



THE FIELD NATURALIST

Quarterly Bulletin of the Trinidad and Tobago Field Naturalists' Club

July – September 2019

Issue No: 3/2019



CLUB TRIP, 31ST MARCH 2019

A “SHORT & EASY TRIP”-

ORTINOLA RIVER, GORGE & WATERFALL



by Linton Arneaud and Sarah Evelyn



Naturalists being brief by Dan Jaggernauth on the rich biodiversity along a perennial stream.

Photo by Linton Arneaud

Forty-five enthusiastic naturalists gathered at the foot of the St. Joseph Valley at 7:23 am for the start of what was described as a ‘short and easy club trip’. As always, Dan Jaggernauth did not hesitate in getting the logistics out of the way; he was particularly anxious to point out that the conspicuous pyramidal-shape ridge behind us was not Mt. El Tucuche (Trinidad’s second highest peak) and we should not be fooled

by it. Not too long after, we marched off along the Ortinola trail entering the Lower Montane Rainforest of the Northern Range and immediately started observing the rich biodiversity in this unique environment: a mixture of flora and fauna species from the South American continent and northern Caribbean islands.

It was quite challenging to keep up with the

(Continued on page 3)

Inside This Issue

- I** Club Trip Report
ORTINOLA RIVER, GORGE AND WATERFALLS
- Linton Arneaud and Sarah Evelyn
- 8** General Club Trip Report
MORNE LA CROIX
- Kris Sookdeo
- 11** General Club Trip Report
ARENA FOREST
- Christopher K. Starr
- 13** **YOUR IDEAS AND OBSERVATIONS**
- 14** **STRATEGIC PLAN UPDATE**
- 14** **NATURE IN THE NEWS**
Compiled by Kris Sookdeo
- 15** September 2019
MEMBERS' EVENING PRESENTATION SYNOPSES
-by Delezia Singh
- 15** General Club Trip Report
SOBO WATERFALL
- Kay Hinkson
- 18** Botany Trip Report
RINCON VALLEY, LAS CUEVAS
- Linton Arneaud
- 22** 'A Naturalist In Series..'
A FEW SCATTERED NOTES ON RIO DE JANIERO & QUITO
-by Christopher K. Starr
- 24** **Management Notices**

THE FIELD NATURALIST

Quarterly Bulletin of the
Trinidad and Tobago Field Naturalists' Club

July – September 2019

Editors

Laura Baboolal, Stephanie Warren-Gittens
Associate Editor: Rupert Mends

Contributing writers

Linton Arneaud, Sarah Evelyn, Kris Sookdeo, Delezia Singh,
Christopher K. Starr, Kay Hinkson,

Photographs

Linton Arneaud, Jeffrey Wong Sang, Lester Doodnath,
Christopher K. Starr.

Design and Layout

Eddison Baptiste and Amy Deacon

The Trinidad and Tobago Field Naturalists' Club
is a non-profit, non-governmental organization

Management Committee 2019/2020

President	Renoir Auguste	761-9197
Vice-President	Kris Sookdeo	749-9638
Treasurer.....	Selwyn Gomes	624-8017
Secretary	Danielle Morong	768-7666
Assist-Secretary	Laura Baboolal	705-8716
Committee Members ...	Dan Jaggernauth	659-2795
	Stephanie Warren-Gittens	766-2681
	Nicholas Mohammed	723-6693

Contact us!

Email: admin@ttfnc.org

Website: www.ttfnc.org

Facebook: www.facebook.com/ttfieldnaturalistsclub

YouTube: www.tinyurl.com/ttfnc

Postal: **The Secretary, TTFNC, c/o P.O. Box 642,
Port of Spain, Trinidad and Tobago**

Editors' note :

Many thanks to all who contributed and assisted with articles and photographs.

Disclaimer :

The views expressed in this bulletin are those of the respective authors and do not necessarily reflect the opinion and views of the Trinidad and Tobago Field Naturalists' Club



WELCOME NEW MEMBERS!



The club warmly welcomes the following new members:

Joshua Mendes



Some members strategically manoeuvring themselves through a pool in the Ortinola Gorge.

Photo by Jeffrey Wong Sang

(cont'd from page 1)

many botanists and zoologists, as each cohort strategically positioned themselves for observations of specialized plants and animals. We kept crossing what seem to be a single tributary of the Ortinola River which meandered ever so often. Members kept pausing along the trail to observe and record a wide variety of organisms, most of which were well described by the experts. After one hour into the walk, members started to question the rating system used to measure the difficulty level of the hike. It quickly escalated from easy, to moderate, to challenging, and then difficult for most members as

they proceeded off the main pathway (Ortinola to Caura trail) and continued up along the Ortinola River through the gorges.

Avian Species

The white-lined tanager (*Tachyphonus rufus*) and the blue-gray tanager (*Thraupis episcopus*) were the first to be identified (via acoustic interpretations) by the avid birders. Two hummingbirds were also momentarily seen but we were unable to identify them. We came across an unidentified bird nest that some of our birders believed to have once belonged to a bananaquit (*Coereba flaveola*). The inconspicuous yellow-breasted flycatcher (*Tolmomyias flaviventris*) was clearly heard whistling (peeee-it) by most members; these birds persist on high branches from which they dash into the air to catch flying insects. Opposite to this, was the northern waterthrush (*Parkesia noveboracensis*) which was identified (via sound) by a few members along a stream. The northern waterthrush is a migratory bird species, mostly spotted within aquatic ecosystems from the ground to sub-canopy level as they are terrestrial-ground feeders. The vocalization of the great kiskadee (*Pitangus sulphuratus*—Bee-tee-wee) and the Guianan trogon (*Trogon violaceus*- cow cow, cow) was of no surprise to most of the birders who were nice enough to explain the intricacy of their calls.

We were able to spot a rufous-browed peppershrike (*Cyclarhis gujanensis*) at the top of a tall tree and one of the most prolific singers in the world—the red-eyed vireo (*Vireo olivaceus*) hovering while foraging. An enthusiastic member was able to identify the song of the white-tailed trogon (*Trogon chionurus*) but was not able to spot this fast-flying

bird in the dense forest canopy. The last bird species identified (via sound) before the end of the trip was the turquoise tanager (*Tangara Mexicana*). Unfortunately, we were unable to capture any conspicuous picture of birds for the report.

Freshwater Fish Species

Despite the numerous water crossing along the main trail (approximately 8), we weren't able to spot many aquatic species. If we adopted more practical sampling approaches (egg/larval collection, nets, seines, fish pots, Ekman grabs or simply sitting in one spot and doing fish-counts), we would have been able to find many more aquatic species. Dan Jaggernaut and Linton Arneaud were able to positively identify two tetra fishes (*Hypostomus monticola*). Two other members from the group also reported sighting the mountain mullet (*Agonostomus robinii*).

We were able to walk through a total of four pools that were each deeper than 1 metre (3.3 feet), and home to many freshwater invertebrates (crabs and crayfishes) that the convoy would have scared during their expeditions. However, numerous crab holes were spotted throughout the water passages; in particular, parts of the skeleton of a manioc crab (*Eudaniela garmani*) were found lying on an anvil.



A stream pool along the Ortinola River where two Tetra fish were spotted. Photo by Jeffrey Wong Sang

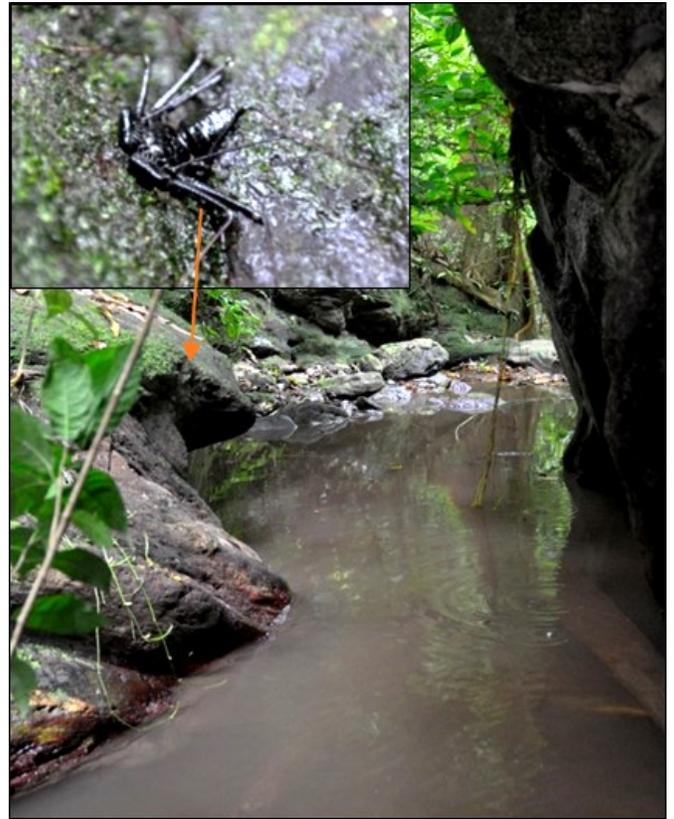
Invertebrate Species



The Erato Longwing (*Heliconius erato*) butterfly on the abaxial surface of a toilet paper bush leaf (*Clidemia hirta*). Photo by Jeffrey Wong Sang

At the start of the hike, we observed the monarch butterfly (*Danaus plexippus*) sitting on the flowers of some nearby shrubs, and spotted an Erato Longwing (*Heliconius erato*) at the edge of the forest. During one of Dan's talks, he showed us a wasp nest (*Polybia* sp.), attached to a *Cyclanthus bipartitus* leaf and described the sting as having chemotherapeutic properties.

One highlight of the trip was the hundreds of spiderlings encountered while we were manoeuvring along the banks of the streams. Some naturalists were excited to observe this and gathered closer in an attempt to identify the species; others simply stood clear of them. It seems that members of the Culicidae family (mosquitoes) were just as busy, since we observed a swarm of recently-emerged adults (in the thousands) buzzing at the base of trees or crevices between moist rocks. After all, 'nature is most admired in the smallest of things'. Considering the time of day, we were lucky enough to spot an owl butterfly (*Caligo illioneus*) sitting on a leaf lying on a shaded rock; some of our members examined the intricate details of the beauty of the butterfly.



Left (top & bottom): An owl butterfly (*Caligo illioneus*) seen basking on leaf litter along Ortinola trail; unknown spider spotted on boulder along Ortinola River. Photos by Lester Doodnath

Top Right: A tailless scorpion spotted on the top of a moist boulder (containing different types of mosses and green algae) along the Ortinola River.

Photo by Jeffrey Wong Sang

Mammal Species

The group was able to identify only one mammal species during the walk; a day flying bat. This was expected as our impromptu sampling method (a line transect method) was not only too curvature, but was done at the wrong time of the day (with the addition of excessive noise). However, it was quite evident (via faeces) that mammals such as the red-rumped agouti (*Dasyprocta leporina*) and the armadillo (*Dasyopus* sp.) occupy habitats under a huge ficus tree (*Ficus* sp.) and within the fissures of sedimentary rocks on the side of slopes.



Suitable micro-habitat on tree buttress for mammal species. Photo by Lester Doodnath



Heliconia (*Heliconia hirsuta*) belongs to the **Heliconiaceae** family and have nectary glands, whereas, **Costus** (*Costus scaber*) belongs to the **Costaceae** family and do not have any aromatic oils.

Photos by Jeffrey Wong-Sang

Floral Species

Common semi-evergreen seasonal forest to lower montane rain forest tree species were identified during the walk: bloodwood (*Croton gossypifolius*), black poui (*Handroanthus chrysanthus*), single chaconia (*Warszewiczia coccinea*), hog plum (*Spondias mombin*), balsa (*Ochroma pyramidale*), mahoe (*Sterculia pruriens*) and the rubber tree (*Castilla elastica*). Numerous wild flower species were also easily identified as they blossom quite elegantly and distinctively; blue flowering species (water grass - *Commelina erecta*); purple flowering species (lark daisy- *Centrathium punctatum*, Dioclea- *Dioclea guianensis*, vervine- *Stachytarpheta jamaicensis*); red flowering species (deer meat - *Centropogon cornutus*, rabbit meat- *Emilia fosbergii*, balisier- *Heliconia bihai*); pink flowering species (wild sage- *Lantana camara*); orange flowering species (copperleaf - *Chrysothemis pulchella*, canal lily- *Heliconia psittacorum*); yellow flowering species (hairy cowpea- *Vigna luteola*); and, white flowering species (maraval lily- *Spathiphyllum canifolium*). Dan made sure that everyone knew

what costus (*Costus scaber*) and heliconia (*Heliconia hirsuta*) look like and how they can be separated from other species in their genus.



A blossoming St. John Bush (*Justica secunda*) along the Ortinola River. Photo by Jeffrey Wong-Sang



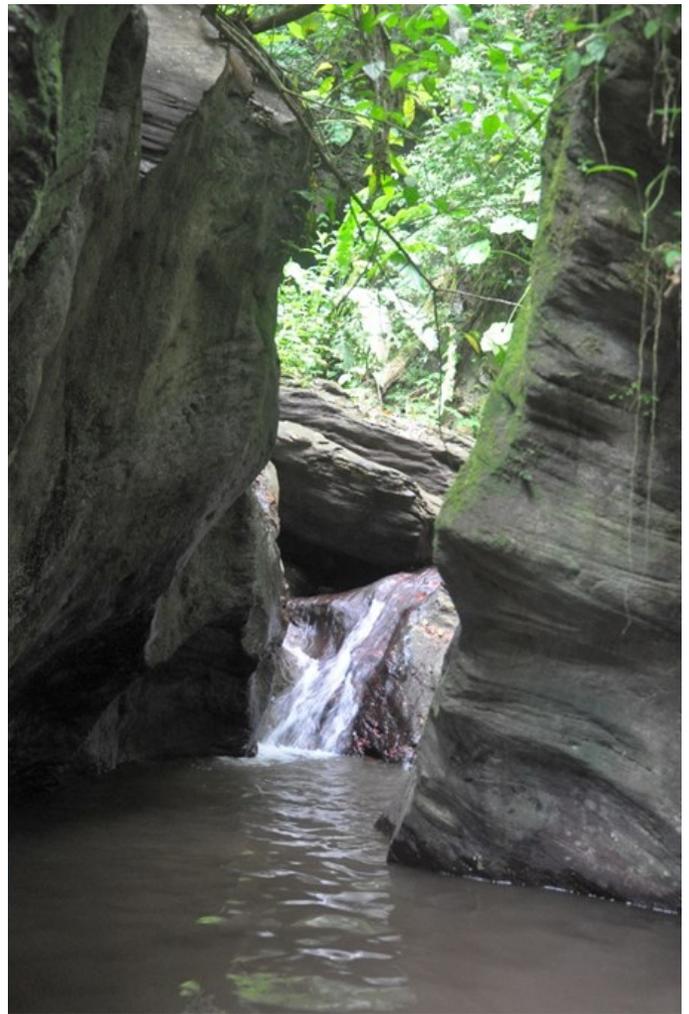
Numerous bracket fungi spotted along the Ortinola trail and river. Photo by Jeffrey Wong-Sang

Everyone was amazed to learn about the various uses of the sandbox (*Hura crepitans*) fruit; Reginald Potter noted that many years ago, fruit were once used as paper weights, however, it must be filled with lead or epoxy steel to prevent dehiscing as fruit are notorious for making loud explosions. Dan was excited to mention details of the ink plant (*Renalmia alpine*) and how it could be used as a substitute for ink. One of our members, a fervent naturalist was shocked to see a common sedge (nutgrass- *Cyperus* sp.) growing along the main trail; outside its predominant wetland environments (marshy/swamp areas) and wanted to confirm that it was indeed the same sedge. Dan and Lester identified the *Cyclanthus bipartitus* plant, which is easily recognized via its predominant bifid leaves (i.e., leaves that split in the middle) as the plant gets older. After passing the huge ficus tree which strategically positioned itself at the top of a large boulder, extending its buttress on the forest floor, we came across numerous species of *Xanthosoma* (wild tannia and hog tannia), some growing up to an astonishing height of 2.5–metres (8.2–feet). This reminded us of a ‘Jurassic Park’ movie scene. A huge unknown tree fell across the stream creating an opening in the canopy or a sunfleck; there, numerous bois canot seedlings (*Cecropia peltata*) took advantage of the sunlight and crowded the open area. We came across a Coryphoideae palm as we were able to observe the induplicate plications (V-shape) and pinnate compound leaves, however, we were still unable to confidently identify it to the species level. Once we arrived at the waterfall, several members remembered Dan speaking about the medicinal properties of the St. John’s bush (*Justicia secunda*) — which are known to treat red-eye, diabetes and offset menstruation — and started conversing some more about it. On our way down, we noticed various types of bracket fungi (*Basidiomycota*), however, not many of us had the luxury to stop and appreciate them as we always had to keep our balance.

Reptiles and Amphibians

While we were waiting for the entire group to reach the turn-off point from the main trail, Dan pointed out that if we were to continue along the trail we would eventually arrive to the summit of El Tucuche; this pathway was used to transport coffee/

cocoa on donkey back to the village of Caura during the mid-nineteenth century. Dan also pointed out that we should not wander off-trail as mapepire balsain snakes (*Bothrops atrox*) are known to be present in high numbers in the area. Some members were happy to know that Trinidad and Tobago does not have any poisonous snakes; however, once Linton differentiated between “poisonous” and “venomous,” they reverted to their worrisome outlook. We were able to spot a miniature black water frog that seems to be present along the stream. Lester Doodnath and others were able to identify it as the Trinidad stream frog (*Mannophryne trinitatis*)- the only endemic species found for the day. Taking pictures of the frogs proved to be difficult, as the female frogs (blackish in colour) kept hopping and camouflaging themselves under various forms of debris.



The enchantment of the Ortinola Gorge and Water fall—mother nature in action.

Photo by Jeffrey Wong Sang

We arrived at the waterfall at around 9:25 am. A few adventurous members did not delay in taking a refreshing dip in the plunge basin of the waterfall. Two more waterfalls were left unexplored by most members—one was said to be approximately 6 metres high (about 20 feet). Those who saw the other waterfalls were very pleased, as they represented an amazing example of the wonders of mother nature.

Not too long after, members started the slow descent as there were many rocks, boulders and fallen tree trunks within the pools. The company of the sweet aroma of the Maraval lilies during the hike downhill at each water-crossing made the walk even more pleasurable. At approximately 10:45 am, all members of the club returned to their vehicles completing the “short and easy club trip.” Nevertheless, we are confident that everyone not

only appreciated the experience, but also learnt something new.

Disappointingly, Trinbagonians still do not appreciate the paradise we live in, as numerous plastic/glass bottles and plastic bags together with non-biodegradable kitchen waste were collected by members, mostly along the streams at the foot of the valley. Unfortunately, the group was able to fill just one 340.7 litre (90 gallon) garbage bag.

It is a good idea for members of each group to walk with extra biodegradable garbage bags on upcoming trips, in an attempt to reduce the amount of garbage found along nature trails. Maybe, we could participate in the “Trashtag Challenge” and by doing so, encourage others to do the same. 

General Club Trip –28th July 2019

MORNE LA CROIX

by Kris Sookdeo



I was really looking forward to the July trip to Morne la Croix as it was my first field trip with the TTFNC in a long time. Worryingly, the Meteorological Office had issued a Yellow Alert for North Trinidad the day before. However, when I awoke that morning the weather appeared to have settled down and so I decided to go ahead with the trip.

Dan Jaggernauth, our trip leader, was there at the UWI south gate when I arrived and others soon came. A few others joined the convoy along the way at Demerara Road so that we had a total of thirteen persons on the trip. Dan and Linton Arneaud car pooled with me which made for very interesting conversations on nature, world politics and ideas for the Club.

Just after the entrance to the Asa Wright Nature Centre, we saw an injured fer-de-lance (*Bothrops atrox*) on the roadway. It did not look like it had been run over but perhaps it had struck the underside of a passing vehicle as some rather important-looking internal organs were now exposed. Despite the obvious injury it was very feisty and struck at Dan’s umbrella as he moved it off the road. Linton and I doubted very much that

it would survive but Dan remained the eternal optimist. He proposed that we check on it on the way back – if it was still there then at least the UWI Zoology Museum would have a new specimen.



The injured fer-de-lance spotted on the roadway.

Photos by Kris Sookdeo

Just before the village of Morne la Croix the convoy was able to pull off the road and park on the shoulder. The group gathered for the usual

pre-trip talks and, after digressing briefly to look at a swarm of hunting ants nearby, we began the walk. Our destination was one of the waterfalls in the area.

The first section of the trip took us along the main road and we eventually turned off along a rough estate road. We looked at several plants along the way, including the chaconia (*Warszewiczia coccinea*) which was recently overthrown as Trinidad and Tobago's national flower in favour of the variant 'double' chaconia. We also saw the savanna flower (*Mandevilla hirsuta*) and the common forest heliconia (*Heliconia hirsuta*) – 'hirsute' refers to something hairy so it would be worthwhile to have a close look at both species and try to determine why they have been so named. On the estate road, Dan pointed out the fallen fruit of the Brazilian rubber tree (*Hevea brasiliensis*), crappo (*Carapa guianensis*) and Pouteria sp. Distant bearded bellbirds (*Procnias averano*) could be heard.

Eventually we turned off the estate trail and began walking in a small waterway – a tributary of the waterfall itself. Apart from a few deep spots, the waterway was not difficult to negotiate. We saw a couple manicou crabs (*Rodriguezus garmani*) along with Trinidad stream frogs (*Mannophryne trinitatis*). I also saw a crane fly flittering at the water's surface, quickly jabbing its abdomen into the substrate while laying eggs.

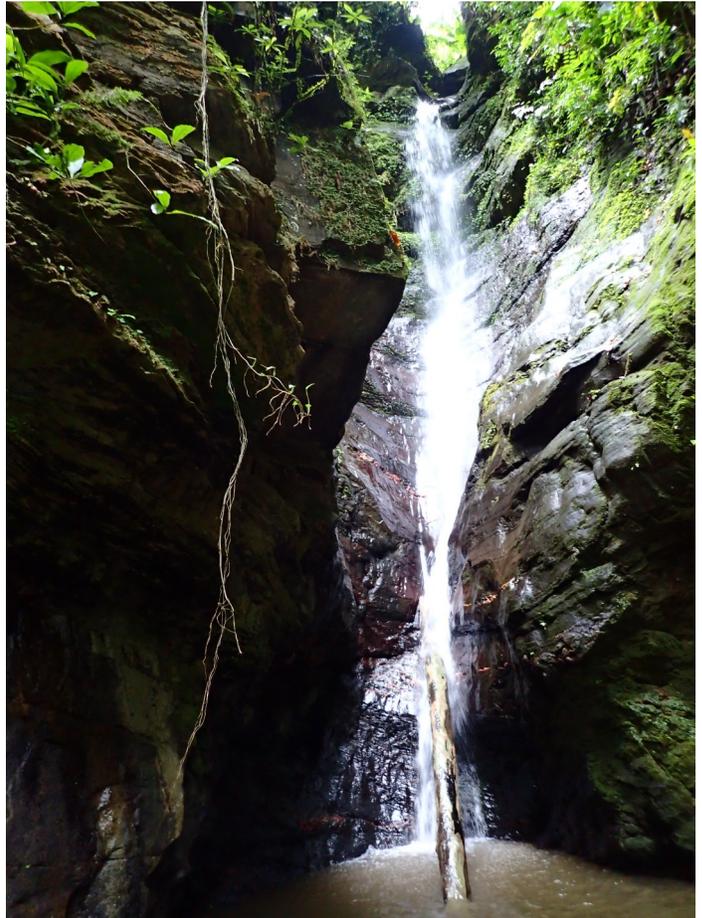


Crane fly laying eggs.

After about 20 minutes of walking we came to the waterfall. As Dan indicated at the start of the walk, there are several waterfalls in the Morne la Croix area, but apparently none of them carry widely used names. This particular waterfall was a

cascade that looked to be approximately 11 metres (35 feet) high. The plunge pool at the base was neither deep nor wide as a significant amount of material had accumulated and there was a tree trunk securely lodged in the middle of it.

A few members took the opportunity to bathe while the others rested. A few prawns (*Macrobrachium* sp.) could be seen clambering



The waterfall visited, one of the many in the Morne La Croix area.

about, seemingly concerned about our intrusion. But they would soon have their pool to themselves again as dark clouds were gathering. The Meteorological Office was not totally off the mark it seems.

The rain caught us on the way back out but the remainder of the walk was uneventful. In short order we made it back to our vehicles, bid our farewells and departed. On the way back we stopped by a small village shop. While we sampled some delicious cocoa ice-cream I asked the owner about the pawi in the area. He said that he had seen one recently and that he always tried to promote



Dan Jaggernaut talks about *Heliconia hirsuta*

their conservation – an encouraging sentiment indeed.

Also encouraging was the fact that we could not find the injured fer-de-lance on the way back! Whether it survived for much longer is anyone's guess but at least it had a fighting chance.

The only downside for the trip was the sight of the quarry scar at the christophene patch. The quarry has operated for many years, apparently purposely staying just out of sight below the ridgeline. But now it had crossed that boundary and the ugly exposed rock was plain to see. I can only guess what impact this will have on wildlife in the Arima Valley.

Other than that, it was another great day outdoors.

(Duration of walk: Approximately 1 hour to the waterfall). 



Quarry scar at the christophene patch.

All photos taken by Kris Sookdeo



General Club Trip_29th September 2019
ARENĀ FOREST
 By Christopher K. Starr



Prof. Starr walking along the trail in the Arena Forest Reserve. Photos courtesy Christopher K. Starr

It was decided to start from the old Forestry Station on the northern edge of the reserve and enter the forest along Deer Ride.

It should be emphasised that this was a true field trip, not a hike.

After parking, we looked inside the shelter to see who had nested there. In that one small area we found a wealth of wasp nests. These represented five species of solitary mud-nesting wasps (*Sceliphron fistularium*, *Trypoxylon albipes*, *T. fabricator*, *T. maidli* and *Zeta canaliculatum*) and three paper onesting social wasps (*Metapolybia cingulate*, *Mischocyttarus baconi* and *Polistes lanio*). None of these was still active except for one *M. cingulate* nest, but the distinctive form allowed them to be identified with confidence. Christopher Starr demonstrated the relative docility of this species by stroking the nest envelope, a very serious provocation. As expected,

many wasps flew out of the nest, but Chris received only two stings, neither of them very painful. It bears mention that this number of social wasp species, three, is the same as are found in all of Jamaica.

Starting along the trail, we came to a tall matchwood tree with one large and two smaller nests of Azteca ants suspended from a broad branch. Hanging from the same branch was also a nest of *Polybia rejecta*, a social wasp that preferentially nests close to Azteca. Present thinking is that this odd arrangement is a mutualistic one that affords the ants protection from birds and the wasps protection from army ants.

Crossing the stream, we entered the zone where the white-bearded manakins were displaying. Their display spots were easily recognized, and we heard some of the males calling and clicking their wing, although it wasn't nearly so easy to see them.



(Top): Fallen termite nest colonised by fungi;
(Bottom): Investigating another termite nest



Of the higher termites whose nests we encountered, those of *Microcerotermes arboreus* were by far the most abundant. What was surprising was that those of *Termes* spp. (two species, not easy to tell apart) were more abundant than the common nasute-termites, *Nasutitermes corniger* and *N. ephratae*. After much search, we found active colonies of the two *Nasutitermes* spp. and were able to see that, although the termites themselves are almost indistinguishable, it is easy to identify the nests by their outer covering. Chris called this an example of ethospecies.

The group continued up the trail to Barker Trace with a view to returning to our starting point by Keith Campbell trail. On Barker Trace we found the balisiers, *Heliconia psittacorum* and *H. hirsute* growing together in many spots, not a usual

observation. What was striking was that leaves of some of the *H. hirsute* had been harvested by bachacs, *Atta cephalotes*, also an unusual observation.

In the course of the long walk, the group came upon columns of two species of army ants. The workers of one of these, *Eciton burchelli*, are strikingly polymorphic, while the other—an apparent *Neivamyrmex* sp., of which there are seven in Trinidad—has monomorphic workers. What was striking about the latter was that the workers were streaming into and out of a hole in a bachac mound, none of them carrying anything, so that it wasn't apparent what they were doing there.



Large Azteca colony

Proceeding along Barker Trace, Chris was able to point out the spot where a *Polybia striata* had flown off the nest and stung him, leading to his first ever anaphylactic shock (just a mild one). Later he returned with Rakesh Bhukal to collect the colony intact under a cover of darkness.

Further along, we noticed a cluster of turtle ants, *Cephalotes atratus*, giving their undivided attention to something small and shiny on the ground. This appeared on closer inspection to be bird droppings, from which ants were presumably extracting salts.

Along the way, Dan Jaggernauth and Linton Arneaud named many of the plants that we encountered, sometimes with mini-lectures about particular features. Selwyn Gomes was on hand to film selected parts of the outing for posting on Facebook. 🐜



Where are all my fruit bats?

by Christopher K. Starr



The short-tailed fruit bat, *Carollia perspiculata*, is found almost everywhere south of the Isthmus of Tehuantepec and north of the Southern Cone, including here in Trinidad. Among its preferred roosting sites are the eaves of buildings and even inside buildings if there is not a great deal of disturbance. I am accustomed to having them both on the outside and inside of my house, and as long as they don't get too numerous or too messy they make for a nice addition. The little darlings even helped me to confirm that the seeds of one of our trees are bat-dispersed (Starr 2012).

Returning from a recent three-week absence, I expected to find that the bats had taken the opportunity of the undisturbed period to occupy my house in greater numbers than before. In fact, exactly the opposite turned out to be the case. Not only were there no bats in the bedrooms but there were none in the basement or even under the eaves outside. Not one. As of this writing at the end of August, Obronikrom remains a bat-free zone.

I don't expect my bat population to be constant, but in the almost 20 years I have lived here the short-tailed fruit bat had been a constant and fairly abundant presence, yet somehow they have all just

vanished. And I have no idea why. Gomes & Reid (2015: p. 219) remarked on a degree of volatility in the roosting groups, noting that "Larger roosts are arranged into clusters of bachelor males and clusters of females with a single territorial male. These associations are not stable over longer periods." However, they give no indication of migration or strong seasonality in numbers. I regret that I have not seen Fleming's (1988) monograph on this species in Central America.

In those times when snakes (*Corallus ruschenbergerii*) have taken up residence in the house they have certainly depleted the lizards and undoubtedly caught the occasional bat, but most of my bats roosted on ceilings and other inaccessible spots. There has been no sign of disease among the bats, nor is the weather unseasonable. So, what can it be?

References

- Fleming, T.H. 1988. *The Short-Tailed Fruit Bat*. Chicago: Univ. Chicago Press 380 pp. Gomes, G.A. & F.A. Reid 2015. *Bats of Trinidad and Tobago*. Port of Spain: Trinibat 286 pp. Starr, C.K. 2012. *Swartzia pinnata* (Fabaceae) seeds are dispersed by bats. *Brenesia* 78:84-85. 



July 2019– October 2019

STRATEGIC PLAN UPDATE

by Stephanie Warren-Gittens and Laura Baboolal



Short term Goals

Club Outreach

Dan Jaggernaut led outreach activities as follows:

- Carifesta
- Trinidad & Tobago Orchid Society– received the silver award for environmental conservation
- Lakshmi Girls High School Career Day. The Club was represented by Laura Baboolal

The 8th Bioblitz was held in Tabaquite in November 2nd-3rd 2019.

UWI Awards– The Club has once again sponsored two awards at the University of the West Indies for best performance in plant specialization and zoology

specialization - the Victor E. Quesnel award & the Dr. Elisa Tikasingh Award, these were awarded to Daynia Fletcher and Naomi Favrod-Coune respectively.

Medium and Long Term Goals

Land acquisition

We are awaiting feedback on the Club's application for Charitable Status before approaching other government agencies.

A copy of the full strategic plan can be requested by email to admin@ttfnc.org. Constructive comments and suggestions from members of ways to work towards these goals are always welcome. 



NATURE IN THE NEWS

A quarterly summary of local environmental news
by Kris Sookdeo



July

1. The Central Statistical Office is planning to conduct a nationwide socio-economic survey of communities bordering the Caroni Swamp, Nariva Swamp, Matura Forest, Trinity Hills Game Sanctuary, and in Tobago, the Main Ridge Forest Reserve, and the North-East Tobago Marine Area as part of a project to protect the country's forests and wetlands. The assessment will examine the interactions between neighbouring communities and the protected areas.

2. A dead dolphin washed up at Grafton Beach on 8th July.

August

1. The Minister of Agriculture, Land and Fisheries indicated that a new visitor centre will be constructed at the Caroni Bird Sanctuary. He indicated that "the existing facility is outdated, that's why we have done nothing, we want to take it down completely and build a completely new structure."

The new site is nearer the highway and has been acquired from National Petroleum Company. In August he said the clearing of the site should be completed by the end of September as a management committee had been put in place three months before.

2. Several cats were found dead at the Caroni Bird Sanctuary, possibly the result of an attempt to eradicate the problematic stray cat population at the Sanctuary. In addition to the cats, a yellow-headed caracara, a tegu and a crab-eating raccoon were also found dead.

September

1. The Conservation of Wildlife Act has been amended with a ban on the hunting of all waterfowl, a ban on hunting iguana in Port of Spain, and the listing of capybara as a pest.

2. Melon-headed whale washed ashore in Argyle on 10th September. 



12th September 2019

MEMBERS' EVENING PRESENTATION SYNOPSES

by Delezia Singh



Title of talk: Biological Aspects of Freshwater Crabs

Institution: Department of Life Sciences, Faculty of Science and Technology, The University of the West Indies

Freshwater crab species constitute over 1200 species, with patterns of diversity being highly uneven across the globe. This group of aquatic organisms can be found in tropical and sub-tropical regions of the world and their variety of habitat types reflects their lifestyle differences; terrestrial,

semi-terrestrial and aquatic. Breeding seasonality varies with species along with growth and reproduction—the latter aspects being highly interlinked and characterized by complex patterns. Although biological characteristics for most species tend to still be under-reported, freshwater crabs represent ecologically important invertebrates that occupy key functioning roles related to nutrient cycling and serving as important prey for many predators. 



Club Trip Report 29 July 2018

SOBO WATERFALL

by Kay Hinkson



On a rainy, dull, lifeless Sunday morning 30 persons braved the weather for this trip. Those early morning showers certainly didn't dampen the spirits of the group. Despite the poor visibility and overcast conditions we arrived safely at our destination. As we trudged along the muddy trail, Dan Jaggernauth educated us on the importance and uses of an assortment of our forest plants. Amble along with me in the visual freshness that the rain brought to the forest.

1. The mal balata, member of the Sapotaceae family, scientifically named *Chrysophyllum sericeum* - one of the plants with edible fruit.

2. The cannonball – (*Couroupita guianensis*) not edible.

3. Nutmeg – (*Myristica fragrans*): black mature seed covered with a scarlet-coloured web, called mace and indigenous to the Spice Islands off Indonesia. The nutmeg has received many accolades for being a very popular spice having a long list of health benefits including the ability to relieve pain and soothe indigestion. Many of these medicinal uses were first discovered by the Chinese and are now an integral part of their culture. Today it is used as an essential oil to energize and give balance. It is a

powerful antioxidant that can support the immune system. It also deals with inflammation and abdominal pain. On the market there is a spray called NUTMED which is highly effective as a tranquilizer or anaesthetic used by the sporting fraternity as a "quick fix". The mace is used in cake making and drinks. Trinidad's piping guan (*pipile pipile*) commonly called the pawi feeds on that spice.

4. Cocoa – (*Theobroma Cacao*) According to history, a Reverend Father Jean-Baptiste Labat, between the 12th and 16th centuries, Aztecs cultivated cocoa for many purposes, including establishing new trade of dried seeds of cocoa. He described how a nutritional, revitalizing (and apparently aphrodisiac) drink known as 'tchocolat' was prepared from the paste and how the cocoa butter or "golden oil" was used for its medicinal properties as a sun-block and to treat skin burns. This information was provided when eight members of the Club visited La Maison de Cacao on an overseas trip to Guadeloupe in 2013.

5. Christophine – *Sechium Edule*, originating in Central America, is native to Mexico and is also called chayote. It is edible and pale green to dark green in colour, roughly pear-shaped, somewhat

flattened with coarse wrinkles and a bit fuzzy. As one drives along the Arima Blanchisseuse Road, acres and acres of this perennial, climbing vine plant can be seen, being cultivated on trellises that are needed for support. I don't know if to put this in the fruit or vegetable category but it is used mainly for culinary purposes and suitable for food industries. The Chinese use this in making chow mein.

6. Coffee - from the Latin (*Coffea* sp.) It is a member of the Rubiaceae family including more than 500 genera and 6000 species of the tropical tree. All coffee is grown within 1000 miles of the Equator, second only to oil as a commodity and second only to water as a beverage. Coffee trees take three to four years to mature and bear fruit but they will produce for 20 to 30 years. In Trinidad there are many abandoned coffee estates. Kenya imported its first successful plants from Brazil, but ironically, only some hundreds of miles away, the actual origins were from Ethiopia where it was being used as a beverage and/or food long before the stories of its discovery began to circulate. There are now specialty coffees of the world such as special blends, flavoured coffees, Espresso, decaffeinated and organic coffees.

Some fun facts are that the Japanese bathe in coffee grounds mixed with fermented pineapple pulp to reduce wrinkles and improve skin tone. I Don't Know....? In parts of Africa, coffee beans are soaked in water and spices, and chewed like candy. Yum! The original blend called "Maxwell House" got its name from The Maxwell House Hotel, where it was first served in Nashville, Tennessee in 1886 (also where Teddy Roosevelt was heard to say "good to the last drop", thus creating the Maxwell House jingle!) Here's a mind blower!! Coffee is actually a fruit... hmmm!! More coffee history and information galore can be found on a site called I Need Coffee. Check it out.

We now examine some of our flowering plants on our journey as we slosh along the muddy trail: - single chaconia— *Warszewiczia coccinea* (Scientifically), an evergreen tree with an irregular sparse crown, a species of flowering plant in the Rubiaceae family, popularly known as the wild poinsettia or pride of Trinidad and Tobago. It was originally the National Flower because it blooms on

August 31, which coincides with the day that Trinidad and Tobago became independent from the United Kingdom. Lately, it has lost its distinction as National Flower to the unique more luxurious double chaconia which is indigenous to Trinidad.

The wild ginger with its beautiful, pristine white blooms added a sweet smelling fragrance to the well-washed atmosphere and is always found beside hiking trails.

Walking again on the "wild side" we come across the wild passion fruit (*Passiflora* sp.) native to sub tropical wild regions of South America; it may have originated in Paraguay. This is a climbing vine with tendrils often found growing in wild, neglected, weedy areas. The flowers can range in colour from white to pale purple, the taste from pleasantly sweet to tart. When it ripens, the skin turns orange and on the inside there are little black seeds that are visible. It is known to be brimming with many nourishing essentials. Wine, jams and desserts are made from this edible fruit.

Brownea coccinea, commonly known as mountain rose, but includes names such as scarlet flame bean (because of its large heads of orange-red flowers), rose of venezuela and cooper hoop. This species is native to Guyana, Venezuela, Brazil and Trinidad and Tobago, but it is also cultivated in other countries including Zaire, Mauritius and the Seychelles. This tree is harvested from the wild, for local use as a medicine and a drink.

Centropogon cornutus, locally called deer meat, deer bush and crepe coq, is also found in the Atlantic Forest, in the north-eastern province of Bahia, Brazil. These flaming red, showy plants are generally found along moist shady banks and hiking trails.

Heliconia bihai also known as balisier (locally) is derived from a Greek word, (which isn't in my computer's dictionary.) This plant with its variation of flower colours, such as its bright red bracts with dark green lips and tips is native to tropical Americas, although a few species are indigenous to certain islands of the western Pacific. Some are cultivated as ornamentals and are also widely used in landscaping. The political party that has formed the Government of Trinidad and Tobago - The People's National Movement (PNM) use this as their "calling card". We chant a refrain from a calypso,

sung by the late Winston Bailey (The Shadow) calling out 'snakes in de Balisier'. We've seen those reptiles on some field trips, but never in 'de Balisier'.

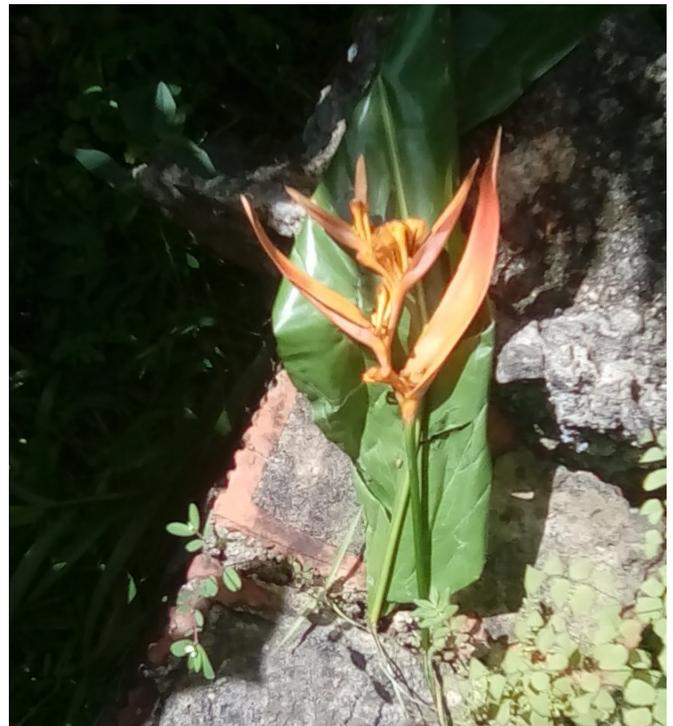


Balisier (*heliconia bihai*) . Photo by Kay Hinkson

Pachystachys coccinea or black stick (locally) is a lanky looking plant, with scarlet red blooms, and native to the West Indies and South America. It has been revealed on many occasions by the 'bush gurus', that most plants growing in the forest produce red flowers. I'm a believer!!

Mimosa Pudica– ti marie (or "touch-me-not") is a sensitive plant that has curiosity seekers, especially in the garden shops in North America, paying exorbitant prices for this tropical wonder with its nerve regenerative powers. The fern-like leaves close up and droop at the slightest touch, usually re-opening within minutes. Originally native to South and Central America, this pan-tropical weed can now be found in Asian countries. It is shade intolerant and is widespread in pastures. Indian Ayurvedic medicine prescribes mimosa for a variety of health remedies especially anti-microbial, anti-parasitic and anti-viral properties. It reduces joint pains and supports wound healing.

Canal Lily, yet another of the heliconia genus (*Heliconia psittacorum*) known by many other names, (one that comes to mind is false bird-of-paradise) a perennial native to the Caribbean and South America. It isn't particular where it grows. It could be a thicket in the rain forest, in lowlands or along roadways. Some people think it a must to have in their garden thus creating a tropical paradise.



False bird of paradise or canal lily (*helciconia psittacorum*) . Photo by Kay Hinkson

Savannah Flower– (*Mandevilla hirsuta*) is also commonly known as the rock trumpet. This is a tropical and subtropical flowering vine, native to Mexico, Central America, the West Indies and South America. The genus was named after Henry Mandeville, a British diplomat and gardener. Mandevillas develop spectacular, often fragrant flowers in warm climates. The flowers come in a variety of colours, including white, pink, yellow and red. On our walks through the forest, I've mostly noticed the yellow with its showy crimson centre, a flowering picture of beauty.

Last but not least, sticking out like a sore thumb was a green bird-eating snake, *Phrynonax polylepis*. No others sighted.

After all of this stored information, we arrived at Double River for some timeout to partake of the



Green bird-eating snake. Photo by Kay Hinkson

“goodies” in our backpacks. There we were, sitting on river stone, some having a splash, some being inquisitive as to what lay further ahead, when to our consternation there just had to be spoilers to detract from an otherwise pleasant trip. In the forest we listen to the sounds around us, birds chirping, animals foraging as well as the trees rustling and water flowing. So much life, energy and peace. But no, that was too much to hope for, when about 30 trucks are destroying the trail on the way to the same river, “for ah cook an ah bade.”

Is it a lost cause trying to get the relevant authorities to rescue our forests? Our support systems are severely lacking, it is time for action or else we would have failed the future generation. 



Botany Trip Report— 17 March 2019

RINCON VALLEY, LAS CUEVAS

by Linton Arneaud



The Botany Group received courtesies to visit an abundant cocoa/coffee estate positioned south of the North Coast Road in Lower Montane Rain Forests. This invitation was extended to us by Peter Dickson; a fellow TTFNC member, and was immediately accepted, as not often “Nosey Botanists” are given the opportunity to observe an assortment of native and exotic tropical plant species at such altitudes. We started off by observing the majestic features of the zabucaya nut tree (*Lecythis zabucaya*—Lecythidaceae), which is indigenous to the equatorial rainforests of the Guianas, Eastern Venezuela, Central and Western Amazonia and has been sparsely documented throughout Trinidad and Tobago. We proceeded across a distributary of the Rincon River, passed a few houses and immediately began to reminisce on some common species such as: spanish thyme (*Plectranthus amboinicus*—Lamiaceae), cocoa orange (*Citrus sp.*—Rutaceae), bread and cheese (*Mandevilla hirsuta*—Apocynaceae), primrose (*Syzygium jambos*—Myrtaceae) and the torch ginger (*Etilingera sp.*—

Zingiberaceae).

The team of 16 inquisitive botanists arrived at the foothill of the Rincon Valley Estate at 7:59 am and was briefed by Peter on the history of the abundant cocoa/coffee plantation existing on freehold land. Peter noted that large ‘mapepire balsain’ snakes (*Bothrops atrox*) were known to be very prominent during the colonial times. Not very far into our walk, we were tricked by a balata seedling (*Manilkara bidentata*) and mistakenly took it for guatecare (*Eschweilera subglandulosa*), through its large leathery alternating simple leaves with margins that were entire, and leaf-shape that was oblong. However, Dan Jaggernauth assured us that healthy balata seedlings normally do this once growing in favourable conditions.

While Dan was escorting the group further uphill along a stone road, Mrs. Kay Hinkson—an enthusiastic botanist—pointed at a coconut tree and wanted to know the species name for the palm, as she shrewdly noticed 5 infructescences, each consisting of only 1 fruit. Coconut palms in Trinidad and Tobago are known to produce between 8–15



Several members of the Botany Group crossing a distributary of the Rincon River

Photo by Lester Doodnath

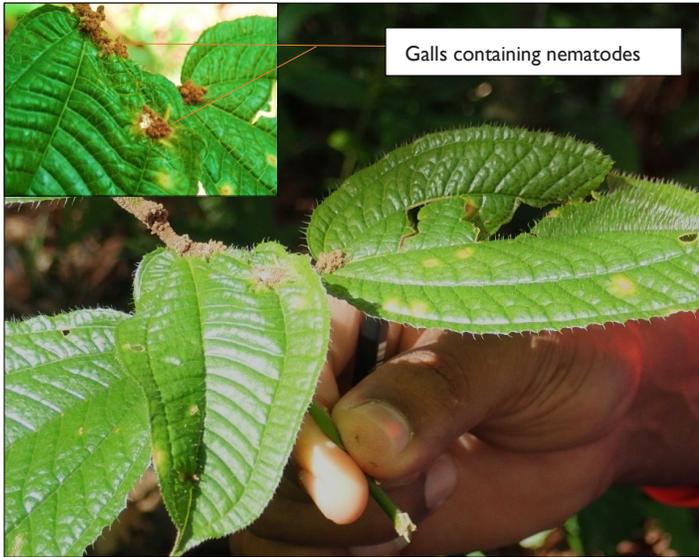


A coconut tree (*Cocos nucifera*) producing five individual drupes on five individual infructescences. Photo by Lester Doodnath

fruit per bunch on average. Dan informed everyone that he too had never seen a coconut tree behaving like this; most of us knew that factors such as fertility, water availability and pollinating agents may have contributed to this phenomenon.

I am certain that everyone remembered the large apical stipules (united into the conical cap) and white latex of the jackfruit tree (*Artocarpus heterophyllus*)—two striking features used to identify most plants in this family: Moraceae.

I was particularly excited to show group members a native species of Melastomataceae (*Clidemia hirta*)—commonly known as toilet paper bush—growing in Trinidad and Tobago, that is at present being studied by multiple governments internationally. Toilet Paper Bush is considered invasive in places such as Southern Asia and Southern Pacific. I informed members about some of the biological control programmes now occurring; one in particular was the introduction of microscopic worms or nematodes. I even showed them how these plant-parasitic nematodes exist in the form of “galls” in the plant tissue .



Toilet Paper Bush (*Clidemia hirta*) with galls containing nematodes; a possible biological control for the invasive shrub in Pacific and Asian countries. Photo by Lester Doodnath

We were able to examine the different physiological structures of three species of bamboo (*Bambusa vulgaris*, *B. guadua* and *B. angustifolia*), two species of Manac palms (*Euterpe oleracea* and *E. precatoria*) and three species of Bactris palms (*Bactris major*, *B. gasipaes* and *B. setulosa*). Numerous timber species were spotted: jigger wood (*Bravaisia integerrima*), black fiddle wood (*Vitex divaricata*), white olivier (*Terminalia amazonia*), wild nutmeg (*Virola surinamensis*), galba (*Callophyllum lucidum*) guatecare (*Eschweilera subglandulosa*), hogplum (*Spondias mombin*), mahoe (*Sterculia pruriens*) and jereton (*Schefflera morototoni*), the majority of which were known by most members.

We all had a good laugh when Dan teasingly created a new plant family— ‘Tamarindaceae’ while providing the scientific name for the tamarind tree (*Tamarindus indica*) spotted by a fellow botanist. Soon it was time to taste the *Annona squamosa* fruit which some members called the “sugar apple” while others refer to it as ‘cashima’ and ‘custard apple’. Dan and I then informed the group about the importance of using scientific names and that the common names of many plant and animal species can either be the same or very similar (in

terms of its pronunciation).

Soon after, we came across several *Ryania* shrubs and were able to examine the physiological structures of its flowers (*Ryania speciosa*). Some of our “nosey botanists” even crushed the leaves of the plant and were able to smell the naturally occurring ryanodine alkaloids—which are the active ingredients used in making insecticides. Highly purified ryanodine complex alkaloids are used in the manufacturing of many organic pesticides internationally and are very expensive to purchase (US \$200.00/500 µg). We also spotted several birds species together with a day flying bat; which many of us enjoyed looking at very much.



Top: Flowering bud of a *Ryania* shrub (*Ryania speciosa*). Bottom: A dwarf 20-year old Baobab Tree (*Adansonia digitata*) growing in a pot. Photos by Lester Doodnath



We were lucky enough to see a dwarf baobab tree (*Adansonia digitata*) that Peter had planted in a pot well over 20 years ago, after scarifying the seed with sulphuric acid. The baobab tree is native to Africa and can grow up to an astonishing 30 metres (98 ft.) height. It has been sparsely planted in



Endemic Tree Species: A Podocarpus seedling (*Podocarpus trinitensis*) planted by Peter Dickson along a slope of Rincon Valley, North Trinidad .

Photo by Linton Arneaud

Trinidad, most of which seem to have died. Thanks to Peter and his plus 20-year old experiment, we confidently know that this species can survive in a “dwarf-form” for many years in response to adverse environmental stresses.

For the duration of our walk, we came across trees which some of our members had never seen before such as the cultivated nutmeg (*Myristica fragans*), cinnamon tree (*Cinnamomum sp.*), clove tree (*Syzygium aromaticum*), mangosteen (*Garcinia mangostana*) and podocarpus (*Podocarpus trinitensis*). Moreover, we were thankful that we did not come in contact with the invasive *Acacia mangium*

(Mimosoideae) on the estate, as we knew that *A. mangium* had already invaded the sides of the North Coast Road. Altogether, we were able to identify a total of 163 plant species (79 native and 84 non-native) making the trip nothing short of a success.

Our day did not end after botanising, we all proceeded to the home of Mrs. Narissa Lucky and her father, Mr. Nagessar, who invited us to lunch. As always, Dan and I continued to botanise, while some of the younger members took the advantage of taking a quick dip in a nearby stream leaving the older members to reminisce on past botany trips throughout the Caribbean.

Overall, the botany visit to the Rincon Valley was, as expected, worthwhile and educational. The Food and Agriculture Organisation of United Nations (FAO) has great interest in improving forest and protected areas in Trinidad and Tobago; I propose considering this valley as a potential Protected Area or at least a Forest Reserve.

Bird/Bat species identified during walk along Rincon Valley (Las Cuevas)

- 1 Bananaquit
- 2 Barred Antshrike
- 3 Bellbird
- 4 Wood Pecker
- 5 Flycatcher
- 6 Guianan Trogon
- 7 Rufous Breasted Hummingbird
- 8 Rufous Breasted Wren
- 9 Day Flying Bat

Contact the author for a full list of the 163 plant species observed on this trip. 



‘A Naturalist In...’ series

A FEW SCATTERED NOTES ON RIO DE JANEIRO AND QUITO



by Christopher K Starr

My bibliography of naturalist-in books comprises more than 350 titles. Of these, only five are set in cities. Such books as *The Naturalist in London* and *Toronto the Wild* are a tiny minority amid titles like *A Naturalist in the Rocky Mountains* and *Wanderings in the Great Forests of Borneo*.

The reason for this is plain enough, but one mustn't suppose that the urban environment has nothing to offer the serious naturalist. Any reasonably well-vegetated city with substantial green spaces offers surprises and satisfaction for those who know how to look. Parks and gardens, in particular, tend to be managed for over-diversity of trees and other plants, which in turn offers abundant possibilities for animals.

Berlin is just such a city. Rio de Janeiro in southern Brazil (22°56'S 43°11'W) is another. The following notes from a recent visit to Rio are from Flamengo and other neighbourhoods in the coastal western part of the city.

There is a very long greenbelt flanking Guanabara Bay that can make for a pleasant, interesting walk. It is far from wild, but the bird life seems quite abundant. The plain parakeet (*Brotogeris tirica*) is present in conspicuous flocks, making plenty of noise. And it was there that I



A burrowing owl . Photos by Chris K. Starr

came upon a family of burrowing owls (*Athene canicularia*), the full-sized but unfledged chicks taking their first tentative steps outside the burrow. Their curiosity about the world was palpable. My hosts told me that this charming species is not uncommon.

The cable-car ride up the Sugar Loaf Mountain is also recommended. It ascends in two stages, first to the top of the Morro de Uruca (about 200 m) and then, when you are ready to continue, to the top of the Sugar Loaf (about 400 m). At each stage, as well as at the bottom, there are nature trails. There are distinct differences in what is found at the different levels, although the teiid lizard *Tropidurus torquatus* is abundant everywhere.

The nature trail at the bottom is by far the most extensive, flanking the shore for about three kilometres. It was there that I was delighted to see my first wild marmosets walking along a cable right overhead. My hosts told me that these, too, are not uncommon in even tamer parts of the city.

The Botanic Garden (est. 1808; www.jbrj.gov.br) is a real delight. In an area of several hectares there are an estimated 6500 species of plants. There are broad, comfortable pathways, and the area is well epiphyted. There are also abundant birds, some of which are accustomed to human proximity and so relatively approachable.

Aside from the main emphasis on the neotropics, there is a good admixture of plants from Asia. There is almost nothing from continental Africa, although Madagascar is reasonably well represented. The only Australian introductions I noticed were a couple of eucalypts.

For what it's worth, my impression is that the trees have a distinct bias toward the legumes. And they do love their royal palms, great stately avenues of them. I saw two palms whose heights I estimated at 32 m and 36 m, the highest I can recall having seen anywhere.

Two features of note are the Cactus Garden and palm area, each with a fine diversity. The first



An extravagantly flowering cannonball tree

comprises succulents as a whole, while the second includes such palm-like plants as cycads, certainly a sensible arrangement. There is also a Japanese Garden; I know, because the sign says that's what it is.

Members of this club will be pleased to know that there is also a waterfall. That's water flowing over rocks and descending, right there in the Southern Hemisphere, oh my.

My one complaint about the Botanic Garden is that the signage is inadequate and largely in a state of decay (illegible). This compromises its educational function.

I will interject here a paragraph on the Botanic Garden in Quito, Ecuador. It is, if anything, even richer than that in Rio, well worth a couple of hours' exploration. It is wonderfully diverse and well ordered, with plenty of explanatory signs. Because it originated as what it is, rather than as a royal park, it has tighter trails, instead of the Rio garden's spacious avenues. I prefer it that way. For me, it has two highlights. First, it has a special carnivorous-plants house with at least 10 species of *Nepenthes*. And scattered about the grounds are whacking great banana plants of a purely ornamental variety. The planners have not forgotten the sado-masochists among you, putting in a special bonsai garden for your satisfaction.

Regrettably, Rio's Tijuca National Park, a 32-km² area of restored Atlantic tropical forest, should not be on the visiting naturalist's itinerary except as part of a well-organized tour. It is no

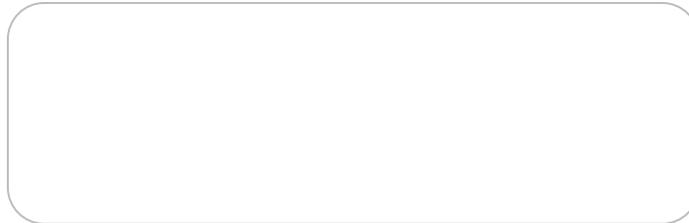
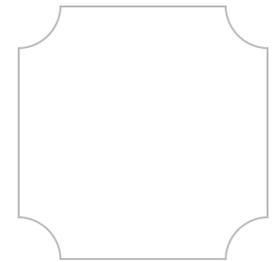
secret that Brazil's cities are high-crime areas, and any eco-tourist wandering alone in the woods of Tijuca ... well, you get the point.

Even a stroll through an ordinary city park can have little surprises for the naturalist. It was in such a place that I came upon the most extravagantly flowering cannonball tree (*Couroupita guianensis*) tree that I have ever seen.

Sometimes in an unfamiliar city a trip to the natural-history museum is a good way to get an early overview of the local wildlife. That is not the case in Rio, although the National Museum is still worth a visit. Its well-organized exhibits have an emphasis on paleontology, archeology and anthropology, a good set of bugs, birds and marine invertebrates, but next to nothing on plants. There are abundant explanatory panels, almost entirely in Portuguese. I left a note in the visitors' book to suggest that if they receive significant numbers of foreigners it would be a good idea to move toward bilingual panels.

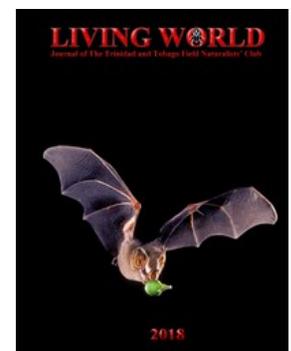
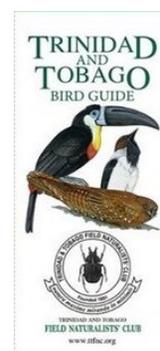
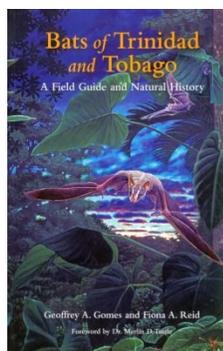
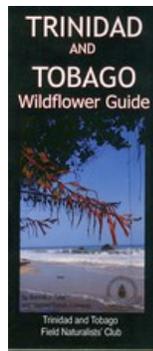
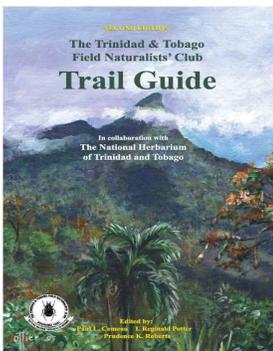
Finally, some good news for the oldsters. If you are at least 60, you are officially *idoso* (elderly) and pay half-price for entry into most things. And if you are at least 65, you ride the metro system (including metro buses) for free. Show your T&T national identity card or other proof of age and be ready to point to the date-of-birth if there is any question.

Heartfelt thanks to my hosts/guides in Rio, the Thiery-Chaves family. 



PUBLICATIONS

The following Club publications are available to members and non-members (*prices shown are those paid when purchasing directly from the Club*):



TTFNC Trail Guide (\$150); T&T Wildflower Guide (\$50); Bats of T&T (\$200); Field Guide to Amphibians & Reptiles (\$180); 2018 Living World Journal (\$110); TTFNC Bird Guide (\$50).

MISCELLANEOUS

Your 2020 Annual Membership Fees Are Due:

Please view bottom right of the mailing label to check if your subscription has been paid.

Did you know? It is now possible to renew your membership online? See www.ttfnc.org/funding for details. You can join the club this way, too!



Do you have an article to submit for the next QB?

Submission of articles and field trip reports:

1. All articles must reach the editors by the eighth week of each quarter.

2. Electronic copies can be submitted to the editors at: admin@ttfnc.org

or directly to the editors or any member of Management. Please include 'QB2020' in the email subject label.