochroa dimorpha* Busck; 1964 (Southeast I.), adults at light.

Plutellidae

Plutella maculipennis Curtis; 1923, 1964 (North I.)

COLEOPTERA

Coccinellidae

Scymnus loewii Mulsant; 1923; 1964, North I., Southeast I., adults and larvae feeding on mealybugs on *Eragrostis*. Listed by Bryan as *S. kinbergi*.

Dermestidae

Dermestes ater De Geer; 1923. Listed by Bryan as *D. cadaverinus* Fabricius.

**Dermestes maculatus* De Geer; 1964, Southeast I., under dead birds.

Tenebrionidae

Aphitobius laevigatus Fabricius; 1923; 1964, Southeast I.

Cleridae

**Necrobia rufipes* De Geer; 1964, Southeast I., under dead birds.

Anthribidae

**Araecerus fasciculatus* (De Geer); 1964, Southeast I., on *Eragrostis*.

DIPTERA

Phoridae

Diplonerva peregrina Wiedemann; 1923. Misidentified in Bryan's list as *Megaselia scalaris* (Loew).

Syrphidae

**Ischiodon grandicornis* (Macquart); 1964, North I.

Ephydriidae

**Hecamede persimilis* Hendel; 1964, North I., Southeast I.

Agromyzidae

**Liriomyza* sp.; 1964, North I., adults flying, larvae mining leaves of *Lepidium*.

Milichiidae

- **Leptometo* n. sp. (Det. by C. W. Sabrosky); 1964, North I., Southeast I. Bryan lists an "undertermined Milichiinae" collected in 1923, but specimens were not located.

Chloropidae

- **Siphunculina signata* (Wollaston); 1964, North I.

Tethinidae

- Tethina insularis* Aldrich; 1923. Not listed by Bryan (1926) but two specimens in type series were from Pearl and Hermes material collected by Tanager Expedition.

Sarcophagidae

- Goniophyto bryani* Souza Lopez; 1923; 1964, North I., Southeast I. Listed by Bryan as an undetermined species.

Calliphoridae

- Lucilia graphita* Shannon; 1923; 1964, North I.

Muscidae

- Musca domestica* L.; 1923.

HYMENOPTERA

Braconidae

- Chelonus blackburni* Cameron; 1923; 1964, North I., Southeast I.
**Apanteles* sp., probably *marginiventris* Cresson; 1964, Southeast I., numerous empty cocoons on *Sesuvium* infested with *Hymenia* larvae.

Encyrtidae

- **Dusmetia sangwani* Rao?; 1964, Southeast I., larvae and pupae of what is probably this species found within parasitized specimens of *Antonina graminis*.

Formicidae

- **Cardiodyla nuda* Mayr; 1964, North I., Southeast I.
**Pheidole megacephala* Fabricius; 1964, North I., Southeast I., tending *Aphis* or *Tribulus*.
Tetramorium guineense (Fabricius); 1923; 1964, North I., Southeast I.

KURE ATOLL

A brief stopover was made at Kure Atoll, en route to Midway, on 14, September 1964. About three hours were spent collecting insects in the area surrounding the U. S. Coast Guard Station on Green Island. Butler and Usinger (1963b) have listed the insects taken by them during a three-day stay in September, 1961. The new records listed below probably are mostly recent immigrants which became established during the three-year interval between the Butler-Usinger collections and my own.

HOMOPTERA

Cicadellidae

- **Circulifer tenellus* Baker; 1964, on *Boerhavia*.

**Deltocephalus sonorus* Ball; 1964, on grass.

**Empoasca solana* Delong; 1964, on *Solanum nigrum*.

Pseudococcidae

**Antonina graminis* (Maskell); 1964, on *Eragrostis* stem.

Diaspididae

**Hemiberlesia lataniae* (Signoret); 1964, on *Lepidium*.

**Odonaspis ruthae* Kotinsky; 1964, *Eragrostis* stems.

LEPIDOPTERA

Noctuidae

**Spodoptera mauritia* (Boisduval); 1964, adults on mess-hall screen.

Gelichiidae

**Stoberhinus testaceus* Butler; 1964.

COLEOPTERA

Coccinellidae

**Scymnus notescens* (Blackburn); 1964.

DIPTERA

Ceratopogonidae

*undetermined genus and species; 1964.

Agromyzidae

**Pseudonapomyza spicata* (Malloch); 1964.

Chloropidae

**Siphunculina signata* (Wollaston); 1964.

Sphaeroceridae

**Leptocera hirtula* (Rondani)?; 1964.

HYMENOPTERA

Mymaridae

Polynema reduvioli Perkins; 1923; 1964.

Eulophidae

**Euderus metallicus* Ashmead (?); 1964.

Encyrtidae

**Anagyrus swezeyi* Timberlake; 1964.

**Blepyrus insularis* (Cameron); 1964. This species is a parasite of *Ferrisia virgata*. The latter was stated to be heavily infesting *Boerhavia*, and apparently was abundant on other hosts as well, in 1961. In 1964 this mealy bug was scarce.

LAYSAN ISLAND

New records in my June, 1962 collections from Laysan have been cited by Butler and Usinger (1963a). Half a day was spent collecting on Laysan in September, 1964. An apparently recently established immigrant spider was found, but no new insects.

Also taken in 1964 and not previously reported from Laysan was a small lizard of the family Scincidae, *Cryptoblepharus boutoni poecilopleurus* (Wiegmann) (Det. by W. O. Wirtz II), several of which were seen.

ARANEIDA

Clubionidae (Det. by T. W. Suman)

**Chiracanthium diversum* L. Koch; 1964, plentiful.

The following insects collected in 1964 seem worthy of note.

COLEOPTERA

Coccinellidae

Scymnus loewi Mulsant (Det. by E. A. Chapin); 1912; 1964, feeding on *Trionymus insularis* on *Eragrostis*.

This is probably the species collected by Butler in 1959 on *Eragrostis*, the specimens of which were lost. (Butler & Usinger 1963a: 15)

Listed by Bryan as *S. kinbergi* (Boheman).

Cleridae

Necrobia rufipes De Geer; 1912; 1964.

Curculionidae

Dryotribus mimeticus Horn; 1912, 1964, numerous specimens on underside of driftwood on beach.

DIPTERA

Milichiidae

**Leptometopa* n. sp. (Det. by C. W. Sabrosky); 1962; 1964. Same species from Nihoa, Necker, Lisianski and Pearl and Hermes Atoll, not previously recorded.

HYMENOPTERA

Pteromalidae (Det. by C. M. Yoshimoto)

Spalangia drosophilae Ashmead; 1962; 1964. Recorded as *Spalangia* sp. by Butler & Usinger (1963a).

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