

SPIDERS OF THE HAWAIIAN ISLANDS: CATALOG AND BIBLIOGRAPHY¹

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Abstract : This paper contains a systematic list of species, and the literature references, of the spiders occurring in the Hawaiian Islands. The species total 149 of which 17 are recorded here for the first time.

This paper lists the records and literature of the spiders in the Hawaiian Islands. The islands included are Kure, Midway, Laysan, French Frigate Shoal, Kauai, Oahu, Molokai, Lanai, Maui and Hawaii.

The only major work dealing with the spiders in the Hawaiian Is. was published 60 years ago in "Fauna Hawaiiensis" by Simon (1900 & 1904). All of the endemic spiders known today, except *Pseudanapis aloha* Forster, are described in that work which also includes a listing of several introduced species. The spider collection available to Simon represented only a small part of the entire Hawaiian fauna. In all probability, the endemic species are only partly known. Since the appearance of Simon's work, there have been many new records and lists of introduced spiders.

The known Hawaiian spider fauna now totals 149 species and 4 subspecies belonging to 21 families and 66 genera. Of this total, 82 species (55%) are believed to be endemic and belong to 10 families and 27 genera including 7 endemic genera. The introduced species total 65 (44%). Two unidentified species placed in indigenous genera comprise the remaining 1%. Seventeen species are recorded here for the first time.

In the catalog section of this paper, families, genera and species are listed alphabetically for convenience. For the introduced spiders, only the original bibliographic reference is given. The papers by Simon in "Fauna Hawaiiensis" are repeated frequently and have been abbreviated (see below). Other references are cited more completely. For the endemic species, the type locality is listed first, followed by the sex on which the description is based and the museum where original material is deposited. The earliest known collecting date of all the species is listed for each island if there is no published record or if the collecting date precedes a published record by several years. The distribution of introduced species is based on Bonnet (1945-1961) and Roewer (1942-1954) in the absence of more recent information.

The literature is listed in two sections. Articles and books are placed in the annotated

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bibliography. Untitled notes appearing in the Proceedings of the Hawaiian Entomological Society have been annotated and placed in the appendix.

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Abbreviations and symbols: Asterick (*) indicates first Hawaiian Island record for the taxon; Simon 1900 or 1904 indicates "Fauna Hawaiiensis" reference; AMNH (American Museum of Natural History, New York); BBM (Bernice P. Bishop Museum, Honolulu); BMNH (British Museum, Natural History, London); MNHN (Museum National d'Histoire Naturelle, Paris).

CATALOG OF HAWAIIAN SPIDERS

Family AGELENIDAE

Genus *Tegenaria* Latreille, 1804

Tegenaria domestica (Clerck)

Araneus domesticus Cl., 1757. Svenska Spindlar p. 76, pl. 2, tab. 9, fig. 2.

Localities: Hawaii (Simon 1900), Kauai (1944), Oahu (1952). Introduced; cosmopolitan.

Family ARGIOPIDAE

Genus *Araneus* Clerck, 1758

Araneus emmae Simon, 1900: 482, pl. 16, fig. 6.

Localities: Kauai, Molokai, Lanai, Hawaii. ♀♀. BMNH, BBM; Oahu (Simon 1904). Endemic.

Araneus kapiolaniae Simon, 1900: 483, pl. 16, fig. 7.

Localities: Hawaii. ♀♀. BMNH; Oahu (Simon 1904). Endemic.

**Araneus theisi* (Walckenaer) = *Neoscona theisi* (Walck.).

Epeira theisi Walck., 1841, Hist. Nat. Ins. Apt. 2: 53, tab. 18, fig. 4.

Localities: Oahu (1942), Kauai (1944), Hawaii (1944). Introduced; cosmopolitan.

Genus *Argiope* Savigny & Audouin, 1825

Argiope amoena L. Koch, 1878, Verh. Zool.-Bot. Ges. Wien 27: 735, tab. 15, fig. 1.

Locality: Oahu (Bianchi 1964). Introduced; South China, Japan, New Guinea.

Argiope appensa (Walckenaer)

Epeira appensa Walck., 1841, Hist. Nat. Ins. Apt. 2: 111.

Localities: Oahu (Hardy 1951), Molokai (Van Zwaluwenburg 1956), Kauai (Gressitt 1955), (presumed to be on Maui and Hawaii, possibly Lanai). Introduced; Oriental, Aus-

tralia, New Hebrides, New Caledonia.

Argiope avara Thorell, 1859, Oefv. Svensk. Vet. Akad. Forh. **16**: 299.

Localities: Oahu, Lanai, Maui, Hawaii (Simon 1900), Kauai (1931), (presumed to be on Molokai). Indigenous?; USA, New Guinea. Note: ♂ & ♀ described by Simon, 1900: 476.

Argiope avara kauaiensis Simon, 1900: 477.

Locality: Kauai. BMNH. Endemic.

Genus *Cyclosa* Menge, 1866

Cyclosa albisternis Simon, 1887, J. Asiat. Soc. Beng. **57** (2): 285.

Localities: Kauai (Simon 1900), Oahu (Simon 1904). Introduced: Andaman Is., Tonkin.

Cyclosa cucurbitula Simon, 1900: 482.

Locality: Oahu. ♀. BMNH, BBM. Endemic.

Cyclosa oculata (Walckenaer)

Aranea oculata Walck., 1802, Faun. Paris. Ins. **2**: 428.

Locality: Oahu (Simon 1900). Introduced: cosmopolitan.

Cyclosa olorina Simon, 1900: 481, pl. 16, fig. 5.

Localities: Hawaii. ♀. BMNH, BBM; Oahu (1952). Endemic.

Cyclosa perkinsi Simon, 1900: 479.

Localities: Hawaii. ♀. BMNH, BBM; Oahu (1952). Endemic.

Cyclosa simplicicauda Simon, 1900: 479.

Localities: Oahu, Molokai, Lanai, Maui, Hawaii. ♀♀. BMNH, BBM. Endemic.

Cyclosa simplicicauda rufescens Simon, 1900: 480.

Localities: Molokai, Hawaii. ♀♀. BMNH, BBM. Endemic.

Cyclosa turbinata (Walckenaer)

Epeira turbinata Walck., 1841, Hist. Nat. Ins. Apt. **2**: 140.

Localities: Kauai, Maui, Hawaii (Simon, 1900). Introduced; North America, Galapagos.

Cyclosa xanthomelas Simon, 1900: 480, pl. 16, fig. 3.

Localities: Molokai. ♀. BMNH, BBM; Maui (1952). Endemic.

Genus *Doryonychus* Simon, 1900 Endemic

Doryonychus raptor Simon, 1900: 466, pl. 16, fig. 8; pl. 19, fig. 1.

Locality: Kauai. ♂ & ♀. BMNH, BBM. Endemic.

Genus **Gasteracantha** Latreille, 1831**Gasteracantha cancriformis** (Linnaeus)

Aranea cancriformis L., 1758, Syst. Nat. 10th ed., p. 624.

Localities: Oahu (Fullaway 1955), Kauai (Bianchi 1963). Introduced: North, Central & South America.

Genus **Neoscona** Simon, 1864**Neoscona benjamina** (Walckenaer)

Epeira benjamina Walck., 1841, Hist. Nat. Ins. Apt. 2: 42.

Localities: Oahu (Williams 1937), Kauai (1944). Introduced: North, Central & South America; Antilles.

Neoscona nautica (L. Koch) = *Araneus nauticus* (L. Koch)

Epeira nautica Koch, 1875, Egypt. Abyssin. Arachn. Jickeli, p. 17, tab. 2, fig. 2.

Localities: Oahu, Hawaii (Simon 1900). Introduced; cosmopolitan.

Neoscona vertebrata (McCook)

Epeira vertebrata McC., 1888, Proc. Acad. Nat. Sci. Philadelphia, p. 196, figs. 6-10.

Localities: Oahu (1942), Hawaii (1950), Midway (Suehiro 1960), Kure (Butler & Usinger 1963). Introduced; North & Central America; Galapagos.

Genus **Tetragnatha** Latreille, 1804**Tetragnatha cuneiventris** Simon, 1900: 475, pl. 19, fig. 3.

Locality: Maui. ♂ & ♀. BMNH, MNHN. Endemic.

Tetragnatha hawaiiensis Simon, 1900: 470, pl. 19, fig. 4.

Localities: Hawaii. ♀♀. BMNH, BBM; Oahu (Simon 1904). Endemic.

Tetragnatha kauaiensis Simon, 1900: 472, pl. 19, fig. 9.

Locality: Kauai. ♂ & ♀. BMNH, MNHN. Endemic.

Tetragnatha mandibulata Walckenaer, 1841, Hist. Nat. Ins. Apt. 2: 211.

Localities: Kauai, Oahu (Simon 1899); Molokai (Simon 1900). Introduced; tropicopolitan.

Tetragnatha netrix Simon, 1900: 468, pl. 19, fig. 6.

Locality: Hawaii. ♂ & ♀. BMNH, BBM. Endemic.

Tetragnatha perkinsi Simon, 1900: 470, pl. 19, fig. 5.

Localities: Maui, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Tetragnatha restricta Simon, 1900: 473, pl. 19, fig. 10.

Locality: Hawaii. ♂ & ♀. BMNH, BBM. Endemic.

Tetragnatha sobrina Simon, 1900: 471, pl. 19, fig. 8.

Locality: Hawaii. ♂. BMNH. Endemic.

Tetragnatha uncifera Simon, 1900: 474, pl. 19, fig. 2.

Localities: Kauai, Maui, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Tetragnatha vicina Simon, 1897, Proc. Zool. Soc. Lond. 1897: 869.

Locality: Laysan (Butler 1961). Introduced; Antilles.

Genus ***Theridiosoma** O. P. Cambridge, 1879

***Theridiosoma** sp.

Locality: Oahu (1950). Probably introduced; cosmopolitan genus.

Family CLUBIONIDAE

Genus **Chiracanthium** C. L. Koch, 1839

Chiracanthium diversum L. Koch, 1873, Arachn. Austral. 1 (1): 396, tab. 32, fig. 2.

Localities: Oahu (Hardy 1950), Kauai, Molokai (Bianchi 1954), Hawaii (Van Zwaluwenburg 1954), Lanai (Mitchell 1964), Maui (no data), Midway (Suehiro 1960), Kure (Butler & Usinger 1963). Introduced; Australia, Polynesia.

Genus ***Corinna** C. L. Koch, 1842

***Corinna cetrata** (Simon)

Creugas cetratus Simon, 1889, Ann. Soc. Ent. France, ser. 6, 8: 243.

Localities: Oahu (1942), Kauai (1944). Introduced; Polynesia.

Family ***DICTYNIDAE**

Genus ***Dictyna** Sundevall, 1833

***Dictyna** sp.

Locality: Oahu (1964). Probably introduced; cosmopolitan genus.

Family **DYSDERIDAE**

Genus **Dysdera** Latreille, 1804

Dysdera crocata C. L. Koch, 1839, Die Arachniden 5: 81, tab. 166, figs. 392-94.

Localities: Oahu (Simon 1899), Hawaii (Simon 1900), Kauai (1944). Introduced; cosmopolitan.

Family **ERIGONIDAE**

Genus **Cnephalocotes** Simon, 1884

Cnephalocotes simpliciceps Simon, 1900: 462, pl. 18, fig. 14.

Localities: Hawaii. ♂♂. BMNH, BBM; Oahu (Simon 1904). Endemic.

Genus **Colonus** Chamberlin, 1949**Colonus** sp.

Localities: Midway (Suehiro 1960). Probably introduced; North American genus.

Genus **Eperigone** Crosby & Bishop, 1928***Eperigone tridentata** (Emerton)

Tmeticus tridentatus Emer., 1882, Trans. Conn. Ac. Sci. **6**: 53, pl. 15, fig. 2.

Locality: Oahu (1951). Introduced; USA.

Eperigone sp.

Locality: Oahu (Hardy 1952). Probably introduced; North American genus.

Genus **Erigone** Savigny & Audouin, 1825***Erigone autumnalis** Emerton, 1882, Trans. Conn. Ac. Sci. **6**: 58, pl. 17, fig. 8.

Locality: Hawaii (1951). Introduced; USA.

***Erigone dentosa** Cambridge, 1894, Biol. Centr. Amer. Arachn. Aran. **1**: 128, tab. 16, fig. 1.

Locality: Oahu (1949). Introduced; Guatemala, Mexico, USA.

Erigone vagans Audouin, 1825, Savigny's Descr. Egypt. Arach. **1** (4): 116.

Locality: Maui (Simon 1900). Introduced; cosmopolitan.

Genus **Priperia** Simon, 1904 Endemic**Priperia bicolor** Simon, 1904: 340.

Locality: Oahu. ♀. BMNH. Endemic.

Family ***FILISTATIDAE**Genus ***Filistata** Latreille, 1810***Filistata** sp.

Locality: Oahu (1952). Probably introduced; cosmopolitan genus.

Family **GNAPHOSIDAE**Genus **Zelotes** Gistel, 1848**Zelotes pacificus** (Simon)

Melanophora pacifica Simon, 1899, Zool. Jahrb., Syst. **12** (4): 412.

Localities: Laysan (Simon 1899), Hawaii (1947). Endemic.

Zelotes sp.

Locality: Oahu (1950). Probably introduced; cosmopolitan genus.

Family LINYPHIIDAE

Genus *Labulla* Simon, 1884

Labulla graphica Simon, 1900: 463, pl. 16, fig. 2.

Localities: Hawaii. ♂ & ♀. BMNH, BBM; Oahu (1950). Endemic.

Labulla torosa Simon, 1900: 464, pl. 16, fig. 1.

Localities: Kauai, Molokai, Maui, Hawaii. ♂♂ & ♀♀. BMNH, BBM; Oahu (Simon 1904). Endemic.

Genus **Meioneta* Hull, 1920

**Meioneta* sp.

Localities: Oahu (1952), Hawaii (1952). Probably introduced; primarily Palearctic genus.

Genus *Microneta* Menge, 1869

Microneta insulana Simon, 1900: 461, pl. 18, fig. 15.

Localities: Maui, Hawaii. ♂♂. BMNH, MNHN. Endemic.

Genus **Nesticus* Thorell, 1869

**Nesticus pallidus* Emerton, 1875, American Nat. 9: 279, pl. 1, figs. 22-27.

Locality: Oahu (1942). Introduced; USA.

Family LYCOSIDAE

Genus *Lycosa* Latreille, 1804

Lycosa hawaiiensis Simon, 1899, Zool. Jahrb., Syst. 12 (4): 419.

Hogna hawaiiensis: Roewer, 1954, Katalog der Araneae 2 (a): 253.

Localities: Hawaii. ♀. BMNH; Maui (Simon 1900), Oahu (Pemberton 1953). Endemic.

Lycosa (*Trochosa*) *kalukanai* Simon, 1900: 506, pl. 18, fig. 4.

Locality: Kauai. ♀. BMNH. Endemic.

Lycosa likelikeae Simon, 1900: 506, pl. 18, fig. 3.

Isohogna likelikeae: Roewer, 1954, Katalog der Araneae 2 (a): 262.

Locality: Kauai. ♀. BMNH. Endemic.

Lycosa oahuensis Keyserling, 1890, Arachn. Austral. 2: 267, tab. 24, fig. 8.

=*Lycosa stygialis* Simon, 1898, Ann. Soc. Ent. Belg. 42: 29.

Alopecosa oahuensis: Roewer, 1954, Katalog der Araneae 2 (a): 223.

Localities: Oahu (Keyserling 1890), Laysan (Simon 1898), Hawaii (Simon 1900), Maui (1952). Endemic. Described from ♂ & ♀. Specimens in BMNH, BBM.

Lycosa perkinsi Simon, 1904 : 343.

Locality : Oahu. ♀. BMNH. Endemic.

Genus **Lycosella** Thorell, 1890

Lycosella annulata Simon, 1900 : 508, pl. 16, fig. 10.

Locality : Oahu. ♀. BMNH, MNHN. Endemic.

Lycosella spinipes Simon, 1900 : 507, pl. 16, fig. 9 ; pl. 18, fig. 5.

Localities : Kauai, Maui. ♀♀. BMNH, BBM. Endemic.

Genus **Syroloma** Simon, 1900 Endemic

Syroloma major Simon, 1900 : 509, pl. 18, fig. 1.

Localities : Kauai, Hawaii. ♂♂ & ♀♀. BMNH, MNHN ; Oahu (Simon 1904), Maui (1951). Endemic.

Syroloma minor Simon, 1900 : 510, pl. 18, fig. 2.

Localities : Kauai, Molokai, Maui. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Family *OECOBIIDAE

Genus ***Oecobius** Lucas, 1846

***Oecobius** sp.

Locality : Oahu (1964). Probably introduced ; cosmopolitan genus.

Family OONOPIDAE

Genus **Gamasomorpha** Karsch, 1881

***Gamasomorpha loricata** (L. Koch)

Oonops loricatus Koch, 1872, Arachn. Austral. **1** (1) : 449, tab. 35, fig. 3.

Locality : Oahu (1951). Introduced ; Australia, New Hebrides, Samoa, Marquesans Is.

Gamasomorpha sp.

Locality : Kure (Butler & Usinger 1963). Probably introduced ; tropicopolitan genus.

Genus **Oonops** Templeton, 1835

Oonops sp.

Localities : Oahu (1942), Midway (Suehiro 1960). Probably introduced ; cosmopolitan genus.

Genus ***Opopaea** Simon, 1891

***Opopaea** sp.

Locality : Oahu (1952). Probably introduced ; tropicopolitan genus.

Genus **Scaphiella** Simon, 1891**Scaphiella** sp.

Locality: ?? (Bridwell 1920). Probably introduced; California, St. Vincent, Venezuela.

Family PHOLCIDAE

Genus **Artema** Walckenaer, 1833

Artema atlanta Walck., 1837, Hist. Nat. Ins. Apt. 1: 656.

Locality: Oahu (1923; Krauss 1962). Introduced; North, Central & South America; Southern Asia.

Artema mauritiana Walckenaer, 1837, Hist. Nat. Ins. Apt. 1: 657, tab. 15, fig. 1. = *A. sisyphoides* (Doleschall).

Localities: Maui (Simon 1899), Oahu (Simon 1900). Introduced; tropicopolitan.

Genus ***Pholcus** Walckenaer, 1805***Pholcus phalangioides** (Fuesslin)

Aranea phalangioides Fues., 1775, Verz. Schweizer. Ins., p. 9.

Locality: Oahu (1959). Introduced; cosmopolitan.

***Pholcus unicolor** Petrunkevitch, 1929, Trans. Conn. Ac. Sci. 30: 147, figs. 139-141.

Locality: Oahu (1951). Introduced; West Indies, Texas.

Genus **Smeringopus** Simon, 1890**Smeringopus elongatus** (Vinson)

Pholcus elongatus Vins., 1863, Arachn. Iles. Reun., Maurit., Madag., p. 135, tab. 3, fig. 5.

Localities: Laysan (Simon 1899), Oahu (Simon 1900), Maui (1947). Introduced; tropicopolitan.

Family SALTICIDAE

Genus **Ascyltus** Karsch, 1878

Ascyltus pterygodes (L. Koch) = *A. penicillatus* Karsch.

Hyllus pterygodes Koch, 1865, Verh. Zool.-Bot. Ges. Wien 15: 876.

Localities: Hawaii (Pemberton 1919), Oahu (Hardy 1956). Introduced; Polynesia.

Genus **Bavia** Simon, 1877

Bavia aericeps Simon, 1877, Ann. Soc. Ent. France, ser. 5, 7: 61.

Locality: Oahu (Simon 1900). Introduced; Oriental, Pacific Islands.

Genus **Dendryphantes** C. L. Koch, 1837**Dendryphantes** sp.

Localities: Oahu (1911), Kauai (Swezey 1921). Probably introduced; cosmopolitan

genus.

Genus **Hasarius** Simon, 1871

Hasarius adansonii (Audouin).

Attus adansonii Aud., 1825, Savigny's Descr. Egypt. Arachn. **1** (4): 169.

Localities: Kauai, Oahu, Hawaii (Simon 1899), Midway (Suehiro 1960), Kure, Laysan (Butler & Usinger 1963). Introduced; tropicopolitan.

Genus **Menemerus** Simon, 1868

Menemerus bivittatus (Dufour) = *Tapinattus melanognathus* (Lucas).

Salticus bivittatus Duf., 1831, Ann. Sci. Nat. Zool. **22**: 369, tab. 11, fig. 5.

Localities: Laysan (Simon 1899), Oahu (Hardy 1951), Midway (Suehiro 1960). Introduced; cosmopolitan.

Genus **Metaphidippus** O. P. Cambridge, 1901

Metaphidippus sp.

Localities: Midway (Suehiro 1960), Kure (Butler & Usinger 1963). Probably introduced; North, Central & South American genus.

Genus **Mollica** Peckham, 1901

Mollica microphthalmus (L. Koch).

Jotus microphthalmus Koch, 1881, Arachn. Austral. **1** (2): 1246, tab. 107, figs. 2-3.

Locality: Oahu (Simon 1900). Introduced; Polynesia.

Genus **Phidippus** C. L. Koch, 1846

Phidippus audax (Hentz)

Attus audax H., 1845, Boston Soc. Nat. Hist. **5**: 199, pl. 17, figs. 6-7.

Localities: Oahu (1937; Hardy 1952), Maui (Hardy 1952). Introduced; North American.

Genus **Plexippus** C. L. Koch, 1846

Plexippus paykulli (Audouin)

Attus paykulli Aud., 1825, Savigny's Descr. Egypt. Arachn. **1** (4): 172.

Locality: Kauai (Simon 1900). Introduced; cosmopolitan.

Genus **Sandalodes** Keyserling, 1883

Sandalodes albociliatus Simon, 1900: 514, pl. 18, fig. 8.

Locality: Lanai. ♂. BMNH, MNHN. Endemic.

Sandalodes canosus Simon, 1900: 515, pl. 18, fig. 13.

Locality: Maui. ♀. BMNH. Endemic.

Sandalodes cruciatus Simon, 1900: 516, pl. 18, fig. 11.

Locality: Hawaii. ♂. BMNH, BBM. Endemic.

Sandalodes navatus Simon, 1900: 515, pl. 18, fig. 9.

Localities: Kauai, Lanai, Maui, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Sandalodes pubens Simon, 1900: 513, pl. 18, fig. 7.

Localities: Molokai, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Sandalodes seniculus Simon, 1900: 517, pl. 18, fig. 12.

Locality: Maui. ♂. BMNH. Endemic.

Sandalodes validus Simon, 1900: 514, pl. 18, fig. 6.

Localities: Hawaii. ♂. BMNH, BBM; Oahu (Simon 1904). Endemic.

Sandalodes verecundus Simon, 1900: 516, pl. 18, fig. 10.

Locality: Oahu. ♂. BMNH, MNHN. Endemic.

Sandalodes sp.

Locality: Midway (Suehiro 1960). Indigenous genus, Pacific Islands, Australia, India.

Family SCYTODIDAE

Genus **Loxosceles* Heineken & Lowe, 1832

****Loxosceles*** sp.

Localities: Oahu (1950), Kauai (1964). Probably introduced; cosmopolitan genus.

Genus *Scytodes* Latreille, 1804

Scytodes fusca Walckenaer, 1837, Hist. Nat. Ins. Apt. 1: 272.

Localities: Hawaii (1944), Oahu (1949), Midway (Suehiro 1960). "New to Hawaiian Is." (Hardy, 1951). Introduced; tropicopolitan.

Scytodes longipes Lucas, 1844, Rev. Zool., p. 72. = *Scytodes marmorata* L. Koch

Localities: Oahu (Simon 1899); Molokai, Hawaii (Simon 1900); Kauai (1944). Lanai (1947), Midway (Suehiro 1960). Introduced; tropicopolitan.

Scytodes lugubris (Thorell)

Dictis lugubris Thor., 1887, Ann. Mus. Civ. Genova 25: 86.

Locality: Kure (Butler & Usinger 1963). Introduced; tropicopolitan.

****Scytodes perfecta*** Banks, 1898, Proc. Calif. Ac. Sci. 3, 1 (7): 210, tab. 13, fig. 2.

Locality: Oahu (1947). Introduced; Mexico, Southwest USA.

Scytodes striatipes (L. Koch)

Dictis striatipes Koch, 1872, Arachn. Austral. 1 (1): 295, tab. 24, fig. 5.

Localities: Oahu (1942), Laysan (Butler 1961), Kure (Butler & Usinger 1963). Intro-

duced ; Polynesia, Australia.

Family SEGESTRIIDAE

Genus **Ariadna** Savigny & Audouin, 1925

Ariadna perkinsi Simon, 1900 : 445, pl. 15, fig. 1.

Localities : Kauai, Oahu, Lanai. ♂♂ & ♀♀. BMNH, BBM ; Hawaii (1944). Endemic.

Family SPARASSIDAE

Genus **Heteropoda** Latreille, 1804

Heteropoda venatoria (Linnaeus) = *H. regia* (Fabr.).

Aranea venatoria L., 1767, Syst. Nat. 12th ed., p. 1035.

Localities : Kauai, Oahu, Hawaii (Simon 1899), Midway (Suehiro 1960). Introduced ; tropicopolitan.

Family SYMPHYTOGNATHIDAE

Genus **Pseudanapis** Simon, 1905

Pseudanapis aloha Forster, 1959, Trans. Roy. Soc. New Zealand **86** (3 & 4) : 315-16, figs. 106-110.

Locality : Oahu. ♂. AMNH. Endemic.

Family THERIDIIDAE

Genus **Argyrodes** Simon, 1864

Argyrodes argyroides (Walckenaer)

Linyphia argyroides Walck., 1841, Hist. Nat. Ins. Apt. **2** : 282.

Localities : Hawaii (Simon 1900), Oahu (Simon 1904), Maui (1952). Introduced ; cosmopolitan.

Argyrodes hawaiiensis Simon, 1900 : 447.

Locality : Hawaii. ♂. BMNH, BBM. Endemic.

Genus **Ariamnes** Thorell, 1869

Ariamnes corniger Simon, 1900 ; 447, pl. 15, fig. 2.

Localities : Lanai, Maui. ♀♀. BMNH, BBM ; Oahu (Simon 1904), Hawaii (1944). Endemic. Drawing of ♂ on p. 340 of Faun. Haw. (Suppl).

Genus **Coleosoma** O. P. Cambridge, 1882

Coleosoma blandum Cambridge, 1882, Proc. Zool. Soc. London, p. 427.

Locality : Oahu (Hardy 1952). Introduced ; tropicopolitan.

Coleosoma floridanum Banks, 1900, Canadian Ent. **32** : 98.

Locality: Laysan (Butler 1961). Introduced; Florida.

Genus **Conopistha** Karsch, 1881

Conopistha sp.

Localities: Oahu, Hawaii (Hardy 1952). Probably introduced; cosmopolitan genus.
Note: synonym of *Argyrodes* (Levi & Levi, 1962, Bull. Mus. Comp. Zool. **127** (1): 28.

Genus **Latrodectus** Walckenaer, 1805

Latrodectus geometricus C. L. Koch, 1841, Die Arachniden **8**: 117, fig. 684.

Localities: Oahu (Pemberton 1940), Lanai (Van Zwaluwenburg 1941), Kauai, Molokai (Krauss 1944), Hawaii (Bianchi 1945), French Frigate Shoal (Hardy 1952), (presumed to be on Maui). Introduced; tropicopolitan.

Latrodectus mactans (Fabricius)

Aranea mactans F., 1775, Syst. Ent., p. 432.

Localities: Oahu (Hadden 1926), Lanai (Illingworth 1928), Molokai (Williams 1931), Hawaii (Pemberton 1934), Maui (Van Zwaluwenburg 1936), (presumed to be on Kauai). Introduced; North, Central & South America; Galapagos.

Latrodectus mactans hesperus Chamberlin & Ivie, 1935, Bull. Univ. Utah **25** (8): 15.

Locality: Molokai (Krauss 1944). Introduced; North American.

Genus **Steatoda** Sundevall, 1833

Steatoda grossa (C. L. Koch) = *Teutana grossa* (C. L. Koch)

Theridion grossum Koch, 1838, Die Arachniden **4**: 112, pl. 140, fig. 321-321b.

Localities: Maui, Hawaii (Simon 1900). Introduced; cosmopolitan. Genus *Teutana* not recognized as valid [Levi & Levi, 1962, Bull. Mus. Comp. Zool. **127** (1): 28].

Genus **Theridion** Walckenaer, 1805

Theridion acutitarse Simon, 1900: 456, pl. 15, fig. 9.

Localities: Kauai. ♂ & ♀. BMNH, BBM; Oahu (Simon 1904). Endemic.

Theridion campestratum Simon, 1900: 450, pl. 15, fig. 3.

Localities: Maui. ♀. BMNH, BBM; Hawaii (1944), Oahu (1946). Endemic.

Theridion grillator Simon, 1900: 456, pl. 15, fig. 8.

Localities: Hawaii. ♂ & ♀. BMNH, BBM; Oahu (1951). Endemic.

Theridion haleakalense Simon, 1900: 453, pl. 15, fig. 5.

Locality: Maui. ♂ & ♀. BMNH, BBM. Endemic.

Theridion kauaiense Simon, 1900: 455, pl. 15, fig. 7.

Locality: Kauai. ♀. BMNH, BBM. Endemic.

Theridion mauiense Simon, 1900, 452, pl. 15, fig. 11.

Locality: Maui. ♂ & ♀. BMNH. Endemic.

Theridion melinum Simon, 1900: 457, pl. 15, fig. 10.

Localities: Oahu, Maui, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Theridion perkinsi Simon, 1900: 452, pl. 15, fig. 6,

Localities: Kauai, Maui. ♂♂ & ♀♀. BMNH, BBM; Oahu (Simon 1904). Endemic.

Theridion posticatum Simon, 1900: 458, pl. 15, fig. 12.

Localities: Molokai, Lanai. ♂♂ & ♀♀. BMNH, MNHN. Endemic.

Theridion praetextum Simon, 1900: 450, pl. 15, fig. 4.

Locality: Hawaii. ♂ & ♀. BMNH, BBM. Endemic.

Theridion praetextum concolor Simon, 1900: 451.

Localities: Maui, Hawaii. No sex indicated. BMNH, BBM. Endemic.

Theridion rufipes Lucas, 1846, Explor. Sci. Algeria Arachn. **1**: 263, tab. 16, fig. 5.

Localities: Laysan (Simon 1899), Hawaii (Simon 1900), Oahu (1950). Introduced; cosmopolitan.

Theridion tepidariorum C. L. Koch, 1841, Die Arachniden **8**: 75, figs. 646-48. = *Achaearana tepidariora* (Koch)

Localities: Molokai, Lanai, Maui, Hawaii (Simon 1900), Oahu (1944), Midway (Suehiro 1960). Introduced; cosmopolitan.

Theridion sp.

Locality: Midway (Suehiro 1960). Indigenous; cosmopolitan genus.

Genus **Ulesanis** L. Koch, 1872

Ulesanis oahuensis Simon, 1900: 460, pl. 16, fig. 11.

Locality: Oahu. ♀. BMNH. Endemic.

Family THOMISIDAE

Genus **Adrastidia** Simon, 1900 Endemic

Adrastidia longula Simon, 1900: 504, pl. 17, fig. 9.

Locality: Maui. ♀. BMNH. Endemic.

Adrastidia nebulosa Simon, 1900: 503.

Localities: Maui, Hawaii. ♀♀. BMNH. Endemic.

Adrastidia stigmatica Simon, 1900: 503, pl. 17, fig. 10.

Localities: Kauai, Oahu, Lanai, Maui, Hawaii. ♀♀. BMNH, BBM. Endemic.

Genus **Diaea** Thorell, 1869

Diaea insulana Keyserling, 1890, Arachn. Austral. **2**: 261, tab. 24, figs. 3-4.

Localities: Oahu (Keyserling 1890). ♂ & ♀; Kauai, Molokai, Maui, Hawaii (Simon 1900). Endemic. ♂♂ & ♀♀ described by Simon, 1900: 490, pl. 17, fig. 13. Specimens in BMNH, BBM.

Diaea vitellina Simon, 1900: 491, pl. 17, fig. 14.

Localities: Oahu, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Genus **Mecaphesa** Simon, 1900 Endemic

Mecaphesa cincta Simon, 1900: 495.

Locality: Maui. ♀. BMNH. Endemic.

Mecaphesa perkinsi Simon, 1904: 342.

Locality: Oahu. ♀. BMNH, MNHN. Endemic.

Mecaphesa semispinosa Simon, 1900: 496, pl. 17, fig. 4.

Locality: Hawaii. ♀. BMNH. Endemic.

Genus **Misumena** Latreille, 1804

Misumena anguliventris Simon, 1900: 488, pl. 17, fig. 11.

Localities: Kauai, Oahu, Maui, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Misumena cretacea Simon, 1900: 487.

Locality: Molokai. ♀. BMNH, BBM. Endemic.

Misumena nesiotis Simon, 1899, Zool. Jahrb., Syst. **12** (4): 416.

Localities: Molokai (Simon 1899), ♀; Hawaii (Simon 1900), Oahu (Simon 1904). Endemic. ♀♀ described by Simon, 1900: 486. Specimens in BMNH, BBM.

Misumena nigrofrenata Simon, 1900: 486 pl. 17, fig. 1.

Localities: Kauai, Oahu, Hawaii. ♀♀. BMNH, BBM. Endemic.

Misumena oreades Simon, 1900: 485.

Localities: Oahu, Molokai, Hawaii. ♀♀. BMNH, BBM. Endemic.

Misumena velata Simon, 1900: 489, pl. 17, fig. 12.

Localities: Molokai, Maui. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Genus **Pagiopalus** Simon, 1900 Endemic

Pagiopalus atomarius Simon, 1900: 500, pl. 17, fig. 7.

Localities: Kauai, Molokai, Hawaii. ♂♂ & ♀♀. BMNH, BBM; Oahu (Simon 1904). Endemic.

Pagiopalus nigriventris Simon, 1900: 502.

Locality: Hawaii. ♀. BMNH, MNHN. Endemic.

Pagiopalus personatus Simon, 1900: 501, pl. 18, fig. 8.

Locality: Lanai. ♀. BMNH, MNHN. Endemic.

Pagiopalus semipunctatus Simon, 1900 : 501, pl. 17, fig. 15.

Locality: Maui. ♂ & ♀. BMNH, BBM. Endemic.

Genus **Proernus** Simon, 1900 Endemic

Proernus aculeatus Simon, 1900 : 498.

Locality: Kauai. ♂. BMNH. Endemic.

Proernus castaneus Simon, 1900 : 498.

Locality: Maui. ♂. BMNH. Endemic.

Proernus schauinslandi (Simon)

Pterelas schauinslandi Simon, 1899, Zool. Jahrb., Syst. **12** (4) : 418.

Locality: Oahu. ♂. Endemic. ♂ described by Simon, 1900 : 497, pl. 17, fig. 6. Specimens in BMNH, BBM.

Proernus velox Simon, 1900 : 499, pl. 17, fig. 5.

Localities: Maui. ♂. BMNH, BBM; Oahu (Simon 1904). Endemic.

Genus **Synaema** Simon, 1864

Synaema dimidiatipes Simon, 1900 : 493, pl. 17, fig. 3.

Locality: Hawaii. ♀. BMNH, BBM. Endemic.

Synaema fronto Simon, 1900 : 493.

Locality: Oahu. ♀. BMNH, BBM. Endemic.

Synaema impotens Simon, 1900 : 494.

Locality: Hawaii. ♀. BMNH, BBM. Endemic.

Synaema naevigerum Simon, 1900 : 494, pl. 17, fig. 2.

Localities: Molokai, Hawaii. ♂♂ & ♀♀. BMNH, BBM. Endemic.

Synaema rufithorax Simon, 1904 : 342.

Locality: Oahu. ♀. BMNH, BBM. Endemic.

Family **ULOBORIDAE**

Genus **Uloborus** Latreille, 1806

Uloborus geniculatus (Olivier)

Aranea geniculata Oliv., 1789, Encycl. Method. **4** : 214.

Localities: Oahu (1927; Swezey 1944), Hawaii (1950). Introduced; tropicopolitan.

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- 1934 A review of the Hawaiian Diptera, with descriptions of new species. *Proc. Hawaiian Ent. Soc.* **8** (3): 399-468. (Drosophilids parasitize spider eggs).
- 1938 Key to Hawaiian Drosophilidae and descriptions of new species. *Ibid.* **10** (1): 25-42. (*Titanochaeta ichneumon* Knab reared from spider eggs).
- 1940 Insects we see in Hawaii. Tongg Publ. Co., 128 pp. (4 species listed).
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- 1938 Orchid insects. *Proc. Hawaiian Ent. Soc.* **10** (1): 45-49. (Possible transport of spiders in orchid plants).
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- 1946 A study in insect ecology within nests of the Mud-Dauber *Sceliphron caementarium* Drury. *Hawaiian Planters Record* 50 (3 & 4): 129-40. (Spiders used as food).
- 1948 History of the Entomology Department Experiment Station, H. S. P. A. 1904-1945. *Ibid.* 52 (1): 53-90. (*Baeus californicus* introduced for control of *L. mactans*).
- Pemberton, C. E. & J. S. Rosa 1940 Notes on the life history of *Baeus californicus* Pierce, an egg parasite of the black widow spider. *Ibid.* 44 (2): 73-80.
- 1946 Life history of a new parasite of the black widow spider in Hawaii. *Ibid.* 50 (1): 29-37.
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- 1899 Ergebnisse einer Reise nach dem Pacific (Schauinsland 1896-1897) *Arachnoideen. Zool. Jahr., Syst.* 12 (4): 411-37. (Includes 15 Hawaiian Is. species).

- 1900 Arachnida. *Fauna Hawaiiensis* 2 (5) : 443-519, pls. 15-19.
- 1904 Arachnida (Supplement). *Ibid.* 3 (4) : 339-44.
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- Swezey, O. H. 1929 Notes on the egg-parasites of insects in Hawaii. *Ibid.* 7 (2) : 282-92. (Several spider egg parasites mentioned).
- 1931 Some new records of insects on Molokai. *Ibid.* 7 (3) : 485-88. (Includes *L. mac-tans*).
- 1933 New records of insects on Molokai, and miscellaneous notes. *Ibid.* 8 (3) : 273-74. [*Tromatobia rufopectus* (Cresson) issued from spider egg-cocoon on Kauai. Not *Argiope*].
- 1933 Notes on *Tromatobia rufopectus* (Cress.), a recent immigrant in Hawaii (Hymenoptera). *Ibid.* 8 (2) : 305-6. (Parasite of *Argiope avara*, *Pagiopalus* sp. and an unknown sp.).
- 1936 The insect fauna of Ieie (*Freycinetia arborea*) in Hawaii. *Ibid.* 9 (2) : 191-96. (Spiders live in moist debris on leaf bases).
- 1936 Biological control of the sugar cane leaf-hopper in Hawaii. *Hawaiian Planters Record* 40 (1) : 57-101. (Several spiders with their biology and parasites listed).
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- 1932 Some observations on forest insects at the Nauhī Nursery and vicinity on Hawaii. *Ibid.* 8 (1) : 179-90. [*Anoplius luctuosus* (Cress.) possibly preys on spiders].
- Thorell, T. 1881 Studi sui Ragni Malesi e Papuani. Part 3. *Ann. Mus. Civ. Stor. Nat. Genova* 17 : 1-720. (*Scytodes marmorata* L. Koch from Honolulu).
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- Van Zwaluwenburg, R. H. 1926 The soil fauna of Hawaiian cane fields. *Hawaiian Planters Record* 30 (2) : 250-55. (Spiders numerous in top 9 in. of soil).
- 1946 Recent immigrant insects. *Ibid.* 50 (1) : 11-17. (*Eurytoma* sp. parasitic to *L. mac-tans* & *L. geometricus* eggs).
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- 1931 A spider eating ant larvae or pupae. *Proc. Hawaiian Ent. Soc.* 7 (3) : 425-26. (A salticid and *Heteropoda regia* observed eating ants).
- Wirth, W. W. 1952 Two new spider egg predators from the Hawaiian Islands (Diptera : Drosophilidae). *Ibid.* 14 (3) : 415-17. (*Titanochaeta swezeyi* Wirth and *T. bryani* Wirth are spider parasites).
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APPENDIX

Notes appearing in the Proc. Hawaiian Ent. Soc.

Argiope appensa (Walckenaer)

- Gressitt, J. L. 1955 **15** (3) : 387. [*Tromatobia rufopectus* (Cresson) reared from egg-case from Kauai].
- Hardy, D. E. 1951 **14** (2) : 214. (New record for Hawaiian Is. *Tromatobia rufopectus* reared from its eggs).
 1952 **14** (3) : 346. (Found all over Oahu).
- Haramoto, F. H. 1952 **14** (3) : 346. (Found at Kanaluu, Oahu).
- Mitchell, W. C. 1953 **15** (1) : 4. (Found on Kaneohe-Kailua ridge).
- Swezey, O. H. 1952 **14** (3) : 346. (Found at Makaha, Oahu).
- Van Zwaluwenburg, R. H. 1956 **16** (1) : 4. (First record for Molokai).

Argiope avara Thorell

- Bess, H. A. 1951 **14** (2) : 214. [Very abundant on Island of Hawaii. *Tromatobia rufopectus* (Cresson) reared from its eggs].
- Carter, W. 1942 **11** (2) : 143. (3 *Scolia manilae* found in its web in pineapple field at Wahiawa).
- Pemberton, C. E. 1934 **8** (3) : 379. (Egg-sac parasitized by *Tromatobia rufopectus* on Island of Hawaii).
 1942 **11** (2) : 143. (Decrease in numbers due to egg-sac parasite, *Tromatobia rufopectus*).
- Rosa, J. S. 1933 **8** (2) : 230. (*Tromatobia rufopectus* issuing from its egg-sac on Oahu).
- Swezey, O.H. 1933 **8** (2) : 236. (*Tromatobia rufopectus* reared from its egg-sac on Oahu).
 1934 **8** (3) : 386. (*Tromatobia rufopectus* from its egg cocoon on Island of Hawaii).
 1938 **10** (1) : 21. (*Tromatobia rufopectus* found in its egg sacs).
 1944 **12** (1) : 18. (Found in Manoa; scarce due to *Tromatobia rufopectus* feeding on its eggs).
 1946 **12** (3) : 474. (*Tromatobia rufopectus* found in its egg sacs).

Chiracanthium diversum L. Koch

- Beardsley, J. W. 1964 **18** (3) : 346. (Collected on Molokai).
- Bianchi, F. A. 1954 **15** (2) : 275. (First record for Molokai).
 1954 **15** (2) : 287. (♂ & ♀ from Kokee, Kauai; appears to be new island record).
 1959 **17** (1) : 17. (Bite case recorded).
- Clagg, C. F. 1963 **18** (2) : 196. (Bite case recorded).
- Ford, E. J. Jr. 1954 **15** (2) : 282. (Bite case recorded).
- Gressitt, J. L. 1955 **15** (3) : 383. (Bite case recorded).
- Hardy, D. E. 1950 **14** (1) : 19. (Bite case recorded; first Hawaiian Island record of *Chiracanthium* sp.).
 1952 **14** (3) : 345. (2nd recorded bite case).
 1952 **14** (3) : 352. (Widespread on Oahu).
 1953 **15** (1) : 18. (3rd recorded bite case).
 1955 **15** (3) : 374. (Identified as *C. diversum* by Gertsch).

- 1957 **16** (2): 187. (Bite case recorded).
 1962 **18** (1): 16. (Bite case recorded).
 Holway, R.T. 1955 **15** (3): 387. (Bite case recorded).
 Mitchell, W. C. 1964 **18** (3): 345. (Collected on Molokai and Lanai. New island records).
 Nakata, S. 1957 **16** (2): 183. (Bite case recorded).
 Sherman, M. 1954 **15** (2): 288. (Bite case recorded).
 Van Zwaluwenburg, R. H. 1954 **14** (2): 281. (♀ found on Hawaii; new island record).

Gasteracantha cancriformis (Linnaeus)

- Bianchi, F. A. 1963 **18** (2): 205. (First record for Kauai).
 Clagg, C. F. 1960 **17** (2): 175. (Found at Barbers Pt and Waikele, Oahu).
 Fullaway, D. T. 1955 **15** (3): 378. (First Hawaiian Island record; found on Oahu).
 Hardy D. E. 1957 **16** (2): 187. (Bite case recorded).
 1960 **17** (2): 166. (Found at Wahiawa and Kaneohe, Oahu).

Heteropoda venatoria (Linnaeus) = *H. regia* (Fabr.)

- Chapman, R. N. 1934 **8** (3): 365. (Found in can of pineapples; thought at first to be tarantula).
 Ehrhorn, E. M. 1913 **2** (5): 196. (Making and hatching of egg sac).
 Pemberton, C. E. 1916 **3** (4): 273. (♀ behavior with egg sac).
 Van Zwaluwenburg, R. H. 1955 **15** (3): 383. (*Tachypompilus analis*, parasite of *H. regia*, taken from Kauai).
 Williams, F. X. 1932 **8** (1): 29. (No *Heteropoda* spiders found over 5200' on Island of Hawaii).

Latrodectus geometricus C. L. Koch

- Bianchi, F. A. 1947 **13** (1): 1. (Parasite, *Eurytoma* sp., very abundant in egg sacs on Lanai).
 1949 **13** (3): 322. (Scorpion found in its web).
 Clagg, C. F. 1961 **17** (3): 331. (Commonest spider at South Pt, Hawaii).
 Fullaway, D. T. 1946 **12** (3): 489. (*Eurytoma* sp. taken from its egg sac on Kauai).
 Hardy, D. E. 1952 **14** (3): 369. (First record from French Frigate Shoals).
 Krauss, N. L. H. 1944 **12** (1): 1. (Found on pier at Port Allen, Kauai).
 Pemberton, C. E. 1940 **10** (3): 365. (On Oahu for several years; common around Honolulu).
 1949 **13** (3): 322. (*H. regia* found in its web).
 Van Zwaluwenburg, R. H. 1941. **11** (1): 20. (Picked up in fruit from Lanai).

Latrodectus mactans (Fabr.)

- Bianchi, F. A. 1946 **12** (3): 478. (Recovery of *Baeus californicus* Pierce from its eggs at South Pt, Hawaii).
 1962 **18** (1): 6. (Abundant on Waipio Peninsula canefields; *Eurytoma latrodicti* Full. reared from its egg sacs).
 Bryan, E. H. Jr. 1928 **7** (1): 22. (Specimens shown from Ewa Plantation).

- Ehrhorn, E. M. 1933 8 (2) : 228. (Cannibalistic nature mentioned and unhatched egg case shown).
- Hadden, F. C. 1926 6 (2) : 249. (Found at Koko Head; first record for Hawaiian Is.).
1927 6 (3) : 365. (Found at Waikiki).
- Illingworth, J. F. 1927 6 (3) : 379. (Found in Lualualei District below Kolekole Pass).
1928 7 (1) : 28. (Found in several habitats in pineapple fields on Lanai).
- Keck, C. B. 1947 13 (1) : 4. (Abundant under bee hives at Fort Shafter).
- Kemble, H. S. 1928. 7 (1) : 22. (Found on Waianae Beach, Oahu).
- Krauss, N. L. H. 1951 14 (2) : 226. [Found on slopes of Mauna Kea (6500') & Hale Pohaku (9400')].
- Pemberton, C. E. 1934 8 (3) : 376. [First record for Island of Hawaii; *Sceliphron caementarium* (Drury) fills nest with *L. mactans* & another species].
1940 10 (3) : 365. (*Baeus californicus* Pierce introduced for control).
1947 13 (1) : 23. (Decrease in numbers on Molokai believed due to *Eurytoma* sp.).
- Swezey, O. H. 1927 6 (3) : 374. (Found at Koko Head, Waikiki, Iwilei, Lanikai & Pearl Harbor).
1936 9 (2) : 130. (No parasites hatching from egg cases from Maui in 1935).
1940 10 (3) : 370. (Found in mud-daubers, *Sceliphron caementarium*, nest at Lualualei).
- Van Zwaluwenburg, R. H. 1936. 9 (2) : 112. (Very numerous in December on Maui).
1942 11 (2) : 150. (Recovery of parasite, *Baeus californicus*, on Maui; Parasite introduced from California)
- Willard, H. F. 1928 7 (1) : 28. (Observed feeding on centipede in Waikiki).
- Williams, F. X. 1931 7 (3) : 345. (Many insects caught in its web on Molokai).

Latrodectus geometricus* & *Latrodectus mactans

- Bianchi, F. A. 1947 13 (1) : 17. (*Eurytoma* sp. reared from both species at South Pt, Hawaii).
1949 13 (3) : 324. (South Pt, Hawaii: *L. geometricus* as abundant as in 1946. *L. mactans* very scarce; parasite *Eurytoma* sp. very abundant; *Baeus californicus* not found).
1961 17 (3) : 330. (*L. mactans* numerous at Waipio Peninsula; *L. geometricus* absent).
- Hardy, D. E. 1951 14 (2) : 214. (*L. geometricus* resembling *L. mactans*).
- Krauss, N. L. H. 1944 12 (1) : 26. (*L. mactans hesperus* Chamberlin & Ivie and *L. geometricus* taken from South Central Molokai).
- Rosa, J. S. 1946 12 (3) : 476. (*Eurytoma* sp. parasite of *Latrodectus* eggs).
1946 12 (3) : 478. (*L. geometricus* egg case similar to *L. mactans* on Oahu).
- Wilton, D. P. 1961 17 (3) : 331. (Both species abundant at Ewa, Oahu).

Miscellaneous

- Bianchi, F. A. 1964 18 (3) : 328, 343. (*Argiope amoena* L. Koch found on Oahu; new to Hawaiian Is.).
- Bridwell, J. C. 1920 4 (2) : 284. [*Scaphiella* (Oonopidae) found in insect boxes].
- Bryan, W. A. 1917 3 (4) : 295. (1 spider found near ice-water pool at summit of Mauna Loa).
- Chock, Q. C. 1933 8 (2) : 233. (Araneid spider taken from web at Pearl City).
- Ehrhorn, E. M. 1925 6 (1) : 6. (New spider—no name—to Hawaiian Islands found in box

- of *Amaryllis* bulbs).
- 1931 7 (3): 336. (*Araneus nauticus* exhibited; uncommon).
- Fullaway, D. T. 1915 3 (2): 114. (*Baeus* sp. reared from spider eggs).
- Hardy, D. E. 1951 14 (2): 207. [*Menemerus bivittatus* (Salticidae) & *Scytodes fusca* (Scytodidae) new to Hawaiian Is; found on Oahu].
- 1952 14 (3): 345. [*Phidippus audax* (Salticidae) new for Hawaiian Is.].
- 1952 14 (3): 352. (*Coleosoma blandum* Cambridge, *Conopistha* sp., *Eperigone* sp. new to Hawaiian Is.).
- 1958 16 (3): 336. (Theraphosid spider intercepted in auto from mainland).
- Krauss, N. L. H. 1962 18 (1): 22. (*Artema atlanta* nuisance in houses on Oahu; might be *A. sisypoides*).
- Look, W. C. 1959 17 (1): 4. (*Aphonopelma clarum* Chamberlin was theraphosid spider intercepted from mainland in 1957).
- Pemberton, C. E. 1919 4 (1): 38. (*Ascyltus penicillatus* found on Island of Hawaii; ♀ sent to Washington for identification).
- 1953 15 (1): 17. (*Lycosa hawaiiensis* taken from Oahu; new island record).
- 1956 16 (1): 6. (Salticid identified as *Ascyltus* sp., probably *pterygodes*; first record for Hawaiian Is.).
- Rosa, J. S. 1933 8 (2): 274. (*Tromatobia rufopectus* reared from spider eggs on Kauai; not *Argiope*).
- Swezey, O. H. 1915 3 (2): 86. (Wasps carrying spiders to nest).
- 1921 4 (3): 522. (*Dendryphantes* sp. first found in Honolulu in 1911; now on Kauai lowlands).
- 1931 7 (3): 343. (*Arachnoleter swezeyi* Cush., parasite of spider eggs, collected on Mokolai).
- 1944 12 (1): 16. (*Uloborus geniculatus* recent in Hawaiian Is.; 1927 earliest date).
- Van Zwaluwenburg, R. H. 1931 7 (3): 394. (Blind spider—no name—found in cane field soils).
- Williams, F. X. 1932 8 (1): 17. (*Chalybion caeruleum* (Linn.) stuffs nest with spiders).
- 1937 9 (3): 377. (*Neoscona benjamina* appears to be replacing *Argiope avara* on Oahu).

Records of Immigrant Species Appearing in P.H.E.S.

- 1919 (1918) 4 (index): 20. *Ascyltus penicillatus* Karsch; *Dendryphantes* sp.
- 1926 (1925) 6 (2): 343. *Latrodectus mactans* (Fabr.).
- 1940 (1939) 10 (3): 373. *Latrodectus geometricus* C. L. Koch.
- 1944 (1943) 12 (1): 212. *Latrodectus mactans hesperus* Chamberlin & Ivie.
- 1950 (1949) 14 (1): 201. *Chiracanthium* sp.
- 1951 (1950) 14 (2): 341. *Menemerus bivittatus* (Dufour), *Scytodes fusca* Walck., *Argiope appensa* Walck.
- 1952 (1951) 14 (3): 537. *Phidippus audax* Hentz, *Coleosoma blandum* Cambridge, *Conopistha* sp., *Eperigone* sp.
- 1955 (1954) 15 (3): 673. *Gasteracantha cancriformis* (Linn.).
- 1956 (1955) 16 (1): 177. *Ascyltus* sp.
- 1962 (1961) 18 (1): 191. *Artema atlanta* Walck.
- 1964 (1963) 18 (3): 437. *Argiope amoena* L. Koch.