

# Final Report



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# **Report Credits**

Compiled by Mike G. Rutherford<sup>1</sup>, with contributions from Faraaz Abdool<sup>2</sup>, Neil Cook<sup>3</sup>, Amy Deacon<sup>1</sup>, Shane Manchouck<sup>4</sup>, Ryan Mohammed<sup>1</sup>, John C. Murphy<sup>5</sup>, Darshan Narang<sup>6</sup>, Mike Oatham<sup>1</sup>, Luke Rostant<sup>1</sup>, Kris Sookdeo<sup>7</sup>

<sup>1</sup>Department of Life Sciences, Faculty of Science and Technology, The University of the West Indies, St. Augustine, Trinidad

<sup>2</sup>San Fernando, Trinidad

<sup>3</sup>Environmental Research Institute Charlotteville, Charlotteville, Tobago

<sup>4</sup>6 Fifth Street East, Montague Avenue, Trincity, Trinidad

<sup>5</sup>Research Associate, Field Museum, Chicago, Illinois, U.S.A.

<sup>6</sup>St. Augustine, Trinidad

<sup>7</sup>511 Clarke Road, Penal, Trinidad

### Corresponding author: mike.rutherford@sta.uwi.edu

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### **Executive Summary**

The fourth Trinidad & Tobago Bioblitz was conducted 24–25 October 2015, in and around Charlotteville, Tobago. Around 120 volunteers helped observe, collect, and identify a diverse range of organisms: plants, fungi, birds, mammals, reptiles, amphibians, terrestrial invertebrates and aquatic organisms. A variety of surveying methods was used, including direct observation, trapping, netting and sampling. More than 50 members of the public came to watch the volunteers at work and visit information stands staffed by members of various organisations. A total of 972 species were reported after 24 hours of surveying; this total was updated to 1044 after further analysis of specimens and results.

**Keywords:** biodiversity, biogeography, Caribbean, distribution, neotropics, survey, Tobago, West Indies

#### **Introduction**

Charlotteville was chosen as the location for the first-ever Tobago Bioblitz because of the wide range of habitats within a small area. The "top end" of Tobago has been a destination for naturalists for decades, with many new species having been discovered in the forests and seas. The village is also a welcoming destination for visitors, with accommodation and food being easily secured.

Mike G. Rutherford, Curator of the University of the West Indies Zoology Museum (UWIZM), organized the event, with help from members of the Trinidad & Tobago Field Naturalists' Club (TTFNC) and The University of the West Indies (UWI) Department of Life Sciences, St. Augustine, Trinidad, and in partnership with the Environmental Research Institute Charlotteville (ERIC).

The base camp for the Bioblitz was the ERIC headquarters on the edge of Charlotteville. The ground floor of the building was transformed into a display area/laboratory/equipment store/cafeteria for the duration of the event and was looked after by Lanya Fanovich and Eileen Rutherford.

Many members of the Bioblitz teams stayed at the Man O' War Bay cottages, with some people camping in the grounds whilst other participants used various guest houses in Charlotteville. The Tobago House of Assembly (THA) kindly allowed the use of the Charlotteville Rest House.

The Bioblitz started at 12:00 noon on Saturday 24 October and finished at 12:00 noon on Sunday 25 October 201. The final results were announced at around 13:00 on Sunday afternoon. The public were invited along to the base camp for Sunday morning.

Terrestrial surveying took place along several trails that had been previously selected to provide a diverse range of forest and vegetation types. For the marine surveying, several dive sites had been preselected by the team at ERIC.

Risk assessments were undertaken before the event, and safety information, including relevant points of contact for different eventualities, was provided to all participants.

A permit to conduct the survey and to collect certain specimens was issued by the THA Department for Natural Resources and the Environment.

The weather during the 24-hour period was variable. On Saturday it was overcast from noon, with a brief rain shower around 15:00, but this soon cleared, and the rest of the day and the early evening were dry. Around midnight showers started again. On Sunday the weather was clear at dawn but around 08:00 changed to very heavy rain until around 10:30 and then stayed overcast for the rest of the event.

#### **Methods**

Experts and volunteers grouped themselves together and prepared a plan of action for their teams before the event began.

#### Plants

The team was led by Mike Oatham from UWI. The survey area was examined on the USDA Forest Service map of ecosystems and a topographic map. All of the different ecosystem types were noted, and the access points (roads and trails marked on the maps and known to group members and Bioblitz organizers) were also noted. The group was split into three parties for the first day (12:00 to 18:00) in order to cover the maximum number of ecosystem types, given the topography and availability of access points. One group concentrated on walking a trail to reach Pigeon Peak, the highest point in the area, which also boasted undisturbed Montane and Lower Montane vegetation in the Main Ridge Forest Reserve, according to the USDA Forest Service map. Another group used a vehicle to access as many different ecosystem types as possible, from Flagstaff Hill down to Hermitage Bay on the coast. They covered more ecosystem types than the other plant groups but did not move away from the road. The third group tackled the walk to from the base camp to Pirate's Bay, taking in coastal and disturbed vegetation communities.

Groups encountered secondary vegetation (cocoa plantations, abandoned and active estates) and also native vegetation communities (in various stages of degradation). Each group maintained a list of plant species visually sighted (identification certain - mainly common species) and also collected specimens of plant species the identification of which they were unsure. In the evening of the first day and into the next morning, all specimens collected were examined and compared to keys and photographs from the literature for identification. New species were added to the list, and previously listed species were confirmed. On the morning of the second day, a core group combed the grounds of the Man O' War Bay Cottages for further species.

#### Birds

This team was led by Darshan Narang and Faraaz Abdool. They conducted mist net surveys and general area searches on land and sea.

Mist netting was conducted at two locations within the Charlotteville area. On Saturday, six 12-metre long mist nets were set up along Starwood Trace, off the road to Flagstaff Hill, at 06:00 and were closed at 17:00. On Sunday, the same nets were set up throughout the compound of the Man O' War Bay cottages in Charlotteville. They were opened at 06:00 and were closed at 11:00.

The banding was conducted by certified bird banders Carl Fitzjames and Daveka Boodram, both of whom were trained at the Klamath Bird Observatory in Oregon, USA. They were assisted in setting up nets and extracting birds by Kareena Anderson, Karl Philips, Rachel Boodoo and Jinella de Ramos. A close eye was kept on every bird to avoid any stress, since the welfare of each bird was the number-one priority. All birds were banded with a uniquely numbered aluminium leg band, which allows identification of each individual.

On Saturday and Sunday, several small groups of birders surveyed the area on foot and by car. Equipped with binoculars, spotting scopes, long-lens cameras, field guides and notebooks, team

members recorded birds by sight and sound along the Northside Road, Pigeon Peak trail, Flagstaff Road and within the village of Charlotteville.

On Saturday afternoon, a group headed out by boat on a three-hour trip to survey the St. Giles Islands, located off the northeast tip of Tobago.

#### Mammals

The mammal surveying was split into a bat survey and a camera-trap survey, with incidental sightings of mammals recorded by all groups.

Mike G. Rutherford set up seven camera traps at four sites. The cameras were a mix of Browning Strikeforce and Bushnell Trophy Cams with infrared flashes. They were all set to take three photos per triggering with a gap of 20 seconds between triggerings. Two cameras were placed alongside the trail heading up to Pigeon Peak, two were placed along the trail leading down from Flagstaff Hill to Charlotteville, two were placed beside the Campbleton River and one was placed on the trail heading north past Pirate's Bay. The first six cameras were put out on 23 October and collected on 25 October. The Pirate's Bay trail camera had been out since 20 August 2015 as part of another project, but as it was within the study area it was included in the Bioblitz. The cameras were collected on the Sunday morning, and the images were identified by Rondell Hamilton.

The bat team was led by Luke Rostant. On Saturday, they netted at the same site as the bird-banding group along the Starwood Trail, using four 12 x 2.6 metre ground nets and adding a triple high system with three 12 x 2.6 metre nets giving a total surface area of approximately 220 m<sup>2</sup>. The nets were open from 18:00 to 22:00. On Sunday morning, they set up two 12-metre nets on the grounds of the Man O' War Bay cottages from 05:00 to 06:00. After the bats had been extracted from the nets, each individual was identified, weighed and measured before being released.

All equipment used for the mist netting was on loan from Trinibats.

#### **Reptiles and Amphibians**

This year the team split into two sub-groups, one led by John Murphy of the Field Museum, Chicago, with some fellow Americans and members of the TTFNC Herpetology Group, and the other led by Saiyaad Ali, with members of the Serpentarium (a Trinidad organisation whose mission is to enhance awareness and appreciation of all reptilian and amphibian species found in Trinidad and Tobago). The groups surveyed along the Pigeon Peak trail, Hermitage River, Flagstaff Hill trail, Pirate's Bay trail, along the roads in the survey area and around Charlotteville in general. Surveying was conducted day and night during the 24-hour period. Participants searched the vegetation and under rocks, logs and in the leaf litter during the day. At night they used torchlight for spotting nocturnally active species and conducted acoustic searches for calling frogs.

Some specimens were collected for further anatomical and molecular study.

#### Aquatic

The aquatic environments were surveyed by three groups, each focusing on a different habitat.

The divers of the aquatic team were led by Neil Cook, dive master at ERIC. Over the weekend, the nine divers covered sites from the shores of Charlotteville to the island of St. Giles in a series of day and night dives. Sites were chosen to maximize the variety of habitats—soft coral gardens, reef walls and current-swept reef slopes— and to maximise the number of species seen. Equipped with cameras, dive slates and sediment-sampling equipment, the divers recorded fish, invertebrates, marine plants and anything else they came across. A plankton tow was used to collect a sample from the waters near the eastern side of Man O' War Bay. This sample was later searched by use of a microscope back at base camp.

The nearshore aquatic group, led by Amy Deacon of UWI, started their survey at Pirate's Bay. They focused on coastal vegetation and rocky and sandy shoreline animals. Rocks and boulders were turned over to expose invertebrates, and sand cores were collected for sieving and further examination back at base camp. Near-shore snorkeling was conducted with cameras and dive slates to record species.

The freshwater team, led by Ryan Mohammed of UWI, surveyed six sites, including the lower reaches of Doctor River and Hermitage River as well as small streams and ditches around Charlotteville. Hand nets, small seine nets, cast nets and fish pots were all used to survey for fish and freshwater arthropods. Hand collecting was conducted for molluscs and small invertebrates.

Specimens were identified on site wherever possible, by use of expert knowledge, identification guides, and a portable digital microscope. Specimens that could not be identified on site were transported to the base camp in vials or other containers for examination with more powerful microscopes and where there was access to a wider range of literature and expertise. Literature used for identification included Humman & DeLoach *Reef Fish, Reef Creature and Reef Coral Identification - Florida Caribbean Bahamas* books for the marine organisms, Phillip's *et al.* 2013 paper for freshwater fish and Rostant's 2005 thesis for freshwater crustaceans.

#### **Terrestrial Invertebrates**

The wide variety of terrestrial invertebrates to be found in around Charlotteville meant that several independent groups needed to conduct separate surveys.

#### <u>Lepidoptera</u>

The Lepidoptera survey was led by Kris Sookdeo. The team started by hanging fruit-bait traps at several locations, including the gardens at the back of the base camp at ERIC and along the Flagstaff Hill road.

After Flagstaff, the group conducted a series of drive-and-stop surveys along Camden Road. At night, a light trap was set up in the forest above the base camp and switched on at about 19:00. Intermittent rain showers meant that the light trap was used only for a few hours. On Sunday morning, more rain meant that further surveying was very limited. The fruit-bait traps were retrieved on Sunday and the specimens identified.

The book *Butterflies of Trinidad and Tobago*, by Malcolm Barcant, was the main reference used for identification. Moths were identified with the help of on-line resources and by sending photos to Dr. Matthew J. W. Cock, retired from CAB International, U.K.

#### Vector Species

A group led by Raymond Martinez searched for larvae and adults of arthropods of medical and veterinary importance. They surveyed around Charlotteville and along the Pigeon Peak and Pirate's Bay trails. Methods for collecting adult mosquitoes included CDC light traps, human bait, and sweepnetting of vegetation and resting places. Immature stages of mosquitoes were collected from cut bamboo internodes, leaf axils of epiphytic and terrestrial bromeliads (*Aechmea aquilega* and *Aechmea dichlamydea*), flower bracts of *Heliconia bihai*, leaf axils of *Xanthosoma* sp., stream pools, artificial containers, cans and cisterns. Specimens were identified using a 40X dissecting microscope back at the base camp.

#### <u>Molluscs</u>

Mike G. Rutherford surveyed for terrestrial molluscs along the Pirate's Bay trail, Flagstaff Hill and around Charlotteville. Both live molluscs and empty shells were collected by hand from the vegetation; rocks and logs were turned over, and leaf litter was sifted. Other participants also brought molluscs back to the base camp for identification. The report *The Terrestrial Malacofauna of Trinidad and Tobago*, by David Robinson *et al.*, was used as the main guide for identification.

#### Social Insects

Christopher K. Starr looked for Hymenoptera (ants, bees, wasps, and allies) and Isoptera (termites) along the Pirate's Bay trail, the Flagstaff Hill trail and around the base camp. Surveying was conducted by visually searching for nests and individuals and by looking for popular host plants that attract hymenoptera. This sampling effort was supplemented by photos and specimens collected by other participants in the Bioblitz.

#### <u>Arachnids</u>

The arachnid group was led by Virmal Arjoonsingh and Rakesh Bhukal. To survey for spiders during the day, they conducted visual surveys and actively searched through vegetation using sweep nets. All specimens were collected by gently leading them into plastic vials, which were then taken to base camp for identification. To survey for scorpions and opiliones at night, the team used ultraviolet and regular torches and turned over rocks, logs and debris. The teams surveyed the Pigeon Peak trail, the Hermitage River area and around Charlotteville.

#### **Myriapods**

Shane Manchouck searched for centipedes and millipedes along the Pigeon Peak Trail, Flagstaff Hill, Pirate's Bay, Hermitage and around Charlotteville during both day- and nighttime. Methods including raking leaf litter, placing pitfall traps, and examining decaying matter were used to find specimens.

Late on Saturday, pitfall traps were set up along the Pirates Bay trail at intervals of approximately 100 metres. One trap was also set in the forested area near the base camp. These traps were set in different vegetation types and were left for a duration of about 10 hours, being collected early on Sunday morning.

#### Other Insects

A team of four searched together for a variety of insect orders: Avion Phillips and Brandon Mohammed looking for Mantodea (mantises), Phasmatodea (stick insects) and Blattodea (cockroaches); Salomia Seeram looking for Orthoptera (crickets and grasshoppers); and Carlos Rampersad searching for Hemiptera (bugs). The group walked the Pigeon Peak and Pirate's Bay trails and searched around Charlotteville. Leaf-litter samples were collected and brought back to base camp for further examination.

Karl Phillips (working mainly in the bird and bat groups) volunteered to identify beetle specimens.

#### Other Invertebrates

During the Bioblitz, participants in every group encountered a variety of invertebrates throughout the survey area. These organisms were either photographed or collected in plastic vials for later identification by the relevant expert at the base camp. These specimens included many different molluscs, insects, arachnids, crustaceans, myriapods and worms.

#### Fungi

Jeffrey Wong Sang led this group. This year, for the first time in a T&T Bioblitz, specimens were collected and preserved rather than just being photographed. Photos and specimens were then collated and identified to morphospecies during the Bioblitz, with some further identification carried out after the event. Other participants also contributed photographs of fungi.

#### For more information about the locations of the sites mentioned above, see Appendix 1.

#### **Results and Discussion**

#### Plants

A large number of vegetation communities were visited in the vicinity of the Charlotteville Bioblitz area, including lower montane forest (Pigeon Peak), licania/serrette forest, lowland rainforest (crappo/cabbage palm forest), semi-evergreen seasonal forest (sandbox/cogwood/hogplum forest), dry evergreen-littoral woodlands (seaside grape/manchineel thicket), deciduous seasonal forest (simaruba/silverthatch/dogroot thicket), young secondary forest, and secondary forest/former cocoa plantation and bamboo thicket. The xerophytic rainforest [balata/blue copper forest (on ultra-nafic soil)] was not reached because of lack of access points and lack of time. Gardens around the Man O' War Bay Cottages were also visited.

No endemics were found, and few rare species were noted. The uncommon palms *Prestoea acuminata* and *Coccothrinax barbadensis* (Silver Thatch Palm) were observed; however, not many individuals of the latter species were found, definitely fewer than expected. The tree ferns *Cyathea pungens* and *Cnemidaria spectabilis* were observed to be common on the summit of Pigeon Peak.

The natural vegetation communities visited are fragmented and much reduced from their natural extent but still represent interesting and valuable features of the natural heritage of Tobago.

The range of altitudes and rainfall gradients allow a concentration of many different vegetation communities in the small area around Charlotteville. A mix of management practices that left a mosaic of natural ecosystems, active agricultural ecosystems and abandoned agricultural ecosystems contributed to the high density of vegetation communities in the area of the Bioblitz.

Methods for rapidly observing plants and reducing the number of specimens that need to be collected increased the ability of the plant group to record the maximum number of species in the 24 hours of the Bioblitz. However, this method relies heavily on the knowledge in plant identification of a small group of people and in particular on Winston Johnson, recently retired from the National Herbarium of Trinidad and Tobago.

After the event, when tallies had been double checked, the final plant-group total was 327 species from 85 families.

#### Birds

#### Mist Netting

At the Starwood trail, 19 individuals of eight species were caught. The most common species caught were Ochre-bellied Flycatcher (6), Rufous-breasted Hermit (5), Copper-rumped Hummingbird (2) and Bananaquit (2), with one individual each of Fuscous Flycatcher, Palm Tanager, Red-eyed Vireo and Cocoa Woodcreeper. At the Man O' War Bay Cottages, 19 individuals of seven species were caught and tagged. The most common species caught were Copper-rumped Hummingbird (7), Bananaquit (4) and Rufous-breasted Hermit (3).

#### **General Survey**

The birders who conducted the area searches, as opposed to the mist netting, had much better luck in observing a higher diversity of species within the survey area. Some of the highlights for the area include the approachable Trinidad Motmots and Rufous-tailed Jacamars, which are much harder to see and photograph in Trinidad.

Some of the migrants encountered during this year's event included the common and widespread Northern Waterthrush and an exceedingly rare Cerulean Warbler, spotted by Faraaz Abdool. This species of warbler has been recorded from Trinidad & Tobago only twice previously, both single records from Trinidad's Northern Range. This was the first record for Tobago of this globally threatened species. This particular individual was sighted at the top of Flagstaff Hill at the crack of dawn for only a couple of minutes as it foraged for insects along the branches of several trees. Based on the plumage of the bird, it was concluded that this was a young male on his first migration south.

Some other interesting forest species found on Tobago but not Trinidad were also observed including the White-fringed Antwren, Blue-backed Manakin and probably the most famous hummingbird species of Tobago, the White-tailed Sabrewing, locally known as "Campy".

The group that headed out by boat to survey the St. Giles Islands, located off the northeast tip of Tobago, had to deal with rough seas but did record a range of species. These rocky islands are the northernmost point of Trinidad and Tobago and rival the Galapagos in terms of bird life. Rising only about 350 feet and spanning 72 acres, St. Giles represents one of the Caribbean's most important seabird breeding colonies. As well as the numerous Magnificent Frigatebirds, the team recorded Red-

footed Booby, Brown Booby, Brown Noddy, Red-billed Tropicbird and the regionally rare White-tailed Tropicbird.

A total of 75 species of birds from 35 families was seen or heard during the Bioblitz. This compares to 211 species from 56 families known from the whole of Tobago.

#### Mammals

#### <u>Bats</u>

At the Starwood Trail site, five species (84 individuals) were captured in the mist nets, the most common being Gervai's Fruit-eating Bat (42) followed by the Jamaican Fruit-eating Bat (19), then Seba's Short-tailed Bat (12) and the Little Yellow-shouldered Bat (10). One insectivorous species, the Lesser White-lined Bat, was captured, and the Little Big-eared Bat was observed in a roost.

At the Man O' War Bay Cottages site, four species (43 individuals) were captured, again dominated by the three most common fruit-eaters from the previous site. One addition, here was the Greater Long-tongued Bat.

In addition to the trapping undertaken during the Bioblitz, the team had a practice run on the Friday night before the event, started in the grounds of the Man O' War Bay cottages. They caught several species, including a single Geoffroy's Hairy-legged Bat, which was a new record for Tobago.

#### Trail Cameras

The cameras set up at Campbleton River and on the Pigeon Peak trail did not record any species of interest but did highlight some environmental issues with feral cats, and an individual hunting iguanas was recorded. The camera on the Pirate's Bay trail had sightings of Red-rumped Agouti and Nine-banded Armadillo and many images of small rodents; these were generally unidentifiable to species level. The highlight of the camera trapping came from the top of Flagstaff Hill, where a pair of Crabeating Raccoons were photographed; although they are known to be in the area, confirmed sightings are rare.

#### **Other Sightings**

One member of the birding team photographed a tree rat near the site of the mist netting on Flagstaff Hill; this was later identified as a Brazilian Spiny Tree-rat. In addition, members of the dive team spotted several Bottlenose Dolphins on the edge of Man O' War Bay.

All together, 17 species of mammals from ten families were recorded. Eight species were bats, which represents one third of the bat species recorded previously in Tobago (24 species in total). Of the rest of the mammals, eight were terrestrial non-volant species; in Tobago there are records of 16 species of non-volant mammals so finding half of them during the Bioblitz was a great result.

#### **Reptiles and Amphibians**

The Bioblitz produced some significant amphibian and reptile specimens as well as interesting natural history observations. The herpetology team found representatives of about half of the species known from Tobago.

Many frogs were observed despite the lack of rain prior to the event. The Tobago Glass Frog is probably the most important amphibian in terms of Tobago ecotourism; several of these were heard calling alongside streams.

Tobago has three described species of frogs in the genus *Pristimantis*, all of which were observed or collected, as well as a tiny fourth species that appears to be undescribed. The presence of an undescribed *Pristimantis* on Tobago is not too surprising given the number of species found in the Venezuelan Coastal Range.

12 of the 13 lizard species observed were the most common: the Green Iguana, the Matte, the Zandolie, the Giant Crown Anole and others. However, the big surprise was a lizard never before reported from Tobago—the Tiger Anole. This tiny lizard is a Venezuelan Coastal Range species that uses the tips of the smallest branches to hunt for food. The individual observed was hunting wasps. No species of these twig anoles has been previously reported from Trinidad or Tobago. The individual was collected and deposited in the UWIZM, and tissue samples were taken and sent for analysis to confirm identification.

Eight boa constrictors were counted on the roads; most had been run over by cars. This common species is an important snake on Tobago because it is the apex predator and a partial solution to the serious feral cat and dog problem. Two specimens of the Lineated Worm Snake, a Trinidad and Tobago endemic, were captured during the Bioblitz; one was saved, and we collected tissue for molecular analysis. There are only a handful of previous records of this species, with one from the Arima Valley of Trinidad and the rest from Tobago. Observations suggest that it likes mature forests and uses decomposing logs with ant and termite nests. An even more uncommon species was also found, the Tobago Ground Snake, previously known only in Tobago from one specimen collected in 1978. While it is known from Colombia and Venezuela, no other Tobago specimens had been collected until the Bioblitz. Scale counts suggest that the Tobago population is most likely distinct from the mainland forms. Unfortunately, the specimen was found dead in a drain and had partially decomposed, meaning that tissue samples were not viable.

Two marine turtle species were observed by the aquatic group in Man O' War Bay; both the Hawksbill and the Green are well known in the area but do face pressure from illegal harvesting of both adults and eggs.

Overall, it was a very fruitful event for the herpetologists. For the amphibians there were sightings of 13 species from six families, which was over four-fifths of the known frog species for Tobago. For the reptiles there were 28 species from 12 families, broken down into 13 snakes, 13 lizards and two turtles. This accounted for more than half of the 23 known snake species, about two-thirds of the 19 known lizard species (not including the new Tiger Anole record) and two-fifths of the five known marine turtles recorded from Tobago previously.

#### Aquatic

The divers had a busy but very productive time recording a wide variety of organisms and collecting samples for further analysis at base camp. Stand-out sightings included a small pod of Bottlenose

Dolphins (seen both from the boat and underwater), a rarely seen Longsnout Seahorse coiled around a coral, both Variegated and Lesser Electric Rays and unfurled Basket Stars on the night dive, and a critically endangered Hawksbill Turtle.

The team also spotted patches of diseased coral and the effects of past coral bleaching at the Landslide dive site. Invasive species were noted, with more than 20 Red Lionfish being seen at various dive sites; many of these were collected by use of a pole spear (and then cooked and eaten for lunch!). Orange Cup Corals were found thriving at the Iguana Bay site; a native of the Indo-Pacific region, this species has been spreading around the Caribbean since the 1940s.

The nearshore team were also productive, noting many shallow-water, intertidal and rocky-shore organisms. These included many cryptic species that took a trained eye to find, such as the Marbled and West Indian Green Chitons, a Black-rib Limpet and the swimming crabs that buried themselves in the sand; several of these specimens were brought back alive for display in an aquarium at the base camp.

The freshwater group covered a lot of ground, sampling all of the major rivers and streams in the survey area. At Hermitage River, two species of invasive aquatic snails—the Red-rimmed Melania and Quilted Melania—were noted in high numbers. The most abundant fish species was the Mountain Mullet. Two freshwater crustaceans—the Bigclaw River Shrimp and the Stream Shrimp—were also recorded. The night deployment of the fish pot at this site (between 20:00 and 21:00) captured a single American Eel. This was a significant discovery as the last time this species was detected in Tobago was 20 years ago, in 1997, during a survey by Dawn Phillip.

At the opposite extreme of the boundaries of the Bioblitz survey area, the team visited Doctor's River. Here, similar species were noted, with two exceptions: the Swamp Eel (local name: zangee), which is similar in form to the American Eel but only distantly related, and a Marine Snapper in the blocked river mouth. Upstream, two large Manicou Crabs were noted.

Back in Charlotteville, smaller sites were sampled by walking along the streams. Here the team found that the water quality was impacted by domestic wastewater discharge and garbage.

All in all, the Aquatic Group had its most species-rich Bioblitz so far, with a total on the day of 361 organisms representing around one third of the total Bioblitz result.

#### **Terrestrial Invertebrates**

#### <u>Lepidoptera</u>

The Lepidoptera team had a tough time in Tobago, as butterfly and moth activity was generally much lower than during any of the previous Bioblitzes. This was mainly the result of the wet weather that preceded the event and continued on Saturday night and Sunday morning.

Surveying at the top of Flagstaff Hill was poor but improved when the group stopped at a cattle pasture in one of the minor roads off the main road, where several clumps of blacksage attracted a few species.

Although the number of species was fairly low, there were some important individual sightings, with observations of three new moth species for Tobago – a male *Correbidia notate* (Arctiidae), a *Mocis diffluens* (Erebidae) and a specimen from the subfamily Spilomeninae (Crambidae). Unfortunately,

these moths, which were all caught in the moth trap, were only photographed and not collected, so the exact identification of the latter species cannot be made.

In all, 19 species of butterflies from four families and 26 species of moths from 10 families were recorded for a total of 45 species from 14 families.

#### Social Insects

No unexpected species were found during the survey. Termites were abundant, with *Nasutitermes corniger* accounting for the majority (60%) of nests recorded in a section of forest along the Pirate's Bay trail. Altogether 12 species of Hymenoptera from four families and three species of termites from one family were recorded, all of which had been recorded previously in Tobago.

#### Vector Species

A total of 15 species of mosquitoes, one sand fly and one tick were collected. These included two wellknown disease spreading mosquitos—*Aedes aegypti*, the yellow fever mosquito and *Culex nigripalpus*, the Florida Saint Louis encephalitis (SLE) mosquito. All species had been recorded in Tobago during past surveys.

#### <u>Molluscs</u>

A wide range of terrestrial molluscs were found. Among these, two were slugs, both of which are potential crop pests and likely to have been introduced rather than native. Another introduced and potentially problematic species was the Jumping Snail. Only recently recorded for Tobago, this snail is originally from Southeast Asia and can feed on orchids and other horticultural plants. Three other species of snails, *Leptinaria unilamellata, Subulina octona* and *Tamayoa decolorata,* are widespread throughout the tropics and were likely introduced to Tobago. The largest species encountered was *Plekocheilus glaber* (about 4 cm long); shells of this species were found clustered together at many sites, a result of being smashed open on rock anvils by the Trinidad Motmot. Of most interest was *Drymaeus rawsoni,* a Tobago endemic not often encountered as it spends most of its life high up in the trees. In total, 11 species from 10 families were noted. This compares to a total of 36 species from 21 families reported for Tobago previously.

#### <u>Arachnids</u>

Surprisingly, by the end of the survey no scorpions had been observed by the arachnid team, much to their dismay. However, a single specimen was collected by Avion Phillips while surveying for insects. This specimen was identified as a female *Tityus trinitatis*, which is endemic to Trinidad and Tobago and is also the most venomous scorpion in all of the West Indies.

The collected spiders and opiliones were grouped to morphospecies level for the final result, a total of 11 species. After the event, these specimens, along with some others collected by the rest of the team, were preserved and taken back to the UWIZM for further examination. Jo-Anne Sewlal identified many of them to family, genus or species level. Along with photographs taken of live specimens and some ticks collected by the Vector Species team, this brought the total arachnid count to 26 species from 18 families.

#### **Myriapods**

A diverse range of myriapods were found during the survey. Largest was a giant centipede, about 18 cm long, which was observed scurrying along a riverbed. It disappeared into soft soil of the riverbank before it could be captured, so identification was possible only to genus level (*Scolopendra* sp.). Next was a single extremely long-legged House Centipede found in Charlotteville. Smaller but more numerous species included the regionally widespread Yellow-banded Millipede.

The pitfall traps, whilst successful in capturing various types of arachnids and insects, did not provide any myriapods. Most specimens were collected and observed along and off the Pigeon Peak trail; this may have resulted from its less disturbed and cultivated state compared to that of other sites. The recently discovered species *Pandirodesmus rutherfordi* was collected in leaf litter on the Pigeon Peak trail.

A total of 12 species were reported at the end of the Bioblitz; this total increased to 16 species (11 millipedes, five centipedes) after further examination of specimens at the UWIZM.

#### Other Insects

The general insects team collected and observed a variety of specimens including four species of cockroaches, 14 beetles, six true bugs, four mantids, two stick insects and 11 grasshoppers, katydids and crickets. Many specimens could be identified further only by comparison with specimens in the UWIZM, to which the new specimens were added.

#### Other Invertebrates

Several other invertebrates that were not the focus of any one person were collected during the Bioblitz by members of different groups. These included two species of terrestrial flatworms, noticed because of their large size (approximately 8 cm long) and bright colouring.

#### Fungi

The fungi group found, photographed and, for the first time in a T&T Bioblitz, collected many different specimens, but because of the lack of taxonomic expertise, these could be identified only to morphospecies level during the Bioblitz. After the Bioblitz, the photographs were studied by Mike Rutherford, but many of these could not be identified beyond Order level. The final count at the Bioblitz was 30 morphospecies, but no further details were provided after the event, so the final species list in this report is limited to those specimens for which photographs were passed to the organisers.

One fungus was identified to species, eight to genus level, seven to family level, and 14 to morphospecies.

#### For a full list of all species recorded see Appendix 2.

#### **Public Participation**

On Sunday morning between 09:00 and 12:00, several families and individuals from the local community and from the rest of Tobago visited the base camp and took the opportunity to interact with the surveying teams. Unfortunately, the heavy rain that morning meant that the guided walks and snorkeling tours had to be cancelled; however, other outside activities, such as the demonstration of bird netting in the gardens at Man O' War Bay cottages, still went ahead.

At the base camp were displays of fruits, seeds and other forest products by Dan Jaggernauth from the TTFNC, preserved animals from the UWIZM, live marine and freshwater animals in two aquaria set up by Ryan Mohammed and several terrariums from the Serpentarium containing a variety of reptiles and amphibians, all found during the surveying. Highlights included a young Boa Constrictor, Doctor snakes and several of the locally endemic frog species. Microscopes were available for people to use to view plankton and other marine specimens. Children enjoyed taking part in the colouring-in competition run by Amy Deacon.

Overall, the response from the public was very positive, with many visitors enquiring how they could learn more about the local biodiversity.

#### **Conclusion**

The number of species announced at the conclusion of the Bioblitz was 252 vertebrates (75 birds, 17 mammals, 27 reptiles, 13 amphibians, and 120 fish), 319 invertebrates (32 crustaceans, 10 echinoderms, 53 cnidarians, 27 plankton, 50 molluscs, 4 sponges, 2 tunicates, 6 annelids, 12 arachnids, 12 myriapods, and 109 insects), 30 fungi, 4 single-celled organisms (bacteria diatoms, etc.), and 367 plants (including 23 algae and 344 terrestrial species) for a total of 972 species found in the Charlotteville area.

After the Bioblitz, several groups continued to analyse their results and identify specimens and photographs, so some of the totals changed. This resulted in the following final counts:

Vertebrates – 246 (75 birds, 17 mammals, 28 reptiles, 13 amphibians, and 113 fish)

Invertebrates – 410 (45 crustaceans, 26 arachnids, 16 myriapods, 122 insects, 16 echinoderms, 59 cnidarians, 68 molluscs, 18 sponges, 6 tunicates, 20 annelids, and 14 minor phyla)

Plants – 358 (327 terrestrial species, 28 algae, 2 diatoms, and 1 coccolithophore)

Fungus – 30

#### Grand Total = 1044 species

The first-ever Tobago Bioblitz was a great success for most groups, in particular because of the first records for Tobago of several species of mammals, birds and reptiles and the wide diversity of marine organisms. However, the diversity of terrestrial invertebrates recorded was much lower than hoped for, partly a result of the poor weather but also because of lack of experts in certain species groups. Public participation levels were less than hoped for, but again the weather played a part in keeping

people away. Lessons for future Bioblitz events are once again to try to encourage interest in the less popular species groups and to promote the event more widely.

# For more details and photographs of the event see the TTFNC magazine *The Field Naturalist Quarterly Bulletin* 2015/4 at <u>http://ttfnc.org/photojournals/2015-4.pdf</u>

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#### Plant Group

Coordinators: Mike Oatham, Doreen Jodhan

Adanna Alexander, Linton Arneaud, Nigel Austin, Nandini Bridgelal, Chernell Crooks, Wyvonne Crooks, Sarah Evelyn, Selena Evelyn, Sharon Evelyn, Aidan Farrell, Dan Jaggernauth, Winston Johnson, Kahani Oatham, Delezia Singh

#### **Bird Group**

#### Coordinators: Faraaz Abdool and Darshan Narang

Danya Alexander, Nadine Ali, Zakariyya Ali, Shawn Baldeosingh, Rachel Boodoo, Daveka Boodram, Jinella De Ramos, Carl Fitzjames, Newton George, Renee Gift, Kirby Harripersad, Kay Hinkson, Aliya Hosein, Lawrence James, Karan Kangal, Devan Mulchansingh, Aaron Peter, Karl Phillips, Lisa Premchand, Elizabeth Seebaran, Sharmila Tolan, Ann and Gerard Williams

#### Mammal Group

Coordinators: Luke Rostant, Darshan Narang

Kareena Anderson, Macarius Auguste, Laura Baboolal, Paul Crooks, Rondell Hamilton, Danielle Morong, Vernie Ramkissoon, Janine Seetahal, Anesty Tudor

#### Reptile & Amphibian Group

Coordinators: John C. Murphy and Saiyaad Ali

Nalini Ali, Siddeeq Ali, Daryl Abraham, Tom Anton, Renoir Auguste, Darius Baldeo, Alvin Brasswell, Kester Dass, Peter Dickson, Robert Marks, Doon Rampharay, Jyothi Singh, Vijay Singh

#### **Aquatic Group**

Coordinators: Amy Deacon, Mark Charran and Ryan S. Mohammed

Rudra Badree, Stacey Ballyram, Mark Charran, Reynaldo Christie, Neil Cook (Divemaster), Chitraleka Deopersad, Lanya Fanovich, Jeniece Germain, Gideon Hossein, Andrew Jodhan, Emily Jodhan, Kerresha Khan, Rajindra Mahabir, Sachin Maraj, Guy Marley, Kino O'Garro, Jarrah Oatham, Jenelle Orosco, Dara-Marie Raggay, Antonio Ramkissoon, Neema Ramlogan, Marianna Rampaul, Rissa Rampersad, Vieanna Tirbanie, Stephanie Warren-Gittens, Jacob Wothke

#### **Terrestrial Invertebrate Group**

Virmal Arjoonsingh, Rakesh Bhukal, Siobhan Cumming-Lumsden, Alicia Geerah, Pauline Geerah, Lester James, Kristy Khemraj, Shane Manchouck, Raymond Martinez, Brandon Mohammed, Raveena Mohammed Pariag, Avion Phillips, Carlos Rampersad, Mike G. Rutherford, Rajiv Seenath, Catherine

Seepersad, Salomi Seeram, Rachel Shui Feng, Allana Singh, Kris Sookdeo, Christopher K. Starr Dillon Suepaul

#### Fungus Group

Jeffrey Wong Sang, Roma Wong Sang, Betsy Mendes

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- Saiyaad Ali and the Serpentarium team for setting up herpetology displays at base camp
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- Dan Jaggernauth for the TTFNC display at base camp
- Jeffrey Wong Sang for the fungus display at base camp
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- Zoe Rutherford for writing up the final tally
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Appendix 1 - Location of the survey and the main sampling sites





Red circle is the 5 km-radius extent of the sampling area for the Bioblitz.

Site Name	#	Decimal Latitude and Longitude	Altitude(m)
Base camp - ERIC	1	11.319°, -60.552°	18
Doctor's River	2	11.304°, -60.533°	24
Hermitage River	3	11.314°, -60.575°	32
Flagstaff Hill	4	11.329°, -60.539°	344
Pigeon Peak	5	11.305°, -60.548°	497
Man O' War Bay	6	11.32°, -60.56°	0
Pirate's Bay	7	11.329°, -60.549°	0
Landslide (dive site)	8	11.335°, -60.557°	0
Iguana Bay (dive site)	9	11.341°, -60.537°	0
St. Giles (dive site)	10	11.353°, -60.528°	0

### **Appendix 2 - Species Lists**

#### Notes:

- In Location, if no specific information was provided by the survey team, then Charlotteville was used as default. This could mean that the species was found anywhere within the 5-km-radius circle
- Although every effort was taken to confirm the identity of species, in certain invertebrate groups caution must be taken as an expert opinion was not available
- Where the species name is followed by a "?" or represented by "Sp. A", etc., the species was identified only to genus, family, or order level
- Specimens collected by some groups were deposited in the University of the West Indies Zoology Museum, St. Augustine, Trinidad, under accession number UWIZM.2015.22; for further details, refer to the museum database

Common Name	Scientific Name	Family	Location
Broad-winged Hawk	Buteo platypterus antillarum	Accipitridae	Charlotteville
	Buteogallus urubitinga		
Great Black Hawk	urubitinga	Accipitridae	Charlotteville
Black-bellied Whistling-	Dendrocygna autumnalis		
Duck	discolor	Anatidae	Charlotteville
Short-tailed Swift	Chaetura brachyura	Apodidae	Charlotteville
Green Heron	Butorides virescens virescens	Ardeidae	Charlotteville
Little Blue Heron	Egretta caerulea	Ardeidae	Charlotteville
Snowy Egret	Egretta thula	Ardeidae	Charlotteville
Yellow-crowned Night-			
Heron	Nyctanassa violacea cayennensis	Ardeidae	Charlotteville
Black-crowned Night-			
Heron	Nycticorax nycticorax hoactli	Ardeidae	Charlotteville
White-tailed Nightjar	Hydropsalis cayennensis	Caprimulgidae	Charlotteville
Semipalmated Plover	Charadrius semipalmatus	Charadriidae	Charlotteville
Southern Lapwing	Vanellus chilensis cayenennsis	Charadriidae	Charlotteville
Feral Rock Pigeon	Columba livia domestica	Columbidae	Charlotteville
Ruddy Ground Dove	Columbina talpacoti	Columbidae	Charlotteville
White-tipped Dove	Leptotila verreauxi	Columbidae	Charlotteville
Pale-vented Pigeon	Patagioenas cayennensis	Columbidae	Charlotteville
Scaly-naped Pigeon	Patogioenas squamosa	Columbidae	Charlotteville
Eared Dove	Zenaida auriculata	Columbidae	Charlotteville
Rufous-vented Chachalaca	Ortalis ruficauda	Cracidae	Charlotteville
Yellow-billed Cuckoo	Coccyzus americanus	Cuculidae	Charlotteville
Smooth-billed Ani	Crotophaga ani	Cuculidae	Charlotteville
Magnificent Frigatebird	Fregata magnificens	Fregatidae	Charlotteville

Birds – 75 species from 35 families

Violaceous Euphonia	Euphonia violacea	Fringillidae	Charlotteville
Olivaceous Woodcreeper	Sittasomus griseicapillus	Furnariidae	Charlotteville
Cocoa Woodcreeper	Xiphorhynchus susurrans	Furnariidae	Charlotteville
Rufous-tailed Jacamar	Galbula ruficauda	Galbulidae	Charlotteville
Caribbean Martin	Progne dominicensis	Hirundinidae	Charlotteville
Shiny Cowbird	Molothrus bonariensis	Icteridae	Charlotteville
Giant Cowbird	Molothrus oryzivorus	Icteridae	Charlotteville
Carib Grackle	Quiscalus lugubris	Icteridae	Charlotteville
Brown Noddy	Anous stolidus stolidus	Laridae	Charlotteville
Tern	Sp. A	Laridae	Charlotteville
Tropical Mockingbird	Mimus gilvus	Mimidae	Charlotteville
Trinidad Motmot	Momotus bahamensis	Momotidae	Charlotteville
Common Potoo	Nyctibius griseus	Nyctibiidae	Charlotteville
Osprey	Pandion haliaetus	Pandionidae	Charlotteville
Northern Waterthrush	Parkesia noveboracensis	Parulidae	Charlotteville
Cerulean Warbler	Setophaga cerulea	Parulidae	Charlotteville
	Pelecanus occidentalis	Farunuae	Charlotteville
Brown Pelican	occidentalis	Pelecanidae	Charlotteville
Red-billed Tropicbird	Phaethon aethereus mesonauta	Phaethontidae	Charlotteville
White-tailed Tropicbird	Phaethon lepturus catesbyi	Phaethontidae	Charlotteville
Golden-olive Woodpecker	Colaptes rubiginosus	Picidae	Charlotteville
	Melanerpes rubricapillus		Charlottevine
Red-crowned Woodpecker	rubricapillus	Picidae	Charlotteville
Blue-backed Manakin	Chiroxiphia pareola	Pipridae	Charlotteville
Orange-winged Parrot	Amazona amazonica	Psittacidae	Charlotteville
Green-rumped Parrotlet	Forpus passerinus	Psittacidae	Charlotteville
Brown Booby	Sula leucogaster leucogaster	Sulidae	Charlotteville
Red-footed Booby	Sula sula sula	Sulidae	Charlotteville
Plain Antvireo	Dysithamnus mentalis	Thamnophilidae	Charlotteville
	Thamnophilus doliatus		
Barred Antshrike	tobagensis	Thamnophilidae	Charlotteville
Bananaquit	Coereba flaveola luteola	Thraupidae	Charlotteville
Red-legged Honeycreeper	Cyanerpes cyaneus	Thraupidae	Charlotteville
White-lined Tanager	Tachyphonus rufus	Thraupidae	Charlotteville
Blue-grey Tanager	Thraupis episcopus berlepschi	Thraupidae	Charlotteville
Palm Tanager	Thraupis palmarum	Thraupidae	Charlotteville
Black-faced Grassquit	Tiaris bicolor	Thraupidae	Charlotteville
Copper-rumped		-	
Hummingbird	Amazilia tobaci tobaci	Trochilidae	Charlotteville
White-tailed Sabrewing	Campylopterus ensipennis	Trochilidae	Charlotteville
White-Necked Jacobin	Florisuga mellivora mellivora	Trochilidae	Charlotteville
Rufous-breasted Hermit	Glaucis hirsutus insularum	Trochilidae	Charlotteville
House Wren	Troglodytes aedon	Troglodytidae	Charlotteville

Collared Trogon	Trogon collaris	Trogonidae	Charlotteville
White-necked Thrush	Turdus albicollis	Turdidae	Charlotteville
Yellow-legged Thrush	Turdus flavipes	Turdidae	Charlotteville
Spectacled Thrush	Turdus nudigenis	Turdidae	Charlotteville
Fuscous Flycatcher	Cnemotriccus fuscatus	Tyrannidae	Charlotteville
Yellow-bellied Elaenia	Elaenia flavogaster	Tyrannidae	Charlotteville
Ochre-bellied Flycatcher	Mionectes oleagineus	Tyrannidae	Charlotteville
Brown-crested Flycatcher	Myiarchus tyrannulus	Tyrannidae	Charlotteville
Venezuelan Flycatcher	Myiarchus venezuelensis	Tyrannidae	Charlotteville
Streaked Flycatcher	Myiodynastes maculatus	Tyrannidae	Charlotteville
Yellow-breasted Flycatcher	Tolmomyias flaviventris	Tyrannidae	Charlotteville
Gray Kingbird	Tyrannus dominicensis vorax	Tyrannidae	Charlotteville
Tropical Kingbird	Tyrannus melancholicus	Tyrannidae	Charlotteville
Red-eyed Vireo	Vireo olivaceus	Vireonidae	Charlotteville

### Mammals – 17 species from 10 families

Common Name	Scientific Name	Family	Location
Nine-banded Armadillo	Dasypus novemcinctus	Dasypodidae	Flagstaff Hill
Red-rumped Agouti	Dasyprocta leporina	Dasyproctidae	Charlotteville
Bottlenose Dolphin	Tursiops truncatus	Delphinidae	Man O' War Bay
Common Opossum	Didelphis marsupialis	Didelphidae	Charlotteville
Robinson's Mouse Opossum	Marmosa robinsoni	Didelphidae	Hermitage River
Brazilian Spiny Tree-rat	Makalata didelphoides	Echimyidae	Charlotteville
Lesser White-lined Bat	Saccopteryx leptura	Emballonuridae	Charlotteville
Trinidad Spiny Pocket Mouse	Heteromys anomalus	Heteromyidae	Charlotteville
Geoffroy's Hairy-legged Bat	Anoura geoffroyi	Phyllostomidae	Charlotteville
Gervai's Fruit-eating Bat	Artibeus cinereus	Phyllostomidae	Charlotteville
Jamaican Fruit-eating Bat	Artibeus jamaicensis	Phyllostomidae	Charlotteville
Seba's Short-tailed Bat	Carollia perspicillata	Phyllostomidae	Charlotteville
Greater Long-tongued Bat	Glossophaga longirostris	Phyllostomidae	Charlotteville
Little Big-eared Bat	Micronyeteris megalotis	Phyllostomidae	Charlotteville
Little Yellow-shouldered Bat	Sturnira lilium	Phyllostomidae	Charlotteville
Crab-eating Raccoon	Procyon cancrivorus	Procyonidae	Flagstaff Hill
Red-tailed Squirrel	Sciurus granatensis	Sciuridae	Charlotteville

### Reptiles - 28 species from 12 families

Common Name	Scientific Name	Family	Location
Macajuel	Boa constrictor	Boidae	Charlotteville
Ruschenberger's Treeboa	Corallus ruschenbergerii	Boidae	Charlotteville
Green Turtle	Chelonia mydas	Cheloniidae	Man O' War Bay
Hawksbill Turtle	Eretmochelys imbricata	Cheloniidae	Man O' War Bay
Oliver's Parrot Snake	Leptophis coeruleodorsus	Colubridae	Charlotteville
Tobago Racer	Mastigodryas dunni	Colubridae	Charlotteville

Brown Vine Snake	Oxybelis aeneus	Colubridae	Charlotteville
Gray's Speckled Anole	Anolis aeneus	Dactyloidae	Charlotteville
Giant Crown Anole	Anolis richardii	Dactyloidae	Charlotteville
Tiger Anole	Anolis cf. tigrinus	Dactyloidae	Charlotteville
Three-lined Ground Snake	Atractus trilineatus	Dipsadidae	Charlotteville
Tobago Ground Snake	Atractus fuliginosa	Dipsadidae	Charlotteville
	Erythrolamprus		
Shaw's Black-backed Snake	melanotus nesos	Dipsadidae	Charlotteville
	Leptodeira annulata		
Cat-eyed Snake	ashmeadi	Dipsadidae	Charlotteville
Coffee Snake	Ninia atrata	Dipsadidae	Charlotteville
Ratonel	Pseudoboa neuwiedii	Dipsadidae	Charlotteville
Slug-eating Snake	Sibon nebulata	Dipsadidae	Charlotteville
House Gecko	Hemidactylus mabouia	Gekkonidae	Charlotteville
Turnip-tailed Gecko	Thecadactylus rapicauda	Gekkonidae	Charlotteville
Tobago Hex-scaled Bachia	Bachia sp.	Gymnophthalmidae	Charlotteville
Underwood's Spectacled	Gymnophthalmus		
Tegu	underwoodi	Gymnophthalmidae	Charlotteville
Green Iguana	Iguana iguana	Iguanidae	Charlotteville
Greater Windward Skink	Copeoglossum aurae	Scincidae	Charlotteville
Ocellated Gecko	Gonatodes ocellatus	Sphaerodactylidae	Charlotteville
Streak Lizard	Gonatodes vittatus	Sphaerodactylidae	Charlotteville
Zandolie	Ameiva atrigularis	Teiidae	Charlotteville
Tegu/Matte	Tupinambis teguixin	Teiidae	Charlotteville
Lineated Worm Snake	Amerotyphlops trinitatus	Typhlopidae	Charlotteville

## Amphibians – 13 species from 6 families

Common Name	Scientific Name	Family	Location
Tobago Stream Frog	Mannophryne olmonae	Aromobatidae	Charlotteville
Marine Toad	Rhinella marina	Bufonidae	Charlotteville
	Hyalinobatrachium orientale	Centrolenidae	
Tobago Glass Frog	tobagense	Centrolenidae	Charlotteville
Johnstone's Litter Frog	Eleutherodactylus johnstonei	Eleutherodactylidae	Charlotteville
Charlotteville Litter Frog	Pristimantis charlottevillensis	Strabomantidae	Charlotteville
new species of frog	Pristimantis sp.	Strabomantidae	Charlotteville
Turpin's Litter Frog	Pristimantis turpinorum	Strabomantidae	Charlotteville
Urich's Litter Frog	Pristimantis urichi	Strabomantidae	Charlotteville
Rattle-voice Tree Frog	Boana crepitans	Hylidae	Charlotteville
Minute Tree Frog	Dendropsophus goughi	Hylidae	Charlotteville
Lesser Brown Tree Frog	Scinax ruber	Hylidae	Charlotteville
Whistling Frog	Leptodactylus fuscus	Leptodactylidae	Charlotteville
Garman's Thin-toed Frog	Leptodactylus validus	Leptodactylidae	Charlotteville

Common Name	Scientific Name	Family	Location
Doctorfish	Acanthurus chirurgus	Acanthuridae	Landslide
Blue Tang	Acanthurus coeruleus	Acanthuridae	Landslide
Ocean Surgeonfish	Acanthurus tractus	Acanthuridae	Landslide
Atlantic Eel	Anguilla rostrata	Anguillidae	Hermitage River
Trumpetfish	Aulostomus maculatus	Aulostomidae	Man O' War Bay
Queen Triggerfish	Balistes vetula	Balistidae	Man O' War Bay
Black Durgon	Melichthys niger	Balistidae	St. Giles
Redlip Blenny	Ophioblennius macclurei	Blenniidae	Man O' War Bay
Peacock Flounder	Bothus mancus	Bothidae	Man O' War Bay
Twospot Flounder	Bothus robinsi	Bothidae	Man O' War Bay
African Pompano	Alectis pompano	Carangidae	Landslide
Yellow Jack	Carangoides bartholomaei	Carangidae	Man O' War Bay
Blue Runner	Caranx crysos	Carangidae	Man O' War Bay
Crevalle Jack	Caranx hippos	Carangidae	Man O' War Bay
Bar Jack	Caranx ruber	Carangidae	Pirate's Bay
Roughear Scad	Decapterus tabi	Carangidae	Man O' War Bay
White Trevally	Pseudocaranx dentex	Carangidae	Man O' War Bay
Palometa	Trachinotus goodei	Carangidae	Pirate's Bay
Speckled Blenny	Acanthemblemaria betinensis	Chaenopsidae	Pirate's Bay
Foureye Butterflyfish	Chaetodon capistratus	Chaetodontidae	Landslide
Reef Butterflyfish	Chaetodon sedentarius	Chaetodontidae	Landslide
Banded Butterflyfish	Chaetodon striatus	Chaetodontidae	Landslide
Longsnout Butterflyfish	Prognathodes aculeatus	Chaetodontidae	St. Giles
Redspotted Hawkfish	Amblycirrhitus pinos	Cirrhitidae	Man O' War Bay
Scaled Sardine	Harengula jaguana	Clupeidae	Pirate's Bay
Southern Stingray	Dasyatis americana	Dasyatidae	Man O' War Bay
Longspined Porcupinefish	Diodon holocanthus	Diodontidae	Man O' War Bay
Spot-fin Porcupinefish	Diodon hystrix	Diodontidae	Man O' War Bay
Spiny-cheek Sleeper Goby	Eleotris pisonis	Eleotridae	Hermitage
Bigmouth Sleeper Goby	Gobiomorus dormitor	Eleotridae	Doctor's River
Bluespotted Cornetfish	Fistularia tabacaria	Fistulariidae	Man O' War Bay
Yellowfin Mojarra	Gerres cinereus	Gerreidae	Pirate's Bay
River Goby	Awaous banana	Gobiidae	Doctor's River
Patch-reef Goby	Coryphopterus tortugae	Gobiidae	Man O' War Bay
Sharknose Goby	Elacatinus evelynae	Gobiidae	Man O' War Bay
Spotted Algae-eating Goby	Sicydium punctata	Gobiidae	Man O' War Bay
Black Margate	Anisotremus surinamensis	Haemulidae	Pirate's Bay
Porkfish	Anisotremus virginicus	Haemulidae	Man O' War Bay
Barred Grunt	Conodon nobilis	Haemulidae	Man O' War Bay
Caesar Grunt	Haemulon carbonarium	Haemulidae	Man O' War Bay
Smallmouth Grunt	Haemulon chrysargyreum	Haemulidae	Man O' War Bay

Fish - 113 species from 48 famili	es
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French Grunt	Haemulon flavolineatum	Haemulidae	Man O' War Bay
Cottonwick Grunt	Haemulon melanurum	Haemulidae	Man O' War Bay
White Grunt	Haemulon plumierii	Haemulidae	Man O' War Bay
Bluestriped Grunt	Haemulon sciurus	Haemulidae	Man O' War Bay
Ballyhoo	Hemiramphus brasiliensis	Hemiramphidae	Pirate's Bay
Squirrelfish	Holocentrus adscensionis	Holocentridae	Man O' War Bay
Longspine Squirrelfish	Holocentrus rufus	Holocentridae	, Man O' War Bay
Blackbar Soldierfish	Myripristis jacobus	Holocentridae	, Man O' War Bay
Blue Sea Chub	Kyphosus cinerascens	Kyphosidae	Man O' War Bay
Yellow Sea Chub	Kyphosus incisor	Kyphosidae	, St. Giles
Spanish Hogfish	Bodianus rufus	Labridae	Man O' War Bay
Creole Wrasse	Clepticus parrae	Labridae	, Man O' War Bay
Slippery Dick	Halichoeres bivittatus	Labridae	Man O' War Bay
Yellow-cheek Wrasse	Halichoeres cyanocephalus	Labridae	, Man O' War Bay
Yellow-head Wrasse	Halichoeres garnoti	Labridae	Man O' War Bay
Clown Wrasse	Halichoeres maculipinna	Labridae	Man O' War Bay
Bluehead Wrasse	Thalassoma bifasciatum	Labridae	Landslide
Rosy Razorfish	Xyrichtys martinicensis	Labridae	Man O' War Bay
Dusky Blenny	Malacoctenus gilli	Labrisomidae	Pirate's Bay
Grey Snapper	Lutjanus griseus	Lutjanidae	Doctor's River
Lane Snapper	Lutjanus synagris	Lutjanidae	Pirate's Bay
Sand Tilefish	Malacanthus plumieri	Malacanthidae	Iguana Bay
Atlantic Tarpon	Megalops atlanticus	Megalopidae	St. Giles
Scrawled Filefish	Aluterus scriptus	Monacanthidae	Man O' War Bay
White-spotted Filefish	Cantherhines macrocerus	Monacanthidae	Man O' War Bay
Orange-spotted Filefish	Cantherhines pullus	Monacanthidae	Man O' War Bay
Mountain Mullet	Agonostomus monticola	Mugilidae	Hermitage River
Yellow Goatfish	Mulloidichthys martinicus	Mullidae	Man O' War Bay
Red Goatfish	, Mullus auratus	Mullidae	, Man O' War Bay
Spotted Moray	Gymnothorax moringa	Muraenidae	, Man O' War Bay
Reticulate Moray	Muraena retifera	Muraenidae	, Man O' War Bay
Variegated Electric Ray	Diplobatis pictus	Narcinidae	Pirate's Bay
Lesser Electric Ray	Narcine bancroftii	Narcinidae	Pirate's Bay
Sharptail Snake-eel	Myrichthys breviceps	Ophichthidae	Landslide
Jawfish	Opistognathus sp.	Opistognathidae	Man O' War Bay
Honeycomb Cowfish	Acanthostracion polygonius	Ostraciidae	Man O' War Bay
Smooth Trunkfish	Lactophrys triqueter	Ostraciidae	Landslide
Spotted Trunkfish	Lactophrys bicaudalis	Ostraciidae	Landslide
Dusky Flounder	Syacium papillosum	Paralichthyidae	Man O' War Bay
Guppy	Poecilia reticulata	Poeciliidae	Doctor's River
Queen Angelfish	Holacanthus ciliaris	Pomacanthidae	Iguana Bay
Rock Beauty	Holacanthus tricolor	Pomacanthidae	Iguana Bay
Grey Angelfish	Pomacanthus arcuatus	Pomacanthidae	St. Giles

French Angelfish	Pomacanthus paru	Pomacanthidae	Landslide
Blue Chromis	Chromis cyanea	Pomacentridae	Man O' War Bay
Brazilian Chromis	Chromis jubauna	Pomacentridae	Landslide
Brown Chromis	Chromis multilineata	Pomacentridae	Landslide
Jewel Damselfish	Microspathodon chrysurus	Pomacentridae	Landslide
Dusky Damselfish	Stegastes adustus	Pomacentridae	Man O' War Bay
Longfin Damselfish	Stegastes diencaeus	Pomacentridae	St. Giles
Beaugregory	Stegastes leucostictus	Pomacentridae	Pirate's Bay
Bicolor damselfish	Stegastes partitus	Pomacentridae	Landslide
Queen Parrotfish	Scarus vetula	Scaridae	Landslide
Redband Parrotfish	Sparisoma aurofrenatum	Scaridae	Landslide
Bucktooth Parrotfish	Sparisoma radians	Scaridae	Man O' War Bay
Yellowtail Parrotfish	Sparisoma rubripinne	Scaridae	St. Giles
Jack-knifefish	Equetus lanceolatus	Sciaenidae	Pirate's Bay
Spotted Drum	Equetus punctatus	Sciaenidae	Landslide
High-hat	Pareques acuminatus	Sciaenidae	Man O' War Bay
Red Lionfish	Pterois volitans	Scorpaenidae	Man O' War Bay
Spotted Scorpionfish	Scorpaena plumieri	Scorpaenidae	Man O' War Bay
Grasby	Cephalopholis cruentata	Serranidae	Man O' War Bay
Coney	Cephalopholis fulva	Serranidae	Man O' War Bay
Yellowtail Hamlet	Hypoplectrus chlorurus	Serranidae	Man O' War Bay
Freckled Soapfish	Rypticus bistrispinus	Serranidae	St. Giles
Silver Porgy	Diplodus argenteus	Sparidae	Pirate's Bay
Zangee	Synbranchus marmoratus	Synbranchidae	Doctor's River
Longsnout Seahorse	Hippocampus reidi	Syngnathidae	Man O' War Bay
Inshore Lizardfish	Synodus foetens	Synodontidae	Man O' War Bay
Sand Diver	Synodus intermedius	Synodontidae	Man O' War Bay
Goldface Puffer	Canthigaster jamestyleri	Tetraodontidae	Landslide
Beltfish	Trichiurus lepturus	Trichiuridae	Landslide

### Tunicates - 6 species from 4 families

Common Name	Scientific Name	Family	Location
Overgrowing Tunicate	Didemnum duplicatum	Didemnidae	Man O' War Bay
Button Tunicate	Distaplia corolla	Holozoidae	Landslide
Black Condominium Tunicate	Eudistoma obscuratum	Polycitoridae	Landslide
White Condominium Tunicate	Eudistoma sp.	Polycitoridae	Landslide
Giant Tunicate	Polycarpa spongiabilis	Styelidae	St. Giles
Mottled Social Tunicate	Polycarpa tumida	Styelidae	St. Giles

### Porifera (Sponges) - 18 species from 12 families

Common Name	Scientific Name	Family	Location
Citron Sponge	Agelas citrina	Agelasidae	St. Giles
Orange Elephant Ear Sponge	Agelas clathrodes	Agelasidae	St. Giles

Brown Tube Sponge	Agelas conifera	Agelasidae	Landslide
Branching Tube Sponge	Aiolochroia crassa	Aplysinidae	Landslide
Row Pore Rope Sponge	Aplysina cauliformis	Aplysinidae	Landslide
Yellow Tube Sponge	Aplysina fistularis	Aplysinidae	Landslide
Scattered Pore Rope Sponge	Aplysina fulva	Aplysinidae	St. Giles
Branching Vase Sponge	Callyspongia vaginalis	Callyspongiidae	Landslide
Red Boring Sponge	Cliona delitrix	Clionaidae	Landslide
Red Encrusting Sponge	Monanchora arbuscula	Crambeidae	Landslide
Red Sieve Encrusting Sponge	Phorbas amaranthus	Hymedesmiidae	Pirate's Bay
Green Finger Sponge	lotrochota birotulata	lotrochotidae	Iguana Bay
Black Ball Sponge	Ircinia strobilina	Irciniidae	Iguana Bay
Peach Enrusting Sponge	Clathria sp.	Microcionidae	Landslide
Orange Icing Sponge	Mycale laevis	Mycalidae	Landslide
Orange Lumpy Encrusting			
Sponge	Scopalina ruetzleri	Scopalinidae	Man O' War Bay
Orange Ball Sponge	Cinachyrella spp.	Tetillidae	Landslide
none ("blue" sponge)	Sp. A		Man O' War Bay

### Molluscs - 68 species from 46 families

Common Name	Scientific Name	Family	Location
none (land snail)	Leptinaria unilamellata	Achatinidae	Charlotteville
Miniature Awlsnail	Subulina octona	Achatinidae	Charlotteville
Squirrel-eared Snail	Plekochielus glaber	Amphibulimidae	Charlotteville
Mossy Ark	Arca imbricata	Arcidae	Pirate's Bay
Ventricose Ark	Arca ventricosa	Arcidae	Pirate's Bay
White Miniature Ark Clam	Barbatia domingensis	Arcidae	Pirate's Bay
Doc Bales' Ark Clam	Fugleria tenera	Arcidae	Man O' War Bay
Gaudy Cantharus	Gemophos auritulus	Buccinidae	Man O' War Bay
none (sea snail)	Gemophos sp.	Buccinidae	Pirate's Bay
none (tree snail)	Drymaeus rawsoni	Bulimulidae	Charlotteville
Chocolate-lined Top Snail	Calliostoma javanicum	Calliostomatidae	Man O' War Bay
none (sea snail)	Cerithiumsp.	Cerithiidae	Iguana Bay
Corrugated Jewel Box Clam	Chama congregata	Chamidae	Man O' War Bay
Cherry Jewel Box Clam	Chama sarda?	Chamidae	Man O' War Bay
Marbled Chiton	Chiton marmoratus	Chitonidae	Pirate's Bay
West Indian Green Chiton	Chiton tuberculatus	Chitonidae	Pirate's Bay
White-spotted Dove Snail	Mitrella ocellata	Columbellidae	Pirate's Bay
none (bivalve)	Sp. A	Crassatellidae	Landslide
Atlantic Grey Cowrie	Talparia cinerea	Cypraeidae	Man O' War Bay
none (sea snail)	Persicula sp.	Cystiscidae	Man O' War Bay
Striate Chip Chip	Donax striatus	Donacidae	Man O' War Bay
Chip Chip	Donax variabilis	Donacidae	Pirate's Bay
Eight-ribbed Limpet	Hemitoma octoradiata	Fissurellidae	Pirate's Bay

Jumping Snail	Ovachlamys fulgens	Helicarionidae	Charlotteville
none (land snail)	Helicina dysoni	Helicinidae	Charlotteville
Hoof Snail	Hipponix sp.	Hipponicidae	Man O' War Bay
Sea Butterfly	Limnacina sp.	Limacinidae	Pirate's Bay
Flame Scallop	Lima scabra	Limidae	Pirate's Bay
Zebra Periwinkle	Echinolittorina ziczac	Littorinidae	Pirate's Bay
Cloudy Periwinkle	Littoraria nebulosa	Littorinidae	Pirate's Bay
Caribbean Reef Squid	Sepioteuthis sepioidea	Loliginidae	Man O' War Bay
Dwarf Suck-on Limpet	Lottia leucopleura	Lottiidae	Man O' War Bay
Sombrero Lucine	Linga sombrerensis	Lucinidae	Pirate's Bay
none (sea snail)	Sp. A	Marginellidae	Man O' War Bay
none (land snail)	Austrocyclotus rugatus	Neocyclotidae	Charlotteville
Nerite	Nereina punctulata	Neritidae	Doctor's River
Tesselated Nerite	Nerita tessellata	Neritidae	Man O' War Bay
Clench's Nerite	Neritina clenchi	Neritidae	Doctor's River
Adams Ark	Arcopsis adamsi	Noetiidae	Pirate's Bay
Caribbean Reef Octopus	Octopus briareus	Octopodidae	Man O' War Bay
Olive Shell	Sp. A	Olividae	Iguana Bay
Frond Oyster	Dendostrea frons	Ostreidae	Man O' War Bay
Flamingo Tongue Snail	Cyphoma gibbosum	Ovulidae	Pirate's Bay
Fingerprint Flamingo Tongue			
Snail	Cyphoma signatum	Ovulidae	Man O' War Bay
Ornate Scallop	Chlamys ornata	Pectinidae	Pirate's Bay
Scallop	Chlamys sp.	Pectinidae	Man O' War Bay
none (slug)	Pallifera sp.	Philomycidae	Charlotteville
Rigid Pen Shell	Atrina rigida	Pinnidae	St. Giles
Radial Purse Oyster	Isognomon radius	Pteriidae	Man O' War Bay
Atlantic Winged Oyster	Pteria colymbus	Pteriidae	Landslide
none (land snail)	Tamayoa decolorata	Scolodontidae	Charlotteville
Atlantic Thorny Oyster	Spondylus americanus	Spondylidae	Landslide
West Indian Topshell	Cittarium pica	Tegulidae	Man O' War Bay
Green-base Tegula	Tegula excavata	Tegulidae	Man O' War Bay
Smooth Tegula	Tegula fasciata	Tegulidae	Man O' War Bay
Rosy Strigilla	Strigilla carnaria	Tellinidae	Man O' War Bay
Auger Snail	Terebra sp.	Terebridae	Man O' War Bay
Red-rimmed Melania	Melanoides tuberculata	Thiaridae	Doctor's River
Quilted Melania	Tarebia granifera	Thiaridae	Doctor's River
none (land snail)	Thysanophora sp.	Thysanophoridae	Charlotteville
Ornate Triphora	Triphora ornata	Triphoridae	Landslide
Coffee Bean Trivia	Pusula pediculus	Triviidae	Man O' War Bay
False Cowrie	<i>Trivia</i> sp.	Triviidae	Iguana Bay
Venus Clam	Chione cancellata	Veneridae	Iguana Bay
Lightning Venus Clam	Pitar fulminatus	Veneridae	Pirate's Bay

Trigonal Tivela	Tivela mactroides	Veneridae	Pirate's Bay
Cuba Transenella	Transenella cubaniana	Veneridae	Pirate's Bay
Caribbean Leatherleaf Slug	Sarasinula plebeia	Veronicellidae	Charlotteville

### Cnidarians - 59 species from 28 families

Common Name	Scientific Name	Family	Location
Staghorn Coral	Acropora cervicornis	Acroporidae	Man O' War Bay
Elkhorn Coral	Acropora palmata	Acroporidae	Landslide
Low Relief Lettuce Coral	Agaricia humilis	Agariciidae	Landslide
Stinging Hydroid	Macrorhynchia allmani	Aglaopheniidae	Man O' War Bay
White Stinger	Macrorhynchia philippina	Aglaopheniidae	Iguana Bay
Feather Hydroid	Gymnangium allmani	Aglaopheniidae	lguana Bay
Corkscrew Anemone	Bartholomea annulata	Aiptasiidae	Man O' War Bay
Hidden Anemone	Lebrunia coralligens	Aliciidae	Landslide
Branching Anemone	Lebrunia neglecta	Aliciidae	Man O' War Bay
	Erythropodium		
Encrusting Gorgonian	caribaeorum	Anthothelidae	Landslide
Bushy Black Coral	Antipathes caribbeana	Antipathidae	Man O' War Bay
Black Sea Whip	Stichopathes lutkeni	Antipathidae	Iguana Bay
Banded Tube-dwelling	Isarachnanthus		
Anemone	nocturnus	Arachnactidae	Man O' War Bay
Yellow Pencil Coral	Madracis auretenra	Astrocoeniidae	Landslide
Ten-ray Star Coral	Madracis decactis	Astrocoeniidae	Man O' War Bay
	Stephanocoenia		
Blushing Star Coral	intersepta	Astrocoeniidae	St. Giles
Corky Sea Finger	Briareum asbestinum	Briareidae	Landslide
Orange Cup Coral	Tubastraea coccinea	Dendrophylliidae	Iguana Bay
Long Sea Whip	Ellisella elongata	Ellisellidae	lguana Bay
Smooth Star Coral	Solenastrea bournoni	Faviidae	Landslide
Knobby Star Coral	Solenastrea hyades	Faviidae	Landslide
Symmetrical Brain Coral	Pseudodiploria strigosa	Faviidae	Landslide
Bipinnate Sea Plume	Antillogorgia bipinnata	Gorgoniidae	Landslide
Common Sea Fan	Gorgonia ventalina	Gorgoniidae	Landslide
Yellow Sea Whip	Pterogorgia citrina	Gorgoniidae	St. Giles
Hidden Anemone	Telmatactis cricoides	Isophelliidae	Man O' War Bay
Elliptical Star Coral	Dichocoenia stokesi	Meandrinidae	Landslide
Smooth Flower Coral	Eusmilia fastigiata	Meandrinidae	lguana Bay
Maze Brain Coral	Meandrina meandrites	Meandrinidae	Landslide
Mountainous Star Coral	Orbicella faveolata	Merulinidae	Landslide
Boulder Star Coral	Orbicella franksi	Merulinidae	Landslide
Branching Fire Coral	Millepora alcicornis	Milleporidae	Landslide
Blade Fire Coral	Millepora complanata	Milleporidae	Man O' War Bay
Box Fire Coral	Millepora squarrosa	Milleporidae	Man O' War Bay

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Great Star Coral	Montastraea cavernosa	Montastraeidae	Landslide
Boulder Brain Coral	Colpophyllia natans	Mussidae	Landslide
Grooved Brain Coral	Diploria labyrinthiformis	Mussidae	Landslide
Sinuous Cactus Coral	Isophyllia sinuosa	Mussidae	Iguana Bay
Artichoke Coral	Scolymia cubensis	Mussidae	Landslide
Solitary Disk Coral	Scolymia wellsii	Mussidae	Landslide
Maroon Sponge Zoanthid	Bergia puertoricense	Parazoanthidae	lguana Bay
Sponge Zoanthid	Parazoanthus parasiticus	Parazoanthidae	Landslide
Golden Zoanthid	Parazoanthus swiftii	Parazoanthidae	Iguana Bay
Hydroid Zoanthid	Parazoanthus tunicans	Parazoanthidae	St. Giles
Bent Sea Rod	Eunicea flexuosa	Plexauridae	Landslide
Shelf Knob Sea Rod	Eunicea succinea	Plexauridae	Landslide
Warty Sea Rod	Eunieca calyculata	Plexauridae	Landslide
Doughnut Sea Rod	Eunieca fusca	Plexauridae	Landslide
Rough Sea Plume	Muriceopsis flavida	Plexauridae	Landslide
Giant Slit-pore Sea Rod	Plexaurella nutans	Plexauridae	Landslide
Porous Sea Rod	Pseudoplexaura spp.	Plexauridae	Landslide
Delicate Spiny Sea Rod	Muricea laxa	Plexauridae	Landslide
Feather Bush Hydroid	Dentitheca dendritica	Plumulariidae	St. Giles
Mustard Hill Coral	Porites astreoides	Poritidae	Landslide
Branching Finger Coral	Porites furcata	Poritidae	Man O' War Bay
Branching Hydroid	Sertularella diaphana	Sertulariidae	Landslide
Massive Starlet Coral	Siderastrea siderea	Siderastreidae	Landslide
White Encrusting Zooanthid	Palythoa caribaeorum	Sphenopidae	Pirate's Bay
Mat Zoanthid	Zoanthus pulchellus	Zoanthidae	Landslide

### Echinoderms - 16 species from 14 families

Common Name	Scientific Name	Family	Location
none (brittle star)	Ophiostigma sp.?	Amphiuridae	Iguana Bay
Slate Pencil Urchin	Eucidaris tribuloides	Cidaridae	Pirate's Bay
Beaded Crinoid	Davidaster discoideus	Comasteridae	St. Giles
Long-spined Sea Urchin	Diadema antillarum	Diadematidae	Pirate's Bay
Rock Boring Urchin	Echinometra lucunter	Echinometridae	Pirate's Bay
Giant Basket Star	Astrophyton muricatum	Gorgonocephalidae	Man O' War Bay
Donkey Dung Sea Cucumber	Holothuria mexicana	Holothuriidae	Man O' War Bay
Six-holed Keyhole Sand Dollar	Leodia sexiesperforata	Mellitidae	Pirate's Bay
Five-holed Keyhole Sand	Mellita		
Dollar	quinquiesperforata	Mellitidae	Pirate's Bay
none (brittle star)	Ophiactis sp.?	Ophiactidae	Iguana Bay
Spiny Ophiocoma	Ophiocoma echinata	Ophiocomidae	Pirate's Bay
Reticulated Brittle Star	Ophionereis reticulata	Ophionerieididae	Man O' War Bay
Yellow Six-arm Brittle Star	Ophiothela mirabilis	Ophiotrichidae	Man O' War Bay
Sponge Brittle Star	Ophiothrix suensoni	Ophiotrichidae	Landslide

Three-rowed Sea Cucumber	Isostichopus badionotus	Stichopodidae	Man O' War Bay
West Indian Sea Egg	Tripneustes ventricosus	Toxopneustidae	Pirate's Bay

### Platyhelminthes (Flatworms) – 3 species from 3 families

Common Name	Scientific Name	Family	Place
none (terrestrial flatworm)	Gigantea sp.?	Geoplanidae	Charlotteville
none (terrestrial flatworm)	Rhynchodemus sp.?	Rhynchodemidae	Charlotteville
Netted Flatworm	Pseudoceros texanus	Pseudocerotoidae	Iguana Bay

### Crustaceans – 45 species from 32 families

Common Name	Scientific Name	Family	Location
Snapping Shrimp	Alpheus sp.	Alpheidae	Iguana Bay
none (amphipod)	Sp. A	Amphipoda (Order)	Pirate's Bay
Pill Bug	Sp. A	Armadillididae	Man O' War Bay
none (prawn)	<i>Atya</i> sp. A	Atyidae	Man O' War Bay
none (prawn)	Atya sp. B	Atyidae	Man O' War Bay
Ocellated Box Crab	Calappa ocellata	Calappidae	Man O' War Bay
Atlantic Barnacle	Chthamalus proteus	Chthamalidae	Landslide
none (barnacle)	Sp. A	Cirripedia (Infraclass)	Pirate's Bay
Water Flea	Sp. A	Cladocera (Order)	Pirate's Bay
Caribbean Hermit Crab	Coenobita clypeatus	Coenobitidae	Charlotteville
		Copeopoda	
none (copepod)	Sp. A	(Subclass)	Pirate's Bay
none (hooded shrimp)	Sp. A	Cumacea (Order)	Pirate's Bay
Orangeclaw Hermit Crab	Calcinus tibicen	Diogenidae	Landslide
Stareye Hermit Crab	Dardanus venosus	Diogenidae	Man O' War Bay
none (amphipod)	Sp. A	Gammaridae	Iguana Bay
Blue Land Crab	Cardisoma guanhumi	Gecarcinidae	Charlotteville
sally lightfoot crab	Grapsus grapsus	Grapsidae	Man O' War Bay
none (mole crab)	<i>Emerita</i> sp.	Hippidae	Pirate's Bay
Yellowline Arrow Crab	Stenorhynchus seticornis	Inachoididae	Landslide
none (isopod)	Sp. A	Janiridae	Iguana Bay
Knobbed Spider Crab	Damithrax hispidus	Mithracidae	Man O' War Bay
none (crab)	<i>Mithrax</i> sp. A	Mithracidae	Iguana Bay
none (crab)	<i>Mithrax</i> sp. B	Mithracidae	Man O' War Bay
none (opossum shrimp)	Sp. A	Mysidacea (Order)	Man O' War Bay
none (seed shrimp)	Sp. A	Ostracoda (Class)	Man O' War Bay
Red Striped Hermit Crab	Phimochirus holthuisi	Paguridae	Iguana Bay
Bigclaw River Shrimp	Macrobrachium carcinus	Palaemonidae	Hermitage
	Macrobrachium		
Stream Shrimp	crenulatum	Palaemonidae	Hermitage
Sun Anemone Shrimp	Periclimenes rathbunae	Palaemonidae	Landslide

Spotted Cleaner Shrimp	Periclimenes yucatanicus	Palaemonidae	Landslide
Caribbean Spiny Lobster	Panulirus argus	Palinuridae	Iguana Bay
Spotted Spiny Lobster	Panulirus guttatus	Palinuridae	Man O' War Bay
Pink-spotted Shrimp	Penaeus brasiliensis	Penaeidae	Man O' War Bay
none (shrimp)	Sp. A	Penaeidae	Pirate's Bay
Nimble Spray Crab	Percnon gibbesi	Percnidae	Pirate's Bay
Ocellate Swimming Crab	Achelous sebae	Portunidae	Man O' War Bay
Speckled Swimming			
Crab	Arenaeus cribrarius	Portunidae	Man O' War Bay
none (swimming crab)	Callinectes sp. A	Portunidae	Pirate's Bay
none (swimming crab)	Callinectes sp. B	Portunidae	Man O' War Bay
Manicou Crab	Rodriguezus garmani	Pseudothelphusidae	Doctor's River
Spanish Slipper Lobster	Scyllarides aequinoctialis	Scyllaridae	Man O' War Bay
Mangrove Tree Crab	Aratus pisonii	Sesarmidae	Hermitage
Red-banded Coral			
Shrimp	Stenopus hispidus	Stenopodidae	Man O' War Bay
Golden Coral Shrimp	Stenopus scutellatus	Stenopodidae	lguana Bay
none (shrimp)	Sp. A	Tanaidae	Landslide

### Arachnids – 26 species from 18 families

Common Name	Scientific Name	Family	Location
Silver Argiope	Argiope argentata	Araenidae	Charlotteville
Mangora Orb Weaver	Mangora melanocephala	Araenidae	Charlotteville
none (orb weaver)	Metazygia laticeps	Araenidae	Charlotteville
none (spider)	Sp. A	Araenidae	Charlotteville
none (orb weaver)	Neoscona sp.	Araneidae	Charlotteville
Trinidad Thick-tailed			
Scorpion	Tityus trinitatis	Buthidae	Pigeon Peak
none (opilione)	Santinezia serratotibialis	Cranaidae	Charlotteville
Funnel Web Spider	Ischnothele caudata	Dipluridae	Charlotteville
none (tick)	Ixodes sp.	Ixodidae	Charlotteville
Brown Dog Tick	Rhipicephalus sanguineus	Ixodidae	Charlotteville
none (wolf spider)	Hogna sp.	Lycosidae	Charlotteville
none (spider)	Sp. A	Lycosidae	Charlotteville
	Rhopalocranaus		
none (opilione)	albilineatus	Manaosbiidae	Charlotteville
none (spider)	Sp. A	Miturgidae	Charlotteville
none (spider)	Sp. A	Mygalomorphae	Charlotteville
none (wall spider)	Oecobius sp. (concinnus?)	Oecobiidae	Charlotteville
none (spider)	Coryssocnemis sp.	Pholcidae	Charlotteville
none (spider)	Modisimus sp.	Pholcidae	Charlotteville
Tailless Whip-scorpion	Phrynus sp.	Phrynidae	Hermitage
none (spider)	Sp. A	Pisauridae	Charlotteville

none (jumping spider)	Beata sp. (octopunctata?)	Salticidae	Charlotteville
none (jumping spider)	Corythalia sp.	Salticidae	Charlotteville
none (opilione)	Prionostemma vittatum	Sclerosomatidae	Charlotteville
none (spitting spider)	Scytodes longipes	Scytodidae	Charlotteville
none (spider)	Sp. A	Selenopidae	Charlotteville
Huntsman Spider	Olios sp.	Sparassidae	Charlotteville

### Myriapods (Centipedes, Milipedes) – 16 species from 14 families

Common Name	Scientific Name	Family	Location
none (flat-backed			
millipede)	Asiomorpha coarctata	Aphelidesmidae	Charlotteville
none (flat-backed			
millipede)	Amphelictogon bidens	Chelodesmidae	Charlotteville
Rutherford's Odd-legged			
Millipede	Pandirodesmus rutherfordi	Chelodesmidae	Pigeon Peak
none (centipede)	Sp. A	Cryptopidae	Charlotteville
none (millipede)	Cyclindroiulus sp.?	Julidae	Charlotteville
none (pill millipede)	Pseudospirobolellus sp.?	Pseudospirobolellidae	Charlotteville
none (millipede)	Gasatomus emersoni	Pyrgodesmidae	Charlotteville
Yellow-banded Millipede	Anadenobolus monilicornis	Rhinocricidae	Charlotteville
none (centipede)	Hemiscolopendra sp.?	Scolopendridae	Charlotteville
none (centipede)	Scolopendra sp.	Scolopendridae	Charlotteville
none (centipede)	Newportia sp.	Scolopocryptopidae	Charlotteville
	Sphendononema		
House Centipede	guildingii?	Scutigeridae	Charlotteville
none (millipede)	Paraspirobolus sp.?	Spiroboleliidae	Charlotteville
none (millipede)	Narceus sp.?	Spirobolidae	Charlotteville
none (millipede)	Orthoporus sp.?	Spirostreptidae	Charlotteville
none (millipede)	Rhinotus purpureus	Siphonotidae	Charlotteville

<b>Insects</b> – 122 s	pecies from 5	0 families/	orders consisting	of the following: -
		0 10111100/	0. 0.010 00110101010	

Diptera (Flies) – 19 species from 5 families
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Common Name	Scientific Name	Family	Location
Green Bottle Fly	Lucilia sp.	Calliphoridae	Charlotteville
Sandfly	Culicoides phlebotomus	Ceratopogonidae	Charlotteville
Yellow Fever Mosquito	Aedes aegypti	Culicidae	Charlotteville
none (mosquito)	Aedes taeniorhynchus	Culicidae	Charlotteville
none (mosquito)	Culex conservator	Culicidae	Charlotteville
none (mosquito)	Culex declarator	Culicidae	Charlotteville
none (mosquito)	Culex inimitabilis	Culicidae	Charlotteville
Florida SLE Mosquito	Culex nigripalpus	Culicidae	Charlotteville
none (mosquito)	Culex pleuristriatus?	Culicidae	Charlotteville

none (mosquito)	Culex quinquefasciatus	Culicidae	Charlotteville
none (mosquito)	Limatus durhami	Culicidae	Charlotteville
none (mosquito)	Toxorhynchites moctezuma	Culicidae	Charlotteville
none (mosquito)	Toxorhynchites superbus	Culicidae	Charlotteville
none (mosquito)	Trichoprosopon digitatum	Culicidae	Charlotteville
none (mosquito)	Wyeomyia arthrostigma	Culicidae	Charlotteville
none (mosquito)	Wyeomyia melanocephala	Culicidae	Charlotteville
none (mosquito)	Wyeomyia pertinans?	Culicidae	Charlotteville
none (fruit fly)	Ceroxys sp.	Otitidae	Charlotteville
none (parasitic fruit fly)	Sp. A	Tephritidae	Charlotteville

# Lepidoptera (Butterflies and Moths) – 45 species from 15 families

Common Name	Scientific Name	Family	Location
none (moth)	Correbidia notata	Arctiidae	Charlotteville
none (moth)	Azochis trichotarsalis	Crambidae	Charlotteville
none (moth)	Sp. A (Spilomeninae)	Crambidae	Charlotteville
Red-waisted Florella Moth	Syngamia florella	Crambidae	Charlotteville
Bewitching Melipotis	Melipotis fasciolaris	Erebidae	Charlotteville
none (moth)	Mocis diffluens	Erebidae	Charlotteville
none (moth)	Sp. A (Herminiinae)	Erebidae	Charlotteville
none (moth)	Virbia medarda	Erebidae	Charlotteville
Linnaeus's Joker	Cyllopoda jatropharia	Geometridae	Charlotteville
none (moth)	Idaea caudata	Geometridae	Charlotteville
none (moth)	Idaea rufarenaria	Geometridae	Charlotteville
none (moth)	Idaea triangularia	Geometridae	Charlotteville
none (moth)	Idaea triangulata	Geometridae	Charlotteville
Dot-lined Angle Moth	Macaria abydata	Geometridae	Charlotteville
Fridericus Spreadwing	Ouleus fridericus	Hesperiidae	Charlotteville
Caribbean Ruby-eye	Perichares philetes	Hesperiidae	Charlotteville
none (butterfly)	Sp. A	Hesperiidae	Charlotteville
none (butterfly)	Sp. B	Hesperiidae	Charlotteville
none (butterfly)	Sp. C	Hesperiidae	Charlotteville
Plain Longtail	Urbanus simplicius	Hesperiidae	Charlotteville
none (moth)	Imma nephallactis	Immidae	Charlotteville
none (moth)	Euprosterna aroensis	Limacodidae	Charlotteville
Hewitson's Groundstreak	Calycopis bactra	Lycaenidae	Charlotteville
Origo Groundstreak	Calycopis origo	Lycaenidae	Charlotteville
Large Green Hairstreak	Chalybs herodotus	Lycaenidae	Charlotteville
Bubastus Hairstreak	Strymon bubastus	Lycaenidae	Charlotteville
none (moth)	Herminodes concatenalis	Noctuidae	Charlotteville
none (moth)	Metalectra agriodes	Noctuidae	Charlotteville
none (moth)	Oxidercia toxea	Noctuidae	Charlotteville
none (moth)	Ptichodis crucis	Noctuidae	Charlotteville

Southern Armyworm Moth	Spodoptera eridania	Noctuidae	Charlotteville
Witch Moth	Letis buteo	Noctuidae	Charlotteville
Witch Moth	Letis magna	Noctuidae	Charlotteville
Scarlet Peacock	Anartia amathea	Nymphalidae	Charlotteville
Teucer Owl Butterfly	Caligo teucer	Nymphalidae	Charlotteville
Butler's Satyr	Cissia palladia	Nymphalidae	Charlotteville
Hermes Satyr	Hermeuptychia hermes	Nymphalidae	Charlotteville
Tropical Buckeye	Junonia zonalis	Nymphalidae	Charlotteville
Blue-gray Satyr	Magneuptychia libye	Nymphalidae	Charlotteville
none (butterfly)	Sp. A	Pieridae	Charlotteville
Bagworm Moth	Oiketicus kirbyi	Psychidae	Charlotteville
Snout Moth	Caphys biliniata	Pyralidae	Charlotteville
Molpe Metalmark	Juditha molpe	Riodinidae	Charlotteville
Electron Pixie	Melanis electron	Riodinidae	Charlotteville
Green-banded Urania	Urania leilus	Uraniidae	Charlotteville

## Hymenoptera (Ants, Bees and Wasps) – 12 species from 4 families

Common Name	Scientific Name	Family	Location
Western Honey Bee	Apis mellifera	Apidae	Charlotteville
none (stingless bee)	Frieseomelitta sp.	Apidae	Charlotteville
none (stingless bee)	Melipona favosa	Apidae	Charlotteville
none (stingless bee)	Plebeia nr. frontalis	Apidae	Charlotteville
none (stingless bee)	Trigona nigra	Apidae	Charlotteville
none (leaf-cutter ant)	Atta cephalotes	Formicidae	Charlotteville
none (nectar ant)	Ectatomma ruidum	Formicidae	Charlotteville
none (nectar ant)	Ectatomma tuberculatum	Formicidae	Charlotteville
none (trap-jaw ant)	Odontomachus sp.	Formicidae	Charlotteville
none (sweat bee)	Sp. A	Halictidae	Charlotteville
none (sweat bee)	Sp. B	Halictidae	Charlotteville
Marabunta	Polybia occidentalis	Vespidae	Charlotteville

### Other Insects – 46 species from 26 families/orders

Common Name	Scientific Name	Family/Order	Location
none (grasshopper)	Abracris flavolineata	Acrididae	Charlotteville
none (grasshopper)	Sp. A	Acrididae	Charlotteville
none (grasshopper)	Chorthippus sp.	Acrididae	Pigeon Peak Trail
none (grasshopper)	Vilerna aeneooculata	Acrididae	Charlotteville
none (cockroach)	Blaberus sp. ?	Blaberidae	Charlotteville
none (cockroach)	Notolampra sp. ?	Blaberidae	Charlotteville
none (cockroach)	Eurycotis decipiens	Blattidae	Charlotteville
American Cockroach	Periplaneta americana	Blattidae	Charlotteville
American Wheat Weevil	Rhyzopertha dominica	Bostrichidae	Charlotteville

Long-necked Weevil	Brentus volvulus	Brentidae	Charlotteville
Flat-faced Longhorn			
Beetle	Lagocheiris araneiformis	Cerambycidae	Charlotteville
Hardwood Stump Borer	Mallodon dasystomus	Cerambycidae	Charlotteville
none (longhorn beetle)	Sp. A	Cerambycidae	Charlotteville
none (leaf beetle)	Sp. A	Chrysomelidae	Charlotteville
none (cicada)	Sp. A	Cicadidae	Charlotteville
none (damselfly)	Sp. A	Coenagrionidae	Charlotteville
none (weevil)	Brachyomus sp.	Curculionidae	Charlotteville
Snout beetle	Cleogonus rubetra	Curculionidae	Charlotteville
none (stick insect)	Ocnophiloidea regularis	Diapheromeridae	Pigeon Peak Trail
none (webspinner)	Sp. A	Embiidina	Charlotteville
none (cricket)	Gryllodes sp.?	Gryllidae	Charlotteville
none (cricket)	Sp. A	Gryllidae	Charlotteville
Firefly	Photinus sp.	Lampyridae	Charlotteville
Trinidad Bark Mantis	Liturgusa trinidadensis	Liturgusidae	Pigeon Peak Trail
none (mantis)	Angela quinquemaculata	Mantidae	Charlotteville
none (mantis)	Thesprotia filum	Mantidae	Pigeon Peak Trail
none (beetle)	Passalus sp.	Passalidae	Charlotteville
Spined Stink Bug	Loxa flavicollis	Pentatomidae	Charlotteville
Southern Green Stink			
Bug	Nezara viridula	Pentatomidae	Charlotteville
none (stink bug)	Sp. A	Pentatomidae	Charlotteville
none (stick insect)	Creoxylus spinosus	Pseudophasmatidae	Pigeon Peak Trail
none (scentless plant			
bug)	Jadera sp.	Rhopalidae	Charlotteville
none (seed bug)	Ozophora burmeisteri	Rhyparochromidae	Charlotteville
none (scarab beetle)	Canthon sp.	Scarabaeidae	Charlotteville
none (scarab beetle)	Deltochilum orbignyi	Scarabaeidae	Charlotteville
none (scarab beetle)	Dichotomius agenor	Scarabaeidae	Charlotteville
none (scarab beetle)	Macraspis chalcea	Scarabaeidae	Charlotteville
	Microcerotermes		
none (termite)	arboreus	Termitidae	Charlotteville
none (termite)	Nasutitermes corniger	Termitidae	Charlotteville
none (termite)	Nasutitermes ephratae	Termitidae	Charlotteville
none (grasshopper)	Sp. A	Tetrigidae	Charlotteville
none (cricket)	Aphonoides sp.	Tettigoniidae	Pigeon Peak Trail
none (katydid)	Conocephalus sp.	Tettigoniidae	Charlotteville
	Neoconocephalus		
Robust Conehead	robustus	Tettigoniidae	Charlotteville
none (katydid)	Neoconocephalus sp.	Tettigoniidae	Charlotteville
none (mantis)	Bantiella trinitatis	Thespidae	Pigeon Peak Trail

Common Name	Scientific Name	Family	Location
none (bristle worm)	Chloeia sp.	Amphinomidae	Iguana Bay
Bearded Fireworm	Hermodice carunculata	Amphinomidae	Pirate's Bay
Southern Lugworm	Arenicola cristata	Arenicolidae	Pirate's Bay
none (polychaete worm)	Sp. A	Capitellidae	Man O' War Bay
none (sludge worm)	Sp. A	Naididae	Man O' War Bay
none (ragworm)	Sp. A	Nereididae	Iguana Bay
none (ragworm)	Sp. B	Nereididae	Iguana Bay
none (polychaete worm)	Onuphis sp.	Onuphidae	Man O' War Bay
none (bristle worm)	Sp. A	Polynoidae	Iguana Bay
none (scale worm)	Sp. B	Polynoidae	Iguana Bay
Split-crown Feather Duster	Anamobaea orstedii	Sabellidae	Pirate's Bay
Ghost Feather Duster	Anamobaea sp.	Sabellidae	Man O' War Bay
Social Feather Duster	Bispira brunnea	Sabellidae	Man O' War Bay
Variegated Feather Duster	Bispira melanostigma	Sabellidae	Iguana Bay
Brown Fanworm	Notaulax nudicollis	Sabellidae	Iguana Bay
Christmas Tree Worm	Spirobranchus giganteus	Serpulidae	Pirate's Bay
none (polychaete worm)	Sp. A	Spionidae	Man O' War Bay
none (polychaete worm)	Syllis sp. ?	Syllidae	Iguana Bay
none (polychaete worm)	Sp. A	Terebellidae	Pirate's Bay
none (polychaete worm)	Sp. B	Terebellidae	Iguana Bay

#### Annelids (Worms) – 20 species from 12 families

### Minor Phyla - 14 species from 13 families/orders/phyla

Common Name	Scientific Name	Family/Order/Phylum	Location
none (cyphonautes)	Sp. A	Bryozoa	Pirate's Bay
none (dinoflagellate)	Tripos longipes	Ceratiaceae (Dinoflagellata)	Pirate's Bay
none (arrow worm)	Sp. A	Chaetognatha	Pirate's Bay
none (sea sawdust)	Trichodesmium sp.	Cyanobacteria	Man O' War Bay
none (foram)	Sp. A	Foraminifera	Pirate's Bay
none (coccolithophore)	Sp. A	Haptophyta	Pirate's Bay
none (acorn worm)	Sp. A	Hemichordata	Pirate's Bay
none (roundworm)	Sp. A	Nematoda	lguana Bay
none (ribbon worm)	Sp. A	Nemertea	Pirate's Bay
none (diatom)	Sp. A	Ochrophyta	Man O' War Bay
none (diatom)	Sp. B	Ochrophyta	Man O' War Bay
none (horseshoe worm)	Sp. A	Phoronida	Pirate's Bay
none (radiozoa)	Sp. A	Radiolaria	Pirate's Bay
none (rotifer)	Sp. A	Rotifera	Pirate's Bay

Common Name	Scientific Name	Family	Location
none (fungus)	Chlorophyllum sp.?	Agaricaceae	Charlotteville
none (fungus)	Sp. A	Clavulinaceae	Charlotteville
none (fungus)	Ganoderma sp.?	Ganodermataceae	Charlotteville
none (fungus)	Sp. A	Ganodermataceae	Charlotteville
none (fungus)	Glaziella vesiculosa?	Glaziellaceae	Charlotteville
none (fungus)	Marasmius sp. A	Marasmiaceae	Charlotteville
none (fungus)	Marasmius sp. B	Marasmiaceae	Charlotteville
none (fungus)	Sp. A	Nidulariaceae	Charlotteville
none (fungus)	Sp. A	Pleurotaceae	Charlotteville
none (fungus)	Sp. B	Pleurotaceae	Charlotteville
none (fungus)	Polyporus sp.?	Polyporaceae	Charlotteville
none (fungus)	Sp. A	Polyporaceae	Charlotteville
none (fungus)	Sp. B	Polyporaceae	Charlotteville
none (fungus)	Coprinellus sp.?	Psathyrellaceae	Charlotteville
Orange Cup Fungus	Cookeina sp.	Sarcoscyphaceae	Charlotteville
Split Gill Fungus	Schizophyllum sp. ?	Schizophyllaceae	Charlotteville
none (fungus)	Morphospecies 1	Unknown	Charlotteville
none (fungus)	Morphospecies 2	Unknown	Charlotteville
none (fungus)	Morphospecies 3	Unknown	Charlotteville
none (fungus)	Morphospecies 4	Unknown	Charlotteville
none (fungus)	Morphospecies 5	Unknown	Charlotteville
none (fungus)	Morphospecies 6	Unknown	Charlotteville
none (fungus)	Morphospecies 7	Unknown	Charlotteville
none (fungus)	Morphospecies 8	Unknown	Charlotteville
none (fungus)	Morphospecies 9	Unknown	Charlotteville
none (fungus)	Morphospecies 10	Unknown	Charlotteville
none (fungus)	Morphospecies 11	Unknown	Charlotteville
none (fungus)	Morphospecies 12	Unknown	Charlotteville
none (fungus)	Morphospecies 13	Unknown	Charlotteville
none (fungus)	Morphospecies 14	Unknown	Charlotteville

**Fungus** – 30 species from 11+ families/orders

Algae – 28 speci	es from 18 fam	ilies
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Common Name	Scientific Name	Family	Location
"Green Turf Algae"	Sp. A	Bryopsidaceae	Man O' War Bay
Saw Blade Algae	Caulerpa mexicana	Caulerpaceae	Man O' War Bay
Green Grape Algae	Caulerpa racemosa	Caulerpaceae	Man O' War Bay
Y-Twig Algae	Amphiroa rigida	Corallinaceae	Man O' War Bay
Flat-Twig Algae	Amphiroa tribulus	Corallinaceae	Pirate's Bay
"Lavender Crust Algae"	Sp. A	Corallinaceae	Man O' War Bay
"Reef Cement"	Sp. B	Corallinaceae	Man O' War Bay
"Fuzz Ball Algae"	Sp. A	Cyanophyceae	Man O' War Bay

Y-Branched Algae	<i>Dictyota</i> sp.	Dictyotaceae	Man O' War Bay
White Scroll Algae	Padina sanctae-crucis	Dictyotaceae	Man O' War Bay
Tubular Thicket Algae	<i>Galaxaura</i> sp.	Galaxauraceae	Man O' War Bay
Spiny Seaweed	Gelidium spinosum	Gelidiaceae	Man O' War Bay
Large Leaf Hanging Vine	Halimeda copiosa	Halimedaceae	Man O' War Bay
Small Leaf Hanging Vine	Halimeda goreaui	Halimedaceae	Man O' War Bay
Watercress Algae	Halimeda opuntia	Halimedaceae	Pirate's Bay
Crustose Coralline Algae	Lithothamnion sp.	Hapalidiaceae	Man O' War Bay
Turtle Grass	Thalassia testudinum	Hydrocharitaceae	Man O' War Bay
Burgundy Crust Algae	Peyssonnelia rubra	Peyssonneliaceae	Man O' War Bay
White Wine Mermaid's Glass	Acetabularia caliculus	Polyphysaceae	Man O' War Bay
	Vertebrata		
none (red algae)	foetidissima	Rhodomelaceae	Pirate's Bay
	Acanthophora		
Spiny Seaweed	spicifera	Rhodomelacedae	Pirate's Bay
Sargassum Seaweed	Sargassum fluitans	Sargassaceae	Man O' War Bay
Gulf Weed	Sargassum natans	Sargassaceae	Man O' War Bay
Saucer Leaf Algae	Turbinaria tricostata	Sargassaceae	Pirate's Bay
	Hydroclathrus		
Swiss Cheese Algae	clathratus	Scytosiphonaceae	Man O' War Bay
none (green algae)	Cladophoropsis sp.	Siphonocladaceae	Pirate's Bay
Sea Lettuce	Ulva lactuca	Ulvaceae	Pirate's Bay
Sea Pearl	Valonia ventricosa	Valoniaceae	Pirate's Bay

# Terrestrial Plants – 327 species from 85 families

Common Name	Scientific Name	Family	Location
none (shrub)	Graptophyllum pictum	Acanthaceae	Charlotteville
none (shrub)	Sanchezia sp.	Acanthaceae	Charlotteville
Shoreline Seapurslane	Sesuvium portulacastrum	Aizoaceae	Charlotteville
Alligator Grass	Alternanthera philoxeroides	Amaranthaceae	Charlotteville
Calicoplant	Alternanthera tenella	Amaranthaceae	Charlotteville
Pigweeds	Amaranthus sp.	Amaranthaceae	Charlotteville
Swamp Lily	Crinum americanum	Amaryllidaceae	Charlotteville
Barbados Lily	Hippeastrum puniceum	Amaryllidaceae	Charlotteville
Cashew	Anacardium occidentale	Anacardiaceae	Charlotteville
Mango	Mangifera indica	Anacardiaceae	Charlotteville
Brazillian Peppertree	Schinus terebinthifolius	Anacardiaceae	Charlotteville
Pommecythere	Spondias cytherea	Anacardiaceae	Charlotteville
Hog Plum	Spondias mombin	Anacardiaceae	Charlotteville
Plum	Spondias purpurea	Anacardiaceae	Charlotteville
none (tree)	Tapirira guianensis	Anacardiaceae	Charlotteville
Soursop	Annona muricata	Annonaceae	Charlotteville
Custard Apple	Annona reticulata	Annonaceae	Charlotteville

Shadon Beni	Eryngium aquaticum	Apiaceae	Charlotteville
Marsh Pennywort	Hydrocotyle umbellata	Apiaceae	Charlotteville
none (shrub)	Allamanda sp.	Apocynaceae	Charlotteville
Bloodflower	Asclepias curassavica	Apocynaceae	Charlotteville
none (herb)	Cascabela thevetia	Apocynaceae	Charlotteville
none (herb)	Marsdenia macrophylla	Apocynaceae	Charlotteville
none (herb)	Marsdenia sp.	Apocynaceae	Charlotteville
Oleander	Nerium oleander	Apocynaceae	Charlotteville
Frangipani	Plumeria cochleata	Apocynaceae	Charlotteville
Frangipani	Plumeria rubra	Apocynaceae	Charlotteville
none (tree)	Tabernaemontana cymosa	Apocynaceae	Charlotteville
	Tabernaemontana		
none (tree)	oppositifolia	Apocynaceae	Charlotteville
none (epiphyte)	Anthurium jenmanii	Araceae	Charlotteville
Angel Wings	Caladum bicolor	Araceae	Charlotteville
Dasheen	Colocasia esculenta	Araceae	Charlotteville
Devil's Ivy	Epipremnum sp.	Araceae	Charlotteville
Swiss Cheese Vine	Monstera adansonii	Araceae	Charlotteville
none (epiphyte)	Philodendron acutatum	Araceae	Charlotteville
none (epiphyte)	Philodendrum sp.	Araceae	Charlotteville
Tall Elephant's Ear	Xanthosoma undipes	Araceae	Charlotteville
none (tree)	Oreopanax capitatus	Araliaceae	Charlotteville
none (herb)	Polyscias sp.	Araliaceae	Charlotteville
Norfolk Island Pine	Araucaria heterophylla	Araucariacese	Charlotteville
Wine Palm	Attalea butyracea	Arecaceae	Charlotteville
none (palm)	Bactris setulosa	Arecaceae	Charlotteville
Caryota Palm	Caryota mitis	Arecaceae	Charlotteville
Silver Thatch Palm	Coccothrinax barbadensis	Arecaceae	Charlotteville
Coconut Palm	Cocos nucifera	Arecaceae	Charlotteville
none (climber)	Desmoncus orthacanthos	Arecaceae	Charlotteville
none (palm)	Dypsis lutescens	Arecaceae	Charlotteville
none (palm)	Euterpe broadwayi	Arecaceae	Charlotteville
none (fan palm)	Livistona sp.	Arecaceae	Charlotteville
none (palm)	Prestoea acuminata	Arecaceae	Charlotteville
Royal Palm	Roystonea oleracea	Arecaceae	Charlotteville
none (palm)	Veitchia sp.	Arecaceae	Charlotteville
none (fern)	Thelypteris dentata	Aspleniaceae	Charlotteville
none (fern)	Thelypteris sp. A	Aspleniaceae	Charlotteville
none (fern)	Thelypteris sp. B	Aspleniaceae	Charlotteville
none (fern)	Thelypteris sp. C	Aspleniaceae	Charlotteville
none (shrub)	Austroeupatorium inulifolium	Asteraceae	Charlotteville
Railway Daisy	Bidens alba	Asteraceae	Charlotteville
West Indian Beggarticks	Bidens cynapiifolia	Asteraceae	Charlotteville

Christmas Bush	Chromolaena odorata	Asteraceae	Charlotteville
none (herb)	Cyanthillium cinereum	Asteraceae	Charlotteville
Congolala	Eclipta prostrata	Asteraceae	Charlotteville
none (herb)	Elephantopus mollis	Asteraceae	Charlotteville
Cupid's Shaving Brush	Emilia sonchifolia	Asteraceae	Charlotteville
Tassleflower	Emilia sp.	Asteraceae	Charlotteville
none (shrub)	Eupatorium sp.	Asteraceae	Charlotteville
none (herb)	Pseudelephantopus spicatus	Asteraceae	Charlotteville
Wedelia	Sphagneticola trilobata	Asteraceae	Charlotteville
none (herb)	Synedrella nodiflora	Asteraceae	Charlotteville
none (herb)	Tridax procumbens	Asteraceae	Charlotteville
none (shrub)	Wulffia baccata	Asteraceae	Charlotteville
Purple Trumpet Flower			
Vine	Bignonia binata	Bignoniaceae	Charlotteville
Calabash	Crescentia cujete	Bignoniaceae	Charlotteville
Cat's Claw Vine	Dolichandra unguis-cati	Bignoniaceae	Charlotteville
none (tree)	Handroanthus sp.	Bignoniaceae	Charlotteville
none (tree)	Tabebuia chrysantha	Bignoniaceae	Charlotteville
Pink Poui	Tabebuia rosea	Bignoniaceae	Charlotteville
Yellow Poui	Tabebuia serratifolia	Bignoniaceae	Charlotteville
Trumpet Flower	Tecoma stans	Bignoniaceae	Charlotteville
Cypre	Cordia alliodora	Boraginaceae	Charlotteville
Bois Lay Lay	Cordia collococa	Boraginaceae	Charlotteville
Black Sage	Cordia curassavica	Boraginaceae	Charlotteville
none (shrub)	Tournefortia hirsutissima	Boraginaceae	Charlotteville
Wild Pine	Aechmea aquilega	Bromeliaceae	Charlotteville
none (bromeliad)	Aechmea nudicaulis	Bromeliaceae	Charlotteville
Naked Indian	Bursera simaruba	Burseraceae	Charlotteville
none (epiphyte)	Epiphyllum hookeri	Cactaceae	Charlotteville
Red Pitaya	Hylocereus lemairei	Cactaceae	Charlotteville
Climbing Cactus	Hylocereus sp.	Cactaceae	Charlotteville
Mistletoe Cactus	Rhipsalis cassutha	Cactaceae	Charlotteville
none (herb)	Centropogon cornutus	Campanulaceae	Charlotteville
Trema	Trema micrantha	Cannabaceae	Charlotteville
Canna Lily	Canna indica	Cannaceae	Charlotteville
Paw paw	Carica papaya	Caricaceae	Charlotteville
none (shrub)	Clusia palmicida	Clusiaceae	Charlotteville
none (tree)	Clusia rosea	Clusiaceae	Charlotteville
White Mangrove	Laguncularia racemosa	Combretaceae	Charlotteville
White Olivier	Terminalia amazonia	Combretaceae	Charlotteville
Indian Almond	Terminalia catappa	Combretaceae	Charlotteville
Water Grass	Commelina erecta	Commelinaceae	Charlotteville
none (climber)	Ipomoea phyllomega	Convolvulaceae	Charlotteville

Sweet Potato Vine	<i>Ipomoea</i> sp. A	Convolvulaceae	Charlotteville
none (climber)	<i>Ipomoea</i> sp. B	Convolvulaceae	Charlotteville
Wild Ginger	Costus scaber	Costaceae	Charlotteville
Life Plant	Bryophyllum pinnatum	Crassulaceae	Charlotteville
Cucurbit (Gourd)	Anguria sp.	Cucurbitaceae	Charlotteville
Squash	Cucurbita moschata	Cucurbitaceae	Charlotteville
none (climber)	Gurania lobata	Cucurbitaceae	Charlotteville
none (herb)	Melothria sp.	Cucurbitaceae	Charlotteville
Carille	Momordica charantia	Cucurbitaceae	Charlotteville
none (fern)	Cnemidaria spectabilis	Cyatheaceae	Charlotteville
Spiny Treefern	Cyathea pungens	Cyatheaceae	Charlotteville
Cycad	Cycas sp.	Cycadaceae	Charlotteville
Swamp Flatsedge	Cyperus ligularis	Cyperaceae	Charlotteville
none (graminoid)	Cyperus sp. A	Cyperaceae	Charlotteville
none (graminoid)	Cyperus sp. B	Cyperaceae	Charlotteville
Tropical Flatsdge	Cyperus surinamensis	Cyperaceae	Charlotteville
none (tree)	Cyperus odoratus	Cyperaceae	Charlotteville
Fragrant Spikesedge	Kyllinga odorata	Cyperaceae	Charlotteville
none (graminoid)	<i>Kyllinga</i> sp.	Cyperaceae	Charlotteville
none (herb)	Scleria melaleuca	Cyperaceae	Charlotteville
none (herb)	Rhynchospora nervosa	Cyperaceae	Charlotteville
none (yam)	Dioscorea sp.	Dioscoreaceae	Charlotteville
Marmelinho	Diospyros inconstans	Ebenaceae	Charlotteville
none (tree)	Erythroxylum havanense	Erythroxylaceae	Charlotteville
Croton	Codiaeum variegatum	Euphorbiaceae	Charlotteville
Bloodwood	Croton gossypiifolius	Euphorbiaceae	Charlotteville
Tropical Smoke Bush	Euphorbia cotinoites	Euphorbiaceae	Charlotteville
Cassava	Manihot esculenta	Euphorbiaceae	Charlotteville
none (shrub)	Pedilanthus tithymaloides	Euphorbiaceae	Charlotteville
Milkwood	Sapium glandulosum	Euphorbiaceae	Charlotteville
Puni	Abarema jupunba	Fabaceae	Charlotteville
Jumbie Bead	Abrus precatorius	Fabaceae	Charlotteville
Tantakayo	Albizia niopoides	Fabaceae	Charlotteville
Samaan Tree	Albizia samman	Fabaceae	Charlotteville
Alyce Clover	Alysicarpus vaginalis	Fabaceae	Charlotteville
Andira	Andira inermis	Fabaceae	Charlotteville
Orchid Tree	Bauhinia sp.	Fabaceae	Charlotteville
Scarlet Flame-Bean	Brownea coccinea	Fabaceae	Charlotteville
Pride of Barbados	Caesalpinia pulcherrima	Fabaceae	Charlotteville
Pigeon Pea	Cajanus cajan	Fabaceae	Charlotteville
none (herb)	Desmodium adscendens	Fabaceae	Charlotteville
none (herb)	Desmodium axillare	Fabaceae	Charlotteville
none (herb)	Desmodium sp.	Fabaceae	Charlotteville

none (herb)	Desmodium triflorum	Fabaceae	Charlotteville
none (fern)	Dicranopteris pectinata	Fabaceae	Charlotteville
none (climber)	Dioclea guianensis	Fabaceae	Charlotteville
none (climber)	Entada polystachya	Fabaceae	Charlotteville
Water Immortelle	Erythrina fusca	Fabaceae	Charlotteville
Mountain Immortelle	Erythrina poeppigiana	Fabaceae	Charlotteville
Glory Cedar	Gliricidia sepium	Fabaceae	Charlotteville
Pois Doux	Inga ingoides	Fabaceae	Charlotteville
none (tree)	Inga sp. A	Fabaceae	Charlotteville
none (tree)	Inga sp. B	Fabaceae	Charlotteville
none (climber)	Machaerium isadelphum	Fabaceae	Charlotteville
Ti-marie	Mimosa pudica	Fabaceae	Charlotteville
Stinkwood	Piscidia carthagenensis	Fabaceae	Charlotteville
Kudzu Vine	Pueraria montana var. lobata	Fabaceae	Charlotteville
Ringworm Bush	Senna alata	Fabaceae	Charlotteville
none (shrub)	Senna bacillaris	Fabaceae	Charlotteville
none (shrub)	Senna occidentalis	Fabaceae	Charlotteville
none (climber)	Vigna luteola	Fabaceae	Charlotteville
none (herb)	Enicostema verticillatum	Gentianaceae	Charlotteville
none (shrub)	Drymonia serrulata	Gesneriaceae	Charlotteville
none (herb)	Xiphidium caeruleum	Haemodoraceae	Charlotteville
Baliser	Heliconia bihai	Heliconiaceae	Charlotteville
none (herb)	Heliconia rostrata	Heliconiaceae	Charlotteville
none (herb)	Heliconia spathocircinata	Heliconiaceae	Charlotteville
none (tree)	Vismia cayennensis	Hypericaceae	Charlotteville
none (tree)	Vismia guianensis	Hypericaceae	Charlotteville
none (tree)	Vismia laxiflora	Hypericaceae	Charlotteville
none (shrub)	Hyptis sp.	Lamiaceae	Charlotteville
Avacado	Persea americana	Lauraceae	Charlotteville
none (shrub)	Phthirusa pyrifolia	Loranthaceae	Charlotteville
none (shrub)	Cuphea sp.	Lythraceae	Charlotteville
Crepe Myrtle	Lagerstroemia floribunda	Lythraceae	Charlotteville
Ochro	Abelomoschus esculentus	Malvaceae	Charlotteville
Tobago Sandbox	Apeiba schomburgkii	Malvaceae	Charlotteville
Bois d'orme	Guazuma ulmifolia	Malvaceae	Charlotteville
Hibiscus	Hibiscus mutabilia	Malvaceae	Charlotteville
Sorrel	Hibiscus sabdariffa	Malvaceae	Charlotteville
Hibiscus	Hibisicus sp.	Malvaceae	Charlotteville
Bois Flow	Ochroma pyramidale	Malvaceae	Charlotteville
none (shrub)	Sida acuta	Malvaceae	Charlotteville
none (shrub)	Sida rhombifolia	Malvaceae	Charlotteville
Сосоа	Theobroma cacao	Malvaceae	Charlotteville
Cachibou	Calathea lutea	Marantaceae	Charlotteville

Maranta	Maranta gibba	Marantaceae	Charlotteville
Soap Bush	Clidemia hirta	Melastomataceae	Charlotteville
none (shrub)	Miconia sp.	Melastomataceae	Charlotteville
Сгарро	Carapa guianensis	Meliaceae	Charlotteville
Cedar	Cedrela mexicana	Meliaceae	Charlotteville
Redwood	Guarea glabra	Meliaceae	Charlotteville
Mahogany	Swietenia sp.	Meliaceae	Charlotteville
Obi	Trichilia pallida	Meliaceae	Charlotteville
Acurel	Trichilia pleeana	Meliaceae	Charlotteville
none (herb)	Mollinedia laurina	Monimiaceae	Charlotteville
Bread Fruit	Artocarpus attilus	Moraceae	Charlotteville
Mexican Rubber	Castella elastica	Moraceae	Charlotteville
none (tree)	Ficus amazonica	Moraceae	Charlotteville
none (tree)	Ficus broadwayi	Moraceae	Charlotteville
none (tree)	Ficus elastica	Moraceae	Charlotteville
none (tree)	Ficus guianensis	Moraceae	Charlotteville
none (tree)	Ficus lyrata	Moraceae	Charlotteville
none (tree)	Ficus nymphaeifolia	Moraceae	Charlotteville
none (tree)	Ficus yoponensis	Moraceae	Charlotteville
Calabura	Muntingia calabura	Muntinginacee	Charlotteville
Plantain	Musa balbisiana	Musaceae	Charlotteville
Banana	Musa sp.	Musaceae	Charlotteville
Traveller's Palm	Ravenala madagascarensis	Musaceae	Charlotteville
Wild Nutmeg	Virola surinamensis	Myristicaceae	Charlotteville
none (wild coffee)	Eugenia sp. A	Myrtaceae	Charlotteville
none (tree)	Eugenia sp. B	Myrtaceae	Charlotteville
none (tree)	Myrcia tobagensis	Myrtaceae	Charlotteville
none (tree)	Plinia sp.	Myrtaceae	Charlotteville
Pomerac	Syzygium malaccense	Myrtaceae	Charlotteville
Bougainvillea	Bougainvillea spectabilis	Nyctaginaceae	Charlotteville
none (tree)	Guapira cuspidata	Nyctaginaceae	Charlotteville
none (shrub)	Guapira fragrans	Nyctaginaceae	Charlotteville
none (tree)	Guapira salicifolia	Nyctaginaceae	Charlotteville
none (tree)	Ouratea guildingii	Ochnaceae	Charlotteville
none (orchid)	Coryanthes sp.	Orchidaceae	Charlotteville
none (epiphyte)	Epidendrum sp.	Orchidaceae	Charlotteville
none (epiphyte)	Epidendrum stenopelatum	Orchidaceae	Charlotteville
none (herb)	Oeceoclades maculata	Orchidaceae	Charlotteville
none (epiphyte)	Polystachya concreta	Orchidaceae	Charlotteville
none (epiphyte)	Prosthechea fragrans	Orchidaceae	Charlotteville
none (epiphyte)	Sp. A	Orchidaceae	Charlotteville
none (screwpine)	Pandanus sp.	Pandanaceae	Charlotteville
Sour Cherry	Phyllanthus acidus	Phyllanthaceae	Charlotteville

none (shrub)	Phyllanthus amarus	Phyllanthaceae	Charlotteville
none (tree)	Picramnia pentandra	Picramniaceae	Charlotteville
none (herb)	Peperomia pellucida	Piperaceae	Charlotteville
none (shrub)	Piper dilatatum	Piperaceae	Charlotteville
none (shrub)	Piper hispidum	Piperaceae	Charlotteville
none (shrub)	Piper tuberculatum	Piperaceae	Charlotteville
Oat Grass	Acroceras zizanioides	Poaceae	Charlotteville
none (herb)	Andropogon bicornis	Poaceae	Charlotteville
Broadleaf Carpetgrass	Axonopus compressus	Poaceae	Charlotteville
Common Bamboo	Bambusa vulgaris	Poaceae	Charlotteville
none (graminoid)	Chloris barbatus	Poaceae	Charlotteville
Lemon Grass	Cymbopogon citratus	Poaceae	Charlotteville
Wiregrass	Eleusine indica	Poaceae	Charlotteville
none (graminoid)	Eragrostis sp.	Poaceae	Charlotteville
none (herb)	Lasiacis sp.	Poaceae	Charlotteville
none (tree)	Panicum maximum	Poaceae	Charlotteville
none (tree)	Panicum sp. A	Poaceae	Charlotteville
none (tree)	Panicum sp. B	Poaceae	Charlotteville
none (herb)	Paspalum conjugatum	Poaceae	Charlotteville
none (herb)	Paspalum fimbriatum	Poaceae	Charlotteville
none (herb)	Paspalum sp.	Poaceae	Charlotteville
none (herb)	Paspalum virgatum	Poaceae	Charlotteville
Elephant Grass	Pennisetum purpureum	Poaceae	Charlotteville
Sugar Cane	Saccharum officinarum	Poaceae	Charlotteville
none (herb)	Setaria sp.	Poaceae	Charlotteville
none (herb)	Sporobolus jacquemontii	Poaceae	Charlotteville
none (herb)	Sporobolus virgenicus	Poaceae	Charlotteville
Corn	Zea mays	Poaceae	Charlotteville
none (climber)	Securidaca diversifolia	Polygalaceae	Charlotteville
Sea Grape	Coccoloba uvifera	Polygonaceae	Charlotteville
none (fern)	Campyloneurum phyllitidis	Polypodiaceae	Charlotteville
Creeping Fern	Microgramma sp.	Polypodiaceae	Charlotteville
none (fern)	Nephrolepis sp.	Polypodiaceae	Charlotteville
none (fern)	Polybotrya sp.	Polypodiaceae	Charlotteville
none (fern)	Polypodium sp. A	Polypodiaceae	Charlotteville
none (fern)	Polypodium sp. B	Polypodiaceae	Charlotteville
Maidenhair Fern	Adiantum sp.	Pteridaceae	Charlotteville
Rouge Plant	Rivina humilis	Pyhtolaccaceae	Charlotteville
Monkey Apple	Genipa americana	Rubiaceae	Charlotteville
none (shrub)	Gonzalagunia Spicata	Rubiaceae	Charlotteville
none (tree)	Guettarda sp.	Rubiaceae	Charlotteville
none (shrub)	Hamelia patens	Rubiaceae	Charlotteville
Ixora	Ixora sp.	Rubiaceae	Charlotteville

Noni	Morinda citrifolia	Rubiaceae	Charlotteville
none (shrub)	Notopleura uliginosa	Rubiaceae	Charlotteville
none (shrub)	Psychotria muscosa	Rubiaceae	Charlotteville
none (shrub)	Randia aculeata	Rubiaceae	Charlotteville
Jagua Macho	Randia armata	Rubiaceae	Charlotteville
Bois Tatoo	Rudgea hostmanniana	Rubiaceae	Charlotteville
none (climber)	Sabicea villosa	Rubiaceae	Charlotteville
none (herb)	Spermacoce sp. A	Rubiaceae	Charlotteville
none (herb)	Spermacoce sp. B	Rubiaceae	Charlotteville
Portugal	Citrus auratifolia	Rutaceae	Charlotteville
Orange	Citrus reticulata	Rutaceae	Charlotteville
none (shrub)	Murraya sp.	Rutaceae	Charlotteville
Guyanese Wild Coffee	Casearia guianensis	Salicaceae	Charlotteville
Wild Sage	Casearia sylvestris	Salicaceae	Charlotteville
none (tree)	Cupania americana	Sapindaceae	Charlotteville
Mgambo Tree	Majidea zanguebarica	Sapindaceae	Charlotteville
Cennet	Melicoccus bijugatus	Sapindaceae	Charlotteville
none (climber)	Serjania paucidentata	Sapindaceae	Charlotteville
none (climber)	Urvillea ulmacea	Sapindaceae	Charlotteville
Caimit	Chrysophyllum sp.	Sapotaceae	Charlotteville
none (herb)	Selaginella sp.	Selaginellaceae	Charlotteville
none (tree)	Simarouba amara	Simaroubaceae	Charlotteville
none (climber)	Smilax cumanensis	Smilacaceae	Charlotteville
Wild Tobacco	Acnistus arborescens	Solanaceae	Charlotteville
Forget-me-not	Browallia americana	Solanaceae	Charlotteville
Pepper	Capsicum baccatum	Solanaceae	Charlotteville
none (shrub)	Cestrum alternifolium	Solanaceae	Charlotteville
none (shrub)	Solanum adhaerens	Solanaceae	Charlotteville
Gouma	Solanum americanus	Solanaceae	Charlotteville
none (shrub)	Solanum hirtum	Solanaceae	Charlotteville
Bhaigan	Solanum melongena	Solanaceae	Charlotteville
none (shrub)	Solanum stramoniifolium	Solanaceae	Charlotteville
none (graminoid)	Sorghum halepense	Solanaceae	Charlotteville
none (fern)	Tectaria sp.	Tectariaceae	Charlotteville
	Daphnopsis americana subsp.		
none (tree)	caribaea	Thymelaeaceae	Charlotteville
none (herb)	Phenax sonneratii	Urticaceae	Charlotteville
none (herb)	Pilea microphylla	Urticaceae	Charlotteville
none (herb)	Pilea sp.	Urticaceae	Charlotteville
Stinging Nettle	Urera baccifera	Urticaceae	Charlotteville
Bois Canon	Cecropia peltata	Urticaceae	Charlotteville
Fiddle Wood	Citharexylum fruticosum	Verbenaceae	Charlotteville
none (tree)	Citharexylum sp.	Verbenaceae	Charlotteville

Golden Dewdrops	Duranta erecta	Verbenaceae	Charlotteville
Sleeper Weed	Lantana camara	Verbenaceae	Charlotteville
Lantana	Lantana trifola	Verbenaceae	Charlotteville
False Thyme	Lippia micromera	Verbenaceae	Charlotteville
none (shrub)	Petrea arborea	Verbenaceae	Charlotteville
none (herb)	Priva lappulacea	Verbenaceae	Charlotteville
none (herb)	Stachytarpheta cayennensis	Verbenaceae	Charlotteville
none (herb)	Stachytarpheta jamaicensis	Verbenaceae	Charlotteville
Teak	Tectona grandis	Verbenaceae	Charlotteville
none (climber)	Cissus verticillata	Vitaceae	Charlotteville
Red Ginger	Alpinia purpurata	Zingiberaceae	Charlotteville
none (ginger)	<i>Renealmia</i> sp.	Zingiberaceae	Charlotteville