

Checklist of the Known Insects of Tobago, West Indies

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ABSTRACT

Tobago is a small continental island near the southern end of the West Indian island chain. It shares substantial biotic affinity with the larger nearby island of Trinidad, although it has received considerably less scientific attention. The known insect species of Tobago are listed based on published and unpublished sources. These amount to slightly fewer than 2000 species, which is undoubtedly just a fraction of the true total. Attention is drawn to taxa that appear to be fairly well known and to some others that are certainly present but from which no species have yet been recorded.

Keywords; biodiversity, Caribbean, species richness, Trinidad & Tobago

INTRODUCTION

Tobago, with a land area of about 300 km², is the smaller of the two main islands making up the national territory of Trinidad & Tobago. The two, along with associated smaller islands, are continental islands with a biota largely harmonic with that of the nearby South American mainland (Baksh-Comeau *et al.* 2016, Peck *et al.* 2002, Starr 2009, Vázquez-Miranda *et al.* 2007). Figures from well-studied taxa suggest that Tobago harbours roughly 1% of the world's diversity in land and freshwater organisms, including land arthropods (CKS, unpublished compilation). However, for most orders of land arthropods, the fauna of Tobago is much less thoroughly surveyed than that of Trinidad. Trinidad has 16 times the land area of Tobago and so is expected by the species-area relationship to have about 2.3 times as many species (Spiller and Schoener 2009). Data from the several well-studied groups of plants and animals mostly corroborate this prediction (Baksh-Comeau *et al.* 2016, Barcant 1970, Boos 2001, Comeau *et al.* 2003, Gomes and Reid 2015, Murphy *et al.* 2018, Nelson 1996, Nieser and Alkins-Koo 1991, Phillip and Ramnarine 2001, Scheffrahn *et al.* 2003, Townsend *et al.* 2013, Schultes 1960). However, even taking into account this difference in size, Tobago has received much less attention from biodiversity scientists.

Based on extrapolation from established facts, Trinidad and Tobago as a whole is estimated to have about 230,400 species of insects (Starr 2014). This leads to a conjectured total of about 100,000 species for Tobago alone. Listed below are 550 species. Adding to these the 51 known species of termites (Scheffrahn *et al.* 2003), 672 of beetles (Peck *et al.* 2002) and 623 of moths and butterflies (Cock *et al.* in press), we reach a total for Tobago of 1896 known species. This is less than 2% of the projected true figure. Either there is a major flaw in the projection or the Tobago fauna is even more grossly under-explored than we imagined.

The lack of attention to some taxa is illustrated by the phrase "None recorded" after 11 of the smaller orders. In most of these it seems unlikely that the island harbours no

species at all. For example, how credible is it that there are no webspinners (Embiidina) or fleas (Siphonaptera) in Tobago? In a few cases we can predict the presence of an unrecorded taxon because of the presence of parasites or other symbionts. As an example, six species of native fig trees (Moraceae: *Ficus*) are known from Tobago (Baksh-Comeau *et al.* 2016), so that we can be sure there at least that many species of fig wasps (Hymenoptera: Agaonidae).

We have not identified any species of special conservation interest. This may be more a result of a paucity of studies directed toward particular species than a reflection of the real situation.

With the goals of compiling what is known and especially of identifying unknowns in this topic, we present a checklist of insects that we believe are reliably reported from Tobago. This project was initiated by the second author. Dave Hardy had a special interest in Tobago and its biota that he pursued over several decades, with a great many field trips to the island (Starr & Sewlal 2009). Leadership in the project later passed to the first author. The list was compiled from a broad variety of sources. In the few cases where checklists for Tobago have been published recently in readily accessible form, these are cited without repeating their contents.

We are indebted a number of specialists for their generous advice and other assistance: Nancy Adams (Odonata), Robert W. Brooks (Hymenoptera), J. M. F. Camargo (Hymenoptera), Matthew W. J. Cock (Lepidoptera), Mark B. DuBois (Hymenoptera), Terry Griswold (Hymenoptera), E. Geoffrey Hancock (Diptera), Wayne Mathis (Diptera), Arnold S. Menke (Hymenoptera), Thomas Muir (Blattaria), Allen L. Norrbom (Diptera), Nancy Rybicki (Orthoptera), David R. Smith (Hymenoptera) and Gary J. Steck (Diptera), and to Michael P. Oatham for a bibliographic assist. Our search included examination of the Museum of Zoology at the University of the West Indies (UWIZM), but not of any overseas collections.

The delimitation and sequence of orders follows that recommended by the Royal Entomological Society (2022). All living orders known or expected to be found in our region are included, even the few for which no species is definitely known from Tobago. Some orders are divided into suborders. For some orders, we indicate where we follow other schemes. Authors of species names are indicated but not the year or citations to original descriptions

We include some common names, without attempting a rigorous compilation of such names. Many flying insects have “fly” in their common names. By convention, the name is rendered as two words where these are members of the order Diptera (true flies), and as a single word when they are not true flies. For example, crane flies, horse flies and soldier flies belong in the Diptera, while caddisflies, dragonflies and butterflies do not.

The use of “*Genus* sp.” indicates an unidentified species in that genus, while “*Genus* spp.” indicates two or more unidentified species. The abbreviations “nr.,” “poss.” and “prob.” indicate uncertain species near, possibly or probably the species named.

Advice for collectors

Specialists wishing to collect land arthropods in Trinidad & Tobago for taxonomic or faunistic study are advised to make advance contact with one or both of the following authorities, depending on the island:

Tobago - Assistant Conservator of Forests, Tobago House of Assembly, Scarborough; attention Mr Darren Henry. Email dfs-administrator@gov.tt or wendell.bernard@gov.tt

Trinidad - Wildlife Section, Forestry Division, St Joseph; attention Mr David Mahabir (email david.mahabir@gov.tt) or Mr Christopher Nakhid (email christopher.nakhid@gov.tt).

This contact information is accurate as of the time of writing (April 2022). In your initial communication it is advised to say a) approximately when you plan to be in the country, b) the taxa of main interest, c) roughly how many specimens you hope to collect, and d) the main intended repositories of the material. It will still be necessary to appear in person for the collecting permit, but this advance notice will allow the authority to give assurance that this will be forthcoming.

Procedures for obtaining collecting and export permits in Trinidad & Tobago are relatively straightforward and unbureaucratic. Specialists can do their part to ensure that this continues to be the case by strictly observing all indicated protocols, making due acknowledgement in any

publications drawing on the material collected, and sending copies of all such publications to the relevant authorities. Once specimens are identified, it will be appropriate to deposit a modest set of duplicates in the UWIZM. The Zoology Museum has no primary types and the current operating policy is to not receive them. However, where the type series of any new species is sufficiently long, it will be appropriate to deposit a small number of paratypes. Much of this is not legal requirement, just good practice.

Known Insects of Tobago, West Indies

Order COLLEMBOLA Springtails
(syn. Microcoryphia)
Unidentified spp.

Order ARCHAEOGNATHA Bristletails
None recorded.

Order ZYGENTOMA Silverfish and firebrats
None recorded.

Order EPHEMERIDA Mayflies
(syn. Ephemeroptera)
None recorded.

Order ODONATA Dragonflies and damselflies
Mainly from Michalski 2015.

SubOrder ZYGOPTERA Damselflies

CALOPTERYGIDAE
Hetaerina occisa Hagen

COENAGRIONIDAE
Argia difficilis Selys
Argia oculata Hagen
Argia orichalcea Hagen
Argia pulla Hagen
Argia translata Hagen
Ischura ramburii (Selys)

SubOrder ANISOPTERA Dragonflies

AESCHNIDAE
Gynacantha nervosa Rambur

LIBELLULIDAE
Brachymesia furcata (Hagen)
Brachymesia herbida (Gundlach) -Tawny pennant
Dythemis sterilis Hagen
Erythemis plebeja (Burmeister)

Erythrodiplax berenice (Drury)
Erythrodiplax connata (Burmeister)
Erythrodiplax fusca (Rambur)
Erythrodiplax ochracea (Burmeister)
Erythrodiplax umbrata (Linnaeus)
Erythemis attala (Selys)
Erythemis vesiculosa Fabricius
Micrathyria didyma (Selys)
Micrathyria ocellata Martin
Micrathyria aequalis Hagen
Orthemis ferruginea (Fabricius)
Pantala flavescens Fabricius
Tramea calverti Muttkowski

Order DERMAPTERA Earwigs

CARCINOPHORIDAE

Euborellia carai-bea Hebard

FORFICULIDAE

Kleter rehni (Burr)

LABIDURIDAE

Luborella sp.

LABIIDAE

Spongiphora croceipennis Serville

Order DICTYOPTERA Cockroaches, termites and mantises

Until recently this group was treated as three Orders: Blattaria (or Blattodea), Isoptera and Mantodea. The classification of this Order is still in flux, so that we have not divided it into SubOrders. See Scheffrahn *et al.* 2003 for a list of termites (families Kalotermitidae, Rhinotermitidae and Termitidae), comprising 51 species with later records included. The mantises (families Acanthopidae, Mantidae and Thespidae) are from Anderson (2021).

ACANTHOPIDAE

Acanthops parafalcata Lombardo & Ippolito

BLABERIDAE

Blaberus sp.
Epilampra sp.

BLATTIDAE

Eurycotis decipiens (Kirby)
Periplaneta americana (Linnaeus) -American cockroach

ECTOBIIDAE

Cariblatta tobagensis Hebard

MANTIDAE

Stagmatoptera cerdai Rodrigues
Stagmatoptera septentrionalis Saussure & Zehntner

THESPIDAE

Bantiella trinitatis Giglio-Tos

Order PHASMIDA Stick insects (syn. Phasmatodea)

(From Langlois & Bellanger 2012).
Bostra tobagoensis Langlois & Bellanger
Brizoides amabilis Redtenbacher
Caribiopherocra trinitatis (Werner)
Creoxylas spinosus (Fabricius)
Metriophasma pallidum (Chopard)
Ocnophiloidea regularis (Brunner)
Paraphanocles keratoskeleton Olivier

Order EMBIIDINA Webspinners

(syn. Embioptera)
 None recorded.

Order ORTHOPTERA Grasshoppers and crickets

ACRIDIDAE Short-horned grasshoppers

Abracris flavolineata DeGeer -Yellow-lined grasshopper
Orphulella punctata (DeGeer)
Schistocerca gregaria (Forskål) -Desert locust (sporadic)

GRYLLOTALPIDAE Mole crickets

Scapteriscus vicinus (Scudder) -Tawny mole cricket

ROMALEIDAE

Tropidacris cristata (Linn.)

TETTIGONIIDAE Long-horned grasshoppers, or bush-crickets

Conocephalus nr. *versicolor* Redtenbacher
Neoconocephalus sp.
Steirodon sp.

TRIDACTYLIDAE Pygmy mole crickets

Tridactylus minutus Scudder

Order PLECOPTERA Stoneflies

None recorded.

Order ZORAPTERA Angel insects

None recorded.

Order HEMIPTERA

SubOrder AUCHENORRHINCHA

CERCOPIIDAE Froghoppers, or spittlebugs

Aeneolamia postica Walker*Aeneolamia varia* (Fabr.)

CICADELLIDAE Leafhoppers

Unidentified spp.

CICADIDAE Cicadas

Quesada gigas (Olivier)

MEMBRACIDAE Treehoppers

Unidentified spp.

SubOrder STERNORRYHNCHA

APHIDIDAE Aphids

Sipha flava (Forbes) -Yellow sugarcane aphid

ASTEROLECANIIDAE Pit scales

Asterolecanium bambusae (Boisduval)*Asterolecanium pseudomiliaris* Green*Asterolecanium pustulans* (Cockerell) -Akee fringed scale

COCCIDAE Soft-scaled coccids

Akermes secretus Morrison*Aspidiotus destructor* Sign -Coconut nipple scale*Planococcus citri* Risso

ERIOCOCCIDAE

Trionymus sacchari (Cockerell) -Pink mealybug

ORTHEZIIDAE

Icerya montserratensis Riley & Howard -Snowy cushion scale*Icerya simillis* Morrison

PSEUDOCOCCIDAE Mealybugs

Dysmicoccus brevipes (Cockerell) -Pineapple mealybug*Ferrisia virgata* (Cockerell)*Nipaecoccus nipae* (Maskell)*Phenacoccus herreni* Cox & Williams -Cassava mealybug*Phenacoccus madeirensis* Green*Phenacoccus* nr. *surinamensis* Green*Pseudococcus elisae* Borchsenius

PUTOIDAE Giant mealybugs

Puto barberi (Cockerell)

SubOrder HETEROPTERA

Aquatic families (Gerridae, Mesaveliidae, Ochteridae and Veliidae) mainly from Nieser & Alkins-Koo (1991).

COREIDAE Leaf-footed bugs

Jadera aeola Dallas

GERRIDAE Water striders

Brachymetra albinervis (Amyot & Serville)*Brachymetra unca* Shaw*Limnogonus franciscanus* (Stål)*Trepobates taylori* (Kirkaldy)

LYGAEIDAE Seed bugs

Oncopeltus cingulifer Stål*Oncopeltus varicolor* Fabricius*Ortholomus* sp.*Ozophora agilis* Slater*Ozophora burmeisteri* Guérin-Méneville*Pseudopachybrachius vinctus* (Say)

MESOVELIIDAE Water treaders

Mesovelia amoena Uhler*Mesovelia mulsanti* White

MIRIDAE Plant bugs, or leaf bugs

Engytatus varianus (Distant)

NABIDAE Damsel bugs

Arachnocoris sp.

OCHTERIDAE

Buenoa platycnemis (Fieber)*Ochterus perbosci* (Guérin-Méneville)

PENTATOMIDAE Stink bugs

Edessa nr. *meditabunda* Fabricius*Thyanta testacea* (Dallas)*Thyanta vadosa* Rider

PYRRHOCORIDAE Cotton stainers

Dysdercus howardi Ballou*Dysdercus mimus* (Say)

REDUVIIDAE Assassin bugs

Unidentified spp.

RHYPAROCHROMIDAE

Botocudo fasciatus Brambila

SCHIZOPTERIDAE Jumping ground bugs

Hoplonannus craneae Emsley*Hoplonannus paenebrunneus* Emsley

TINGIDAE Lace bugs

Teleonema scrupulosa (Stål) -Lantana lace bug

VELIIDAE Riffle bugs

Microvelia hinei Drake
Microvelia longipes Uhler
Microvelia mimula White
Microvelia pseudomarginata Nieser & Alkins-Koo
Microvelia pulchella Westwood
Microvelia nr. tumida Drake & Roze
Paravelia brachialis (Stål)
Rhagovelia insularis Champion
Rhagovelia tenuipes Champion
Trochopus plumbeus (Uhler)

Order PHTHIRAPTERA Lice

Formerly treated as two Orders, the Anoplura (sucking lice) and Mallophaga (chewing lice).

TRICHODECTIDAE

Bovicola ovis (Linnaeus)

Order PSOCIDA Booklice and barklice

(syn. Psocoptera)
 Unidentified sp.

Order THYSANOPTERA Thrips

THRIPIDAE Saw-bearing thrips

Corynothrips stenopterus Williams -Cassava thrips
Selenothrips rubrocinctus (Giard)

Order COLEOPTERA Beetles

See Peck *et al.* 2002 for a list of 672 species from 69 families.

Order DIPTERA Flies

Classification according to Pape *et al.* (2011).

SubOrder NEMATOCERA

CECIDOMYIIDAE Gall midges

Iatrophobia brasiliensis (Ruebsaamen)

CERATOPOGONIDAE Biting midges

Atrichopogon caribbeanus Ewen
Culicoides amazonius McFie
Culicoides furens (Poey)
Culicoides heliconiae Fox & Hoffman
Culicoides phlebotomus (Williston)
Forcipomyia caribbeana Saunders
Leptoconops bequaerti (Kieffer)

CULICIDAE Mosquitoes

Aedes aegypti (Linnaeus)
Aedes berlini Schick

Aedes fulvithorax (Lutz)
Aedes scapularis (Rondani)
Aedes nr. serratus Theobald
Aedes taeniorhynchus (Wiedemann)
Anopheles apicimacula Dyar & Knab
Anopheles aquasalis Curry
Anopheles neomaculipalpus Curry
Corethrella appendiculata Grabham
Corethrellan nr. downsi Lane
Culex conservator Dyar & Knab
Culex conspirator Dyar & Knab
Culex corniger Theobald
Culex coronator Dyar & Knab
Culex decorator Dyar & Knab
Culex idottus Dyar
Culex nr. inflictus Theobald
Culex inimitabilis Dyar & Knab
Culex lucifugus Komp
Culex mollis Dyar & Knab
Culex nigripalpus Theobald
Culex pedroi Sirivanakarn & Belkin
Culex nr. pleuristriatus Theobald
Culex quinquefasciatus Say
Deinocerites magnus (Theobald)
Haemagogus celeste Dyar & Núñez-Tovar
Haemagogus equinus Theobald
Haemagogus janthinomys Dyar
Johnbelkinia ulopus (Dyar & Knab)
Limatus asulleptus (Theobald)
Limatus durhamii Theobald
Lutzomiops sp.
Mansonia titillans (Walker)
Phoniomyia trinidadensis (Theobald)
Psorophora cingulata (Fabricius)
Psorophora ferox (Humboldt)
Toxorhynchites noctezuma (Dyar & Knab)
Toxorhynchites superbus (Dyar & Knab)
Trichoprosopon digitatum (Rondani)
Uranotaenia lowii Theobald
Wyeomyia arthrostroma (Lutz)
Wyeomyia nr. bourrouli Lane & Cerqueira
Wyeomyia nr. felicia Dyar & Núñez-Tovar
Wyeomyia grayii Theobald
Wyeomyia longirostris Theobald
Wyeomyia melanocephala Dyar & Knab
Wyeomyia pertinans Williston
Wyeomyia nr. pseudopecten Dyar & Knab
Wyeomyia nr. ulocoma (Theobald)
Wyeomyia ypsipola Dyar

PSYCHODIDAE Moth flies and sand flies

Atrichobrunettia insularis Wagner

Clogmia albipunctatus (Williston)
Maruina tobagensis Wagner
Setomima stylappendiculata Wagner

SIMULIIDAE Black flies

Simulium placidum Knab
Simulium mexicanum Bellardi

TIPULIDAE Crane flies

Unidentified sp.

SubOrder BRACHYCERA: ORTHORRHAPHA

ASILIDAE Robber flies

Ommatius infractus Scarbrough

STRATIOMYIDAE Soldier flies

Euyneura elegans Williston
Heteracanthia sp.
Micorchrysa bicolor Wiedemann
Sargus fasciatus Fabricius

TABANIDAE Horse flies

Stenotananus tobagensis Fairchild
Tabanus amplifrons Krober
Tabanus leucaspis Wiedemann
Tabanus trilineatus Latreille

SubOrder BRACHYCERA: ASCHIZA

SYRPHIDAE Flower flies, or hover flies

Salpingogaster nigra Schiner
Toxomerus confusus (Schiner)

SubOrder BRACHYCERA: SCHIZIPHORA

AGROMYZIDAE Leaf-miner flies

Ophiomyia lantanae (Froggatt)

CANACIDAE Beach flies

Paracanace aicen Mathis & Wirth
Nocticanace texensis (Wheeler)

CHLOROPIDAE Frit flies, or grass flies

Liohippelates currani (Aldrich)
Liohippelates peruanus (Becker)

EPHYDRIDAE Shore flies

Allotrichoma abdominale (Williston)
Allotrichoma slossonae Cresson
Athyroglossa glaphyropus Loew
Athyroglossa atra (Williston)

Athyroglossa nitida (Williston)

Athyroglossa similis (Cresson)

Atissa luteipes Cresson

Brachydeutera neotropica Wirth

Ceropsilosa coquilletti Cresson

Ceropsilosa nasuta Cresson

Clasiopella uncinata Hendel

Cressonomyia aciculata (Loew)

Dagus rostratus (Cresson)

Diphuia zatwarnickii Mathis

Discocerina balsamae (Cresson)

Discocerina flavipes Cresson

Discocerina nana Williston

Discocerina nitida Cresson

Discocerina (*Discocerina*) 2 spp.

Discocerina (*Lamproclosiopa*) sp.

Gastrops niger Williston

Hyadina bulbosa Clausen

Hydrellia tibialis Cresson

Hydrochasma faciale (Williston)

Hydrochasma 3 spp.

Leptopsilopa lineanota Cresson

Leptopsilopa nigricoxa (Williston) Cresson

Leptopsilopa nigrimana (Williston)

Notiphila bellula Williston

Notiphila erythrocerata Loew

Notiphila decorata Williston

Paraglenanthe bahamensis Wirth

Paralimna decipiens Loew

Paralimna multipunctata Williston

Paralimna obscura Williston

Paralimna (*Paralimna*) 3 spp.

Paratissa pollinosa (Williston)

Physenops sp.

Placopsidella cynocephala Kertesz

Polytrichophora conciliata Cresson

Polytrichophora reginae Mathis

Polytrichophora desmata (Williston)

Psilopa pulchripes Loew

Ptilomyia parva (Williston)

Ochthera loreta Cresson

Typopsilopa nigra (Williston)

Zeros calverti (Cresson)

Zeros fenestralis (Cresson)

Zeros flavipes (Williston)

Zeros obscurus (Cresson)

LONCHAEIDAE Lance flies

Lonchaea chalybea Wiedemann

MICROPEZIDAE Stilt-legged flies

Unidentified spp.

MILICHIIDAE

Desmometopa obscurifrons Sabrosky
Desmometopa tarsalis Lowe
Desmometopa woldai Sabrosky

MUSCIDAE

Ophyra aenescens (Wiedemann)

SARCOPHAGIDAE Flesh flies

Paraphrissopoda chrysostoma (Wiedemann)
Paraphrissopoda lithogaster (Curran & Walley)
Paraphrissopoda uncinata (Hall)
Sarcodexia sternodontes Townsend

STREBLIDAE Bat flies

Megistopoda aranea (Coquillett)

TEPHRITIDAE Fruit flies

Anastrepha fraterculus (Wiedemann)
Anastrepha mombinpraeoptans Sein
Anastrepha striata Schiner

ULIDIDAE Picture-wing flies

Euxesta spp.

Order SIPHONAPTERA Fleas

None recorded.

Order HYMENOPTERA Wasps, bees, and ants

Family classification according to Goulet & Huber (1993). The informal division of the Apocrita into Parasitica and Aculeata is used here, even as it is now generally agreed that the former is paraphyletic. The known aculeates of the island of Trinidad, which are expected to include almost all species found in Tobago, are listed by Starr & Hook (2003).

SubOrder SYMPHYTA Sawflies and horntails

ARGIDAE

Ptilia peletieri (Gray)

PERGIDAE

Perreyiella tobagoensis Smith

TENTHREDINIDAE Common sawflies

Waldheimia laeta (Cameron)
Waldheimia pallens (Klug)

SubOrder APOCRITA: PARASITICA

AGAONIDAE Fig wasps

Unidentified species

APHELINIDAE

Encarsiella noyesi Hayet
Paraphelinus sp.

BRACONIDAE

Apanteles etiellae Viereck
Apanteles plutellae Kurdjunov
Bracon cajani (Muesebeck)
Bracon hebetor Say
Bracon thurberiphagae (Muesebeck)
Chelonus formosanus Sonan
Microbracon sp.
Opius sp.
Phanerotoma bennetti Muesebeck

CERAPHRONIDAE

Aphanogmus at least 3 spp.
Ceraphron at least 5 spp.

CHALCIDIDAE

Chalcis ovata Say

DIAPRIIDAE

Acanthopria sp.
Basalys sp.
Caecopria sp.
Coptera sp.
Doliopria at least 3 spp.
Idiotype sp.
Monelata sp.
Paramesius sp.
Peckidium sp.
Pentapria sp.
Spilomicrus sp.
Trichopria at least 12 spp.

ENCYRTIDAE

Achrysopophagus sp.
Adelencyrtus moderatus (Howard)
Aenasius advena Compere
Apoanagyris diversicornis (Howard)
Coccidoctonus sp.
Gahaniella sp.
Leptomastix dactylopii Howard
Ooencyrtus submetallicus (Howard)
Protyndarichus nitidus (Howard)
Psyllaephagus rotundiformis (Howard)
Thysanus sp.
Zeteticontus scutellatus (Howard)

EUCHARITIDAE

Unidentified sp.

EULOPHIDAE

Centroдора sp.*Tetrastichus sokolowskii* Kurdjunov

EUPELMIDAE

Brasema sp.*Zaischnopsis* sp.

ICHNEUMONIDAE

Campoletis chloridae Uchida*Campoletis flavicincta* (Ashmead)*Eiphosoma annulatum* Cresson

MYMARIDAE Fairyflies

Acmopolynema sp.*Arescon* sp.*Camptoptera* sp.*Cleruchus* sp.*Dicopomorpha* sp.*Gonatocerus* sp.*Litus* sp.*Myrmecomymar* sp.*Neostethynium* sp.*Omyomymar* sp.

PERILAMPIDAE

Unidentified sp.

PLATYGASTRIDAE

Amblyaspis sp.*Baeus* sp.*Calotelea* at least 3 spp.*Calliscelio* at least 4 spp.*Cremastobaeus* sp.*Dyscritobaeus* sp.*Euxestonotus* sp.*Fidiobia* sp.*Gryon* sp.*Idris* at least 12 spp.*Iphitrachelus* sp.*Isostasius* sp.*Leptacis* at least 4 spp.*Metanopedias* sp.*Oethecoctonus* at least 3 spp.*Opisthacantha* at least 5 spp.*Parabaeus* sp.*Paridruss* at least 2 spp.*Platygaster* at least 3 spp.*Proberyconus* at least 2 spp.*Psilanteris* at least 2 spp.*Synopeas* at least 6 spp.*Telenomus remus* Nixon*Telenomus* at least 9 additional spp.*Tromorus* at least 3 spp.*Triteleia* sp.

PTEROMALIDAE

Unidentified sp.

SIGNIPHORIDAE

Chartocerus sp.*Signiphora* sp.

TORYMIDAE

Unidentified sp.

TRICHOGRAMMATIDAE

Oligosita giraulti Crawford Vermilion parasite*Trichogramma achaeae* Nagaraja & Nagarkatti*Trichogrammatoidea armigera* Nagaraja*Trichogramma chiloetraeae* Nagaraja & Nagarkatti

SubOrder APOCRITA: ACULEATA

ANTHOPHORIDAE Carpenter bees and relatives

Ceratina nr. *auriviridis* Smith*Centris derasa* Lepeltier*Centris* (*Ceratinula*) 2 additional spp.*Epicharis rustica* (Olivier)*Exomalopsis* sp.*Xylocopa aeneipennis* DeGeer

APIDAE

Apis mellifera Linnaeus -Western honey bee*Melipona favosa* Fabricius -Moko chiquite*Plebeia* nr. *frontalis* (Friese) -Sugar-fly*Trigona* (*Frieseomelitta*) *nigra* Cresson*Trigona* (*Trigonisca*) sp.

BETHYLIDAE

Holepyris incertus (Ashmead)*Perisierola* sp.*Prosierola lata* (Cameron)

CRABRONIDAE

Liris sp.*Trypoxylon* (*Trypargilum*) *albitarse* Fabricius -Organ-pipe
mud-dauber*Trypoxylon* (*Trypargilum*) nr. *alfersi* Richards*Trypoxylon* (*Trypargilum*) *salti* Richards*Trypoxylon* (*Trypargilum*) *lactitarse* Saussure*Trypoxylon* (*Trypargilum*) *nitidum* Smith -Keyhole

mud-dauber

Trypoxylon (*Trypoxylon*) nr. *cornigerum* Cameron

Trypoxylon (Trypoxylon) nr. *grenadense* Richards
Trypoxylon (Trypoxylon) nr. *punctivertex* Richards
Trypoxylon (Trypoxylon) prob. *scrobiliferum* Richards
Trypoxylon (Trypoxylon) nr. *staudingeri* Richards
Trypoxylon (Trypoxylon) 3 spp. in *T. fabricator* group
Trypoxylon (Trypoxylon) 2 spp. in *T. marginatum* group
Trypoxylon (Trypoxylon) sp. in *T. scrobiliferum* group

FORMICIDAE Ants

Acromyrmex octospinosus Reich
Anochetus emarginatus (Fabr.)
Atta cephalotes Linnaeus -Leafcutter ant, or bachac
Azteca sp.
Camponotus atriceps (Smith) -Carpenter ant
Camponotus fastigiatus Mayr -Carpenter ant
Cephalotes atratus (Linnaeus) -Turtle ant
Cyphomyrmex rimosus Spinola
Cyphomyrmex bigibbosus Emery
Dolichoderus sp.
Eciton vagans Olivier -Army ant
Ectatomma ruidum Roger
Ectatomma tuberculatum (Olivier)
Labidus coecus (Latreille)
Lasiophanes sp.
Leptothorax sp.
Monacis valida Kempf
Monomorium ebeninum Forel
Mycetophylax conformis (Mayr)
Myrmicocrypta buenzlii Borgmeier
Odontomachus sp. -Trap-jaw ant, or tactac
Pheidole jelskii Mayr
Pheidole megacephala Fabricius -Big-headed ant
Platythyrea sp.
Prenolepis longicornis Latreille
Pseudomyrmex filiformis (Fabricius)
Solenopsis geminata Fabricius -Fire ant
Trachymyrmex relictus Borgmeier
Trachymyrmex urichi Forel
Wasmannia auropunctata (Roger) -Little fire ant

HALICITIDAE Sweat bees

Augochlorella sp.
Augochloropsis sp.
Lasioglossum poss. *pabulator* (Schrottky)
Lasioglossum opacum Moure
Lasioglossum seabrai Moure
Lasioglossum (Dialictus) 2 additional spp.
Megalopta sp.
Pereirapis caucasica (Radoszkowski)

MEGACHILIDAE Leafcutter bees

Megachile (Neomegachile) sp.

PEMPHREDONIDAE

Microstigmus sp.

POMPILIDAE Spider wasps

Salius opacifrons Fox
Several other unidentified spp.

VESPIDAE Potter wasps and social wasps

Polistes versicolor (Olivier)
Polybia occidentalis (Olivier)
Polybia rejecta (Fabricius)
Brachygastra nr. *bilineolata* Spinola

Order LEPIDOPTERA Moths and butterflies

See Cock (2017a-b; 2021) for lists of 150 species of butterflies in six families and 400 species of moths in 42 families. New records have since increased these figures to 157 species of butterflies and 466 of moths (Cock *et al.*, in press), an indication that the butterflies of Tobago appear reasonably well known at the faunistic level, the moths much less so.

Order MECOPTERA Scorpionflies

None recorded.

Order MEGALOPTERA Alderflies

None recorded.

Order NEUROPTERA Lacewings

MANTISPIDAE Mantidflies

Plega hanenella (Westwood)

Order STREPSIPTERA Stylops or stylopids

None recorded.

Order TRICHOPTERA Caddisflies

From Botosaneanu (2002) and Flint (1996).

ECNOMIDAE

Austrotinodes adamsae Flint

GLOSSOSOMATIDAE

Protoptila ignera Flint

HELICOPSYCHIDAE

Helicopsyche margaritensis Botosaneanu

HYDROPSYCHIDAE

Leptonema albovirens (Walker)
Smicridea anomala Flint & Denning
Smicridea bivittata (Hagen)
Smicridea tobada Flint & Denning

HYDROPTILIDAE

Cerasmatrix argylensis Flint, Harris & Botosaneanu
Hydroptila grenadensis Flint
Hydroptila tobago Botosaneanu
Leucotrichia botosaneanui Flint
Leucotrichia fairchildi Flint
Leucotrichia tritoven Flint
Metrichia geminata Flint
Metrichia platigona (Botosaneanu)
Neotrichia armata Botosaneanu
Neotrichia tauricornis Malicky
Neotrichia unamas Botosaneanu
Ochrotrichidia oblongata Bueno & Santiago
Oxyethira azteca (Mosley)
Rhyacopsyche duplicispina Flint
Zumatrichia anomaloptera Flint

LEPTOCERIDAE

Amphoropsyche sp.

PHILOPOTAMIDAE

Chimarra caribea Flint
Chimarra flinti Bueno-Soria
Chimarrhodella tobagoensis Blahnik & Holzenthal
Wormaldia planae Ross & King

POLYCENTROPODIDAE

Cernotina hastilis Flint
Cernotina mandeba Flint
Polyplectropus altmani Yamamoto
Polyplectropus pugiunculatus Botosaneanu

XIPHOCENTRONIDAE

Xiphocentron (Antillotrichia) piscicaudum Flint
Xiphocentron (Antillotrichia) stenotum Flint
Xiphocentron (Antillotrichia) sp.

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