



THE FIELD NATURALIST

Quarterly Bulletin of the Trinidad and Tobago Field Naturalists' Club

January - March 2012

Issue No: 1/2012



2011 Geological Field Trip Report

(Sunday 25th September, 2011) Report by Reg Potter

Photos: Eddison Baptiste Photo Descriptions: Philip Farfan



Philip Farfan, retired geologist and manager from the oil/gas industry lead the trip. Philip started his career in Trinidad before moving abroad, and has maintained a strong interest in his home country so we were fortunate to have his time that Sunday. Starting at Central Bank the small group there were accommodated in his car, so transportation was thrown in for good measure!

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Photo 1, location:

West side of Guaguayare Bay

Foreground: Nodular sandstones in the Morne Formation. Some beds in this area contain numerous nodules that weather out from the less consolidated sandstone. In this instance two nodules have amalgamated. The surface of the nodule is pitted, probably by burrowing mollusks. The nodules are probably sidereritic (Iron carbonate). The carbonate grows in the pores between the sandstone grains locking them together into a concrete (thus concretion). Siderite is insoluble and more resistant to erosion than the unconsolidated surrounding sandstones.

Background: The interbedded units are typical Gros Morne Formation facies of interbedded silty sandstones and claystones, which at this locality dip steeply south. Not far to the eastform the backbone of the Trinity Hills.



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Editor's note

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

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January - March 2012

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2011 Geological Field Trip Report

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After collecting the remainder of persons who turned up that day we drove to the east coast then stopped at the “break through” on Manzanilla beach to regroup, before continuing on to Guayaguayare Bay where the trip began. All the way down those of us in Philip’s car were entertained by the lively discussion mainly between President Eddison Baptiste “Eddy” and Philip as Eddy grilled him on numerous aspects of the geology of Trinidad. The relative movements of Caribbean, Atlantic and South American plates were discussed, which are the driving force of most of the structures, and development of sedimentary basins in the area. The huge uplifting and lateral movements giving rise to the Northern Range, Central, and Southern Ranges were explained resulting in sediments that were originally deposited in seas now forming the rocks of these ranges. In the case of the Northern Range the movements are even more dramatic, since before uplift they were partially metamorphosed by the heat and pressure of deep burial and compression beneath other sediments, which have since been removed by erosion. He explained that these movements continue to this day and relative movement between the Central and Northern Ranges has been reported by Weber to be approximately 1 cm per year.

He further explained that there is some evidence that a roughly north-south hinge exists from somewhere near Arima so the land eastward of this hinge is rising while the land westward is sinking. This, it is claimed causes river gullies to be more deeply incised into the eastern plains than the west, although

personally I cannot claim to have seen this ‘evidence’. At some periods in the fairly recent geologic past the Gulf of Paria must have been isolated from Orinoco sediments since vast amounts of coral have been dredged up in the Chaguaramas area, indicating that clean clear sea existed there.

At Guayaguayare we turned left onto the rough road that parallels the coast while the main road swings inland, just before the BHP Billiton oil storage terminal, and drove as far as the road allowed. From there we crossed the edge of an oil well location and descended onto the beach. It was a bit of a rush to escape the rising tide which could have prevented us reaching the point to the west, had we tried later. We passed the old well head just showing in the sea, that had been drilled in the beginning of the 20th century when that area was dry land. Also in the soft cliff at the beginning of the walk we observed chip chip shells in the Arawak midden located there.

At the point we examined a series of sandstone and mudstone rocks dipping steeply (Philip demonstrated with a measurement of 55 degree) to the south. These he explained belong to the Gros Morne Formation of the Pliocene age which is roughly when the early hominid known as “Lucy” walked about in Africa. The Gros Morne sands form oil reservoirs still producing in Beach, Navette and Goudron fields. Sedimentary structures were seen such as oscillatory ripples and cross-stratification in the sands which suggest that they were deposited by storms while the alternating mudstones represented quieter depositional times. Several fossilized shrimp burrows indicated that the sediments are

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2011 Geological Field Trip Report*(Continued from page 3)*

probably of marine origin, and siderite (iron carbonate) nodules were demonstrated. Good examples of “slumping” were seen in which mudstones are churned up to various degrees and caused by mudslides down the depositional slope of the sea bed giving evidence that uplift or tilting was occurring at that time. On the walk back to the cars some major and minor faulting was pointed out. The forces responsible for these faults have caused the uplift, exposure, and resultant erosion that caused the steep topography of the Southern Range including the Trinity Hills.

Our next stop was at Mayaro beach at the location where the road south leaves the beach and turns west crossing Galeota point. These sediments are sands belonging to the Mayaro formation which lies above the Gros Morne and is therefore younger. Philip indi-

cated how the bedding in these sands is dipping less (15 degrees) to the north whereas the last exposure was dipping steeply south. Thus we had crossed the Southern Range anticlinorium and the Marcel Main fault and were then actually on the flank of the Pilote syncline. Again good specimens of shrimp burrows which are lined with the fossilized fecal material from the organism, indicate marine origin. Philip explained that further north along the beach the dips, where seen, become south-dipping again indicating uplift at point Radix.

Another stop was made a short distance to the north where NGC has recently made a gas pipeline pull in through a horizontal boring that emerges on the sea floor about a mile off the beach. Here he demonstrated an unconformable horizontal bed about one meter thick resting on north-westerly dipping brown beds of the Palmiste formation

*(Continued on page 5)***Photo 2, location:****West side of Guayaguayare Bay.**

This unit of interlaminated sandstones, claystones and mudstones contains two distinct rock facies; some of which are parallel and others which are contorted. The process by which the beds become contorted is often contentious. Some think the sediment, soon after deposition slide along the sea floor, a bit like a submarine land slide while others think the process occurs after burial through dewatering.

On careful examination, the sandy buff coloured laminations are somewhat lenticular and cross-bedded in a manner which indicated that they were deposited where there were waves.



2011 Geological Field Trip Report

(Continued from page 4)

(younger than the Mayaro formation). The Palmiste beds are folded into the Pilote syncline indicating those movements were continuing up to the last two million years ago. The unconformable bed is rich in fossils including gastropods, bivalves and what appear to be green calcareous algae, all of marine origin. The existence of this bed shows the relative movement of the sea level and land, since the sea level is now at least 90 feet below. A brief shower of rain immediately caused the unsurfaced area we had parked in to become skiddy, but this was the only interruption we had in an otherwise beautiful day.

After a stop at point Radix where we ate lunch beside the beach at the mouth of the Ortoire river, we drove on to the SRC (Secondary Roads Commission) quarry on

the slopes of Brigand Hill. This quarry is now little used and mostly covered in tree growth. We entered in a clear spot with a cliff face of yellow-brown and grey rock, and a sink hole disappearing below road level. Philip explained that the yellow-brown rock is Miocene (about 16 million years ago) limestone that is found at many locations as landmarks between Brigand Hill, Tamana, Montserrat (Mayo), Guaracara and Point-a-Pierre and is used as a second-quality road material. The grey rock is claystone and siltstone and many fossils are found which date the formation as straddling the early to middle Miocene. Dating from fossil evidence has been done here by Wharton and Keenes-Dumas et al in 1986, and Farfan and Quan subsequently which confirm the age of the sediments. The dip is steep to the south indicating uplift. The phosphatic shelly material in the limestone and silts makes an excellent

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Photo 3, location:

South Mayaro Bay, on the beach a few hundred feet north of the river.

The north dipping sandstones of the Mayaro Formation were deposited in the sea in conditions dominated by waves and offshore currents in Pliocene times. Shrimp found these conditions agreeable dug burrows into the sand which they lined with fecal pellets. These fecal pellets contain organic matter that on burial buried decomposes and fixed iron which is rust coloured. The organism responsible for these trace fossils is *Calianassa* a crustacean from the *Thalassinidea* infraorder.



2011 Geological Field Trip Report*(Continued from page 5)*

nutrient for cacao trees which accounts for the high quality of cacao from these areas. We found some bivalve fossils and a good quality echinoid (sea urchin).

The tour ended at this point and all members dispersed in various directions heading for Port of Spain. In our car we elected to continue around Mount Harris where we observed the steep topography formed by the underlying limestones, and into the beau-

tiful Central Forest Reserve, emerging eventually in Sangre Grande. But I must confess that I had fallen asleep by this time and missed the ongoing geological discussions!

So ended a most interesting day of explanations and demonstrations of important geological features of Trinidad. We are indebted to Philip for having taken the time to enlighten us. Maybe some interest in the field of geology was sparked among participants and lead to additional discoveries!

Photo 4, location:**NCR quarry Briggand Hill.**

Fossilised echinoid from the Tamana Formation. The five fold symmetry is clearly visible on this specimen. The spines have fallen off to reveal the delicate mosaic of platelets and little holes through which little tube feet emerge when alive. The mouth on the underside is encased in Limestone. The shape of this echinoid which is globular and irregular but with bilateral symmetry should be unfamiliar to us, today in the Caribbean urchins are either flattened sand-dollars or globular spiny forms but the globular forms are usually round. At the time this fossil died in the Miocene, Trinidad may have had fauna with Pacific Ocean affinities, the Isthmus of Panama had not bridged the gap between North and South America



2011 Geological Field Trip Report*(Continued from page 6)***Photo 5, location:****Location 200 yards north of the New NGC pipeline landing on the Mayaro Guaguayare Road.**

The unconformity between the palmist formation and the overlying “Pleistocene Terraces”

The west dipping beds of brown claystone, mudstone and siltstone of the Palmiste Formation are overlain by flat limestone unit a few feet thick. The limestones contain abundant stunted oysters, other bivalves, gastropods and what look like algal deposits. There could not have been much mud, clay or sand around when these beds were deposited in an ocean that was much clearer than is currently prevalent off the east coast today. The limestone beds are about 100 feet above sea level. This uplift is testament to the tectonic forces that keep Trinidad above sea level. Terraces are common throughout the island at different elevations but it is unknown if they are episodic or part of a gradual process. If the uplift is sporadic then it suggests that Trinidad could experience periods of intense earthquake activity between quiet phases.

**A small group of Club Members looking for fossils (2011)**



On the trail of Trinidad and Tobago's snails

by Mike G. Rutherford



This summer I was fortunate enough to have the time and opportunity to travel to ten different museums in the U.K. and The Netherlands. The purpose behind my trip was to search the collections for any land snails collected from Trinidad and Tobago. I wasn't quite sure what to expect and although I had been in contact with the curators of these collections beforehand the general response had been "I don't know what we have from your country but you are more than welcome to come and take a look".

The plan was to visit each museum, look through their mollusc collections for certain species and families and see if they had any examples that had been collected from Trinidad and Tobago. Some collections had been databased and so were easier to search but others had to be done drawer by drawer and cabinet by cabinet.

I started at the Manchester Museum based at the University of Manchester. With the help of the curator, Henry McGhie, I spent a day looking through the collection. The most interesting specimens I came across were in a small round glass-topped pillbox with a label saying from "Forest on banks of Oropuche River, Trinidad, on limestone boulders. Coll. Urich 3.3.95". Inside were three long thin shells from a species called *Brachypodella oropuchensis*. These were the type specimens of the species meaning that these actual shells were the ones used to give the first description of this species. They were interesting because the list of shells from which I

was working made no mention of this species. I had a closer inspection and compared it with another snail called *Brachypodella trinitaria* after which I thought that instead of being a new species it might just be an ever so slightly bigger local variant. The origin of these shells was also of interest as they were collected by F.W. Urich, one of the TTFNC's founding members, in 1895. This was the sort of thing I was looking for in a collection, a new question to investigate when I returned to Trinidad.

The National Museum of Wales in Cardiff was my next port of call. Their collections are the second most important in the U.K., after the Natural History Museum in London, and were looked after accordingly. There was a dedicated department of researchers investigating many aspects of molluscs. I was fortunate to have the help of Ben Rowson, the curator of terrestrial molluscs, who kindly searched the collections and brought the shells to me to work on. After a day and a half of searching we had found almost 80 lots of shells covering a wide range of species. Again the name Urich cropped up as one of the collectors.

Oxford University and Cambridge University natural history collections held some amazing specimens including the internal organs of an extinct thylacine, giant dinosaur skeletons and eggs collected (and accidentally cracked) by Charles Darwin himself. However, their shell collections did not turn up

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On the trail of Trinidad and Tobago's snails

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any great prizes and I only found three lots of specimens from Trinidad in Oxford and had reached the same number in Cambridge. I mentioned this to the Cambridge collections manager, Matt Lowe, and spurred on by the old rivalry between the two ancient universities he delved deeper into his collections and eventually found me one more specimen hidden in the spirit store. Final tally for Cambridge was four lots of shells narrowly beating Oxford.

Next I headed to Leeds and under the gaze

of a stuffed chimpanzee I sifted through the collection of approximately 500,000 shells and found a good haul of specimens. There were several nice examples of the giant South American snail *Megalobulimus oblongus*. These included five huge eggs, each one about 30mm long, and one of the all white subspecies found only on Tobago as well.

The part of my trip to which I had been looking forward to most was the visit to Naturalis, the Dutch national natural history collection in Leiden. The collections building is a twenty storey warehouse which domi-

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Top left: (Recently born)
Giant South American Snail

Megalobulimus oblongus

with five huge eggs.

Photo: Mike Rutherford

Oxford and Cambridge Universities

Natural History Collections

Bottom left and right (close-up):
Giant South American Snail

**Engaged in the very long
Process of laying an egg**

Photo: Eddison Baptiste

Diego Martin back yard



On the trail of Trinidad and Tobago's snails

(Continued from page 9)

nates the surrounding town. In the lower floors there is a fantastic museum displaying the full story of the multitude of life forms on Earth. I was there to meet a researcher called Bram Breure, an expert on several families of neotropical snails who has conducted a lot of research in the Caribbean.

The first job was, like every other museum I visited, to examine the collection for any shells from T&T. Bram and the curator of molluscs, Jeroen Goud, helped me go through the room full of cabinets and we soon gathered a large number of specimens. Strangely enough the first box of shells I picked up to photograph contained some *Subulina octona* collected by the TTFNC's very own Victor Quesnel. The shells were found back in 1955 in a compost heap somewhere in Port of Spain. I came across some other specimens collected by Victor later on and it was strangely comforting to be in a foreign land yet seeing familiar names. The details for collecting location were better than most of the specimens I had come across in the UK, it is much more useful to have information such as "on trees, Brasso Seco, Trinidad" rather than just "Trinidad"!

As well as examining shells I took the time in Leiden to polish up my snail dissection skills under the careful eye of Bram. With many snail species it is only possible to get a definite identification by examining their genitals, which have to be painstakingly removed using very fine forceps and scalpels. I was also given a tour of the DNA sequencing labs used by the staff at the museum, much of what I was told went over my head as it had been ten years since I had done anything like

that and things had moved on a pace.

After I finished in Leiden I headed home to Scotland and returned to where I started my career, Glasgow Museums. I knew there were specimens from Trinidad here as I had collected them myself back in 2004. At the time I had found it hard to identify some of the species so it was with much satisfaction that I went through my old specimens adding in the correct names. I found a few other shells including the freshwater snail *Marisa cornuarietis*, nothing particularly rare about this species but the site that it came from probably no longer exists – a stream running through Piarco Savannah.

The second museum I visited in Scotland was the National Museum in Edinburgh. It was a pleasure to see the curator, Sankurie Pye, again. We had last met several years ago when I had been looking at up to date ways of cataloguing the Glasgow collection. The shells in Edinburgh came from a wide range of species and included several interesting specimens. There were some endemic snails which I hadn't come across in other collections. One was a shell collected in 1854 which was the earliest date I came across for a specimen in the whole trip.

The final stop on my tour was the Natural History Museum (NHM) in London. It was the biggest collection I visited and I had some big hopes for finding good specimens. I met up with Jon Ablett, the curator of non-marine molluscs, who took me to one of the many basement stores hidden in the depths of the huge building. After showing me how the collection was organised he left me to my own devices and I got stuck in. After two

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On the trail of Trinidad and Tobago's snails

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and a half days of searching I found 126 lots of shells including many type specimens. The most gratifying moments were finding several shells collected by R.J.L. Guppy. He was another of the TTFNC's original members and one of the first naturalists to work on Trinidad's snails. From the 1860s to the 1890s he wrote many papers and described many new species, the shells of which were mostly sent to the NHM. Although many of his types had been noted and put aside in the type collection I was very happy to discover several of his types that had been left hidden and unrecognised in the main collection. I told the curator and after consulting the original register from 1864 we agreed that these were

indeed worthy of being added to the precious type collection.

My trip was now finished and it was time to head back to Trinidad, in total I had found 378 lots of shells from 61 species collected in a wide range of locations in Trinidad and Tobago. The purpose of all this searching was to give me the background knowledge to write an up to date paper on the land snails of Trinidad and Tobago. Now that I have a good range of photos and information about the snails other people have collected, it is my turn to get out into the bush and do some collecting of my own.



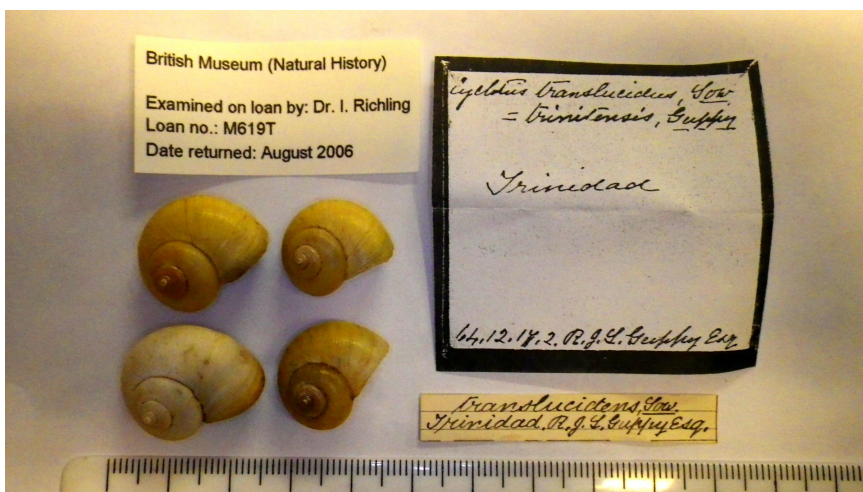
Top left:

Subulina octona

Collected on the 28th, February 1955 by the TTFNC's very own Victor Quesnel in a compost heap in Trinidad Port of Spain.

Photo: Mike Rutherford

Oxford and Cambridge Universities
Natural History Collections



Bottom left:

Cyclotus translucidus

Collected by R.J.L. Guppy. He was another of the TTFNC's original members and one of the first naturalists to work on Trinidad's snails.

Photo: Mike Rutherford

British Museum (Natural History)



Cumaca Cave

(Field Trip Report, Sunday 29th January, 2012)

Report by Stefanie White



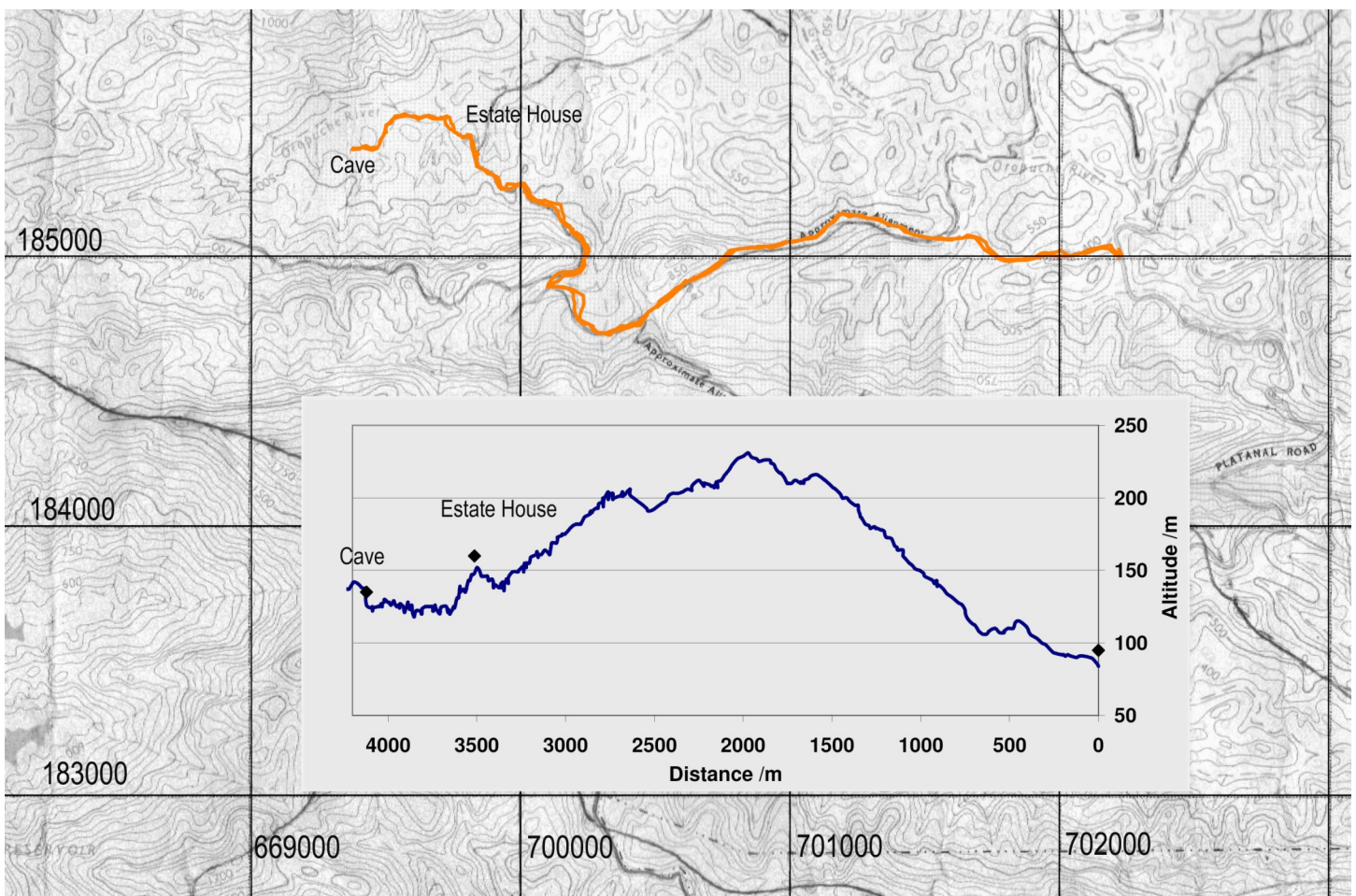
The trip began on the morning of the 29th of January to Cumaca Cave with a large turn out of 31 members.

The cave was made famous by having previously been visited by U.S. president Theodore Roosevelt in 1911 to observe the famous Oil Birds colony of the cave. It was also one site of work on Oilbirds *Steatornis caripensis* by

David Snow in the late fifties and early sixties.

On the drive up the valley most members were struck by the width of the road, in excess of 60 feet for much of the way due to the quarry. What was striking was that the forest beyond the immediate destruction appeared to be primary forest with *Mora Mora*

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Map and profile of fieldtrip

Cumaca Cave*(Continued from page 12)*

excelsa, Crappo *Carapa guianensis*, Guatecare *Eschweilera subglandulosa*, Wild chataigne *Pachira insignis*, Cajuca *Virola surinamensis* and some type of Olivier apparent. Birdwatching along the road was very good with more than 60 species observed. Highlights included a Bearded Bellbird *Procnias averano* in full view and an Ornate Hawk-Eagle *Spizaetus ornatus* as well as the leks of Green Hermit *Phaethornis guy* and Little Hermit *Phaethornis*

longuemareus Hummingbirds. Unfortunately only the earliest arrivals were able to benefit from the bellbirds display.

Upon arriving we were reminded of the two men who drowned in the caves in 1964 and after consecutive briefings by Lester Doodnath, Bonnie Tyler and Reg Potter, the group began the walk at 8:50 with Dan Jaggernaut leading the way. The trail was very muddy. It made the walking a bit tiresome and claimed

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**Though the trail was long and very muddy there were
many wonderful views along the way**

photo: Eddison Baptiste

Cumaca Cave*(Continued from page 13)*

the notebook provided by Dan for the trip report. The trail climbed gently from an altitude of just below 100m at the start to the highest point at about 225m approximately half way through the walk. The overall walk was about 4.2km each way and the weather was fine.

Bird sightings were limited upon the start of the actual walk as the canopy obstructed the

view of the sky and one had to look out for mud and snakes.

Along the route Dan was in good form, sharing his enthusiasm with all around him and pointing out all the species of interest, like the Ink plant *Renealmia* sp., and the aptly named “wait-a-while vine” as well as many of the cultivated species. Most of the trail passed through abandoned cocoa and coffee estates with secondary growth. Cultivated

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Club Members entering Cumaca Cave

photo: Eddison Baptiste

Cumaca Cave

(Continued from page 14)

species seen included Pommerac, Mandarin, Breadfruit, Avocado Cashew, Mahogany, Nutmeg, Almond, and Plantain. The natural growth was evidently coming back in with the lots of natural pioneer species like Bois Canon *Cercropia peltata* and a silk cotton *Ceiba pentandra* tree at which Dan seemed reluctant to linger.

We arrived at the estate house at about 10:45. The house and workers' quarters were in a state of dereliction and occupied by a group of about five sac-winged bats *Saccopteryx* sp.

Few signs of mammals were observed. One deer print was seen on the low-lying lands between the estate house and the cave. Apart from the bats, two rats were seen within the cave and some claimed to have seen some sort of Manicou (on the basis of 'frightening-looking teeth'). There were no other signs of mammals. However, the view

of any further signs may have been obscured by the lush cover of the forest floor which precluded seeing many footprints. It was pointed out that the narrow trail with overhanging *Salaginella* in parts was a good place for hiding fer-de-lance; however no snakes were observed.



Estate house and workers' quarters in a state of dereliction and occupied by a group of about five sac-winged bats *Saccopteryx* sp.

photo: Eddison Baptiste



Untended cocoa pods

photo: Eddison Baptiste

We arrived at the caves at about 11:20 and explored the first two chambers, most people opting to stay out of the final chamber which was accessible only through almost full submersion in the river. The cave was humid with most exposed surfaces layered in debris from the Oilbirds whose shrieking calls and clicking noises were very audible. Graham White did a count of the apparently occupied Oilbird nests and came up with a total

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Cumaca Cave*(Continued from page 15)*

of 273. This was lower than a previous count in 1991, especially in the first chamber, but is much higher than the original counts conducted by Snow. There was no sign of any recent poaching of the birds and there were a few occupied nests which were within reaching distance and would probably not be there had poachers preceded us. When Snow did his work the peak breeding is March to May and it may be that the poachers know this

and are yet to arrive. Antoine Leotaud (whose family once owned the estate) claims to have “occasionally partaken of them” but he confessed that “in consequence of a certain cockraochy flavour, which is the reverse of tempting, I have, for a long time, discarded that dish.”

After a short rest at the mouth of the cave we continued back up the trail, slipping and sliding as we went. We arrived back at about 2:00 in the afternoon.

Below:

**Father and daughter
Graham and
Stefanie White
Entering the Cumaca
Cave**

photo: Eddison Baptiste



Above:

**The plaque at the entrance
in memory of the two men;
Adam Richards and Victor Abraham**

photo: Eddison Baptiste



A REVITALISED GRENADA AND ITS ANOLIS LIZARDS

by Reynold C. Boyce



The period after the category 5 hurricane has brought many new houses and often bright alu-zinc roofs to replace the quaint French Creole shingles that made St. Georges one of the most picturesque port cities in the Caribbean. Such are the contradictions inherent in development.

One stable feature, however, has been the fauna and the re-growth of the flora that dot the landscape of the island. In fact, on my most recent visit (May 2011), Anolis lizards have either increased in population or have been denied the traditional floral overgrowth in which to hide. Whichever way, I had an easy time locating and photo-documenting these friendly, agile creatures.

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Anolis aeneus
Hermitage, Grenada

A REVITALISED GRENADA AND ITS ANOLIS LIZARDS
(Continued from page 17)

Previously I had a hard time tracking the larger *Anolis richardii* species as they were camouflaged effectively amidst the heavy foliage. On this occasion, not only were they easily visible, but the smaller, less-active *Anolis aeneus* seemed to be as evident in many localities. Three such localities that brought handsome returns were Morne Rouge Bay and Port Louis both in the south-western parish of St. Georges along with Hermitage village in the northern parish of St. Patricks.

Morne Rouge Bay, located in the south-western peninsula, is one of the many idyllic, light-sand beaches that dot the area. Soaking in its turquoise-blue waters provides calm, effort-less swimming as well as a handsome array of mollusc shells to the discerning skin-diver. After my indulging swim, I proceeded along the beach scrutinising the bordering almond (*Terminata catappa*), sea-grape (*Coccoloba uvifera*) and glory cedar (*Gliricidia sepium*) trees that camouflaged the existence of small hotels and villas beyond the beach front.

It was not long before I was greeted by a handsome specimen sporting the humped head characteristic of *A. richardii*, perched 10 feet up the trunk of a nearby almond tree. It moved slightly upwards as I pilled some debris to get closer up to take my first photo. A short walk further down the beach presented a smaller specimen perched on a shorter tree. This one had the more streamlined head-neck area of *A. aeneus*: sporting the characteristic speckled green-brown torso. This specimen was easier to approach

and even posed for the camera.

The Port Louis facility is a controversial project pioneered by a European “developer” who wrestled a number of sweet-heart, real-estate deals from the former Mitchell administration. Situated at the approach of the beautiful St. Georges harbour, it offers a well-equipped marina, a night club and other services to visiting yachties. However, he has so far bowed to local protests and shelved plans for a string of high-rise condos along “The Lagoon” waterfront. This project would have blocked from public view the scenic, semi-circular harbour-front known as “The Carenage”.

Instead he has developed a nicely manicured botanic garden leading to a secluded (legally-questionable) private beach specially designed for his yachtie patrons.

As my guesthouse was situated just across the road, I spent my spare moments traversing this garden area for my pet lizards and any interesting plant life. Being a fairly open area, with wide spaces between the trees, it was easy to locate Anoles perched on the tree trunks. Interestingly, the ones that I captured within photographing range baffled me since they seem to possess intermediate qualities in shape, size and colour of both *richardii* and *aeneus*. It was almost as if the developer performed his engineering/architectural finesse in re-shaping the Anoles along with the landscape. However, later consultation with UWI’s Dr. Adrian Hailey, confirmed the photos to be that of *Anolis aeneus*. The Hermitage area in the northern cocoa/nutmeg estate countryside provided an ideal

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A REVITALISED GRENADA AND ITS ANOLIS LIZARDS

(Continued from page 18)

habitat for studying Anoles. Both the nutmeg (*Myristica fragrans*) and cocoa (*Theobroma cacao*) trees housed a multitude of Anoles. Firstly, I tracked down a handsome *richardii*, then a few feet away was a couple of *aeneus* specimens, then another *richardii*, and in no time I had used up a roll of film as each new specimen – even the shy *richardiis* – was putting on a more appealing pose than the previous one.

Two factors become salient. Firstly, as one got closer to the Hermitage estate houses (certainly the one where I over-nighted) both species appeared more evident. Secondly, the two separate species seem to interchange perching locations (tree branches) with relative ease. These two factors instigate many questions concerning (i) the adaptability (or even preference) of Anoles for man-made habitats. (ii) the interactions between the two Anole species within the same habitat which seem to loosen the concept of a species' niche. However, I leave it up to the specialists to refine, test and report on these hypotheses or at least explain these anomalies.

Finally, a visit to Grenada cannot be complete – for a naturalist – without traversing the famous Grand Etang National Park. Grand Etang is a 20-foot deep (36 acre) volcanic-crater lake, some 1910 feet above sea-level. The surrounding Park land offers well developed hiking trails amidst montane rain-forest and a multiplicity of freshwater-influenced fauna and flora. This time my search for Anoles was unsuccessful even though I had seen fleeting movements of a few small specimens, a year ago, on a previous visit. In

fact, even the tourist-friendly Mona monkeys, which are usually seen virtually eating (bananas) from the hands of visitors, were elusive on that day.

Oh well, can't win them all!

Another area, less known to myself, but equally in need of investigation, is the Levera National Park. Situated at the north eastern tip of the island, it offers a mixture of mangrove swamp and scrub woodlands along with a peculiar rock-sheltered beach (Bath Way). All of these seem to provide probable habitats for one or other (or both) of Grenada's Anolis lizards.

Grenada, not to mention its two sister isles of Carriacou and Petit Martinique, remain ripe for naturalist exploration – despite the continued encroachment of “developers”.

Any takers before it gets too late?

Postscript:

A brief indulgence into Biogeography indicates that the *Anolis richardii*'s population extends from Tobago in the south to Carriacou (the southern-most Grenadine island) in the north. While *Anolis aeneus*'s population extends from Trinidad to the south to Bequia (the northern-most Grenadine island) in the north. In both cases Grenada (or the Grenadian bank which includes the Grenadine island-chain) is viewed as the epicentre of the two species – i.e. they are endemics to that area. However, the populations in Trinidad and Tobago are viewed as invasive i.e. having been transported here in fairly recent times. However, from my travels in the region I feel a bit more research on the status of *richardii* in Tobago needs to be done, especially given its incorporation (as Gumangala)

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A Book Notice “Tropical Ecology”

by Matt Kelly



Tropical Ecology

John Kricher

Princeton University Press

(Princeton & Oxford)

© 2011, 632 pages, hardcover

(list price \$85.00 US)

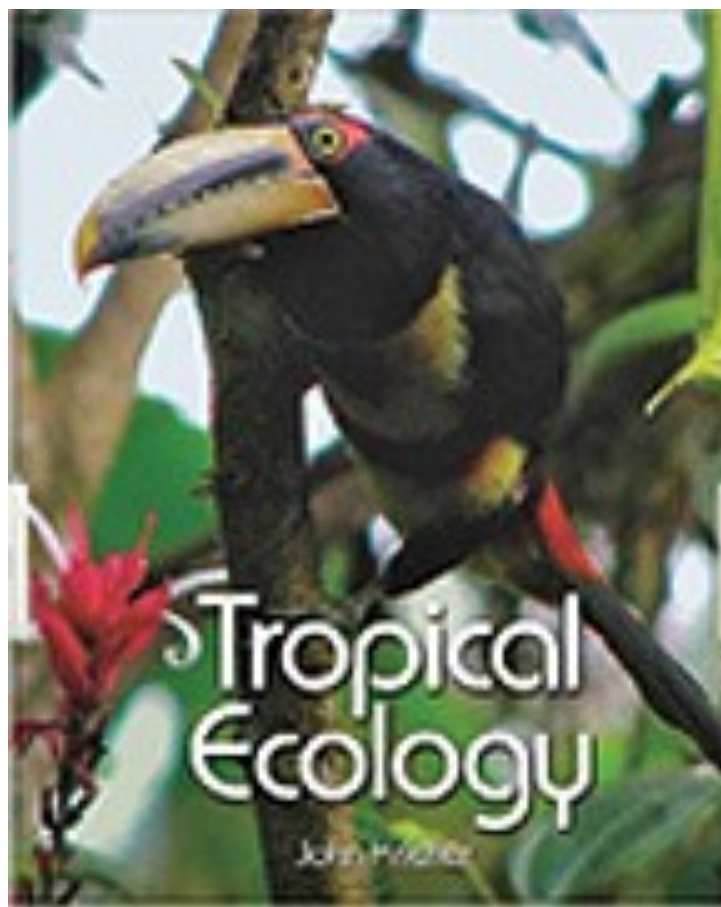
ISBN 978-0-691-11513-9

Any tropical Field Naturalist who has any interest in the ecosystem, which surrounds him in Trinidad & Tobago, will be sure to benefit tremendously from this textbook. Through the 15 chapters, you are sure to learn, glean and understand a prodigious amount of knowledge about the tropics. The book is an entire course within itself, and can be used in a college course setting, or just for your own personal course in tropical ecology. A background of biology, of any level, would be recommended before tackling this work. The work makes essential reference material for the Field Naturalist of any level.

John Kricher, Professor at Wheaton College in Massachusetts is a noted authority on the world's ecosystems, and a most prolific author on many topics, including general ecology, tropical ecology, ornithology and dinosaurs. Just about any North American student of anything tropical is familiar with Professor Kricher's, "*The Neotropical Companion*", which is now going into it's third and greatly expanded edition, and has assistance from Harvard's world-class Ethno-Botanist, Mark Plotkin.

Evolving out of *The Neotropical Companion*,

Kricher amassed enough information for this heavy work (yes, about 2 kgs.), too heavy for the field, but extremely densely packed with information, colour photographs, charts, graphs and sidebars. The 1100+ references and suggested readings are a treasure trove of information alone. The reader will be introduced to all types of tropical natural history topics, and will become familiar with cutting edge tropical field works and studies. It is well worth the price.



Tropical Ecology

By John Kricher

Using examples of many kinds of plants, ani-

(Continued on page 21)

A Book Notice “Tropical Ecology”*(Continued from page 20)*

mals and insects, Kricher walks us through a lot of topical studies, including rainforest structure, biogeography, biodiversity, rainforests development and dynamics, biotic interactions, carbon flux, nutrient cycling, tropical savannas and dry forests, and the effects of man. There are many anecdotes and photos included from T&T.

Says Kricher, “The key to tropical ecology is in the complexity of relationships among the myriad of species present. No other ecosys-

tems, natural or otherwise, rival the tropics in the number of species of plants, birds, mammals, insects, microbes, etc. that you find in just a hectare of forest. Well over 50 percent of the world’s species are found only in the tropics, even though the total area of the tropics is proportionally far less than that.”

Look out at T&T’s lush rainforests up in those hills. If you have a thirst for a greater understanding of that great green tropical ecosystem you’re seeing, John Kricher’s *Tropical Ecology* will be a great asset for you.

**A REVITALISED GRENADA
AND ITS ANOLIS LIZARDS***(Continued from page 19)*

into the folklore of Tobagonians. Also having

not visited many of the Grenadine islands beyond Carriacou and Bequia, I wonder how far north beyond Carriacou the *richardii* population really extends.



Grand Etang Lake, Grenada



We Go To Grenada 1975

Feature Serial by Hans Boos
(Part 2b)



On this trip, perhaps through the same village, we stopped and soon had the usual crowd of inquisitive villagers about us. We showed them the sarpints which we had caught earlier in the day in the river valley south of us. The crowd backed off as we exhibited one of the larger brick-red snakes, the older people shaking their heads in disbelief and disapproval. The boys were torn. They were responding to their parents' reactions and yet they pressed forward to see better. It was a free side-show, a diversion from their everyday lives. Three apparently crazy white men, in a rented car, were holding and handling snakes. An exhibition.

Soon we were being assured that there were plenty of similar snakes around their village. No cribo or "black snake." Only sarpint. We had hoped to collect the rare, rodent-eating Grenadian Black Cribo, *Clelia*, but to our disappointment we saw none, nor did the Grenadians know of this snake.

Our offer of rewards for spotting sarpints that were seen at the moment, was greeted with the usual enthusiasm, and soon the group of boys was fanning out into the surrounding bush and up the slopes of the cocoa estate, searching and calling back their finds. It was not long, for the cocoa-trees were low, and the snakes could literally be plucked from the lower branches, before we had eight or ten more specimens. We called a halt to the hunt, for we did not want to deplete the local population. We paid for all the finds. We would release the drab and

smaller specimens out of sight, down the road from the village, later. Unless we had called a halt and moved on, the boys would have been willing to go on all day. But it was time to stop.

We were packing up the snakes in cloth bags, getting ready to depart, when a tall muscular man, who had been standing in the crowd watching us, came forward and said that he knew where a really large specimen was. He had spotted it and was waiting for us to get back to the car. Not wanting to alienate anyone, and since the majority of the specimens were only of average length and girth, the offer of a large one, which could be a full grown and perhaps gravid female, we made an exception, and listened to what the man was explaining.

He pointed up the hillside to a huge strangler-fig that had almost totally enveloped another jungle tree growing on the upper edge of the cocoa plantation. This parasitic growth had almost completely obliterated the original supporting tree, and now spread in a gigantic umbrella over the carpet of joined cocoa trees on the hillside below. Peer as we might at the point he was indicating with his cutlass, we could not discern the ball of the snake he claimed he could see in the shadows of the large waxy leaves at the furthest tip of a huge branch that stretched thirty or forty feet out from the main tree, and easily sixty or seventy feet above the tops of the cocoa trees.

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We Go To Grenada 1975

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Any attempt to get at this snake, if in fact it was there, would be suicidal. We demurred. But the man, almost tearfully, insisted that he needed the spotter's fee, and this, with the added 25-cent climber's fee, was enough incentive to him, for he saw no difficulty or danger in getting this unique, big specimen for us. We were incredulous that he would climb into such obvious danger for a meager 50 cents, and in addition, we were afraid that if he fell whilst technically in our employ, we would be undoubtedly blamed for either encouraging or coercing him to commit himself to an act that resulted in his fall to his death, as such a fall from this lofty perch would incur.

In all conscience we felt we could not pay him only 50 cents to make the climb, for he was adamant. He was going to do it, mostly now to prove it could be done, that there was a snake there as he said there was, and he could not lose face in front of the whole village gathered round our car. So, reluctantly, we agreed to pay him double, a dollar, Trinidadian, only worth something if he traded it with the port traffickers or someone who traded in the degraded currency, when compared to their own Eastern Caribbean dollar. He set off up the hillside through the cocoa, and Terry, Julius and I spread ourselves out in between the cocoa trees, triangulating the spot where the snake would fall should the man be successful in getting close enough to it to shake it from its perch.

Peering up through the limited openings between the leafy branches of the cocoa trees, we could make out, only partially, the branch

of the strangler-fig tree, far overhead, the shadowed underside of its thick leaves forming an almost solid dark roof against the clear blue, cloud-flecked, sky.

We were unaware of the man's climb, but he had no trouble in climbing into the canopy using the ladder of the interwoven strangler's roots and body of the claspng parasite. At times, through our viewing spaces in the overhead leaves, we could see him working himself higher and higher until he reached the point where the huge, cantilevered branch jutted from the main tree and soared out over our heads. We saw him seat himself, straddle-legged, over it, and putting his cutlass between his teeth like some arboreal pirate, begin to pull himself forward in little jumps, working himself outward.

With each pull and jump, the huge fan of leaves which this individual branch supported, trembled, shook and quivered, sending showers of dead twigs, leaves, and debris from orchids and bromeliads that festooned part of its expanse. As he worked his way further and further outward, to where the branch began to thin out, his weight began to make it sag and sway from side to side like a pendulum as it tried to compensate for his jerky progression.

We saw him pause, as the branch, once soaring upwards at a slight angle from the horizontal, now bowed precariously downwards as the outer, thinner diameter took his weight. If he progressed any further he would have to climb downwards to get to a point where he would be able to shake the still undisclosed snake free. We could almost see his thought processes as he contem-

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We Go To Grenada 1975

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plated this unforeseen development. There was still an enormous fan of smaller branches and leaves in front, and now below him, which had lowered itself down from the overall canopy of the tree. He sat astride the branch, cutlass in his teeth, undecided.

Then a shout from Terry. There it was, he said, pointing, and we ran to him, some way off on the hill-side. He showed us what he had seen. We finally made out, among the quivering and trembling branches, the snake, a big one by all estimations, aroused by the displacement and re-orientation of its perch, was slowly making its way up the inclined branches towards the stymied and now terrified climber, for he saw that he was no longer climbing towards the snake, the snake was coming for him.

Though he had his cutlass, and could easily kill it with a deft chop of the razor-sharp blade, he would not, could not, claim the bounty for only living animals. To him, high in the air, the solution seemed simple.

To our horror, directly beneath him and his monstrous branch, we heard the ringing sound of chopping. With a swift look at one another, signalling our disbelief at what he was doing, we ran pell-mell down the hillside through the slippery under-tree leaf-litter, and jumped down the low bank at the side of the road. Backing up to get a clear view of the drama up in the tree, we saw that our climber was chopping away at the branch in front of him, attempting to cut it off and thus accomplish two things: separate himself from the advancing snake, and at the same time get it down to us regardless that it

would fall accompanied by and entangled with several hundred — perhaps thousands — of pounds of branches and leaves. He had not foreseen what the third consequence, to him, would be, when the outer mass of branches and leaves were cut free, separated from the branch that supported them.

We began to yell and shout like madmen, the rest of the village obviously considering us as such, telling him to stop. We waved our arms and jumped about, and even resorted to blowing the horn of the parked car. He chopped on, probably deafened by his closeness to his own endeavors, his eyes fixed on the approaching snake. He chopped even faster now, his legs wrapped around the branch, switching hands as he chopped away chunks of bark and inner wood on alternating sides of the limb.

When the snake was about ten feet from him, for we could see it clearly now, everyone could, we heard the first loud popping crack as the branch split, lengthwise, below him, unable to bear the weight of the outer portion. Further cracking and tearing sounds followed as the huge fan began to arc down, breaking off, but still attached by the bark and lower inner woody portions of the branch. It swung like a gigantic, green ostrich-plume fan. Down, down, and then it began to swing back up from the nadir, when, with a final tearing report, it broke free and fell.

Our climber had thrown himself forward and wrapped both arms desperately around the stump of the branch, which, relieved from its decades of weight, reared into the air like one of the tines of a gigantic tuning fork. It bucked and heaved like the maddest bronco,

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almost flinging him off, until, with a few last quivers, it quieted, to point obscenely upwards into empty space where its extremities once had been. His cutlass flew in a silvery arc, end over end, and fell somewhere in the cocoa plantation, no sound of its passing marking its fall in the tremendous barrage of destruction as the severed branch fell, snake and all, into the trees below. It mowed them down, crushing and snapping and destroying perhaps decades of care and nurturing in a maelstrom of noise and falling leaves and debris.

We had all, collectively, winced, heads tucked into our hunched-up shoulders, eyes squeezed shut and frozen. We listened to the following hush. A shout unfroze us all. "All you get it?"

It was our climber, sitting astride his almost death-dealing ride, waving and pointing down into the destruction he had caused below. We could do nothing but try to find the snake in the jumble of ruined cocoa trees and the tangle of fallen strangler-fig tree-branch. And we did.

If a snake could appear dazed, this one certainly did. We found it crawling away over the overall maze, and when we picked it up it did not try to bite. Not once. It allowed itself to be bagged and exhibited to the climber, who made his way down to us.

He was bruised, the skin on his chest and inner thighs chafed and bloody, but he was exultant, and gladly accepted two dollars, as we drove away from the village, heading north, leaving them to explain the destruction of

the valuable cocoa trees to the owner or manager when he next came around.

We made a few more stops along the way up to the village of Sauteurs, to release some of the snakes — ones we felt were surplus or too juvenile. And we visited the Emperor Valley Zoo head-keeper's family, a trio of wizened old sisters in a weathered board-house at the end of a muddy track, taking them greetings from their long-absent brother. It was late afternoon when we found ourselves in Sauteurs, and located "The Hiltons."

Up a curving, rutted driveway, we came upon the fabled "Hiltons," perched on top of a hill-ock. A lower story of crumbling, cast-concrete, where no one lived, supported a number of wooden upper rooms. A much-worn and irregularly cast stair led from the yard, up the side of the building to a small square landing from which one entered the upper story. The material out of which the stair had been cast had been devoid of the required ratio of cement, and was crumbling and eroded. No hand-rail on the stair or bannister around the upper landing offered safety from stumbling and falling off the side, and then down a steep hill into the back yard of a house where a group of pig-sties vented their sour-sweet smell into the damp air.

All this we saw at first glance as we got out of the car and Dr Bones came running down the stairs to greet and welcome us to "The Hiltons." What the arrangement was, whereby Dr Bones, and as it turned out, an undeter-mined number of equally dissolute and half-drunk men, lived in this semi-abandoned old estate house, we never dis-

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We Go To Grenada 1975

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covered. He ushered us up these dangerous stairs, where one misstep on the eroded and unequal treaders would precipitate the unwary or drunk unfortunate over the side and down into the watery slime visible around the pig-pens below.

Entering the main room of the house we were warned to be careful how we stepped, for where either termites or rot had been responsible, several large holes were evident in the floor boards, the larger ones being hidden or covered by a table and several broken-down Morris chairs, sans cushions. With one wrong step there was the risk of falling through the floor to the unused space in the lower story. We were shown a bedroom with two battered and sagging, iron spring-cots, with thin mattresses, all neatly made up with candy-striped sheets, new and starched, obviously bought and supplied on the news from Doon-Dan that we were coming.

But from all appearances they had only prepared for two visitors, not three, and as far as we could see, there were no other furnished bedrooms and as the evening wore on, and we waited for the famous Doon-Dan to appear, more and more men began arriving to participate in the Saturday-night party that was being thrown in "The Hiltons," which we guessed was in our honour.

We decided that our sleeping arrangements for the night would have to be sorted out later, for Doon-Dan finally made his appearance, just as inebriated as he had been when we had encountered him earlier that morning. He was carrying several bottles of locally distilled white-rum — brand, "River An-

toine" — which, when he told us what it was, we interpreted to be some local name which sounded like "river and twine."

A large paper bag full of limes too was brought, and a team of men began to slice and squeeze these limes into a large enamelled basin, removing the many seeds with spoons. When all the limes were squeezed and the basin was almost one quarter full of the opaque green juice, water and sugar were added and then after some ice had been fetched from a nearby junction rum-shop and bar, it was added to the mixture, along with two or three bottles of the rum, which seemed to flow out of the bottles like diluted glycerin.

Night had fallen and, ever practical, I mentioned to the by now more than half-drunk Doon-Dan and Dr Bones, that we would have to find or cook something to eat. This never seemed to have occurred to them, but they set to, to try to find something in the larder of the house to satisfy this need. A bag of rice, some salt and a bag of freshly picked ochroes was all that could be found, but the local rum-shop or bar sometimes sold chicken parts imported from Trinidad. Some sugar too was discovered and there were fresh peppers on a bush in the yard somewhere but, they said, they were afraid that cooking was out of the question as the propane-fuelled stove was out of gas, and all the control knobs on it were broken off.

(to be continued in QB2 2012)

Management Notices

New members; Volunteers; Publications

Management Notices



New Members

The Club warmly welcomes the following new members:

Junior members:

Annalise Wallace, Stefanie White, Vickeisha Lall, Wyvonne Crooks

Ordinary members:

Chernell Crooks, Brechet Laititia, Marie-Helene Predhom, Roger Ramdeen

New life members: Dave Stradling

New Website

The Club has transferred to a new domain name and email address. The change allows us more space and greater control to reach out to the public and stay in touch with members.

Website: www.ttfnc.org

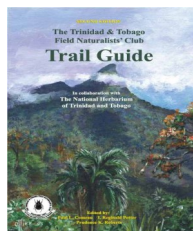
Email: admin@ttfnc.org



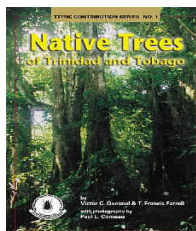
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PUBLICATIONS

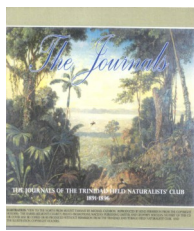
The following Club publications are available to members and non-members:



The TTFNC
Trail Guide
Members =
TT\$200.00



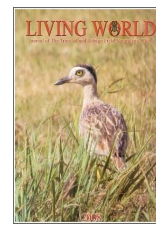
The Native
Trees of T&T
2nd Edition
Members =
TT\$100.00



Living world
Journal 1892-
1896 CD
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Living World Journal 2008
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Members price = free



Living World 2011 supplement

Due to limited supply Living World 2011 supplements are \$20.00 each.

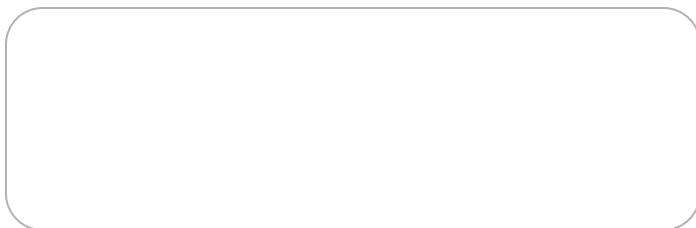
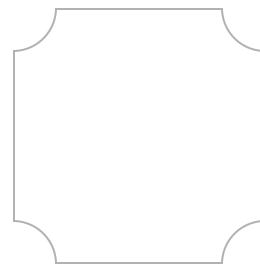
MISCELLANEOUS

The Greenhall Trust

Started in 2005, in memory of Elizabeth and Arthur Greenhall, dedicated artist and zoologist respectively, the Trust offers financial assistance to aspiring artists and biologists (in areas of flora and fauna) in Trinidad and Tobago. Full details are available on their website: <http://www.greenhallstrust-wi.org/link.htm>

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NOTES TO CONTRIBUTORS

Guidelines for Articles and Field trip reports:

Contributors and authors are asked to take note of the following guidelines when submitting articles for inclusion in the newsletter

1. Articles must be well written (structure/style), and be interesting and fun to read.
3. Articles must have a sound scientific base.
4. Articles submitted must be finished works. Please no drafts.
5. Articles should generally not exceed 3000 words. Longer articles, if interesting enough, will be broken up and published as separate parts.
6. Articles should be submitted as a text file, word or text in an e-mail.
7. Field trip reports may include a separate table listing the scientific names, common names and families of plants and animals identified within the body of the report.
8. Photographs can be in any of the following formats JPEG, BMP, PICT, TIFF, GIF. They must not be embedded into the word processing files. Information on the image content including names of individuals shown must be provided.
9. Acceptable formats for electronic submissions are doc and txt.
10. **All articles must reach the editor by the eighth week of each quarter. Submission deadline for the 2nd Quarter 2012 issue is May 31st 2012.**
11. **Electronic copies can be submitted to the 'Editor' at: admin@ttfnc.org Please include the code QB2012-2 in the email subject label.**
12. Hard copies along with CD softcopy can be delivered to the editor or any member of Management.