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THE INSECTS OF MONA ISLAND (WEST INDIES)

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INTRODUCTION

A better and more complete knowledge of the insect fauna of Mona Island has long been desirable from the standpoint of the study of the distribution of insects in the West Indies and of a more thorough knowledge of the entomological fauna of the Puerto Rican region.

The information about the insect fauna of Mona Island included in this paper has been obtained from two sources. In the first place, the writer has attempted to gather together all the published records of insects from Mona Island found in several scattered publications and papers dealing mainly with the fauna of Puerto Rico. In addition to this, a great number of species has been added to those already known from the island and much additional information gathered from a rather extensive collection of insects obtained from the island in April 1935 and during the spring and summer of 1944.

GENERAL INFORMATION

LOCATION

Mona Island, politically part of Puerto Rico, is located in latitude 18°05' North and longitude 67°55' West, in the south side of the Mona Passage between Puerto Rico and Hispaniola. It is approximately 45 miles west-southwest of Mayaguez, Puerto Rico and 40 miles east-southeast of Punta Espada, Dominican Republic. On clear days, both Puerto Rico and Hispaniola are visible from the island. Three miles to the north-northwest lies Monito Island, a very small and inaccessible rock of no particular interest.

SIZE

The island is roughly circular in shape, with a slight indentation on the north side and an angular outline. It is approximately 6 miles long from

¹A thesis submitted to the Faculty of the State College of Agriculture and Engineering of the University of North Carolina in partial fulfillment for the Degree of Master of Science in the Department of Zoology and Entomology.

west to east and 5 miles wide from north to south. The total area is about 14,000 acres.

TOPOGRAPHY

The island is relatively flat, with an average elevation of 150 to 175 feet above sea level. The highest elevation is found on the Northwest Cape which is 272 feet high. The surface consists of two sharply divided levels, the coastal plain and the limestone plateau. The island is surrounded by a coral reef, so complete, that landing a boat is always dangerous, very difficult and almost impossible during certain months of the year.

The coastal plain comprises about 6 per cent of the total land area of the island, or nearly 900 acres. About 90 per cent of it is on the southwestern side (Uvero Beach) where much protection from the wind and surf is afforded. Narrow beaches are also found along the west and south coasts (Sardinera Beach and Playa de Pájaros, respectively), but the north and northeast coasts are cliffs sheer to sea level. The entire coastal plain is low, generally not over 10 feet above sea level. It is several miles long and averages about half a mile wide.

The limestone plateau, nowhere less than 100 feet high, comprises the greatest portion of the area of the island, or more than 13,000 acres. It is bordered nearly throughout by steep escarpments and is accessible at only a few points from the coastal plain. Its surface is sharp and jagged.

The limestone rock is very porous, which permits much subterranean drainage. For this reason, there are no springs or rivers on the plateau despite its relatively large extent. There is, however, some variation in the level of the plateau caused by erosion following rains of heavy intensity. An example of this is Bajura de los Cerezos, a sink-hole near the center of the island, where subterranean drainage is exceptionally high, and where the washed-in soil permits a richer and more abundant vegetation.

A striking character of Mona Island is the fact that it is honeycombed with numerous caves and caverns, some of considerable size. Centuries of water seepage through the soluble limestone have been responsible for their development. They may be seen in the cliffs at any part of the island and a few open out on the surface of the plateau. These caves were once an important source of guano which was commercially removed from them many years ago.

CLIMATE

The climate of Mona Island seems to be very similar to that of Guánica, on the south coast of Puerto Rico, judging from the scanty available information. Daily temperatures are high and the precipitation rather low. A

rain gauge maintained for the last 22 years at the Lighthouse of East Cape has received an average annual rainfall of 40.66 inches.

SOIL

The parent rock is Ponce limestone (Miocene). It gives rise to a soil very similar to shallow phase Ensenada clay. This reddish, pliable and very shallow soil is very sparse and found only in depressions on the surface of the plateau. Its depth varies from 0 to possibly 2 feet in some of the largest depressions.

On the coastal plain, the soil is deeper and more abundant than on the plateau. It consists chiefly of consolidated beach material containing coral and shell fragments.

VEGETATION

Despite the arid climate and the paucity of the soil, the plateau is almost completely covered with an open forest of shrubs and low trees of a considerable number of species. Several species of cacti also inhabit it and show abundant growth at some places. The snowy cactus, *Neomammillaria nica* (Link) Britton & Rose, a species which does not occur in Puerto Rico, is plentiful. *Cephalocereus Royeni* (L.) Britton & Rose, several species of *Opuntia* and *Cactus inortus* Mill. are also common. Tall grasses are found on some places, but generally the herbaceous vegetation is not abundant on this level. The browsing of the several thousand wild goats and pigs has undoubtedly influenced to some extent the character of the vegetation of the plateau.

On the coastal plain, probably due to the deeper and more abundant soil and to the moister condition, several species of trees reach a larger size and form a denser and higher forest. The herbaceous vegetation is also richer than on the upper level. This richer vegetation may be also observed, however, on some of the larger depressions on the plateau, where, for the same reasons, a denser forest occurs. An example of this is Bajura de los Cerezos.

On the western and southwestern coastal plains, from Sardinera Beach to Uvero Beach, the vegetation has been modified by cutting and clearing for agriculture and reforestation purposes. The Insular Forestry Service planted, from 1937 to 1939, 420 acres in this region to Australian pines, *Casuarina equisetifolia* Forst.; Dominican mahogany, *Swietenia Mahagoni* (L.) Jacq.; and "avelluelo", *Colubrina colubrina* (Jacq.) Millsp. The Australian pine has been very successful on this sandy soil, but the "avelluelo" has failed, especially near the coastline, possibly because the salinity of the soil. The success of the mahogany, which was planted on shallow rocky sites, seems not to be too good either.

Britton 1915: 36 gives a total of 230 species of flowering plants from the island, of which only 2 are endemic. These are a small tree, *Tabebuia lucida* Britton, rather common on the plateau, and *Chamaesyce monensis* Millsp., a small plant occurring also on that situation.

Some of the most common species of plants on the island (Britton 1915: 37-49) are the following: *Ficus Stahlia* Warb., *Coccolobis uvifera* (L.) Jacq., *Coccolobis laurifolia* Jacq., *Pisonia albida* (Heimerl) Britton, *Sesuvium Portulacastrum* L., *Capparis cynophallophora* L., *Capparis flexuosa* L., *Pithecolobium Unguis-cati* (L.) Mart., *Cracca cineræ* (L.) Morong, *Guaiacum sanctum* L., *Guaiacum officinale* L., *Amyris elemifera* L., *Elaphrium Simaruba* (L.) Rose, *Stigmaphyllon lingulatum* (Poir.) Small, *Metopium toriferum* (L.) Krug & Urban, *Corchorus hirsutus* L. *Gossypium barbadense* L., *Clusia rosea* Jacq., *Canella Winteriana* (L.) Gaertn., *Carica Papaya* L., *Cephalocereus Royeni* (L.) Britton & Rose, *Opuntia Dillenii* (Ker-Gawl.) Haw., *Eugenia buxifolia* (Sw.) Willd., *Plumiera obtusa* L., *Lantana Camara* L., *Tabebuia lucida* Britton, *Guetarda elliptica* Sw., *Pluchea purpurascens* (Sw.) DC., and *Aklema petiolare* (Sims) Millsp.

FAUNA

Although the land fauna of Mona Island is not very rich in number of species, it is however very interesting, and, for this reason, has received much attention from several students of the Puerto Rican fauna.

Amphibians and Reptiles

Schmidt 1928: 8 reports 9 species of amphibians and reptiles from the island of which 6 species are endemic to it. These are a small frog, *Eleutherodactylus monensis* Meerw.; the rock iguana, *Cyclura stejnegeri* Barb. and Noble, probably the most conspicuous and interesting feature of the fauna of the island; a small iguana, *Ameiva alboguttata* Boul.; and three snakes: *Typhlops monensis* Schmidt, *Epicrates monensis* Zenneck, and *Alsophis variegatus* Schmidt.

Birds

Wetmore 1927: 245-598 records 22 species of birds from the island. Of these, the most interesting form is a ground-dove, *Columbigallina passerina exigua* Riley, which occurs only on Mona and on the island of Inagua, in the southern Bahama Islands, the rest being common species in other West Indian islands. Danforth 1936: 100 adds 4 species to Wetmore's list. These are two North American migrants, the ani, and the Hispaniolan race of the sparrow hawk, *Falco sparverius dominicensis* Gmelin.

Mammals

Two species of bats which are widely distributed throughout the Greater Antilles and the Virgin Islands, *Noctilio vespertinus mastivus* Dahl and *Mormoops blainvillii* Leach, are the only mammals known from Mona Island (Anthony 1926: 208). They are not common and are found in the numerous caves that occur all over the island.

Wild goats and pigs are abundant on the plateau and together with the large number of scaled and white-headed pigeons present during certain months of the year, constitute an important attraction for sportsmen and hunters from Puerto Rico.

AGRICULTURE

Because of the scant rainfall, poor soil, and great distance from markets, agriculture has never proven practical on Mona Island. A small area on the southwestern coastal plain was once cultivated and it is said that cotton, papayas, and watermelons were successfully produced. Pasturing has been more feasible but has been done only to the extent needed by the few to whom the island was leased in the past.

HISTORICAL RÉSUMÉ

The earliest published records of insects from Mona Island appear to be those of the elaterid *Adelocera rubida* Schwarz and of the phasmid *Lampornius bocki* Brunner and Redtenbacher, described from the island in 1902 and 1908 respectively. Since a German concern was engaged for several years, from the end of the last century to the beginning of the present one, in removing guano from Mona Island, it appears probable that the material from which these two species were described was secured by somebody in the German personnel of that concern, who sent it to museums in his homeland.

Mr. E. G. Smyth and Mr. R. H. Van Zwaluwenburg appear to have been the first entomologists to visit the island and collect insects there, going by sailboat from Mayagüez in December 1913. The few records of insects collected by Smyth at that time on Mona are listed in the accession catalogue of the Agricultural Experiment Station of the University of Puerto Rico at Río Piedras under the numbers 1300 to 1399 in 1913.

Until 1914 when the explorations for the Scientific Survey of Puerto Rico and Virgin Islands, under the combined auspices of the New York Academy of Sciences, the American Museum of Natural History, and the University of Puerto Rico, were initiated, Mona Island was practically unknown and unexplored entomologically. During February 21-26 of that year, a small party of scientists visited the island for the purpose of exploring it

and collecting plants and animals. Dr. Frank E. Lutz, of the American Museum of Natural History, was among the members of that party. During the 5 days he spent on the island he collected rather intensively, contributing much to our present knowledge of the insect fauna of Mona. Many of the new species of insects that have been described from the island have been from the material secured by him on that occasion.

In April 1935 the writer accompanied the late Dr. Stuart T. Danforth on a 3-day trip to Mona Island, primarily for the purpose of studying and collecting birds. A small collection of insects made by him on that occasion is reported in this paper for the first time.

Mr. Francisco Sein Jr. was on Mona Island in August 1926, and Dr. George N. Wolcott visited it by airplane on January 24, 1940, to advise regarding an extensive outbreak of thrips on onions being grown on the coastal plain.

Dr. Luis F. Martorell, now an entomologist of the Agricultural Experiment Station of the University of Puerto Rico, obtained determinations of insects collected on Mona in March 1937, by Mr. M. A. Perez of the Insular Forestry Service. On August 4-7, 1939 and March 29-April 4, 1940, he collected rather intensively there, adding much information about the insects of the island. He is responsible for many of the records from Mona in the accession catalogue of the Agricultural Experiment Station of the University of Puerto Rico for the years 1939 and 1940 as reported by Wolcott 1941: 33-158.

Professor Virgilio Biaggi, Jr., of the Biology Department, College of Agriculture and Mechanic Arts of the University of Puerto Rico, was on an expedition from the Institute of Tropical Agriculture of Mayaguez, Puerto Rico, that visited Mona Island during March 2-7, 1944 for the purpose of collecting plants and animals. Although he was primarily engaged in collecting specimens of birds, reptiles and amphibians, Professor Biaggi was able to make a small collection of insects for the writer during his visit.

On April 4-7, 1944 Dr. George N. Wolcott, Dr. Luis F. Martorell, and Mr. Jorge Serralés, of the Agricultural Experiment Station of the University of Puerto Rico, and the writer visited the island and collected intensively along the western and southwestern coastal plains and on several places on the plateau.

During the summer of the same year, several persons visited Mona and kindly collected insects for the writer, thus adding many species new to his Mona Island collection and much additional data about the island's entomological fauna. They are Messrs. Enrique Huyke and Antonio Ferrer Monge of Mayaguez, Puerto Rico, who spent several days on the island during the latter part of June and July respectively, and Mr. Harry A. Beatty of St. Croix, Virgin Islands, who stayed on the island from August

11 to August 31 and who collected at Sardinera and Uvero Beaches and all over the plateau.

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Mr. Luis A. Izquierdo, Commissioner of Agriculture and Commerce of Puerto Rico, kindly furnished the writer with information on the climate, topography, soil, etc., and a map of Mona Island.

The writer is much obliged to all these persons and he wishes to express to everyone of them his deepest gratefulness and indebtedness for their generous cooperation.

SYSTEMATIC ACCOUNT OF THE INSECTS

Order THYSANURA

Family LEPISMATIDAE

Five specimens of an undetermined lepismatid were taken under dead leaves near the cliff at Sardinera Beach, August 11-31, 1944.

Order COLLEMBOLA
Family ENTOMOBRYIDAE

Lepidocyrtinus sp.

Det. Grace E. Glance

Numerous specimens collected under stones, near Sardinera Beach, March 6, 1944.

Order ORTHOPTERA

Dr. B. B. Fulton, Department of Zoology and Entomology, North Carolina State College of Agriculture and Engineering, kindly determined or confirmed the writer's determinations of the Orthoptera obtained from Mona Island.

Family BLATTIDAE

Aglaopteryx devia Rehn

Reported from Mona Island by Rehn and Hebard 1927: 7-8 as *A. diaphana* Fabricius, which, according to Guerney 1937: 104, is a Cuban species that does not occur in the Puerto Rican region.

Blattella germanica Linnaeus

Wolcott 1941: 49 reports this species as a pest in houses, August 5, 1939 and March 30, 1940. Not observed by the writer during his trip to the island in April 2-7, 1944.

Symploce flagellata Hebard

Described by Hebard 1916: 367 from Desecheo and Mona Islands. Two of the paratypes were collected on Mona by F. E. Lutz on February 21 and 24, 1914. Rehn and Hebard 1927: 136 remark that this species "does not occur in the island of Puerto Rico itself".

Symploce bicolor Palisot de Beauvois

In houses, Sardinera Beach, March 29, 1940 (Wolcott 1941: 39).

Symploce bilabiata R. & H.

Determined A. B. Gurney.

Collected by Harry A. Beatty, Aug. 21, 1944

Pelmatosilpha coriacea Rehn

First recorded from Mona Island by Rehn and Hebard 1927: 149, who mention a male specimen taken on the island on February 24, 1914 by F. E. Lutz. Wolcott 1941: 40 records specimens taken under guava leaves and under the bark of a dead tree at Sardinera Beach, August 6, 1939.

The writer collected one specimen in the same locality under the bark of a dead tree, April 4, 1944. He also has specimens taken at Uvero Beach on August 11-31, 1944.

Periplaneta americana Linnaeus

The writer has specimens taken in houses at Sardinera Beach, August 11-31, 1944, when the species was found rather abundant.

Periplaneta australasiae Fabricius

This species was found common in houses at Sardinera Beach on August 11-31, 1944.

Epilampra mona Rehn and Hebard

Rehn and Hebard 1927: 216-218 described this species from a single female specimen collected on *Tillandsia utriculata* L. at Sardinera Beach on February 24, 1914 by F. E. Lutz. The writer collected one specimen under the bark of a dead tree at the same locality on April 4, 1944.

Pycnoscelus surinamensis Linnaeus

Rehn and Hebard 1927: 245 report specimens taken under wood at Sardinera Beach on February 21-26 by F. E. Lutz. Wolcott 1941: 32 records specimens under stones at Camp Cofresí, August 7, 1939. The writer has two specimens from Uvero Beach, August 11-31, 1944.

Family MANTIDAE

Callimantis antillarum Saussure

Wolcott 1941: 40 gives 3 records for this species from the island (Acc. Nos. 14-37; 53-40 and 252-40). The writer collected numerous nymphs and adults at Sardinera Beach and Uvero Beach by sweeping over shrubbery and weeds, April 4-6, 1944. He has other specimens taken July 20 and August 11-31, 1944.

Family PHASMIDAE

Lampomius bocki Brunner and Redtenbacher

Described from Mona by Brunner and Redtenbacher 1908: 357.

Aplopus sp.

Reported by Wolcott 1941: 40 (Acc. No. 16-37).

Family TETTIGIDAE

Paratettix frey-gessneri Bolivar

Numerous specimens were taken by the writer at Uvero Beach, April 1935.

Family KALOTERMITIDAE

Kaloterмес mona Banks

Banks 1919: 478 described this species from Mona Island from soldiers taken there on February 21, 1914.

Several soldiers and nymphs and a single dealate were collected by the writer on a dead branch of a living tree of *Melicocca bijuga* L. at Uvero Beach, April 5, 1944. Martorell also secured soldiers and a single alate on the same occasion. The writer's specimens were compared by Professor Emerson to a paratype in his collection and made topotypes by him. His determination is accompanied by the following remarks: "The collections mentioned above are all that are known of this species. So far no record has been obtained from any other locality than Mona Island. The species is quite distinct from all other described species, possibly being closer to *K. jouteli* Banks than to any other species. The imago caste has not been described."

Kaloterмес snyderi Light

Wolcott 1941: 41 reports this species in "sanguinaria" tree, August 8, 1939. Martorell recorded it attacking the following trees: *Dipholis salicifolia*, *Metopium toxiferum*, *Elaphrium Simaruba*, *Amyris elemifera*, *Coccolobis wifera*, *Canella Winteriana*, *Pithecollobium Unguis-cati* and *Gymanthes lucida* on April 1, 1940 (Acc. No. 296-40). Wolcott noted the species, April 5, 1944, on *Coccolobis laurifolia*, *Coccolobis wifera*, *Conocarpus erecta*, *Rawolfia nitida* and *Metopium toxiferum* (Acc. No. 45-44).

Kaloterмес incisus Silvestri

One soldier taken on July 21 and alates, soldiers and nymphs on August 11-31, 1944.

In giving his determination, Professor Emerson states: "I am not completely confident of the determination of this species. Silvestri described *K. incisus* from St. Jean, Venezuela, in 1903. The type is supposed to be in Copenhagen and has not been redescribed. The original description is not exact enough to be sure of the identity of the specimens before me. I have a fair number of alates and soldiers which are the same as the Mona Island specimens from St. Croix and Barbados. I have named these specimens *K. incisus* with some doubt. I also have a single alate from Caracas, Venezuela, which has a slightly smaller eye and may be a different species. I am thus unable to make accurate determinations until the type specimen has been examined or further collections have been made near the type locality".

Procryptotermes corniceps Snyder

Alates, one soldier, and nymphs, March 1; alates at light, Sardinera

Beach, April 7 and June 29; alates and nymphs from an old stump, Uvero Beach, August 11-31, 1944.

Professor Emerson's determination of this species is accompanied by the following remarks: "This species was described by Snyder in 1923 from 2 dealates and 2 soldiers from Boqueron-Salinas, Porto Rico. No further material has been collected since that time. I have one dealate and one soldier paratype in my collection with which I compared your specimens. The cotype soldier has a sharper ridge between the vertex and front which I assume to be within the expected variation but more extensive collections must be made before the significance of this variation can be determined. Snyder placed the species originally in *Glyptotermes* and later (1925) placed it in *Calcaritermes*. I have no hesitation in placing it in the genus *Procryptotermes* on the basis of both soldier and alate characters. The wings, which Snyder did not see, are of the *Cryptotermes* and *Procryptotermes* type and definitely different from the *Glyptotermes* and *Calcaritermes* type. The dentation of the imago mandible is also of the *Cryptotermes* and *Procryptotermes* type. The soldier is a more generalized type than found in *Cryptotermes*. The genus *Procryptotermes* was originally described from species from Madagascar and Aldabra. However, I have been determining both old species and new species as *Procryptotermes* for several years from various parts of the world including a number of New World species. One species very closely related to *P. cronicaps* is found in Jamaica, but has not yet been described."

Order NEUROPTERA

Mr. Nathan Banks, Museum of Comparative Zoology, Harvard College, kindly determined all the specimens of Neuroptera from Mona Island in the author's collection.

Family CHRYSOPIDAE

Chrysopa thoracica Walker

This seems to be the most common chrysopid in the island. Martorell collected one specimen on the plateau, March 29, 1940 (Acc. No. 287-40), and the writer found it very abundantly at light at Sardinera Beach on April 7, 1944. Numerous specimens were also taken at light on June 29 and July 22 at Sardinera Beach.

Chrysopa transversa Walker

This species is known only from 2 specimens collected at light at Sardinera Beach on April 7, 1944.

Chrysopa damiensis Smith

A single specimen of this species was collected at light, Sardinera Beach, March 4, 1944.

Nodita haitiensis Smith

A specimen of this species collected on the island on April 1935, and determined by Mr. Nathan Banks, is deposited in the collection of the College of Agriculture at Mayaguez, Puerto Rico.

Family MYRMELEONIDAE

Psammoleon bistictus Hagen

Wolcott 1941: 47 reports this antlion common at light at Sardinera Beach on August 5-6, 1939 and April 1, 1940.

Psammoleon minora Banks

There are four specimens of this species in the author's collection labeled Sardinera Beach, July 29, 1944.

Myrmeleon insertus Hagen

The writer found this species rather common at light at Sardinera Beach on April 4-7, 1944. Numerous larvae, presumably of this species, were also found in loose dry sand in many places at the same locality.

Family ASCALAPHIDAE

Ululodes opposita Banks

Martorell collected specimens of this beautiful ascalaphid at Sardinera Beach on August 6, 1939 (Wolcott 1941: 48). The species is represented in the writer's collection by two specimens swept from shrubbery at Uvero Beach, August 11-31, 1944.

Order ODONATA

Family LIBELLULIDAE

Orthemis ferruginea Fabricius

Klots 1932: 7 records this species from Mona Island without date. Wolcott 1941: 47 reports the species common at Sardinera, March 30, 1940.

Erythrodiplax umbrata Linnaeus

Wolcott 1941: 47 reports specimens taken at Sardinera on August 6, 1939 and April 1, 1940.

Tramea abdominalis Rambur

Recorded from the island by Klots 1932: 7 without definite locality or date.

Leptemis vesiculosa Fabricius

Several specimens observed at Sardinera on April 4-7, and August 11-31, 1944, but none collected.

Family COENAGRIONIDAE

Enallagma civile Hagen

Reported by Wolcott 1941: 47 from Sardinera, April 1, 1940.

Order MALLOPHAGA

Family PHILOPTERIDAE

Esthiotermum gracilicornis major Kellog

Wolcott 1941: 46 reports this species from man-o'-war bird, *Fregata magnificens rothschildi* Mathews (Acc. No. 388-39).

Order THYSANOPTERA

Family THIRIPIDAE

Thrips tabaci Lindeman

This important and injurious species, commonly known as the onion thrips, is the only member of the order Thysanoptera so far recorded from Mona Island. Wolcott 1941: 49 reports it attacking onions planted at Camp Cofresí (Acc. No. 29-40) in 1940.

Order HOMOPTERA

Family MEMBRACIDAE

Paradarnoides danforthi, n. sp. Figs. 1, 2, 3, and 4.

Head very broad and short, nearly concealed from above by pronotum, rugose, covered with abundant golden pubescence, fuscous, becoming paler on upper margin, lateral border at base of eyes, apical portion of post-clypeus, and outer margin of lorae; eyes large and prominent, testaceous, with a reddish rim near base; ocelli conspicuous, widely separated, closer to eyes than to each other, testaceous, flat in front; antennae placed in a large cavity directly below ocelli, testaceous, flagellum infuscated at base. Pronotum testaceous, rather closely and evenly ferrugineous-punctate, sides of metopidium, directly behind eyes, depressed, each with a large fuscous, rugged patch; median carina conspicuous throughout its entire length and decidedly more elevated on posterior process; lateral carinae running from shoulders to apex of posterior process, also conspicuously raised; shoulders set far back from eyes, obtusely prominent, width across them equal to that of head; posterior process gradually narrowed from shoulders to apex, with a slight sinuation near middle, tip distinctly surpassing abdomen. Tegmina hyaline, with base brownish and punctured, veins brown, outer ones with short, curved hairs. Underside fuscous, pubescent. Abdomen light yellow, tip infuscated; legs testa-

ceous, densely clothed with whitish long pubescence; anterior and middle femora and tibiae somewhat infuscated on anterior surface, tarsi fuscous.

Length including tegmina, 4.67 mm.; width across shoulders, 2.0 mm.

Type, male, Mona Island, June 29, 1944.

The genus *Paradarnoides* Fowler includes two other species, *severini* Fowler and *ignipes* Fowler, described from Guadeloupe in the Lesser Antilles (Fowler 1894: 423). The Mona Island species differs from these in its smaller size and different color.

The writer takes great pleasure in dedicating this species to the late Dr. Stuart T. Danforth, who was his close friend and constant teacher for many years.

Family BYTHOSCOPIIDAE

Agallia albidula Uhler

Reported by Wolcott 1941: 50 on weeds at Sardinera, March 30, 1940. The writer has specimens swept from weeds at Sardinera Beach, April 4 and from *Pluchea purpurascens* at Uvero, April 5, 1944.

Family CICADELLIDAE

Hortensia similis Walker

A single specimen taken at light, Sardinera Beach, March 3, 1944.

Poeciloscarta histrio Fabricius

Wolcott 1941: 51 reports this species on castor bean at Rancho Grande, August 8, 1939, and abundant on grasses and at light (as *Cicadella sirena* Stål, a Mexican species), Sardinera Beach, March 30, 1940. The writer has specimens swept from weeds at Sardinera, March 1, and July 19, 1944.

Family JASSIDAE

Platymetopius loricatus Van Duzee

Specimens swept from shrubbery at Uvero, April 7, 1944.

Deltocephalus maculellus Osborn

One specimen swept from weeds, Uvero Beach, March 3, 1944.

Thamnotettix colonus Uhler

Specimens swept from weeds, Uvero Beach, March 3, 1944.

Thamnotettix cubanus Ball

A single specimen taken on weeds, Uvero Beach, March 3, 1944.

Chlorotettix tethys Van Duzee

Three specimens taken at light, Sardinera Beach, April 4-5, 1944.

Nesosteles guajanae DeLong

Specimens swept from weeds at Sardinera Beach, March 3, 1944.

Family EUPTERYGIDAE

Hybla maculata McAtee

Wolcott 1941: 53 reports this species abundant under the leaves of an unspecified plant at Sardinera Beach, March 31, 1940.

Family CIXIIDAE

Oliarus franciscanus Stål

Reported by Wolcott 1941: 53 (as *O. complectus* Ball) on weeds at Sardinera Beach, March 30, 1940. The writer collected a single specimen by sweeping on weeds at Uvero, April 4, 1944.

Family ARAEOPIDAE

Liburnia furcifera Horváth

A single specimen taken at light, Sardinera Beach, March 3, 1944.

Family KINNARIDAE

Paraprosopotropis, n. gen. Figs. 5, 6, 7, 8, and 9.

Head, across eyes, about three-fifths width of pronotum. Vertex a little longer than wide, expanding basad; base about one and a half times width of vertex at narrowest point, angularly emarginate, with a conspicuous marginal carina; median and lateral carinae well-developed, running down to apex of frons. Frons almost one and a half times longer than wide, base about half as wide as apex, sides gradually expanding for about four-fifths from base, then slightly converging towards apical margin, which is nearly straight; median and lateral carinae prominent. Clypeus about as wide as long, base slightly but distinctly narrower than frons at widest part, sides converging acutely to apex; median carina very prominent, somewhat wider than that of frons, lateral carinae also well developed; surface slightly concave. Antennae with basal segment very short, second segment stout, decidedly longer than broad; flagellum about $3\frac{1}{2}$ times longer than second segment. Eyes deeply emarginate ventrally above antenna. Pronotum one and a half times longer than vertex, anterior margin sinuate behind eyes, then smoothly curving posteriorly, posterior border nearly straight, curving anteriorly at sides; tricarinate on disc, all 3 carinae well developed, lateral ones diverging towards apex; each lateral margin with a conspicuous carina running from eye to tegula. Mesonotum very deeply and conspicuously depressed on disc, the concavity bordered on sides by nearly straight, strongly elevated submarginal carinae, which converge towards apex, meeting on a rounded tip; lateral margins depressed, evenly rounded posteriorly; tip of scutellum rounded. Hind tibiae unarmed. Pregenital plate roughly trapezoidal, about as wide as long, basal border concavely curved, sides widening to about two-fifths from base, then gradually tapering posteriorly, angles obtusely rounded, surface with a shallow

depression on basal half and two smaller ones on apical half, at sides with short, scattered hairs.

Tegmina with sides expanding apically for about three-fifths of length nearly symmetrically rounded at tip, length a little over two times greatest width; margin completely bordered, border widened below stigma, where it is also transversely rugose. Costal cell wide, feebly expanding toward apex; Sc and R joined to stigma; basal cell small, elongate; 7 apical cells; first trapezoidal, with inner side concavely curved, large; second trapezoidal; third smaller, triangular; fourth elongate, rectangular, medio-apical; fifth triangular, subequal to third; sixth and seventh pentagonal, the latter with upper inner side slightly concavely curved, and with one angle touching tip of clavus. Four small ante-apical cells, three with sides curved.

Anal segment of male bifid; aedeagus with 2 sclerotized rods and a pair of dorso-lateral spine-like processes; genital styles with a lateral eminence.

Genotype *Paraprosotropsis monensis*, n. sp.

This genus is closely related in many ways to *Prosotropsis* Uhler, from the Lesser Antilles. *Paraprosotropsis* differs from this and from all other described genera of West Indian Kinnaridae in several ways, principally in having the disc of the mesonotum depressed, and in possessing 4 ante-apical cells in the tegmina.

***Paraprosotropsis monensis*, n. sp.** Figs. 5, 6, 7, 8, and 9.

Vertex pale yellow, with posterior median region orange chrome; frons pale stramineous, a large orange chrome patch occupying most of upper area and gradually narrowing apically along sides of median carina; clypeus deep orange; eyes whitish, a small spot on upper inner region and emargination purplish; second joint of antennae pale yellow. Pronotum pale stramineous, a wide band of dark orange on basal half not reaching sides. Mesonotum dark orange on basal half, apical half very pale stramineous. Scutellum dark orange, tip pale stramineous. Tegmina hyaline with 2 fuscous spots at base of clavus, first largest, second very small; 3 on costal area, middle one very large; an oblique fuscous band from base of seventh apical cell to base of first; a small fuscous spot between the first and second apical cells, on the border and another similarly placed between the sixth and seventh apical cells; and a large fuscous patch on the apical border; veins fuscous. Entire abdomen dark orange, edges of last 2 segments and anal segment very pale stramineous. Subgenital plate pale orange, narrowly infuscated on the edges and very faintly so on apical third. Legs pale stramineous, femora infuscated on the edges and very slightly so on apical half.

Anal segment of male very large, curving inwardly at apex which is forked; aedeagus short and broad, slightly curved upward; genital style

irregularly sinuate on dorsal margin which is also setose, ending in a short, obtuse, upwardly curved hook; lateral eminence large, with a deep sinus on upper margin which is setose, terminating in a rounded point.

Length, female .94 mm.; tegmen 1.40 mm.; male .88 mm.; tegmen 1.31 mm.

Holotype, female, Mona Island, August 11-31, 1944.

Allotype, male, Mona Island, April 7, 1944.

Family TROPIDUCHIDAE

Neurotmeta viridis Walker

Wolcott 1941: 53 records one specimen at light at Sardinera Beach, March 29, 1940. The writer has numerous specimens collected from weeds at Uvero Beach, April 5 and June 29, 1944.

Family FLATIDAE

Petrusa marginata Brunnich. Figs. 18 and 19.

Wolcott 1941: 53 records the dark form of this species (as *Ormenis marginata* Brunnich) on *Coccolobis wifera*, *Coccolobis laurifolia*, and *Lantana*, and at light at Sardinera Beach, Camp Cofresí and Uvero Beach, August 5-7, 1939. He gives the same records for the pale form which he reports as *O. pygmaea* Fabricius. The writer has numerous specimens of both forms collected by sweeping on weeds at Uvero and Sardinera Beaches, March 4 and April 4-7, 1944.

The writer is following Fennah 1941: 193-195 and others, who regard *marginata* and *pygmaea* as a single species since both forms merge in coloration and have very similar genitalia.

Melormenis antillarum Kirkaldy

Recorded by Wolcott 1941: 53 (as *Ormenis quadripunctata* Fabricius) on *Coccolobis wifera* at Playa de Pájaros, August 8, 1939. The writer has specimens swept from weeds at Uvero, April 7, 1944. The internal male genitalia are shown in figs. 14 and 17.

Flatoidinus pseudopunctatus, n. sp. Figs. 10, 11, 12, 13, and 15.

Head much narrower than pronotum. Vertex about two times as wide as length at middle, obtusely pointed anteriorly; lateral margins slightly arcuate; surface flat, with a T-shaped furrow on disc. Frons one and a quarter times longer than greatest width; base as wide as apex, obtusely pointed; sides evenly arcuate, with a prominent, elevated marginal carina becoming obsolete apically; apical margin straight; surface gradually curved downward, slightly depressed on median apical half and conspicuously tumid on median basal portion. Clypeus longer than width at base (1.4 to 1); sides converging apically and nearly straight; surface convex.

Pronotum slightly longer than vertex; a strongly elevated marginal carina on sides, behind eyes; hind border deeply and evenly emarginate; two large punctures on disc. Mesonotum very large; length at middle about equal to greatest width; front margin acutely rounded; hind margin gradually narrowing into an obtuse point, tip slightly raised; surface convex, disc slightly depressed. Tegmina long and broad, a little over two and a quarter times longer than wide; apical border broadly rounded; costal membrane almost reaching apex, about two times broader than costal cell, gradually narrowing posteriorly, with numerous transverse veins; 3 irregular sub-apical lines, not reaching costal margin. Front tibiae grooved on outer side, distally enlarged, with 3 ante-apical spines; middle and posterior tibiae trilateral.

General color yellowish-brown, underparts lighter; frons infuscated basally; mesonotum fuscous brown; tegmina slightly infuscated apically and along outer border of clavus; wings smoky-hyaline. Vertex with a narrow, longitudinally elongate fuscous spot on each side of median line; pronotum with the two fuscous punctures on disc and several fuscous spots behind eye; mesonotum and tegmina with scattered small fuscous markings.

Length to apex of tegmina, male, 8.43 mm.; female 8.23 mm.

Holotype, male, swept from weeds, Sardinera Beach, Mona Island, April 4, 1944.

Allotype, female, swept from weeds, Sardinera Beach, Mona Island, April 7, 1944.

Paratypes, 4 males, Mona Island, April 4-5, 1944.

The records given by Wolcott 1941: 53 under *Flatoides punctatus* Walker, an entirely different flatid, should be referred to this species. He reported specimens taken at light, Camp Cofresí, August 6, 1939, on *Coccolobis wifera*, *Coccolobis laurifolia*, and casuarina pines, August 6-7, 1939, and on "corcho" and "alelí" on the plateau, April 1, 1940.

Family ACANALONIIDAE

Acanalonia brevifrons Muir

One specimen swept from weeds on the plateau, June 29, 1944.

Acanalonia pumila Van Duzee

The writer found nymphs and adults of this species exceedingly abundant on *Mallotonia gnaphaloides* at Sardinera Beach, April 4, 1944.

Family ISSIDAE

Colpoptera maculata Dozier

Wolcott 1941: 53 reports one specimen collected at Sardinera Beach, March 30, 1940.

Colpoptera flavifrons Osborn

The writer has numerous specimens swept from weeds at Sardinera and Uvero Beaches, March 4 and April 7, 1944. The male genitalia are shown in fig. 16.

Family CHERMIDAE

Ceropsylla sideroxyli Riley

Listed from Mona by Wolcott 1941: 54, on *Sideroxylon foetidissimum*.

Family APHIDIDAE

Aphis gossypii Glover

Wolcott 1941: 54 reports heavy infestations of watermelons by this aphid at Rancho Grande, March 31, 1940.

Macrosiphum ambrosiae Thomas

Martorell found this aphid on the leaves and branches of *Salvia splendens* which undoubtedly is an error for *Pluchea purpurascens* ("salvia" in Spanish) since that plant is not found in Mona. The author found the species on the tender leaves and stems of *Pluchea* at Sardinera and Uvero Beaches on April 5, 1944.

Family ALEYRODIDAE

Aleurothrixus floccosus Maskell

Wolcott found this species under the leaves of *Coccolobis wifera* at Uvero Beach, April 7, 1944.

Family COCCIDAE

Icerya purchasi Maskell

Introduced into the island probably in the Australian pines planted by the Forestry Service at Sardinera Beach. First reported by Wolcott 1939: 33. Martorell observed a heavy infestation of the scale on casuarina pines and cultivated eggplants at Camp Cofresí and Rancho Grande Sardinera Beach, August 5, 1939 (Wolcott 1941: 56). The writer observed very few scales on the casuarina pines during his trip of April 4-7, 1944.

Ceroplastes sp.

A single, very large specimen, white and slightly pinkish, determined by Dr. G. N. Wolcott as a species of *Ceroplastes*, was collected by him on a leaf of *Coccolobis wifera* at Uvero Beach, April 5, 1944.

Coccus viridis Green

Recorded by Wolcott 1941: 59 at Sardinera Beach on eggplants, *Terminalia Catappa*, *Coccolobis wifera* and *C. laurifolia*, August 5-6, 1939.

The author found this species at the same locality on April 5, 1944 on the tender stems of *Rawolfia nitida*, attended by *Solenopsis geminata*.

Saissetia oleae Bernard

Wolcott 1941: 60 reports this scale insect, attended by *Solenopsis geminata*, infesting the leaves of *Terminalia Catappa* at Sardinera Beach August 6, 1939. The author noted the species on the stems of wild cotton at Uvero Beach, April 5, 1944.

Pseudaulacaspis pentagona Targioni

Very scarce during the writer's trip to the island in April, 1944. The accidental occurrence of *Chilocorus cacti* on Mona is held responsible for the scarcity of this and other scale insects on the island by Wolcott 1941: 451-452.

Pinnaspis minor Maskell

Observed on cultivated eggplants at Rancho Grande, attended by *Solenopsis geminata*, August 8, (Acc. No. 119-39) and on mahogany at Camp Cofresí, August 6, 1939 (Acc. No. 120-39). Not very abundant but present on numerous plants, April 5, 1944 (Acc. No. 44-44).

Aspidiotus destructor Signoret

Wolcott 1941: 61 reports this scale abundant on *Barringtonia asiatica* and on cocoanuts at Sardinera Beach, August 5, and on the fruits and leaves of the first host at Playa de Pájaros, August 7, 1939. The writer observed the species heavily infesting the leaves of *Barringtonia* at Sardinera Beach April 7, 1944, and also noted *Chilocorus cacti* feeding on them.

Pseudoparlatoria ostreata Cockerell

Wolcott 1941: 62 records this scale on the stems of wild papayas all over the island. During the writer's trip in April, 1944, the scale was very scarce, and was noted only on one occasion on which larvae and pupae of *Chilocorus* were also present.

Order HEMIPTERA

The writer is responsible for most of the determinations in this order.

Family NOTONECTIDAE

Buenoa femoralis Fieber

The only record of this species from Mona Island is that reported by Barber 1939: 421 based on specimens collected by F. E. Lutz on February 21-26, 1914.

Buenoa pallipes Fabricius

This is another species known only from the island by specimens collected by F. E. Lutz on February 21-26, 1914 and reported by Barber 1939: 421.

Family CORIXIDAE

Trichocorixa verticalis Fieber

Det. R. I. Sailer

Found abundantly in several small ponds of stagnant water along Sardinera Beach, April 6 and August 11-31, 1944. This is a North American species which has not been found yet in Puerto Rico itself. It can be easily recognized from other species by its robust form and the large frontal depression of the males.

Family VELIIDAE

Microvelia robusta Uhler

First recorded from the island by Barber 1939: 411 from specimens collected by F. E. Lutz on February 21-26, 1914. Numerous apterous and winged specimens were taken from a small pool at the airfield on April 6, 1944.

Family GERRIDAE

Limnogonus franciscanus Stål

This is a common species in Puerto Rico and other West Indian islands. It was first reported from Mona Island by Barber 1939: 408 (February 21-26, 1914; F. E. Lutz). Wolcott 1941: 65 reports it as common in a pool and cistern at Sardinera Beach, August 5, 1939 and March 31, 1940. Several specimens were collected by the author in a pool at the same locality on April 4-7, 1944.

Family MIRIDAE

Pycnoderes quadrimaculatus Guérin

Martorell recorded this species on field beans at Sardinera Beach on August 6, 1939 (Acc. No. 171-39). A single specimen in the writer's collection was collected at light at Sardinera Beach on April 5, 1944.

Lygus apicalis Fieber

Wolcott 1941: 66 reports specimens collected at light (Acc. No. 377-39).

Polymerus cuneatus Distant

Several specimens were collected by the writer by sweeping on weeds at Uvero Beach, April 4, 1944.

Creontiades rubrinervis Stål

A single specimen swept from weeds at Uvero Beach, April 4, 1944; others taken at Sardinera on June 29, 1944.

Family ANTHOCORIDAE

Cardiastethus rugicollis Champion

Several specimens taken by sweeping on weeds, Sardinera Beach, April 4-6, 1944.

Asthenidea picta Uhler

Det. R. I. Sailer

Two specimens swept from herbage, Uvero Beach, August 11-31, 1944.

Xylocoris sordidus Reuter

Known from Mona Island only from specimens collected by F. E. Lutz on February 21-26, 1914 and reported by Barber 1939: 401.

Family CIMICIDAE

Cimex hemipterus Fabricius

The common tropical bedbug was observed by Martorell on beds at Camaguey, Cofresí on March 28, 1940 and reported by Wolcott 1941: 67.

Family NABIDAE

Nabis capsicornis Germar

This cosmopolitan species is represented in the writer's collection of Mona Island insects by a single specimen taken by sweeping on herbage at Uvero Beach, August 11-31, 1944.

Family REDUVIIDAE

Zelus longipes Linnaeus

This species, although one of the most abundant reduviids in Puerto Rico, is rather uncommon in Mona Island. A single specimen in the collection of the College of Agriculture at Mayaguez, Puerto Rico is dated April 5, 1935. Wolcott 1941: 68 records one specimen feeding on *Cycloneda sanguinea* on August 5-7, 1939. There is another specimen in the author's collection, taken from weeds at Sardinera Beach, August 11-31, 1944.

Family PHYMATIDAE

Macrocephalus sp.

A single nymph collected on weeds at Sardinera, August 11-31, 1944, has been placed in this genus because the characters of the antennae and front legs.

Family TINGIDAE

Corythucha gossypii Fabricius

Recorded by Wolcott 1941: 71 on castor bean, August 8, 1939. The writer found it common at Sardinera, April 4, 1944, all stages infesting the undersides of the leaves of *Capparis flexuosa* and *Ricinus communis*.

Teleonemia prolixa Stål

Several specimens taken from weeds at Uvero Beach, April 5, and August 11-31, 1944, agree with specimens of *T. prolixa* from Puerto Rico, determined by H. G. Barber.

Family PYRRHOCORIDAE

Dysdercus andreae Linnaeus

Known only from specimens taken on February 21-26, 1914 by F. E. Lutz and reported by Barber 1939: 336.

Family LYGAEIDAE

Oncopeltus aulicus Fabricius

Recorded by Wolcott 1941: 73 on *Ricinus* at Rancho Grande, August 1939, and on blossoms of *Colubrina colubrina*, *Moringa moringa*, and *Pisonia albida* at the same locality on March 31, 1940. Not collected by the writer.

Oncopeltus semilimbatus Stål

Barber 1939: 336 lists a specimen in the American Museum of Natural History collected on the island on November 10, 1919. The writer has specimens swept from weeds at Uvero Beach on the following dates: April 1935; July 19 and August 11-31, 1944.

This species is very closely related to the above but, as pointed out by Barber 1939: 336, it can be readily separated from it by the difference in coloration. In *aulicus* the entire lateral margins of the pronotum and the tip of the scutellum are red; the premedian white discal spot of the membrane is reduced to a narrow white line; and the apical and outer margins of the membrane are narrowly white. In *semilimbatus* the black area of the pronotum is extended to the lateral margins so that they are not entirely red; the tip of the scutellum is black; the premedian white discal spot of the membrane is narrowly whitish.

Although recorded from other of the Greater Antilles and Mona Island, this species has not yet been reported from Puerto Rico itself.

Lygaeus (Craspeduchus) pulchellus Fabricius

This is the most common *Lygaeus* in the island. Barber 1939: 337 reports specimens collected on February 21-26, 1914 and on April 6, 1924.

The writer found it abundantly on several weeds on April 4-6, 1944. He has also numerous specimens dated March and August 11-31, 1944.

Lygaeus (Ochrimnus) collaris Fabricius

This species is not common in the island. Wolcott 1941: 72 records it on flowers of *Pisonia albida* on April 2, 1940. The writer collected a single specimen by sweeping on weeds, April 4, 1944.

Lygaeus (Melanocoryphus) albonotatus Barber

This small and interesting species was described by Barber 1923: 2 from a single specimen collected on February 24, 1914. This unique specimen is deposited in the American Museum of Natural History. The writer was not able to collect this species during his trips to the island in spite of very diligent search for it.

Nysius ericae Schilling

This widely distributed species was first collected on the island on February 21-26, 1914 by H. E. Crampton. This record is reported by Barber 1939: 342. The writer has specimens dated April 1935 and July 20, 1944.

Nysius inaequalis Uhler

Barber 1939: 341 reports specimens collected by Crampton on February 22, 1914. The writer has a single specimen collected by him from herbage on April 1935.

Nysius strigosus Uhler

Known only from specimens collected on the island on February 21-26, 1914 by F. E. Lutz and reported by Barber 1939: 342.

Ischnorhynchus championi Distant

Collected by H. E. Crampton, February 15, 1914, as reported by Barber 1939: 344. The writer found it exceedingly abundant at Sardinera and Uvero Beaches, April 4-7, 1944, where he obtained numerous specimens by sweeping on shrubbery and low herbage.

Blissus leucopterus Say

First recorded from Mona by Barber 1939: 345 from specimens taken by Crampton on February 22, 1914. Wolcott 1941: 73 lists this species from grasses at Rancho Grande, August 7-8, 1939.

Geocoris thoracicus Fieber

One specimen secured by sweeping on weeds on the plateau, July 20, 1944. A second specimen was taken in the same way at Uvero Beach August 11-31, 1944.

Pachygrontha parvula Barber

This species was described by Barber 1923: 4 from a single male collected on the island on February, 1914. This specimen is in the collection of the American Museum of Natural History.

Paromius longulus Dallas

Known from Mona only by the specimens collected there by F. E. Lutz on February 21-26, 1914 and reported by Barber 1939: 350.

Pachybrachius vinctus Say

Collected by F. E. Lutz on February 21-26, 1914 (Barber 1939: 353). Three specimens in the author's collection were taken on weeds at Sardinera Beach, August 11-31, 1944.

Pachybrachius scutellatus Dallas

The following specimens in the author's collection were secured from Mona Island: April 1935 (Det. H. G. Barber); April 7, 1944 (at light); August 11-31, 1944 (swept from weeds).

Heraeus guttatus Dallas

Two specimens were collected at light, Sardinera Beach, April 5, 1944. This species was previously known from Puerto Rico only by a single specimen collected at Isabela, April 24, 1930.

Ozophora atropicta Barber

Numerous specimens taken at light, Sardinera Beach, April 4-7, 1944.

Ozophora octomaculata, n. sp. Fig. 20.

Head black, with numerous short, appressed, whitish hairs on anterior dorsal surface, dorsal median area and undersurface; with 10 long setae between eyes and several shorter ones at tip of tylus; tylus ferrugineous; eyes with a reddish tinge principally around base; ocelli bright red; antennae with basal segment ferrugineous, segments II and III stramineous, and terminal one brownish; rostrum ferrugineous. Pronotum black, with 8 conspicuous, yellowish-orange, calloused spots placed as follows: 2 small, transversely elongated ones on collar; 4 larger and rounded ones equidistantly placed on disc of posterior lobe, lower ones reaching hind border of pronotum; and 2 largest ones on humerals. Scutellum black, with 2 submarginal inconspicuous, yellowish spots on disc parallel to sides; tip white. Hemelytra fuscous, with commissure, narrow costal margin, and radius yellowish-white, and with claval suture, claval vein and media, brownish-white; membrane smoky brown, with veins, inner basal angle, and broad apical margin whitish. Underparts black; venter with castan-

eous tinge and with numerous long hairs principally on hind border of last segments. Femora ferrugineous; tibiae and tarsi stramineous.

Head wider than long (.96 x .86 mm.). Length of antennal segments as follows: I, .53; II, 1.53; III, 1.10; IV, 1.60 mm. Rostrum extending to hind border of first visible abdominal segment; length of segments as follows: I, .90; II, 1.03; III, .73; and IV, .43 mm. Pronotum about one-third shorter than wide (1.10 x 1.56 mm.); anterior lobe slightly shorter than posterior lobe; disc of anterior lobe smooth except for a few very fine and inconspicuous punctures on median region and on sides; posterior lobe deeply and rather closely punctate except for calloused spots on humeral angles and on disc. Scutellum a little longer than wide (.83 x .76 mm.), much shorter than pronotum but distinctly longer than commissure; disc shallowly but distinctly sunken, rather deeply and closely punctate; region surrounding submarginal calloused spots impunctate; lateral submargins depressed, with 2 rows of close punctures. Hemelytra with costal margin very slightly concavely sinuate about one-third away from base; clavus with 6 rows of close punctures; corium also rather closely punctate along the subcostal area and along the borders of the veins. Anterior femora swollen, with 5 spines below on apical half. Length 5.60 mm.; width across humerals 1.56 mm.

Holotype, male, collected at light, Sardinera Beach, Mona Island, April 4, 1944.

Paratypes, 7 males and 2 females with same data as type; 6 males and 2 females, some data as type but April 5; and 2 males and 2 females, same data as type but April 7.

This species resembles *O. subimpicta* Barber and *O. quinquemaculata* Barber in size and shape but it can be readily distinguished from them by the 8 conspicuous yellowish-orange spots on the pronotum which give the species its name.

Paragonatas divergens Distant

A single specimen taken at light, Sardinera Beach, March 5, 1944.

Family NEIDIDAE

Jalysus reductus Barber

This small stilt bug was described by Barber 1939: 331 from numerous specimens from the West Indies and Central America. The type, a male deposited in the American Museum of Natural History, was collected on Mona Island, February 21-26, 1914, by F. E. Lutz.

Family COREIDAE

Phthia picta Drury

Collected by Martorell on eggplants at Rancho Grande, August 8, 1939 (Wolcott 1941: 75).

Catorhintha guttula Fabricius

This is a rather common species in Mona. F. E. Lutz collected it on February 21-26, 1914 (Barber 1939: 318). In the author's collection there are numerous specimens from the island dated as follows: April, 1935; April 4-7, July 19, and August 11-31, 1944. Martorell recorded the species as abundant on corn leaves at Camp Cofresí, August 7-8, 1939 (Acc. No. 100-39).

Sphictyrtus whitei Guérin-Ménéville

This beautiful large coreid, known locally as "avispilla" because of the wasp-like flight and buzzing sound produced when disturbed, is extremely abundant on Mona Island. Barber 1939: 321 lists specimens taken there on December 20, 1913; February 21-26, 1914; September 10, 1919; and March 10, 1926. Sein noted adults feeding on corn in 1926 but did not succeed in finding the nymphs or eggs (Wolcott 1936: 173). Wolcott 1941: 76 records the species as common on August 5-9, 1939 and again in 1940, remarking: "Adults in swarms clinging to lower branches of trees in shade of cliff, no apparent preference as to kind of tree, and not feeding. At top of cliff, adults on tender leaves of *Coccolobis laurifolia*, possibly feeding". The writer did not observe the species during his trip to the island in April, 1935, but found it abundantly on coconut palms and other plants at Sardinera Beach on April 4-7, 1944. He also observed adults feeding on the flowers of *Colubrina colubrina* on that occasion.

The species was described from Cuba in 1857 and has also been reported from San Salvador, Bahamas. It is not known from the Puerto Rican mainland.

Leptocorisa filiformis Fabricius

Wolcott 1941: 76 lists one specimen taken on weeds at Sardinera, August 8, 1939.

Hyalmenus longispinus Stål

Barber 1939: 323 records this species from Mona based on specimens collected by F. E. Lutz on February 21-26, 1914.

Corizus (Liorhyssus) hyalinus Fabricius

This common and widely spread species was first recorded from the island by Barber 1939: 327, who reports specimens taken on February 21-26, 1914 by F. E. Lutz. The writer has numerous specimens swept from weeds at Sardinera and Uvero Beaches, August 11-31, 1944.

Corizus sidae Fabricius

F. E. Lutz secured specimens on February 21, 1914, as reported by Barber 1939: 327. The writer collected several specimens (Det. H. G. Barber) in April, 1935.

Jadera haematoloma Herrich-Schaeffer

Numerous nymphs and adults of this species were collected by the author at Uvero Beach on April 5, 1944 under dead leaves and on the dry culms of guinea grass. This is a continental species which, according to Blatchley 1926: 286, was previously known only from Cuba in the West Indies. The species is readily distinguished from other species of *Jadera* in the West Indian region by the red and black color and conspicuous median carina on the pronotum.

Family PENTATOMIDAE

Mormidea angustata Stål

Barber 1939: 288 reports specimens collected by F. E. Lutz on February, 1914. This Mexican species is also known from the Isle of Pines and the Puerto Rican mainland in the West Indies.

Thyanta perditor Fabricius

Barber 1939: 292 reports specimens collected by F. E. Lutz on February 21-26, 1914. The author collected a single specimen on the island in April, 1935.

Thyanta antiguensis Westwood

A single specimen collected by sweeping on weeds, Sardinera Beach, August 11-31, 1944.

Nezara viridula Linnaeus

Wolcott 1936: 77 lists this species from Mona (Acc. No. 1319-13). Martorell collected one specimen at light at Camp Cofresí, August 7, 1939, and several others from weeds on the plateau, March 30, 1940 (Wolcott 1941: 78). The writer has numerous specimens from different localities on the island with the following dates: April, 1935; April 4, June 29, July 19 and 20, and August 11-31, 1944.

Acrosternum marginatum Palisot de Beauvois

Wolcott 1941: 78 reports specimens at light, Camp Cofresí and on weeds at Rancho Grande, August 7-8, 1939. The writer collected specimens on weeds at Sardinera Beach, April 5, 1944.

Arvelius albopunctatus DeGeer

Martorell collected a single specimen on eggplants at Rancho Grande August 7, 1939 (Wolcott 1941: 78).

Brepholoxa rotundifrons Barber

A single specimen collected on weeds on the plateau, August 11-31, 1944.

Podissus sagitta Fabricius

One specimen collected on weeds, Sardinera Beach, August 11-31, 1944.

Pachycoris fabricii Linnaeus

The author collected specimens on Mona, April, 1935. He has other specimens collected by sweeping on weeds on the plateau, March 5, 1944.

Diolcus irroratus Fabricius

Specimens collected on weeds, April, 1935 and April 5 and July 20, 1944.

Order COLEOPTERA

Family CARABIDAE

Tachys ensenadae Mutchler

Det. J. M. Valentine

At light, Sardinera Beach, April 5, 1944; under dead leaves near cliff, Uvero Beach, August 11-31, 1944.

Tachys sp.

Det. J. M. Valentine

A single specimen under trash near cliff, Uvero Beach, August 11-31, 1944.

Tetragonoderus sp.

Det. J. M. Valentine

Numerous specimens taken on the ground, Sardinera Beach, August 11-31, 1944.

Selenophorus sinuatus Gyllenhal

Det. P. J. Darlington, Jr.

Several specimens, April, 1935 and August 11-31, 1944.

Seleneophorus alternans Dejean

Det. J. M. Valentine

Many specimens under stones and dead leaves near the cliff, Sardinera Beach, August 11-31, 1944.

Selenophorus sp.

A single specimen collected at light, Sardinera Beach, April 1, 1940 (Acc. No. 289-40).

Apenes sp.

A single specimen at light, Sardinera Beach, March 7, 1944.

Family DYTISCIDAE

Copelatus angustatus Chevrolat

At light, Sardinera Beach, June 29 and July 22, 1944. Many specimens from a small pool near the airfield, August 11-31, 1944.

Rhantus calidus Fabricius

Det. L. L. Buchanan

One specimen at light, Sardinera Beach, August 11-31, 1944.

Thermonectes circumscripta Latreille

Specimens taken in a small pool near the airfield, August 11-31, 1944.

Family HYDROPHILIDAE

Enochrus nebulosus Say

Specimens at light, Sardinera Beach, April 6 and June 29, 1944.

Berosus interstitialis Knisch

A single specimen at light, Sardinera Beach, April 6, 1944; others from a small pool near the airfield, August 11-31, 1944.

Hydrophilus ater Olivier subsp. **intermedius** DuVal

One specimen at light, Sardinera Beach, June 29, 1944.

Tropisternus lateralis Fabricius

Several specimens from a small pool near airfield, August 11-31, 1944.

Cercyon sp.

A single specimen at light, Sardinera Beach, April 4, 1944.

Family HISTERIDAE

Omalodes klugi Marseul

One specimen at Sardinera Beach, June 29, 1944.

Saprinus sp.

Det. H. S. Barber

Many specimens under a dead bird, Sardinera Beach, April 6-7, 1944.

Family STAPHYLINIDAE

Oxytelus incisus Mots.

Det. R. E. Blackwelder

Many specimens collected under a dead bird, Sardinera Beach, April 6-7, 1944.

Lithocharis sp.

Det. R. E. Blackwelder

Many specimens under trash, Sardinera Beach, June 29 and August 11-31, 1944.

Philonthus havaniensis Laporte

Det. R. E. Blackwelder

Numerous specimens under trash, Sardinera Beach, June 29, 1944.

Philonthus ventralis Gravenhorst

Det. R. E. Blackwelder

Several specimens under a dead bird, Sardinera Beach, April 4, 1944.

Cafius bistriatus Erichson

Listed from Mona by Blackwelder 1944: 135. One specimen (Det. R. E. Blackwelder) collected under trash, Sardinera Beach, August 11-31, 1944.

Cafius subtilis Cameron

Det. R. E. Blackwelder

Many specimens under trash, Sardinera Beach, August 11-31, 1944.

Xantholinus beattyi Blackwelder

Det. R. E. Blackwelder

Several specimens under a dead bird, Sardinera Beach, April 4, 1944.

Family CANTHARIDAE

Tytthonyx cavicornis Leng and Mutchler

Described by Leng and Mutchler 1922: 489 from a single specimen taken by F. E. Lutz on February 26, 1914. The type is in the collection of the American Museum of Natural History. The writer has 3 specimens swept from shrubs on the plateau, April 5 and June 29, 1944.

Tylocerus barberi Leng and Mutchler

One specimen at light, Sardinera Beach, March 3, 1944.

Family MELYRIDAE

Melyrodes sp.

Det. H. S. Barber

One specimen, Sardinera Beach, August 11-31, 1944.

Family CORYNETIDAE

Necrobia rufipes DeGeer

Numerous specimens taken on decaying fish at Sardinera Beach, March 6, 1944. Others on a dead goat on the plateau, April 7, 1944.

Family ELATERIDAE

Adelocera rubida Schwarz

Described by Schwarz 1902: 193.

Conoderus figuralis Candeze

Det. M. C. Lane

Three specimens swept from weeds, Sardinera Beach, April 7, 1944.

Conoderus sericatus Candeze

Det. M. C. Lane

Numerous specimens at light, Sardinera Beach, March 1-5, April 4-7 and July 20, 1944.

Drasterius elegans Fabricius

Det. W. S. Fisher

At light, Camp Cofresí, March 31, 1940 (Acc. No. 280-40).

Dicrepidius ramicornis Palisot de Beauvois

Wolcott 1941: 88 lists one specimen taken on *Ricinus* at Camp Cofresí August 7, 1939.

Esthesopus poedicus Candeze

Det. J. M. Valentine

One specimen swept from vegetation, Sardinera Beach, August 11-31, 1944.

Family BUPRESTIDAE

Acmaeodera gundlachi Fisher

Wolcott 1941: 88 reports one specimen resting on weeds at Camp Cofresí, Sardinera Beach, August 7, 1939. The author has several specimens collected on flowers and on weeds at Uvero Beach, April 7, May 24, and August 11-31, 1944.

Polycesta thomae Chevrolat

Martorell and the writer collected larvae, pupae and adults from the dead stems of casuarina pines at Sardinera Beach, April 6, 1944.

Chrysobothris megacephala Castelnau and Gory

One specimen resting on a branch of *Solanum verbascifolium* at Uvero Beach, April 7, 1944.

Micrasta oakleyi Fisher

Two specimens (Det. W. S. Fisher), April, 1935. One specimen on castor bean leaf at Rancho Grande, August 8, 1939 (Wolcott 1941: 89).

Family DERMESTIDAE

Dermestes canina Germar

Wolcott 1941: 89 reports larvae and adults in the shell of a dead turtle and on goat hides at the Lighthouse, April 1, 1940. Numerous larvae and adults were collected by the author on dead fish at Sardinera Beach, April 4-6, 1944.

Family OSTOMATIDAE

Tenebroides mauritanica Linnaeus

Wolcott 1941: 89 records one specimen at light, Camp Cofresí, August 7, 1939. The writer has in his collection another specimen also taken at light on the same locality, March 4, 1944.

Family NITIDULIDAE

Carpophilus sp. (*dimidiatus* Fabricius?)

Det. E. A. Chapin

Numerous specimens collected at Sardinera Beach, August 11-31, 1944.

Haptoncus luteolus Erichson

Recorded by Wolcott 1941: 90 at light (Acc. No. 379-39). Numerous specimens (Det. E. A. Chapin) taken at Sardinera Beach, August 11-31, 1944.

Stelidota strigosa Gyllenhal

Det. E. A. Chapin

One specimen taken at Sardinera Beach, August 11-31, 1944.

Family MONOTOMIDAE

Europs sp.

Det. W. S. Fisher

Several specimens swept from vegetation, Sardinera Beach, August 11-31, 1944.

Family CUCUJIDAE

Ahasverus (*Cathartus*) **advena** Waltl

One specimen under the bark of a dead tree, Camp Cofresí, August 9, 1939 (Wolcott 1941: 90).

Ahasverus rectus LeConte

Det. W. S. Fisher

Many specimens, Sardinera Beach, August 11-31, 1944.

Family EROTYLIDAE

Mycotretus sp.

Det. W. S. Fisher

Martorell obtained specimens at light at the Lighthouse, April 1, 1940

Family CRYPTOPHAGIDAE

Loberus sp.

Det. W. S. Fisher

Martorell observed this species on watermelons at Rancho Grande, March 30, 1940. The writer collected numerous specimens by sweeping on weeds at Sardinera and Uvero Beaches, April 4 and August 11-31, 1944.

Family PHALACRIDAE

Acylomus sp.

Reported by Wolcott 1941: 91 as taken at light (Acc. No. 379-39).

Family MYCETOPHAGIDAE

Typhaea stercorea Linnaeus

Det. W. S. Fisher

Specimens at Sardinera Beach, June 29, 1944.

Family COCCINELLIDAE

Scymnus roseicollis Mulsant

On castor bean at Rancho Grande, August 8, 1939 (Wolcott 1941: 92). One specimen swept from vegetation, Uvero Beach, August 11-31, 1944.

Scymnus floralis Fabricius

Swept from herbage at Sardinera and Uvero Beaches; also on the plateau March 1, June 29, and August 11-31, 1944.

Scymnus sp.

Two specimens taken on April, 1935.

Rodolia cardinalis Mulsant

Introduced to control *Icerya purchasi*. Martorell reports empty cocoons on casuarinas but not a single adult seen at Camp Cofresi, August 5, 1939 (Acc. No. 125-39). On March 29, 1940 he found it very abundant and well established (Acc. No. 245-40). Wolcott found empty pupal skins abundant and a few live ones on April 5, 1944. He remarks that control of the scale was 99 per cent effective but always enough surviving to maintain both scales and predators (Acc. No. 32-44).

Psyllobora nana Mulsant

Specimens taken on weeds, April, 1935; March 3, and April 4, 1944. Also at light, April 5, 1944.

Psyllobora lineola Fabricius

Many specimens taken on weeds, April, 1935.

Cycloneda sanguinea Linnaeus

Numerous specimens swept from vegetation, April, 1935 and March 4, 1944. Wolcott 1941: 92 reports this species common on weeds.

Chilocorus cacti Linnaeus

This ladybeetle, not previously known from Mona, was first observed there by Wolcott, Martorell and the writer on April 4-7, 1944, when several adults and pupae were noted at Sardinera and Uvero Beaches on previously scale-infested wild papayas and a single plant of *Barringtonia asiatica*. Wolcott and Martorell 1944: 451-452 believe that the species probably reached Mona by its own initiative from the Puerto Rican mainland, where it was introduced from Cuba and Texas to control scale insects. Additional specimens were also obtained from the same localities on August 11-31, 1944.

Family OEDEMERIDAE

Copidita (Asclera) litoris Wolcott

A single specimen taken at light, Sardinera Beach, March 4, 1944, and determined by Dr. J. M. Valentine as *Copidita (Asclera)* sp., agrees perfectly with the species described by Wolcott 1936: 206 as *Oxaxis litoris* from specimens collected on the beach of the north coast of Puerto Rico.

This rather small, very slender and elongate beetle has the prothorax dark iridescent green; the elytra are purplish, with the inner margin somewhat yellowish, and the legs dull yellowish orange.

Copidita (Asclera) sp. a.

Det. J. M. Valentine

A single specimen at light, Sardinera Beach, July 20, 1944. The entire beetle is dull violet-blue in color.

Copidita (Asclera) sp. b.

Det. J. M. Valentine

One specimen at light, Sardinera Beach, June 29, 1944; others swept from weeds at the plateau, August 11-31, 1944. This is a purplish species with the prothorax brownish red, the eyes and antennae nearly black and the elytra with the outer margins and a median longitudinal ridge whitish.

The beetles are identical with specimens from Desecheo Island (about 3 miles northeast of Mona) in the collection of the College of Agriculture, Mayaguez, Puerto Rico, determined as *Ditylus* sp. nov. by Dr. A. Mutchler.

Oxaxis geniculata Chevrolat

Det. J. M. Valentine

Numerous specimens taken at light, Sardinera Beach, March 4-6 and April 5-6, 1944. This is the second most abundant and the largest oedemerid on the island. The head, except for the black eyes and infuscate basal segment of the antennae, and the entire prothorax are yellowish. The abdomen and elytra, except the outer and inner margins, are greyish blue. The legs are light yellow, with the apical half of the femora strongly infuscated.

Alloxaxis sp. a.

Det. J. M. Valentine

Two specimens at light, Sardinera Beach, June 29, 1944. This is small, slender species of a deep metallic blue color.

Alloxaxis sp. b.

Det. J. M. Valentine

This is the most abundant member of the family in Mona Island. The author has numerous specimens dated April, 1935; March 4-6, and April 4-6, 1944 (taken at light, Sardinera Beach). Adults were also observed by him feeding on the pollen of the flowers of *Colubrina colubrina* at the same locality on April 4. The records given by Wolcott 1941: 86 for *Oxaxis litoris* probably refer to this species.

This is a very dull and dark blue species, the eyes are black and the antennae, except for the two basal segments, are reddish brown.

Alloxaxis sp. c.

Det. J. M. Valentine

Specimens at light, Sardinera Beach, March 4, 1944.

In this species, the head, except for the black eyes, the prothorax and scutellum are yellow. The antennae are infuscated on the basal half. The elytra are dull greyish-blue, each with 2 inconspicuous elevated lines. The legs are yellowish, with the apical portion of the femora somewhat infuscated.

Sessinia vittata Fabricius

Det. J. M. Valentine

One specimen swept from weeds at Sardinera Beach, April 7, 1944. Wolcott 1941: 86 reports the species (as *Ananca vittata* Fabricius) very

abundant at light and on sea-grape at Camp Cofresí and Playa de Pájaros, August 7-8, 1939 and March 30, 1940.

Family MORDELLIDAE

Mordellistena sp. a.

Three specimens swept from weeds and low shrubs on the plateau, June 29, 1944.

Mordellistena sp. b.

A single specimen from weeds at Sardinera Beach, August 11-31, 1944

Family ANTHICIDAE

Anthicus (Omonadus) floralis Linnaeus

Det. J. M. Valentine

Two specimens at light, Sardinera Beach, June 29, 1944.

Family ALLECULIDAE

Hymenorus sp.

Wolcott 1941: 93 reports specimens common at light, Camp Cofresí and on weeds at the airfield, August 5-6, 1939. The writer has numerous specimens also taken at light at Sardinera Beach, March 4, 1944, and on weeds at Uvero and Sardinera Beaches, April 4, June 29, and July 20, 1944

Family TENEBRIONIDAE

Opatrinus pullus Sahlberg

Reported by Wolcott 1941: 93 at light, Camp Cofresí, August 5, 1939

Trientoma varvasi Solier

Specimens swept from vegetation, Uvero Beach, July 21 and August 11-31, 1944.

Blapstinus punctatus Fabricius

Wolcott 1941: 93 reports specimens at light, Camp Cofresí, August 8, 1939. The writer has specimens also taken at light at the same locality on March 7, 1944.

Blapstinus sp.

Det. R. E. Blackwelder

Many specimens taken under trash, Sardinera Beach, March 4, April 4, and August 11-31, 1944.

Phaleria angustata Chevrolat

Det. R. E. Blackwelder

Numerous specimens taken under trash, Sardinera Beach, August 11-31, 1944.

Phaleria variabilis Quedenfeldt

Wolcott 1941: 93 reports specimens at light, Camp Cofresí, August 8, 1939. The writer collected specimens also at light at the same place on April 4, 1944.

Crypticus sp.

Det. R. E. Blackwelder

One specimen at Sardinera Beach, August 11-31, 1944.

Diaperis hydni Fabricius

Martorell and the writer collected one specimen at light, Sardinera Beach, April 7, 1944.

Tribolium castaneum Herbst

Two specimens taken at light, Sardinera Beach, April 7, 1944.

Doliema pallida Say

Wolcott 1941: 94 reports specimens under the bark of *Canella Winteriana* at Rancho Grande, August 8, 1939. The author has specimens taken under the bark of a dead tree at Sardinera Beach, June 29, 1944.

Family CISIDAE

Ceracis sp.

Det. W. S. Fisher

Abundant on fungi at Sardinera Beach, August 11-31, 1944.

Family ANOBIIDAE

Lasioderma serricorne Fabricius

One specimen at light, Sardinera Beach, April 7, 1944.

Family BOSTRICHIDAE

Tetrapriocera longicornis Olivier

Det. W. S. Fisher

One specimen at light, Sardinera Beach, April 7, 1944.

Heterarthron gonagrum Fabricius

First reported from Mona by Leng and Mutchler 1914: 453. The writer has several specimens taken on April, 1935, boring in casuarinas.

Xylomeria torquata Fabricius

Wolcott 1941: 95 reports numerous specimens at light, Camp Cofresí, August 6, 1939.

Family TROGIDAE

Trox suberosus Fabricius

One specimen at light, Sardinera Beach, August 11-31, 1944.

Family SCARABAEIDAE

Aphodius cuniculus Chevrolat

Common at light, Sardinera Beach, March 3-4 and April 4-7, 1944. Also on fresh cow dung at the same locality, April 5, 1944.

Ataenius darlingtoni Hinton

One specimen at light, Sardinera Beach, March 5, 1944.

Ataenius beattyi Chapin

Several specimens taken at Sardinera Beach, August 11-31, 1944.

Ataenius miamii Cartwright

Det. E. A. Chapin

Several specimens collected under trash near the cliff, Sardinera Beach, August 11-31, 1944.

Cnemerachis monana Moser

Described from Mona by Moser 1921: 181. Wolcott 1941: 97 reports adults at light, August 6, 1939 and March 31, 1940. The writer has specimens taken at light, Sardinera Beach, March 2, April 4-5, and June 29, 1944. He collected numerous larvae and pupae at Uvero Beach, April 5, 1944, under the roots of guinea grass.

Ligyris tumulosus Burmeister

Wolcott 1941: 98 reports many adults collected at light at Camp Cofresí, August 5-7, 1939 and March 29-30, 1940. The author has numerous adults collected also at light at the same place on March 4, April 4-7, June 29 and August 11-31, 1944.

Strataegus barbigerus Chapin

Two specimens, a male and a female, in rotten stump of *Metopium toxiferum* on the plateau above Sardinera, August 7, 1939 (Wolcott 1941: 98). One female specimen at light, Sardinera Beach, August 11-31, 1944.

Family CERAMBYCIDAE

Stenodontes bituberculatus Palisot de Beauvois

Wolcott 1941: 98 reports an adult taken in an old tree stump at Rancho Grande, August 7, 1939.

Methia necydalea Fabricius

Wolcott 1941: 98 reports specimens collected at light, Camp Cofresí, August 6-7, 1939 and at the Lighthouse, April 1, 1940.

Eburia quadrimaculata Linnaeus

Reported by Wolcott 1941: 98 as very abundant at light, Camp Cofresí, August 5-6, 1939. The author has two specimens collected at light at Sardinera Beach, April 4 and June 29, 1944.

Elaphidion conspersum Newman

Two specimens at light, Sardinera Beach, April 4 and 7, 1944.

Elaphidion insulare Newman

Reported by Wolcott 1941: 98 (Acc. No. 13-37) without definite date or locality.

Elaphidion irroratum Linnaeus

Wolcott 1941: 99 reports this species common at light, Camp Cofresí, August 5-6, 1939. The writer has one specimen taken at light, Sardinera Beach, August 11-31, 1944.

Elaphidion spinicorne Drury

Wolcott 1941: 99 reports specimens at light, Camp Cofresí, August 5-6, 1939 and April 1, 1940.

Merostenus attenuatus Chevrolat

One specimen at light, Sardinera Beach, March 30, 1940 (Wolcott 1941: 99).

Cylindera flava Fabricius

Wolcott 1941: 99 reports one specimen at light, Camp Cofresí, August 8, 1939. The writer has another specimen also taken at light at the same locality, August 11-31, 1944.

Lepturges guadeloupensis Fleutiaux and Sallé

Det. W. S. Fisher

One specimen at light, Sardinera Beach, August 11-31, 1944.

Family CHRYSOMELIDAE

Pachybrachys mendicus Weise

Several specimens swept from herbage on the plateau above Uvero Beach, August 11-31, 1944.

Cryptocephalus multiguttatus Suffrian

The writer has numerous specimens in his collection dated April, 1935; March 3, June 29, July 20, and August 11-31, 1944, swept from weeds at Sardinera and Uvero Beaches and also on the plateau.

Nodonota wolcottii Bryant

Wolcott 1941: 100 reports this species on weeds. The writer has specimens swept from weeds at Sardinera Beach, March 6 and April 7, 1944.

Hermaeophaga cylindrica Weise

Reported by Wolcott 1941: 101 (Acc. No. 47-40).

Longitarus sp.

Det. H. S. Barber

Specimens taken at light, Sardinera Beach, April 7, 1944.

Aphthona compressa Suffrian

Adults very common, feeding on the leaves of *Stigmaphylon lingulatum* on the plateau, March 7 and July 20, 1944.

Megistops lituratus Olivier

Martorell collected specimens on *Clusia rosea*, April 2, 1940 (Acc. No. 311-40).

Chalepus sanguinicolis Linnaeus

One specimen swept from weeds, Sardinera Beach, July 20, 1944.

Family ANTHRIDIDAE

Toxotropis sp.

Det. L. L. Buchanan

A single specimen swept from vegetation, Sardinera Beach, August 11-31, 1944.

Family CURCULIONIDAE

Cylas formicarius Fabricius

One specimen at light, Sardinera Beach, April 5, 1944.

Artipus monae Wolcott

Described from Mona by Wolcott 1941: 102-103 from 15 specimens taken on August 8, 1939 on casuarina foliage and eggplant leaves. The writer has numerous specimens swept from mixed vegetation at Sardinera and Uvero Beaches, March 4-6, April 4-7, July 21, and August 11-31, 1944. Martorell observed adults feeding on the leaves of *Amyris elemifera* on April 6, 1944 (Acc. No. 37-44). Specimens in the collection of the College of Agriculture, Mayaguez, Puerto Rico, collected on the island by the author in April, 1935 and determined as *Artipus* sp. by L. L. Buchanan, are included under this species.

Diaprepes abbreviatus Linnaeus

Wolcott 1941: 103 reports adults feeding on the young leaves of *Terminalia Catappa* at Sardinera Beach, April 4, 1940.

Lachnopus kofresi Wolcott

Wolcott 1941: 104 described this species from 22 specimens taken on cultivated eggplants at Rancho Grande, August 8, 1939. The writer has

numerous specimens swept from vegetation at various localities on April 4-7, June 29, July 19 and 21, and August 11-31, 1944.

Apodrosus argentatus Wolcott

Wolcott 1941: 104 reports specimens taken from shoots of *Colubrina colubrina* at Sardinera Beach, April 1, 1940.

Anthonomus sp.

Several specimens swept from vegetation at Uvero Beach, March 7, 1944.

Pseudomopsis sp.

Det. L. L. Buchanan

One specimen swept from vegetation, Sardinera Beach, June 29, 1944.

Family PLATYPOIDAE

Platypus rugulosus Chapuis

One specimen at light, Sardinera Beach, March 7, 1944.

Family SCOLYTIDAE

Xyleborus confusus Eichoff

Det. W. H. Anderson

Adults at light, Sardinera Beach, April 7, and August 11-31, 1944.

Order LEPIDOPTERA

Family EUCHROMIIDAE

Eunomia rubripunctata Butler

Wolcott 1941: 125 reports adults at light, Sardinera Beach, March 30, 1940.

Family ARCTIIDAE

Ammalo insulata Walker

Adults reported by Wolcott 1941: 125 at light at the Lighthouse, April 1, 1940.

Calidota strigosa Walker

Reported by Wolcott 1941: 125 as abundant at light, Sardinera Beach and the Lighthouse, March 30, 1940. Adults collected in large numbers at light at Sardinera Beach, March 3-7 and April 4-7, 1944.

Family PERICOPIDAE

Composia sybaris Cramer

Wolcott 1941: 125 reports this species at light at Sardinera Beach, March

29-30, 1940. The writer secured numerous adults from the flowers of *Pisonia albida* at Uvero Beach, April 4-7, 1944.

Family NOCTUIDAE

Feltia subterranea Fabricius

Wolcott 1941: 126 reports the larvae of this species (as *F. annexa* Treitschke) on weeds at Sardinera, August 6, 1939. Numerous adults collected at light, Sardinera Beach, April 4-7 and August 11-31, 1944.

Catabena esula Druce

Reported by Wolcott 1941: 126 as common at light, Sardinera Beach and the Lighthouse, March 30 and April 1, 1940. The writer collected several adults at light, Camp Cofresí, April 4, 1944.

Micrathetis triplex Walker

Det. W. T. M. Forbes

A single adult taken at light, Sardinera Beach, April 4-7, 1944.

Eutelia piratica Schaus

Det. W. T. M. Forbes

One adult specimen collected at light, Sardinera Beach, April 4-7, 1944.

Mocis latipes Guenée

Det. W. T. M. Forbes

Adults collected at light, Sardinera Beach, August 11-31, 1944.

Mocis megas Guenée

Det. W. T. M. Forbes

Adults common at light, Sardinera Beach, August 11-31, 1944.

Plusia oo Fabricius

Det. W. T. M. Forbes

A single adult taken at light, Sardinera Beach, August 11-31, 1944.

Melipotis contorta Guenée

Det. W. T. M. Forbes

Several adults taken at light, Sardinera Beach, March 4, April 4-7, and June 29, 1944.

Melipotis famelica Guenée

Det. W. T. M. Forbes

Adults taken at light, Sardinera Beach, April 4-7 and August 11-31, 1944.

Melipotis januaris Guenée

Det. W. T. M. Forbes

Several adults collected at light, Sardinera Beach, April 4-7, 1944.

Melipotis fasciolaris Hübner

Det. W. T. M. Forbes

A single adult specimen taken at light, Sardinera Beach, April 4-7, 1944.

Hypenula complectalis Grote

Det. W. T. M. Forbes

Adults common at light, Sardinera Beach, April 4-7, June 29 and July 20, 1944.

Pseudohemiceras krugii MöschlerWolcott 1941: 127 reports caterpillars of this species boring in the twigs of *Tabebuia lucida* and *Tabebuia heterophylla* on the plateau, April 1, 1940.**Glympis (Aluaca) eubolialis** Walker

Det. W. T. M. Forbes

A single adult taken at light, Sardinera Beach, March 4, 1944.

Bendis gurda Guenée

Det. W. T. M. Forbes

Several specimens collected at light, Sardinera Beach, March 4, April 4-7, and June 29, 1944.

This species was previously recorded only from St. Thomas, Virgin Islands. According to Schaus 1940: 265 this species was unknown.

Azeta repugnalis Hübner

Det. W. T. M. Forbes

A single adult specimen collected at light, Sardinera Beach, April 4, 1944.

Epidromia pyraliformis

Det. W. T. M. Forbes

Adults taken at light, Sardinera Beach, June 21 and July 22, 1944.

Bleptina atymnusalis Walker

Det. W. T. M. Forbes

One specimen at light, Sardinera Beach, August 11-31, 1944.

Bleptina acastusalis Walker

Det. W. T. M. Forbes

Two specimens taken at light, Sardinera Beach, March 4, 1944.

Family NOTODONTIDAE

Nystalea ebalea Cramer

Det. W. T. M. Forbes

One specimen taken at light, Sardinera Beach, March 4, 1944.

Family SPHINGIDAE

Phlegethontius sextus jamaicensis Butler

Adults reported at light at the Lighthouse, April 1, 1940 by Wolcott 1941: 128.

Pseudosphinx tetrico LinnaeusFirst reported from Mona by Leonard 1933: 135. Wolcott 1941: 129 reports one adult at light, the Lighthouse, and larvae on *Plumiera obtusa*, April 1, 1940. The writer has several adults taken at light at Sardinera Beach, March 4 and April 4-7, 1944. He also found practically all the *Plumiera* bushes on the plateau defoliated by the larvae.**Erinnyis ello** Linnaeus

A single adult specimen collected at light, Sardinera Beach, June 29, 1944.

Cautethia noctuiformis Walker

Wolcott 1941: 129 reports this species at light, Camp Cofresí, August 5, 1939.

Pachylia ficus Linnaeus

A single adult collected at light, Sardinera Beach, March 4, 1944.

Celerio lineata lineata Fabricius

Wolcott 1941: 129 reports specimens taken at light, Sardinera Beach, April 1, 1940.

Aëlopos tantalus Linnaeus var. *zonata* DruryMartorell collected an adult on flowers of *Moringa moringa* at Sardinera Beach, April 1, 1940 (Acc. No. 315-40).

Family GEOMETRIDAE

Almodes terraria Guenée

Det. W. T. M. Forbes

Numerous specimens collected at light, Sardinera Beach, June 29 and July 20, 1944.

The description of the following new species was prepared by Dr. W. T. M. Forbes, Cornell University, who kindly gave his permission to include it with this report. The species should be credited to him.

Ptychopoda monata Forbes, n. sp.

General structures normal for the genus. Hind tibia much shorter than middle one, very thin and flimsy, but hollow and containing a large hair-pencil; femur linear; tarsus of five rounded segments, the first wider than tibia, then regularly decreasing; female hind tibia normal, with end spurs

only. Fore wing with accessory cell short and very slender, R_{2-4} and R_5 connate from its lower angle, R_1 also from its apex, but a little separated; R_4 apparently absent. Hind wing rather trapezoidal, sharply bent rather above M_3 , the margin nearly erect above, but strongly oblique below, so that inner margin is only a little longer than part of outer margin below the bend. R and M_1 strongly stalked; male with a groove on under side along outer half of inner margin and around anal angle, filled with large spatulate scales attached close to inner margin.

Luteous. Face and palpi blackish, occiput with a slight transverse fuscous shade; legs shaded with fuscous, the fore legs mostly fuscous with contrasting luteous front tibia. Fore wing luteous, the outer third sometimes shaded with light fuscous or pale reddish brown, leaving a vague pale subterminal shade. Antemedial line heavy, black, excurved below costa, and toothed out on anal, incurved across submedian area and slanting in to inner margin; postmedial line heavy, strongly excurved opposite cell, a little incurved toward costa, and deeply incurved in a single sweep on lower half, slanting out again to inner margin. Discal dot a small oblique bar on lower part of discocellular. Medial area on lower half of wing often more or less shaded with black, sometimes almost solidly filled with black; the costal part sometimes shaded with red-brown about the discal bar. A series of small black terminal dots. Hind wing gray, with dark gray discal dot and a vague blackish median band running from it to middle of inner margin, sometimes reduced to a small triangular patch at inner margin; terminal dots as on fore wing. Abdomen shaded with red-brown above, with a few black scales. Expanse 11–12 mm.

Mona Island; a good series collected by J. A. Ramos in April 4–7, 1944; J. A. Ferrer, July 20, 1944; and L. F. Martorell in August, 1939. None of the specimens is in good condition, suggesting the species may be abnormally slow to die in the cyanide. Holotype, April 4–7, 1944 (Ramos) in the collection of the College of Agriculture, University of Puerto Rico, Mayaguez, Puerto Rico; paratypes in that collection and also the collection of Cornell University.

In the present state of confusion of the Sterrhinae it is not possible to be quite sure this species is not already described; but it is not represented in the National Museum, which is well supplied with West Indian material, nor in the Cornell University material from Puerto Rico and St. Croix. It should be distinguished from all the *Ptychopodas* known to me by the contrasting ordinary lines.

***Racheospila sanctae-crucis* Prout**

Det. W. T. M. Forbes

Numerous adults taken at light, Sardinera Beach, June 29, 1944.

***Racheospila cupedinaria* Grote**

Det. W. T. M. Forbes

A single specimen taken at light, Sardinera Beach, June 29, 1944.

***Eucrotis* sp.**

Det. W. T. M. Forbes

Two specimens collected at light, Sardinera Beach, March 4, 1944.

***Numia terebintharia* Guenée**

Det. W. T. M. Forbes

Several specimens taken at light, Sardinera Beach, April 4–7, July 20, and August 11–31, 1944.

***Drepanodes infensata* Guenée**

Det. W. T. M. Forbes

Several specimens collected at light, Sardinera Beach, April 4–7 and July 20, 1944.

Family PYRALIDIDAE

***Samea multiplicalis* Guenée**

Det. W. T. M. Forbes

Several specimens taken at light, Sardinera Beach, April 4–7, 1944.

***Pilocrocis lauralis* Walker**

Wolcott 1941: 130 reports adults of this species at light, Camp Cofresí, August 7, 1939. The author has several adults also collected at light at the same locality, March 4, 1944.

***Mesocondyla concordalis* Hübner**

Wolcott 1941: 130 records the larvae of this species on the leaves of *Tabebuia heterophylla* and *Tabebuia lucida* on the plateau, March 30, 1940. The writer has numerous adults of the pale variety (Det. W. T. M. Forbes) collected at light, Sardinera Beach, April 4–7 and August 11–31, 1944.

***Dichogama amabilis* Möschler**

Adults reported at light, Camp Cofresí, August 7, 1939 and Sardinera Beach, April 1, 1940 by Wolcott 1941: 130. The writer collected several specimens at light at the same place on April 4–7, 1944.

***Dichogama fernaldi* Möschler**

Det. W. T. M. Forbes

A single adult specimen taken at light, Sardinera Beach, June 29, 1944.

***Dichogama redtenbacheri* Lederer**

Wolcott 1941: 131 reports a single adult collected at light, Sardinera Beach, March 30, 1940. The author collected numerous adults also at light at the same locality on April 4–7, 1944.

Lamprosema inabsconsalis Möschler

Det. W. T. M. Forbes

A single specimen at light, Sardinera Beach, April 4, 1944.

Margaronia costata Fabricius

Wolcott 1941: 131 reports adults at light, Camp Cofresí, August 6-7 1939, and at Sardinera Beach, April 1, 1940. The writer has adult collected also at light, Sardinera Beach, April 4-7 and June 29, 1944. He found the larvae on the leaves of *Rawolfia nitida* at Sardinera, April 5, 1944.

Hellula phidilealis Walker

Det. W. T. M. Forbes

Numerous specimens taken at light, Sardinera Beach, March 4, April 4-7, and July 20, 1944.

Crocidophora algarrobalis Schaus

Det. W. T. M. Forbes

A single adult specimen collected at light, Sardinera Beach, July 20, 1944.

Psara phaeopteralis Guenée

Det. W. T. M. Forbes

Two specimens at light, Sardinera Beach, June 29, 1944.

Loxostege similalis Guenée

Det. W. T. M. Forbes

Many specimens taken at light, Sardinera Beach, July 20, 1944.

Crambus santiagellus Schaus

Det. W. T. M. Forbes

One specimen at light, Sardinera Beach, April 4, 1944.

Crambus fissiradiellus Walker

Det. W. T. M. Forbes

Two adults collected at light, Sardinera Beach, April 4, 1944.

Jocara sp.

Larvae attacking the leaves of *Conocarpus erecta*, south of Uvero Beach, April 5, 1944.

Scirpophaga longicornis Möschler

Reported at light at Sardinera Beach, August 5, 1939 by Wolcott 1941: 132.

Diatraea saccharalis Fabricius

Wolcott 1936: 475 reports the larvae on sugar cane without definite

locality or date. Later (1941: 132) he reports one adult at light at Sardinera Beach, April 1, 1940.

Elasmopalpus lignosellus Zeller

Det. W. T. M. Forbes

One adult specimen at light, Sardinera Beach, April 4, 1944.

Ephesiodes sp.

Det. W. T. M. Forbes

Several specimens taken at light, Sardinera Beach, July 20, 1944.

Family PTEROPHORIDAE

Trichoptilus defectalis Walker

Det. W. T. M. Forbes

One specimen taken at light, Sardinera Beach, June 29, 1944.

Family COSSIDAE

Psychonoctua personalis Grote

Wolcott 1941: 135 reports one adult at light, Camp Cofresí, August 6, 1939. Martorell and the writer found larvae boring in the trunk of *Coccolobis wifera* at Uvero Beach, April 6, 1944.

Family GELECHIIDAE

Aristotelia diolcella Forbes

Det. W. T. M. Forbes

Several specimens collected at light, Sardinera Beach, March 4, 1944.

Stegasta capitella Fabricius

Det. W. T. M. Forbes

Specimens collected at light, Sardinera Beach, March 4, 1944.

Pectinophora gossypiella Saunders

Wolcott 1941: 136 reports a heavy infestation by the larvae of this species on wild cotton at Rancho Grande and Uvero Beach, August 5, 1939. During their visit to the island on April 4-7, 1944, Wolcott, Martorell, and the writer examined several plants of wild cotton at Uvero Beach and full-sized larvae were noted by them. Although only a few bolls were found to be attacked, it was presumed that the infection was general and that every plant was infested.

Family ETHMIIDAE

Ethmia notatella Walker

Wolcott 1941: 136 reports this species abundant at light at Camp Cofresí, August 6, 1939 and at Sardinera Beach and the Lighthouse, April

1, 1940. The writer found the species very abundant at light at Sardinera Beach, April 4-7, 1944. He has also numerous adults collected at light at that locality on March 4, 1944.

Family PSYCHIDAE

Oiketicus kirbyi Guiding

Wolcott 1941: 137 reports this bagworm on casuarinas at Sardinera Beach, August 5, 1939. The writer also noted the insect on the same host at the same locality and on *Pisonia albida* at Uvero Beach, April 7, 1944.

Family TINEIDAE

Tineola uterella Walsingham

Wolcott 1941: 137 reports the larvae on the walls of houses at Sardinera Beach, April 1, 1940. The writer also observed them abundant in house at the same locality on April 4-7, 1944.

Family NEPTICULIDAE

Nepticula gossypii Forbes

Collected by Wolcott on wild cotton at Uvero Beach on September 1944 (personal correspondence).

Family DANAIDAE

Danaus plexippus plexippus Linnaeus

One male collected on the plateau above Sardinera Beach, July 20, 1944.

Family NYMPHALIDAE

Heliconius charithonius charithonius Linnaeus

Wolcott 1941: 122 reports specimens flying in shaded places near the cliff, Sardinera Beach, August 7, 1939. The writer has several specimens collected at Sardinera Beach, March 5, and July 19-22, 1944, when the species was observed to be rather common.

Dione vanillae insularis Maynard

Recorded by Wolcott 1941: 122 at Sardinera Beach, April 1, 1940. Common at Sardinera and Uvero Beaches and on the plateau on April 4-7, June 29 and July 17-22, 1944, when numerous specimens were collected. Larvae taken at Uvero on *Corchorus hirsutus*, July 19, were bred to adults.

Junonia evarete zonalis C. and R. Felder

One specimen taken on the plateau, July 20, 1944.

Junonia evarete genoveva Cramer

Several specimens taken on the plateau, July 20, 1944.

Hypolimnas misippus Linnaeus

Wolcott (in correspondence) collected this species on September 1944.

Eunica monima Cramer

Wolcott 1941: 123 reports this species from Sardinera Beach, March 29, 1940.

Hamadryas ferox diasia Fruhstorfer

Det. W. P. Comstock

Four specimens collected at Sardinera Beach, August 11-31, 1944.

Family LYCAENIDAE

Hemiargus ammon noëli Comstock & Huntington

Det. W. P. Comstock

Comstock and Huntington 1941: 100 recorded a male of this Hispaniolan species captured on Mona Island, February 21-26, 1914 by F. E. Lutz. The writer has numerous specimens taken at Uvero Beach and on the plateau on the following dates: April 4-7 and July 29, 1944. Specimens taken at Sardinera Beach on April 1, 1940 and listed by Wolcott 1941: 123 as *Hemiargus* sp. near *zacheina* B. and D. undoubtedly belong to this species.

Family PIERIDAE

Phoebis (Phoebis) sennae sennae Linnaeus

Few adults were seen flying near the cliff at Sardinera Beach, April 4-7, 1944.

Eurema (Eurema) palmira palmira Poey

Det. W. P. Comstock

One specimen on the plateau, July 20, 1944.

Eurema (Pyrisitia) lisa euterpe Ménétriés

Det. W. P. Comstock

Two males, one white and one yellow female on the plateau, July 20, 1944.

Appias (Glutophrissa) drusilla boydi Comstock

Det. W. P. Comstock

Comstock 1944: 527 mentioned Mona Island in the distribution of this species. The writer has the following specimens in his collection, taken near the cliff at Sardinera Beach: 2 males, March 5, and another on June 29, and 1 female, April 4-7, 1944. Comstock's determination of the female specimen is accompanied by the following remark: "This is a very lightly marked female such as occurring in Hispaniola".

Ascia monuste eubotea Latreille

Det. W. P. Comstock

Two males and one female at Sardinera Beach, June 29, 1944. Comstock accompanies his determination of the female specimen with the remark: "This is a dark female like many from Hispaniola".

In following Comstock's (1944: 529) interpretation of the distribution of the forms of this species, the writer includes Wolcott's record of *monuste* from Mona Island ("attacking onions when normal host was weeded out" 1943: 123) under this form.

Family HESPERIIDAE

Urbanus proteus Linnaeus

Wolcott 1941: 124 recorded adults abundant on flowers of *Moringa moringa* and *Pisonia albida* at Sardinera Beach, April 1, 1940.

Urbanus dorantes cramptoni Comstock

Det. W. P. Comstock.

Comstock 1944: 546-547 designed 3 specimens from Mona Island paratypes for his description of **cramptoni**: 2 males and 1 female, February 21-26, 1914. The writer has in his collection 2 specimens collected at Sardinera Beach, March 5 and April 7, 1944.

Pyrgus syrichtus Fabricius

Recorded by Wolcott 1941: 124 at Sardinera on August 8, 1939 and March 30, 1940. Four specimens in the author's collection (Det. W. P. Comstock) were collected on the plateau, August 11-31, 1944.

Ephyriades arcas Drury

Det. W. P. Comstock

One specimen collected on the plateau, July 21, 1944.

Wallengrenia otho mutchleri Watson

Wolcott 1942: 124 recorded specimens taken at Sardinera Beach, August 8, 1939 and March 30, 1940.

Lerodea tripuncta Herrich-Schäffer

Wolcott 1941: 124 reports this species at Sardinera Beach, August 1939. The writer has several specimens (Det. W. P. Comstock) taken at Sardinera Beach, August 11-31, 1944.

Panoquina nyctelia Latreille

On weeds at Sardinera Beach, August 6, 1939 (Wolcott 1941: 124).

Order DIPTERA

Family CULICIDAE

Aedes aegypti Linnaeus

Curran 1928: 10 reports four males collected on Mona Island by F. E.

Lutz, February 21-26, 1914. The writer found this mosquito common and troublesome at Sardinera Beach, April 4-7, 1944.

Culex fatigans Wiedemann

This species was found by the writer extremely abundant and troublesome at Sardinera Beach, April 4-7, 1944.

Family CECIDOMYIDAE

Cecidomyia coccolobae Cook

Wolcott 1941: 112 reports this species as making small cone-shaped galls on the leaves of *Coccolobis wifera*, August 9, 1939.

Family STRATIOMYIDAE

Neorondania chalybea Wiedemann

Wolcott 1941: 112 records this species as abundant in houses and latrines at Camp Cofresí, August 8, 1939 and at the Lighthouse, April 1, 1940.

Nemoteles monensis Curran

Described by Curran 1928: 16 from a single female taken on Mona Island by F. E. Lutz on February 21-26, 1914.

Family TABANIDAE

Tabanus caribaeorum Bequaert

This species was described from Grand Cayman and Mona Island by Bequaert 1940: 323-326. The two paratypes from Mona, a male and a female, were collected in 1940 by L. F. Martorell.

Tabanus stigma Fabricius

Wolcott 1941: 113 reports this species collected at Camp Cofresí, August 6, 1939.

Family BOMBYLIIDAE

Hyperalonia cerberus Fabricius

Curran 1928: 19 reports specimens taken by F. E. Lutz on February 21-26, 1914 and Wolcott 1941: 113 reports specimens collected at Playa de Pájaros, Uvero Beach, and Camp Cofresí, August 7, 1939. The writer has several specimens taken at Sardinera Beach and on the plateau, August 11-31, 1944.

Spongostylum sp. near **pluto** Wiedemann

Wolcott 1941: 113 reports specimens taken at Playa de Pájaros, August 8, 1939.

Heterostylum ferrugineus Fabricius

Wolcott 1941: 114 reports one specimen taken in a cave, August 8, 1939. The writer collected one specimen on weeds at Sardinera Beach, April 6, 1944.

Exoprosopa sp. near **dodrans** Osten Sacken

Wolcott 1941: 114 reports specimens taken on weeds, Playa de Pájaros, August 8, 1939.

Villa lateralis Say

Specimens taken by F. E. Lutz on February 21-26, 1914 are reported by Curran 1928: 20.

Villa gorgon Fabricius

Curran 1928: 21 reports this species from specimens collected on February 21-26, 1914 by F. E. Lutz. Wolcott 1941: 114 reports additional specimens collected on August 8, 1939 and April 1, 1940. The writer found the species rather common at Sardinera and Uvero Beaches and on the plateau on April 4-7, 1944. He has other specimens collected on August 11-31, 1944.

Family ASILIDAE

Ommatius marginellus Fabricius

Recorded by Wolcott 1941: 114 on weeds at Rancho Grande, August 1939.

Leptogaster cubensis Bigot

Known from Mona only by two specimens collected on February 21-26, 1914 by F. E. Lutz and reported by Curran 1928: 22.

Plesioma sp. near **indecora** Leow

Reported by Wolcott 1941: 114 on weeds at Camp Cofresí, August 1939.

Family THEREVIDAE

Psilocephala monensis Curran

Described by Curran 1926: 2 from a single specimen collected by F. E. Lutz on February 21-26, 1914.

Psilocephala vexans Curran

Originally described by Curran 1926: 2 from a series of specimens from Puerto Rico and other West Indian Islands. Two of the paratypes were taken at Mona on February 21-26, 1914.

Family DOLICHOPODIDAE

Thrypticus violaceus Van Duzee

Van Duzee (in Curran 1928: 30) reports specimens of this species from Mona taken on February 21-26, 1914.

Sciapus albiciliatus Van Duzee

Originally described by Van Duzee 1927: 9-10 from specimens from

Puerto Rico, Virgin Islands and one from Mona collected by F. E. Lutz, February 21-26, 1914.

Psilopus sp. near **insularis** Aldrich

Det. C. T. Greene

Martorell collected specimens on weeds at Sardinera Beach, April 1, 1940 (Acc. No. 292-40).

Family SYRPHIDAE

Baccha conformis Leow

Wolcott 1941: 115 reports specimens taken at Sardinera Beach, August 7, 1939 and on the plateau, April 1, 1940.

Baccha cylindrica Fabricius

Curran 1928: 26 lists specimens collected on the island by F. E. Lutz on February 21-26, 1914. The writer has specimens taken at Sardinera Beach on August 11-31, 1944.

Baccha fasciata Roeder

Wolcott 1941: 115 reports this species taken on weeds at Sardinera Beach, April 1, 1940.

Allograpta fuscisquama Curran

Curran 1927: 5 included a male taken on Mona Island by F. E. Lutz on February 21-26, 1914, as a paratype in his description of this species.

Allograpta limbata Fabricius

Wolcott 1941: 115 reports this species as collected at Sardinera Beach, March 30, 1940.

Volucella horvathi Szilady

Wolcott 1941: 115 records this species flying in the shade of trees at Sardinera Beach and Playa de Pájaros, August 8, 1939.

Family PHORIDAE

Megaselida scalaris Leow

Curran 1928: 43 reports numerous specimens from Mona Island collected on February 21-26, 1914.

Syneura cocciphila Coquillett

Wolcott obtained several adults from *Icerya purchasi*, April 6, 1944 (Acc. No. 62-44).

Family CHLOROPIDAE

Prohippelates pallidus Leow

This Cuban species is known from Mona by a single specimen collected

on the island on February 21-26, 1914 by F. E. Lutz and reported by Curran 1928: 45.

Hippelates dorsatus Williston

Curran 1928: 46 reports three specimens collected on Mona, February 21-26, 1914.

Hippelates tener Coquillett

One specimen taken on the island on February 21-26, 1914 by F. E. Lutz is reported by Curran 1928: 47.

Hippelates convexus Loew

Curran 1928: 49 reports specimens collected on February 21-26, 1914.

Hippelates flavipes Loew

Curran reports specimens collected by F. E. Lutz on February 21-26, 1914.

Hippelates lutzi Curran

Described from Mona Island by Curran 1926: 5 from specimens taken there by F. E. Lutz on February 21-26, 1914.

Hippelates bicolor Coquillett

Curran 1928: 49 reports specimens collected on the island on February 21-26, 1914 by F. E. Lutz.

Hippelates collusor Curran

A female collected on Mona Island by F. E. Lutz on February 21-26, 1914 was designed by Curran 1926: 4 as a paratype in his description of this species.

Hippelates pusio Loew

Curran 1928: 49 reports specimens collected on the island on February 21-26, 1914.

Hippelates apicata Malloch

Curran 1928: 50 lists specimens from Mona Island collected on February 21-26, 1914.

Botanobia limitata Becker

Specimens collected in Mona Island on February 21-26, 1914 are reported by Curran 1928: 53.

Botanobia sicatrix Curran

Described from Mona Island by Curran 1926: 8 from 17 specimens collected on February 21-26, 1914.

Botanobia mona Curran

Curran 1926: 9 described this species from Mona Island from specimens collected there on February 21-26, 1914.

Botanobia mars Curran

Curran 1926: 10 designed two females collected on Mona Island, February 21-26, 1914, as paratypes in his description of this species.

Botanobia tripunctata Curran

The original description of this species by Curran 1926: 10 is based on three specimens collected on Mona Island on February 21-26, 1914.

Botanobia varipalpus Curran

Another species described by Curran 1926: 12 from specimens collected on Mona Island on February 21-26, 1914.

Family EPHYDRIDAE

Ceropsilopa coquilletti Cresson

A single specimen taken on the island on February 21-26, 1914 is listed by Curran 1928: 61.

Plagiops aciculata Loew

Listed by Curran 1928: 62 as collected on the island on February 21-26, 1914.

Discocerina obscurella Fallen

Curran 1928: 63 reports a single specimen from Mona Island, collected on February 21-26, 1914.

Family AGROMYZIDAE

Agromyza aeneiventris Fallen?

Wolcott 1941: 121 reports this species on tender leaves of *Coccolobis laurifolia* (Acc. No. 43-40).

Cryptochaetum iceryae Williston

Adults from a shipment of parasitized cottony cushion scales from California released in the island in 1940 (Wolcott 1941: 121).

Family OCHTHIPHILIDAE

Acrometopia maculata Coquillett

Curran 1928: 66 reports seven specimens taken on the island on February 21-26, 1914.

Family MICHILIDAE

Michiella lacteipennis Loew

Curran 1928: 67 lists one specimen taken in the island on February 21-26, 1914.

Phleomyia indecora Loew

A single specimen collected in the island on February 21-26, 1914 is reported by Curran 1928: 68.

Family TRYPANEIDAE

Tetraeuaresta obscuriventris Loew

Wolcott 1941: 120 reports one specimen collected on weeds at Sardinera Beach, April 1, 1940.

Family SEPSIDAE

Sepsis pusio Schiner

Curran 1928: 76 reports specimens collected in the island on February 21-26, 1914.

Family OTITIDAE

Euxesta stigmatias Loew

Specimens collected in the island on February 21-26, 1914 are reported by Curran 1928: 78.

Euxesta abdominalis Loew

Curran 1928: 79 reports specimens collected in Mona on February 21-26, 1914.

Euxesta annonae Fabricius

Curran 1928: 79 reports specimens taken on the island on February 21-26, 1914.

Notogramma stigma Fabricius

Specimens collected in the island on February 21-26, 1914 are reported by Curran 1928: 79.

Family SAPROMYZIDAE

Carpolonchaea pendula Bezzi

Wolcott 1941: 118 reports this species taken on weeds at Camp Cofres August 5, 1939 and at Sardinera Beach, April 1, 1940.

Camptoprosopella diversa Curran

Curran 1928: 82 lists one specimen taken on Mona, February 21-26, 1914.

Neogriphoneura sordida Wiedemann

Two specimens collected on the island, February 21-26, 1914, are listed by Curran 1928: 82.

Minettia slossonae Coquillett

Curran 1928: 84 reports specimens collected on February 21-26, 1914.

Minettia mona Curran

Described by Curran 1926: 13-14 from 6 specimens from Mona Island, February 21-26, 1914, and 3 from Puerto Rico.

Family MUSCIDAE

Musca domestica Linnaeus

Wolcott 1941: 117 gives several records for the housefly from Mona on August 6, 1939; March 29 and April 5, 1940. The writer found the species very abundant in houses in April 4-7, 1944.

Family CALLIPHORIDAE

Cochliomyia macellaria Fabricius

First reported from the island by Curran 1928: 92, who lists specimens collected on February 21-26, 1914. Wolcott 1941: 117 reports that this fly is so abundant and troublesome on the island as to prevent drying of fish on the beach.

Cochliomyia laniaria Wiedemann

Curran 1928: 92 reports specimens taken on February 21-26, 1914. Martorell collected the species on flowers of *Colubrina colubrina* on the plateau, April 1, 1940 (Acc. No. 284-40).

Lucilia eximia Macquart

Martorell secured one specimen, determined as this species by D. G. Hall, at Sardinera Beach, March 30, 1940 (Acc. No. 277-40).

Family SARCOPHAGIDAE

Sarcophaga bakeri Aldrich

Curran 1928: 99 reports specimens collected on February 21-26, 1914.

Sarcophaga currani Hall

Wolcott 1941: 117 reports specimens taken at the Viejo Lirio cave, Playa de Pájaros, August 9, 1939.

Sarcophaga rapax Walker

Det. M. T. James

Specimens obtained by Wolcott from a dead adult of *Strataegus barbigerus* collected between Sardinera and Uvero Beaches, October 2, 1944 (Acc. No. 196-44).

Helicobia globulus Aldrich

Curran 1928: 100 lists specimens taken on February 21-26, 1914.

Helicobia helcis Townsend

Specimens taken in the island, February 21-26, 1914, are listed by Curran 1928: 101.

Sarcophagula occidusa Fabricius

Curran 1928: 101 reports specimens from Mona, February 21-26, 1914.

Harpagopyga diversipes Coquillett

Curran 1928: 102 lists one specimen from the island, February 21-26, 1914.

Sarothromyia femoralis Schiner

Wolcott 1941: 117 reports this species at light (Acc. No. 374-39).

Senotainia rubriventris Macquart

Curran 1928: 104 reports a single specimen from the island, February 21-26, 1914.

Family HIPPOBOSCIDAE

Olfersia spinifera Leach

Recorded by Wolcott 1941: 121 from man-o'-war bird, *Fregata magnificens rothschildi* Mathews, Sardinera Beach, August 6, 1939.

Order SIPHONAPTERA

Family HECTOPSYLLIDAE

Tunga penetrans Linnaeus

On man, Sardinera Beach, August 6, 1939 (Wolcott 1941: 122).

Family PULICIDAE

Ctenocephalides canis Curtis

Wolcott 1941: 122 reports this flea on dogs, Sardinera Beach, August 1939.

Order HYMENOPTERA

Family ICHNEUMONIDAE

Tromatobia lateralis Cresson

Det. H. K. Townes

One specimen at Uvero Beach, August 11-31, 1944.

Family BRACONIDAE

Apanteles sp.

Det. C. F. W. Muesebeck

One specimen, Sardinera Beach, April 5, 1944.

Iphiaulax sp.

Martorell collected three specimens at Camp Cofresí, August 6, 1939 (Acc. No. 188-39). The writer has one specimen, determined by C. F. W. Muesebeck, taken on the plateau, July 21, 1944.

Trigonophasmus sp. nov.

Wolcott 1941: 140 reports one specimen collected on the plateau, April 1, 1940.

Family CHALCIDIDAE

Brachymeria incerta Cresson

Wolcott 1941: 147 records one specimen taken on the plateau, April 1, 1940.

Ceratomiscra debilis Cresson

Det. A. B. Gahan

One specimen on the plateau, August 11-31, 1944.

Spilochalcis flavopicta Cresson

Wolcott 1941: 147 reports one specimen collected at Camp Cofresí, August 7, 1939. The writer collected one specimen (Det. A. B. Gahan) at Sardinera Beach, April 5, 1944.

Spilochalcis homaledrae Wolcott

Martorell collected one specimen on the flowers of *Pisonia albida* on the plateau, April 2, 1940 (Acc. No. 308-40).

Family CALLIMOMIDAE

Megastigmus sp. nov.

Det. A. B. Gahan

One specimen on the plateau above Uvero Beach, August 11-31, 1944.

Family PTEROMALIDAE

Pachyneuron allograptae Ashmead

Wolcott 1941: 144 reports this species from Rancho Grande on syrphid fly puparia, March 31, and resting on watermelons, March 30, 1940.

Family EUPELMIDAE

Eupelmus sp. a.

Det. A. B. Gahan

One specimen, April 4; and 3 specimens, August 11-31, 1944.

Eupelmus sp. b.

Det. A. B. Gahan

One specimen, April 7, 1944.

Anastatus sp.

Det. A. B. Gahan

Reared by Wolcott from egg masses of *Callimantis antillarum* taken at Camp Cofresí, October 3, 1944 (Acc. No. 197-44).

Family EULOPHIDAE

Tetrastichus sp.

Det. A. B. Gahan

One specimen, Sardinera Beach, August 11-31, 1944.

Family SCHELIONIDAE

Hoploteleia sp., "apparently new"

Det. C. F. W. Muesebeck

One specimen, Sardinera Beach, June 29, 1944.

Telenomus sp.

Det. A. B. Gahan

Specimens collected at Sardinera Beach, August 11-31, 1944.

Family DRYINIDAE

Gonatopus sp.

Det. C. F. W. Muesebeck

One specimen swept from weeds, Sardinera Beach, April 4, 1944.

Family FORMICIDAE

Dr. M. R. Smith, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, kindly determined all the species of ants from Mona Island in the author's collection.

Platythyrea punctata F. Smith

A single worker collected in the shade at the base of the cliff, Sardinera Beach, August 11-31, 1944.

Ponera opaciceps Mayr

Collected at Sardinera Beach, August 11-31, 1944.

Odontomachus haematodes insularis Guerin

Wolcott 1941: 148 reports this species nesting in a rotten stump at Sardinera Beach, August 7, 1939 and at light on the same locality, April 1, 1940. The writer found a nest in a rotten wild papaya trunk near the cliff at Sardinera Beach, April 4, and has many specimens swept from weeds at the same place, April 2 and August 11-31, 1944.

Monomorium floricola Jerdon

Wolcott 1941: 149 reports this species nesting in a stump at Camp

Cofresí, August 5, 1939. The writer has numerous specimens taken at Sardinera Beach, March 6 and August 11-31, 1944.

Monomorium pharaonis Linnaeus

Many workers swept from vegetation, Uvero Beach, August 11-31, 1944.

Cardiocondyla emeryi Forel

Specimens collected at Sardinera Beach, August 11-31, 1944.

Cardiocondyla venustula Wheeler

Smith 1944: 38 reports specimens taken on Mona Island on February 21-26, 1914.

Solenopsis geminata Fabricius

Wolcott 1941: 149 reports this ant as abundant all over the island, August 5-7, 1939; and attending *Icerya purchasi* on casuarinas at Sardinera Beach, March 29, 1940. The writer observed the species attending *Coccus viridis* on *Rawolfia nitida* at Sardinera Beach, April 5, 1944.

Pheidole moerens Wheeler

Numerous specimens collected under debris in a shaded place near the base of the cliff, Sardinera Beach, August 11-31, 1944.

Macromischa albispina subsp. *albipes* Mann

Described by Mann 1920: 424 from Mona Island as a variety of *M. albispina* Wheeler. It was later raised to subspecific rank by Wheeler 1931: 1-34. Smith 1937: 851 gives notes on this ant but does not give any records of new captures. The writer has specimens taken on the ground under the shade at the base of the cliff, Sardinera Beach, August 11-31, 1944.

Tetramorium guineense Fabricius

Many specimens swept from weeds, Sardinera and Uvero Beaches, April 5, 1944.

Wasmannia auropunctata Roger

Wolcott 1941: 149 records specimens on the ground, Camp Cofresí, August 5, 1939. The writer noted the species abundant on the young shoots of *Terminalia Catappa* at Sardinera Beach, April 5, 1944.

Dorymyrmex pyramicus var. *niger* Pergande

Wolcott 1941: 150 reports this species nesting in a stump at Camp Cofresí, August 5, 1939; and attending *Icerya purchasi* on casuarinas at Sardinera Beach, March 29, 1940. The writer found it common at Sardinera and Uvero Beaches, April 4-7, 1944. He has also numerous specimens swept from vegetation at the same localities, March 4, July 19, and August 11-31, 1944.

Trachymyrmex jamaicensis André

Nesting in the open ground at Los Cerezos on the plateau, July 21, and in shaded places near the cliff, Sardinera Beach, August 11-31, 1944.

Tapinoma melanocephalum Fabricius

Nesting in rotten stump of *Coccolobis laurifolia*, Sardinera Beach, April 5, 1944.

Prenolepis longicornis Latreille

Wolcott 1941: 150 records this species as abundant at Camp Cofre August 5-6, 1939.

Camponotus sp.

Nesting in a rotten stump of *Conocarpus erecta*, Uvero Beach, April 1944.

Myrmelachista ramulorum subsp. **fortior** Wheeler

Wheeler 1934: 189-190 described the subspecies of this ant from 5 workers collected on Mona Island by F. E. Lutz on February 21-26, 1914, and 2 workers collected by him in Puerto Rico. Smith 1937: 873 discusses this species without giving any new records for Mona Island. The writer has numerous workers taken at Sardinera Beach, August 11-31, 1944.

Family BEMBECIDAE

Bicyrtes spinosa Fabricius

Wolcott 1941: 150 records a single specimen taken on weeds at Sardinera Beach, August 6, 1939. The writer has two specimens, determined by H. K. Townes, collected at Sardinera Beach, March 6 and July 19, 1944.

Stictia signata Linnaeus

Common all over the island (Wolcott 1941: 151). The writer has many specimens collected at Sardinera Beach, March 6, April 7 (attracted to dead bird), July 20, and August 11-31, 1944.

Family SPHECIDAE

Tachytes insularis Cresson

Wolcott 1941: 152 records specimens at the airfield, August 9, 1939 and also at Sardinera and on the plateau, April 1, 1940.

Tachytes sp.

Det. H. K. Townes

Four specimens taken at Uvero Beach and on the plateau, August 11-31, 1944.

Motes sp. a.

Det. H. K. Townes

A single specimen taken on the plateau above Uvero Beach, August 11-31, 1944. Townes' determination of this species is accompanied by the remark: "*Motes* sp. a. is like specimens in the National Museum determined as *Motes vinulentus* Cresson".

Motes sp. b.

Det. H. K. Townes

One specimen from the plateau, August 11-31, 1944. Townes remarks that: "This species is like specimens in the National Museum determined as *Motes trifasciatus* Smith".

Chlorion (Ammobia) singularis F. Smith

Wolcott 1941: 152 reports one specimen taken at Sardinera Beach, March 30, 1940.

Chlorion thomae Fabricius

Wolcott 1941: 152 reports this species at the airfield, August 8, 1939; and also abundant at the plateau, March 30, 1940. The writer has numerous specimens from Uvero Beach and the plateau, April 7, June 29, July 21, and August 11-31, 1944.

Trypoxylon sp.

Det. H. K. Townes

Numerous specimens taken on the plateau, August 11-31, 1944.

Family CRABRONIDAE

Crabro croesus Lepeletier

Listed by Wolcott 1936: 556 from Mona (Acc. No. 1308-13).

Family SCOLIIDAE

Elis haemorrhoidalis Fabricius

Wolcott 1941: 153 reports specimens taken on flowers of *Colubrina colubrina* and *Pisonia albida* at Sardinera Beach and on the plateau, March 30, 1940. The writer collected one specimen while sweeping on weeds at Uvero Beach, April 7, 1944.

Campsomeris atrata Fabricius

Recorded by Wolcott 1941: 154 at Sardinera Beach, August 7, 1939; and on flowers of *Moringa moringa*, *Pisonia albida*, and *Colubrina colubrina*, Sardinera Beach, March 30, 1940. The writer found the species abundant at Uvero Beach, April 5, 1944.

Campsomeris dorsata Fabricius

Wolcott 1941: 154 reports specimens on the ground at Sardinera Beach, August 6, 1939 and on flowers of *Moringa moringa*, March 30, 1940.

Family EUMENIDAE

Zethus rufinodus Latreille

Common on flowers of *Lantana* at Sardinera and Playa de Pájaros, August 6-8, 1939; and on the tender foliage of *Coccolobis laurifolia*, March 30, 1940 (Wolcott 1941: 156). The writer has specimens taken at Uvero and Sardinera Beaches, April 4 and July 20-21, 1944.

Family PSAMMOCHARIDAE

Cryptocheilus flammipennis Smith

Several specimens flying near the ground among weeds, Sardinera Uvero Beaches, April 5-6, 1944.

Family VESPIDAE

Polistes crinitus Felton

Wolcott 1941: 155 records this wasp as abundant, nests on trees and other plants all over the island, August 5, 1939 and April 2, 1940. The writer found it rather scarce in April 4-7, 1944. He has one specimen dated August 11-31, 1944.

Polistes major Palisot de Beauvois

Nesting on sea-grape and casuarina trees, Playa de Pájaros and Sardinera Beach, August 8, 1939 (Wolcott 1941: 155). The writer noted a large nest on a *Lantana* bush at Sardinera Beach, April 6, 1944.

Mischocyttarus cubensis Saussure

Wolcott 1941: 156 reports specimens collected on weeds near Caño Cofresí, August 8, 1939. The author found a nest under a leaf of a tree at Sardinera Beach, April 4, 1944.

Pachodyneurus tibialis Saussure

Adults frequenting flowers of *Lantana* at Sardinera Beach and Playa de Pájaros, August 6, 1939; and of *Colubrina colubrina* at Sardinera Beach, March 30, 1940 (Wolcott 1941: 156). The writer has specimens, determined by H. K. Townes, from Sardinera Beach, July 21 and August 11-1944.

Rygchium sp.

Det. H. K. Townes

One male specimen on the plateau, July 21, 1944.

Family HALICTIDAE

Agapostemon portoricensis Cockerell

Wolcott 1941: 156 lists specimens frequenting flowers of *Lantana* at Playa de Pájaros and Sardinera Beach, August 6-7, 1939.

Halictus sp.

Martorell collected specimens by sweeping on weeds at Sardinera Beach, April 1, 1940 (Acc. No. 291-40). The writer collected several specimens also from weeds at the same locality, April 5, 1944.

Family ANTHOPHORIDAE

Centris haemorrhoidalis Fabricius

Wolcott 1941: 157 reports specimens on the flowers of *Moringa moringa* and *Pisonia albida* at Sardinera Beach and on the plateau, March 31, 1940.

Centris lanipes Linnaeus

On weeds at Sardinera Beach, August 7, 1939 and on flowers of *Moringa moringa*, *Colubrina colubrina* and *Pisonia albida*, Sardinera Beach and the plateau, March 30, 1940 (Wolcott 1941: 157).

Centris versicolor Fabricius

Wolcott 1941: 157 reports adults abundant on the flowers of *Lantana* at Playa de Pájaros, August 8, 1939 and of *Moringa moringa*, Sardinera Beach and the plateau, April 3, 1940.

Anthophora krugii Cresson

Adults reported by Wolcott 1941: 157 in walls of cave at Playa de Pájaros, August 8, 1939 and frequenting the flowers of *Moringa moringa* and *Colubrina colubrina*, Sardinera Beach, March 30, 1940.

Family MEGACHILIDAE

Megachile n. sp.

Det. T. B. Mitchell

Martorell collected two specimens of this new *Megachile* on the flowers of *Moringa moringa* and *Pisonia albida* at Playa de Pájaros, August 8, 1939. These specimens were reported as *Megachile vitrasii* Pérez by Wolcott 1941: 157. The writer has a single specimen taken at Sardinera Beach, August 11-31, 1944. All this material was examined by Dr. T. B. Mitchell, who found it to represent an undescribed species. A specimen taken by Wolcott at Guánica, Puerto Rico, August 24, 1939 (Acc. No. 225-39) and kindly loaned by him, constitutes a fourth specimen of this new *Megachile*.

Family XYLOCOPIDAE

Xylocopa brasilianorum Linnaeus

Abundant all over the island, August 7, 1939 (Wolcott 1941: 15). The writer has specimens taken at Sardinera, March 3, 1944. He found a nest with several adult males and females in an old branch of *Ficus Stahlia* at Sardinera Beach, April 4, 1944.

DISCUSSION AND ANALYSIS OF THE INSECT FAUNA

In the present work, a total of 526 species of insects is recorded from Mona Island. Of this number, 24 species, or 4.56 per cent, are endemic to the island; 27 species, or 5.11 per cent, are also known only from Puerto Rican mainland; 53 species, or 10.07 per cent, although known from other West Indian islands or other regions, are not known from Puerto Rico itself; and 422 species, or 80.22 per cent, are widely ranging forms occurring in some or in all of the West Indies, or in neighboring regions (Table I).

TABLE I

Order	No. of Families	Endemic species	In common with P. R.	Not known from P. R.	Of wide distribution	Total
1. <i>Thysanura</i>	1	0	0	0	1	1
2. <i>Collembola</i>	1	0	0	1	0	1
3. <i>Orthoptera</i>	8	3	1	0	24	28
4. <i>Dermaptera</i>	1	0	0	0	1	1
5. <i>Isoptera</i>	1	1	1	1	1	4
6. <i>Neuroptera</i>	3	0	1	3	4	8
7. <i>Odonata</i>	2	0	0	0	5	5
8. <i>Mallophaga</i>	1	0	0	0	1	1
9. <i>Thysanoptera</i>	1	0	0	0	1	1
10. <i>Homoptera</i>	16	3	2	2	56	63
11. <i>Hemiptera</i>	16	3	1	4	49	57
12. <i>Coleoptera</i>	36	5	7	16	95	123
13. <i>Lepidoptera</i>	20	1	5	9	73	88
14. <i>Diptera</i>	22	6	6	7	59	78
15. <i>Siphonaptera</i>	2	0	0	0	2	2
16. <i>Hymenoptera</i>	21	2	3	10	50	65
Totals	152	24	27	53	422	526
Percentage		4.56	5.11	10.07	80.22	

The Coleoptera is represented by 123 species of which 5 are endemic to the island, 7 occur also only in Puerto Rico itself, and 16 are not known from the latter island, although they occur also in other of the West Indies.

The Diptera has 78 representatives in this report. Of these, 6 species are endemic to Mona Island, 6 occur also only in Puerto Rico, and 7 range throughout other West Indian islands but not in Puerto Rico itself.

The Hymenoptera is represented by 65 species of which 2 are endemic, 3 are shared with Puerto Rico only and 10 occur in other of the West Indies but not Puerto Rico itself.

In the Homoptera, 63 species are recorded from the island of which 3 are endemic, 2 occur also in Puerto Rico only and 2 are not known from Puerto Rico itself although they occur in other localities. The family Kinnaridae, until recently not known from Puerto Rico itself, is represented in Mona by a new genus and species.

The Hemiptera is represented by 57 species of which 3 are endemic, one is shared with Puerto Rico only, and 4 do not occur in the latter island itself.

A total of 88 species is recorded in the Lepidoptera. Of these, one new species is described from the island, 5 are shared with Puerto Rico only and 9 with other regions but not Puerto Rico itself.

The Orthoptera is represented by 28 species of which 3 are endemic forms, one is shared with Puerto Rico only, and the rest are widely distributed in the West Indies.

Of the remaining orders of insects represented, the Isoptera is the only one having an endemic species from the island.

The paucity of the insect fauna of Mona Island, as shown by the above analysis, is probably due not only to the small area of the island but also to the extremely arid condition and scant vegetation of the region. Its most interesting feature is undoubtedly the fact that the number of species in common with other regions but not known from Puerto Rico itself (53 species, or 10.07 per cent) is nearly two times greater than the number of species in common with that island (27 species, or 5.11 per cent). This could be interpreted in the sense that the island's insect fauna has less affinities with that of Puerto Rico itself than with that of the other Greater Antilles. Unfortunately, the lack of a better knowledge of the insect faunas of these islands, especially of Hispaniola, does not permit a more definite statement in this respect.

SUMMARY

A total of 526 species of insects, representing 16 orders and 152 families, is recorded from Mona Island, with notes on their distribution, abundance, and host plants. Of this number of species, 197 were not previously known from the island. *Paradarnoides danforthi* n. sp. (Homoptera, Membracidae); *Paraprosopropis* n. gen., *Paraprosopropis monensis* n. sp. (Homoptera, Kinnaridae); *Flatoidinus pseudopunctatus* n. sp. (Homoptera,

Flatidae); *Ozophora octomaculata* n. sp. (Hemiptera, Lygaeidae); *Ptychopoda monata* Forbes, n. sp. (Lepidoptera, Geometridae) described. The insect fauna of Mona Island is analyzed and discussed.

BIBLIOGRAPHY

- Anthony, H. E., Mammals of Porto Rico (Living and extinct). Chiroptera and insectivora. Sci. Surv. Porto Rico and Virgin Islands, **9**: 1-96; pls. 1-15, figs. 1-1925.
- Banks, Nathan, Antillean Isoptera. Bull. Museum Comp. Zool. Harvard Coll., **478**, 1919.
- Barber, Harry Gardner, A preliminary report on the Hemiptera-Heteroptera of Porto Rico collected by the American Museum of Natural History. American Mus. Nov., **75**: 1-13. 1923.
- Insects of Porto Rico and the Virgin Islands. Hemiptera-Heteroptera (except the Miridae and Corixidae). Sci. Surv. Porto Rico and Virgin Islands, **14**: 241; figs. 1-36. 1939.
- Bequaert, J. C., The Tabanidae of the Antilles. Rev. Ent., **11**: 253-369; figs. 1-1940.
- Blackwelder, Richard E., Check list of the coleopterous insects of Mexico, Central America, the West Indies, and South America. Parts I-II. Bull. United States Nat. Mus., **85**: 1-341. 1944.
- Blatchley, W. S., Heteroptera or True Bugs of Eastern North America, **1926**: 1-11; pls. 1-12, figs. 1-215. 1926.
- Britton, Nathaniel Lord, The vegetation of Mona Island. Ann. Missouri Bot. Gard., **2**: 33-59; pls. 1-2. 1915.
- Brunner, v. Wattenwyl, K., and Redtenbacher, Jos., Die Insektenfamilie der Phasmiden. Lfg. 3 (Schluss: Phasmodidae anareolatae (Phibalosomini, Acrophyllini, Necrosciini). Bearb. v. J. Redtenbacher. Leipzig, **1908**: 340-589; 12 Taf. 1908.
- Comstock, William Phillips, Insects of Porto Rico and the Virgin Islands. Lepidoptera-Rhopalocera. Papilionoidea, Hesperioidea. Sci. Surv. Porto Rico and Virgin Islands, **12**: 421-622; pls. 1-12, figs. 1-28. 1944.
- Comstock, William Phillips, and Huntington, Edgard Irving, Lycaenidae of the Antilles (Lepidoptera, Rhopalocera). Ann. New York Acad. Sci., **45**: 49-130; pls. 1-1943.
- Curran, C. H., New Diptera from the West Indies. American Mus. Nov., **220**: 1-1926.
- New neotropical and oriental Diptera in the American Museum of Natural History. American Mus. Nov., **245**: 1-8; fig. 1. 1927.
- Insects of Porto Rico and the Virgin Islands. Diptera or two-winged flies. Sci. Surv. Porto Rico and Virgin Islands, **11**: 1-118; figs. 1-38. 1928.
- Danforth, Stuart Taylor, New records for Mona Island, West Indies. Auk, **53**: 1-1936.
- Doering, Kathleen Clare, The genus *Acanalonia* in America north of Mexico (Fulgoroidea, Homoptera). Ann. Ent. Soc. America, **25**: 758-786; pls. 1-4. 1932.
- Fennah, R. G., Notes on the flatid genus *Ormenis* in the British Lesser Antilles and Trinidad, with descriptions of new species (Homoptera-Fulgoroidea). Proc. Ent. Soc. Washington, **43**: 191-210; pls. 20-21. 1941.
- New or little-known West Indian Kinnaridae (Homoptera-Fulgoroidea). Proc. Ent. Soc. Washington, **44**: 99-110; pls. 8-9. 1942.
- Fowler, William Weeks, Some new species of Membracidae. Trans. Ent. Soc. London, **1894**: 415-424. 1894.
- Goding, Frederic Webster, Classification of the Membracidae of America. Jour. New York Ent. Soc., **34**: 295-317. 1926.
- Revision of the Membracidae of South America and the Antilles. Jour. New York Ent. Soc., **35**: 183-191. 1927.
- Guernsey, Ashley B., Studies in certain genera of American Blattidae (Orthoptera). Proc. Ent. Soc. Washington **39**: 101-112; pl. 1. 1937.
- Hebard, Morgan, Studies in the group Ischnopterites. Trans. American Ent. Soc., **42**: 367-9; pl. 23, figs. 14-17. 1916.
- Klots, E. B., Insects of Porto Rico and the Virgin Islands. Odonata or dragon flies. Sci. Surv. Porto Rico and Virgin Islands, **14**: 1-107. 1932.
- Long, C. W., and Mutchler, A. J., A preliminary list of the Coleoptera of the West Indies as recorded to January 1, 1914. Bull. American Mus. Nat. Hist., **33**: 391-493. 1914.
- The Lycidae, Lampyridae and Cantharidae (Telephoridae) of the West Indies. Bull. American Mus. Nat. Hist., **46**: 413-499; figs. 1-65. 1922.
- Leonard, Mortimer D., Notes on insect conditions in Puerto Rico for the fiscal year, July 1931 thru June 1932. Jour. Dept. Agr. Porto Rico, **17**: 97-137. 1933.
- Lobeck, Armin K., The physiography of Porto Rico. Sci. Surv. Porto Rico and Virgin Islands, **1**: 372-3. 1922.
- Mann, W. M., Additions to the ant fauna of the West Indies and Central America. American Mus. Nov., **42**: 403-439. 1920.
- Moser, J., Neue Melolonthiden von Mittel- und Sud-Amerika. Stett. Ent. Zeit., **82**: 133-182. 1921.
- Osborn, Herbert, Insects of Porto Rico and the Virgin Islands. Homoptera (excepting the Sternorhynchi). Sci. Surv. Porto Rico and Virgin Islands, **14**: 111-260; figs. 1-71. 1935.
- Rehn, J. A. G., and Hebard, Morgan, The Orthoptera of the West Indies. Number 1. Blattidae. Bull. American Mus. Nat. Hist., **54**: 1-320; pls. 1-15. 1927.
- Schaus, William, Insects of Porto Rico and the Virgin Islands. Moths of the families Geometridae and Pyralididae. Sci. Surv. Porto Rico and Virgin Islands, **12**: 291-417. 1940.
- Schmidt, Karl Peterson, Amphibians and land reptiles of Porto Rico. Sci. Surv. Porto Rico and Virgin Islands, **10**: 1-150; figs. 1-52. 1928.
- Schwarz, O., Neue Elateriden. Stett. Ent. Zeit., **1092**: 194-316. 1902.
- Smith, Marion R., The Ants of Puerto Rico. Jour. Agr. Univ. Puerto Rico, **20**: 819-875; figs. 1-19. 1937.
- Ants of the genus *Cardiocondyla* Emery in the United States. Proc. Ent. Soc. Washington, **46**: 30-41; pl. 1. 1944.
- Van Duzee, M. C., New Dolichopodidae from the West Indies. American Mus. Nov., **262**: 1-10. 1927.
- Wetmore, Alexander, The birds of Porto Rico and the Virgin Islands. Sci. Surv. Porto Rico and Virgin Islands, **9**: 245-598. 1927.
- Wheeler, W. M., New and little known ants of the genera *Macromischa*, *Croesomyrmex*, and *Antillaemyrmex*. Bull. Mus. Comp. Zool. Harvard Coll., **72**: 1-34. 1931.

- Neotropical ants collected by Dr. Elizabeth Skwarra and others. Bull. M. Comp. Zool. Harvard Coll., **77**: 169-240; figs. 1-6. 1934.
- Wolcott, George N., "Insectae Borinquensis". A revised annotated check-list of insects of Porto Rico. Jour. Agr. Univ. Puerto Rico, **20**: 1-600; figs. not numbered (71-111; 30 figs.). 1936.
- Entomological investigations. Ann. Rept. Porto Rico Agr. Exp. Sta., **1937**: 33-34. 1939.
- Supplement to "Insectae Borinquensis". Jour. Agr. Univ. Puerto Rico, **25**: 158. 1941.
- Wolcott, George N., and Martorell, Luis F., Introduced lady beetles on Mona Island. Jour. Ec. Ent., **37**: 451-452. 1944.

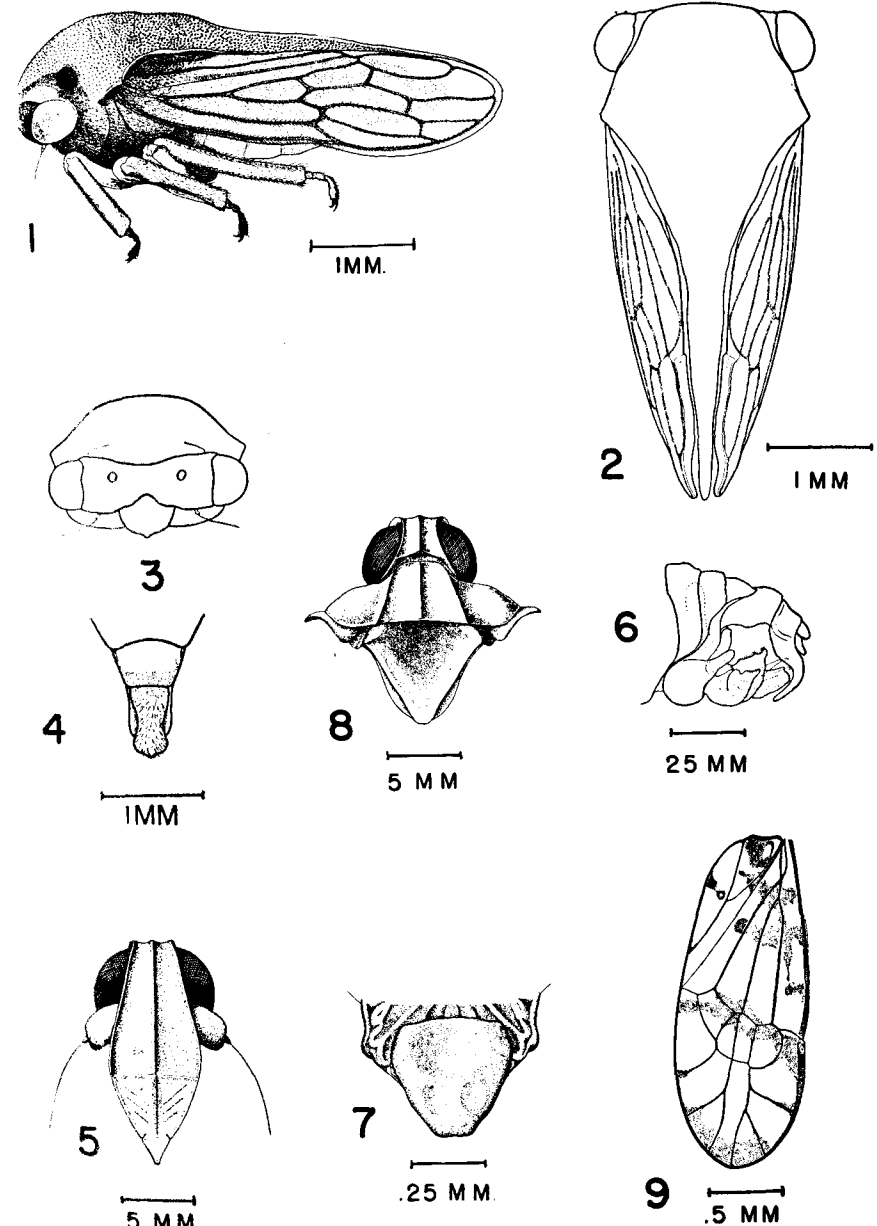
EXPLANATION OF PLATES

PLATE I

1. *Paradarnoides danforthi* sp. nov.; lateral view. 2. Dorsal outline. 3. Frontal view of head. 4. Male genitalia. 5. *Paraprosoprops monensis* sp. nov.; frontal view of head. 6. Lateral view of male genitalia. 7. Ventral view of female genital plate. 8. Dorsal view of head and thorax. 9. Tegmen.

PLATE II

10. *Flatoidinus pseudopunctatus* sp. nov.; dorsal view of head and thorax. Frontal view of head. 12. Ventral view of female genitalia. 13. Ventral view of male genitalia. 14. *Melormenis antillarum* Kirkaldy; ventral view of male genitalia. 15. *Flatoidinus pseudopunctatus* sp. nov.; lateral view of male genitalia. 16. *Coptera flavifrons* Osborn; lateral view of male genitalia. 17. *Melormenis antillarum* Kirkaldy; lateral view of male genitalia. 18. *Petrusa marginata* Brunnich; male genitalia of dark form. 19. Male genitalia of pale form. 20. *Ozophora octomaculata* sp. nov.; dorsal view.



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